



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

PERMIT MODIFICATION APPROVAL

November 05, 2015

NORTHEAST NATURAL ENERGY LLC
707 VIRGINIA STREET EAST
CHARLESTO, WV 25301

Re: Permit Modification Approval for API Number 6101690, Well #: BOGGESS 5H

Modify THL and add recycled water AST

Oil and Gas Operator:

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.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

Gene Smith
Assistant Chief of Permitting
Office of Oil and Gas

Promoting a healthy environment.

11/06/2015



northeast

NATURAL ENERGY

July 10, 2015

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

Re: Boggess 5H and 9H Permit Modifications
API # 47-061-01690, 47-061-01691

Dear Permit Reviewer,

Northeast Natural Energy LLC ("NNE") would like to request modifications to its existing Boggess 5H and Boggess 9H Permits (061-01690, 061-01691). NNE has adjusted the top hole placement and horizontal well bores to allow for more efficient development of the permitted Boggess Well Pad. Additionally, NNE has adjusted the Boggess Well Pad design to accommodate an above ground storage tank for recycled water.

Please find enclosed with this request updated Mylar Plats, Well Bore Schematics, notice certificates, WW-6A-1 forms and attachments. Additionally revised WW-6B's, Site Safety Plans and a Well Pad Design with AST have been initialed by the inspector and are enclosed.

Should you have any questions please contact me at 304.241.5752 Ext. 7108 or by email at hmedley@nne-llc.com.

Sincerely,

Hollie M. Medley
Regulatory Coordinator

Received
Office of Oil & Gas
JUL 14 2015

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 Osage, WV
Operator ID County District Quadrangle

2) Operator's Well Number: Boguess 5H Well Pad Name: Boguess

3) Farm Name/Surface Owner: Blake R. & H. Preston Boguess Public Road Access: Mason Dixon Hwy (State Rt 7)

4) Elevation, current ground: 1296' Elevation, proposed post-construction: 1268'

5) Well Type (a) Gas Oil _____ Underground Storage _____
Other _____

(b) If Gas Shallow _____ Deep
Horizontal

MDK 6/17/2015

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 8,092', 103', 3,600 psi

8) Proposed Total Vertical Depth: 8,092'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16,004'

11) Proposed Horizontal Leg Length: 7,082'

12) Approximate Fresh Water Strata Depths: 50' ; 1,209'

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

14) Approximate Saltwater Depths: 1,784' ; 2,435'

15) Approximate Coal Seam Depths: 934' ; 1,207'

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

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: _____
Depth: _____
Seam: _____
Owner: _____

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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	94.71	40'	40'	GTS
Fresh Water	13-3/8"	New	J-55	54.5	1,290'	1,260'	CTS
Coal							
Intermediate	9-5/8"	New	J-55	40	2,530'	2,500'	CTS
Production	5-1/2"	New	P-110	20	16,004'	15,974'	3,672 Cu. Ft.
Tubing	2-7/8"	New	N-80	6.5	NA	8,500'	NA
Liners							

Northeast Natural Energy LLC requests the ability to drill beyond elevation for the purpose of isolating the Red Rock Formation.

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 pst 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"	10,570	3,600	NA	NA
Liners							

*GCS
11/5/15*

PACKERS

Kind:					RECEIVED Office of Oil and Gas
Sizes:					
Depths Set:					NOV 5 2015

WV Department of
Environmental Protection

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. The well will then be horizontally drilled on synthetic based mud from the KOP to approximately 8,092' TVD / 16,004' MD along a 325 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.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 20.18

22) Area to be disturbed for well pad only, less access road (acres): 11.67

23) Describe centralizer placement for each casing string:

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

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

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

25) Proposed borehole conditioning procedures:

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

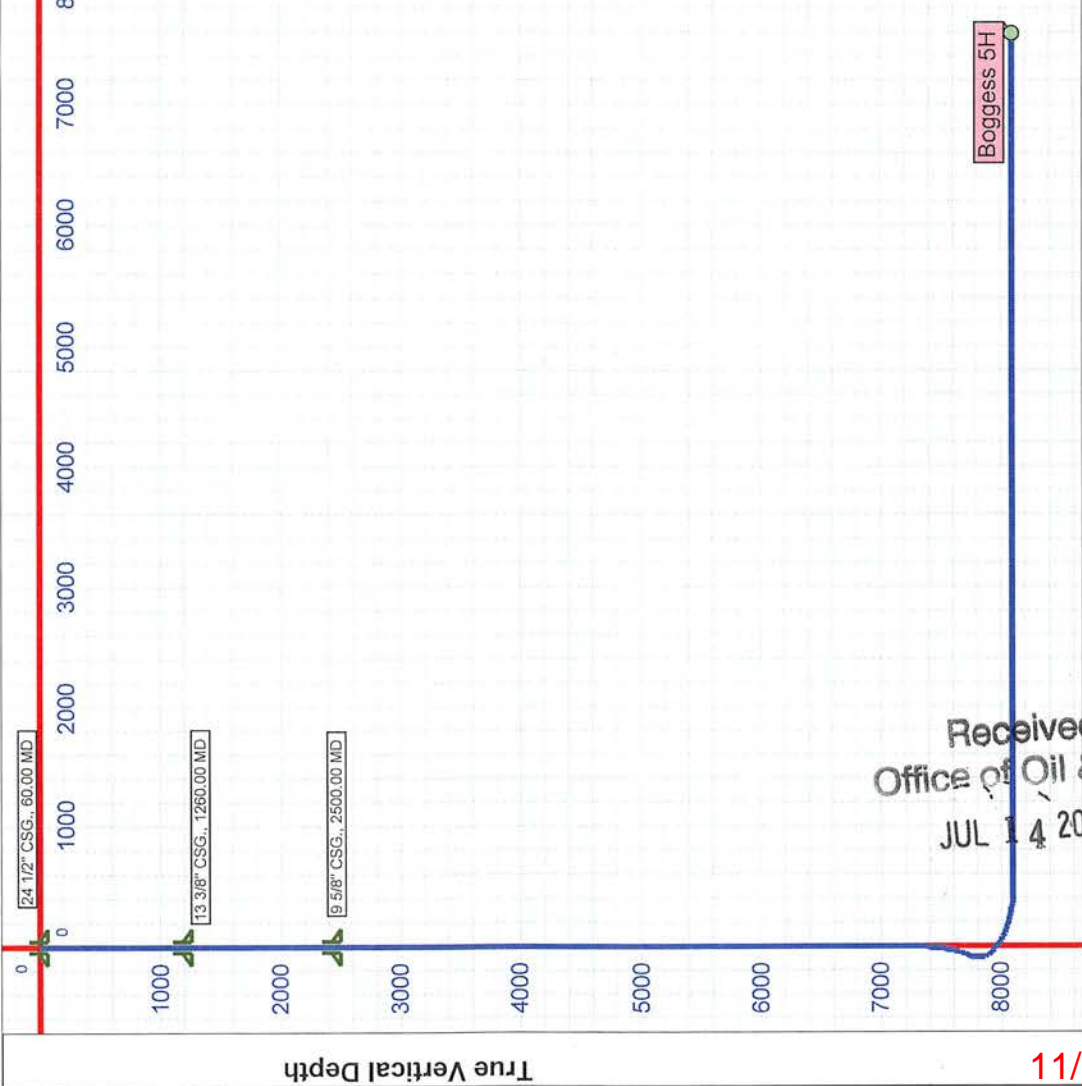
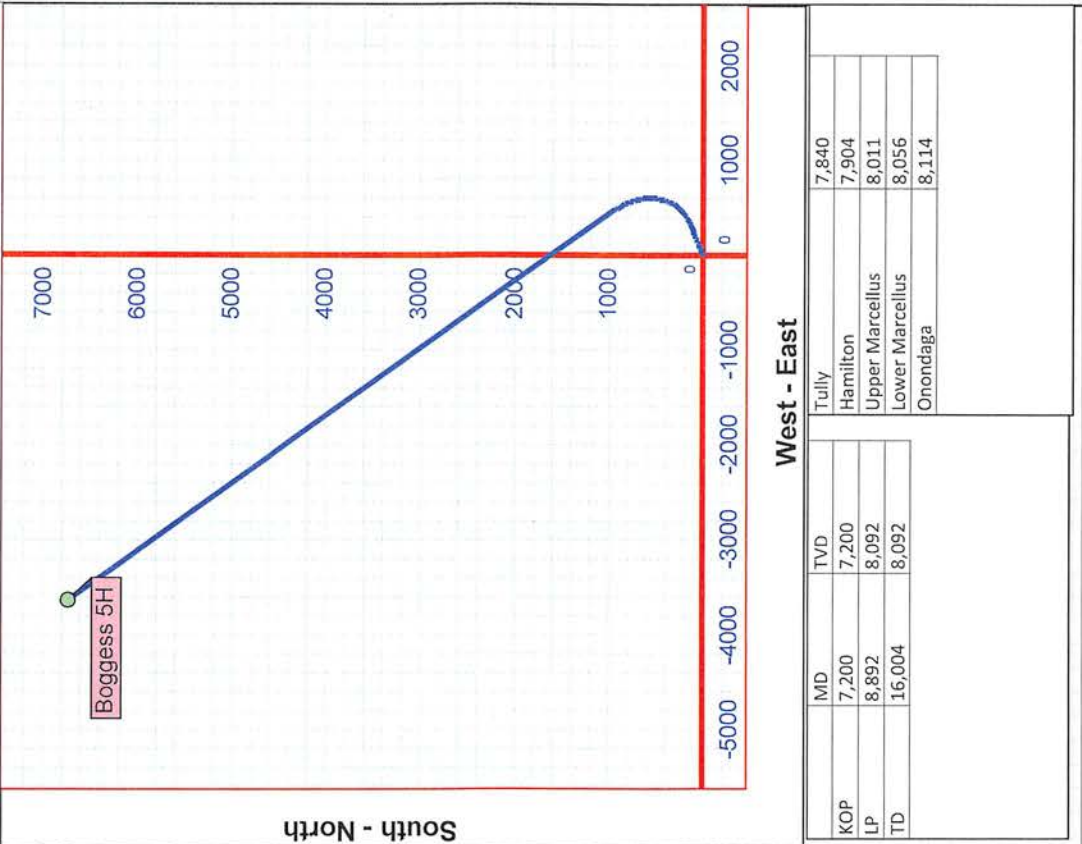
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JUL 14 2015

*Note: Attach additional sheets as needed.

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



Elevation (To MSL): 1268.00 ft
 RKB: 18.00 ft
 Projection System: US State Plane 1983
 Projection Group: West Virginia Northern Zone
 Projection Datum: GRS80
 Magnetic Declination: -8.96
 Grid Convergence: -0.37798 W
 Date: Friday, May 08, 2015



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Vertical Section (1000 Ft/Div) VSP: 324.00°

Performance Drilling Technology, Inc. - HawkEye™ ©2014



northeast
NATURAL ENERGY

Bogges 5H
SITE SAFETY PLAN

June 4, 2015

MJK
6/17/2015

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JUL 14 2015

11/06/2015

SITE NAME Bogges 5H

COUNTY Monongalia

ACCESS ROAD ENTRANCE N39° 39' 59.23" , W-80° 05' 48.82 (NAD 83)

N 4391127.465, E 577463.266 (NAD 83 UTM)

DIRECTIONS TO SITE:

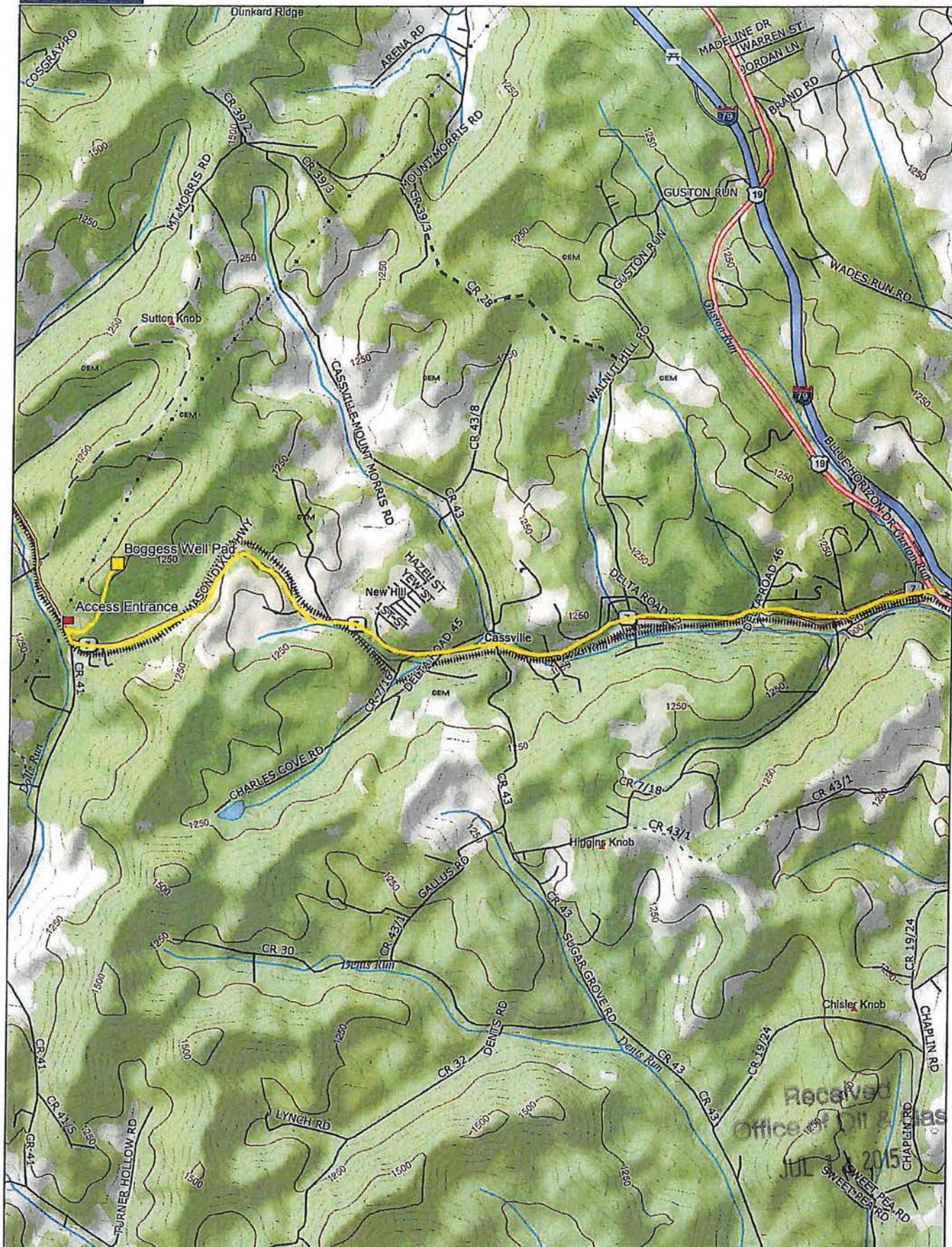
From I-79, take exit 155. Merge onto Chaplin Hill Road/CR-19/24N toward US-19/WV-7/Star City. If traveling from the south, this will be a right off the exit. If traveling from the north, this will be a left off the exit. After approximately 0.8 miles, turn left at light onto US-19/WV-7. Continue on US-19/WV-7 for approximately 1.7 miles. Turn left on WV-7 and continue on route for approximately 4.0 miles. The Bogges Pad Access Road Entrance will be on the right.

From Blacksville, take WV-7 E/Mason Dixon Highway for approximately 10.1 miles. The Bogges Pad Access Road Entrance will be on the left.

*See Attached Maps

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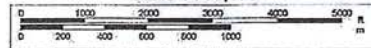
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Scale 1" = 34,375



1" = 2,864.6 ft

Data Zoom 12.5

11/06/2015

Introduction

Northeast Natural Energy LLC (“NNE”) is an oil and gas exploration and production company with company headquarters located at the following address:

Northeast Natural Energy LLC
707 Virginia Street East, Suite 1200
Charleston, WV 25301

And a Field Operations Office located at the following address:

Northeast Natural Energy LLC
48 Donley Street, Suite 601
Morgantown, WV 26501

NNE is committed to protecting the people, property, and resources of the company and of the communities in which it works by establishing a safe and healthy work environment that is free from recognized hazards and complies with all local, state and federal regulations.

This Plan will be reviewed annually and may be subject to revision and/or update whenever any of the following occur:

- An incident occurs.
- A new chemical or process is utilized onsite.
- Existing processes are modified significantly.
- Regulations are revised significantly.
- The current Plan fails in an emergency situation.
- Changes in emergency response equipment occur.
- Changes in internal and external emergency resources occur.

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- 5 – BOP and Well Control
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- 7 – Flaring
- 8 – Collision Avoidance Safeguards, Practices and Standards

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Contacts, Schedules and Meetings

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A. NORTHEAST NATURAL ENERGY LLC CONTACTS:

24 hour emergency number 1-866-207-1846

Construction/Reclamation

- Mike Shreve – Construction Coordinator 304.918.3050
- Dave McDougal – Manager of Civil Engineering 304.941.5033
- Brett Loflin – VP of Regulatory Affairs 304.414.7063

Drilling/Completion

- Jay Hewitt – Drilling Manager 304.382.1825
- Ian Costello – Completions Engineer 304.610.9764
- Zack Arnold – Manager of Operations 304.203.8059

Production

- Ryan Warner - Production Engineer 304.777.3287
- Zack Arnold – Manager of Operations 304.203.8059

B. EMERGENCY CONTACTS :In the case of an emergency call **911****1. OPERATOR CONTACTS**

- 24 hour emergency number 1-866-207-1846

2. DRILLING CONTRACTORS

- Performance Drilling –Vertical Drilling 304.553.2180
- Pioneer Drilling – Horizontal Drilling 570.465.2151

KEY CONTRACTORS AND VENDORS

- Baker Hughes – Cement/Pumping 724.743.9208
- Halliburton – Cement/Pumping 888.223.4255
- Schlumberger – Logging/Cement 724.820.3360

3. WV DEP/ OFFICE OF OIL AND GAS

Pollution and Emergency Spills 1-800-642-3074

- James Martin – Chief 304.926.0499 Ext. 1654
- Gayne Knitoswski – Inspector 304.546.8171
- Joe McCourt– WV DEP Northern Inspector Supervisor 304.380.2467

4. LOCAL EMERGENCY RESPONSE UNITS**MONONGALIA COUNTY OFFICE OF EMERGENCY MANAGEMENT**

- Mike Wolfe – Director 304.598.0301
- James Smith – Deputy Director

FIRE DEPARTMENTS

- Blacksville Volunteer 304.432.8282

AMBULANCE / EMS

- MON EMS 304.599.0650
- JAN-CARE 304.296.9700

LIFE FLIGHT AMBULANCE SERVICE (HELICOPTER)

- Angel MedFlight 866.604.8307

STATE POLICE

- Morgantown Detachment 304.285.3200

COUNTY POLICE

- Monongalia Sheriff 304.291.7290

5. LOCAL ER PERSONNEL**HOSPITAL**

- Ruby Memorial (trauma 1) 304.598.4000
- Monongalia General (trauma 4) 304.598.1200

Structure	Type	Owner	Street Address	City/Zip	City/Zip	District	Tax Map	Parcel
1	Golf Course	Ayers and Ayers Holdings	PO Box 1310	Inwood, WV 25428	Inwood, WV 25428	Cass	11	44
2	Mining/Training Site	WVU Board of Governors	2870 Little Indian Creek Road	Morgantown, WV 26501	Morgantown, WV 26501	Clay	15	40
3	Business	Poffenberger Family Trust: Charlene Frances Horan	1929 Mason Dixon Highway	Maldsville, WV 26541	Maldsville, WV 26541	Clay	12	29.2
29,30	Residence/Private Structure	Billy Poffenberger: Poffenberger Family Revocable Living Trust	117 Forest Drive	Morgantown, WV 26505	Morgantown, WV 26505	Clay	12	29.1
31,33	Residence/Private Structure	Billy Poffenberger: Poffenberger Family Revocable Living Trust	117 Forest Drive	Morgantown, WV 26505	Morgantown, WV 26505	Clay	12	29
4,5	Residence/Private Structure	Roy Eddy	297 Stull Road	Maldsville, WV 26541	Maldsville, WV 26541	Clay	13,14	1,2
6	Residence/Private Structure	Betty Wiley	373 Dunkard Avenue	Morgantown, WV 26501	Morgantown, WV 26501	Clay	14	1
7	Residence/Private Structure	Chad Forman	1543 Mason Dixon Highway	Core, WV 26541	Core, WV 26541	Clay	15	28
8	Residence/Private Structure	Donald Masters	1557 Mason Dixon Highway	Maldsville, WV 26541	Maldsville, WV 26541	Clay	12	66
9	Residence/Private Structure	Marilyn Corbin	1581 Mason Dixon Highway/P.O. Box 278	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	27.1
10,11,13,26	Residence/Private Structure	Blake Boggess	1584 Mason Dixon Highway	Maldsville, WV 26541	Maldsville, WV 26541	Clay	12	65
12	Residence/Private Structure	David Fox	1605 Mason Dixon Highway	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	27
14	Residence/Private Structure	Brittany Swanson	1643 Mason Dixon Highway	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	29.1
15,16,17	Residence/Private Structure	Donald & Nellie Marlene Tennant	37 Tennant Lane	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	30.2
18	Residence/Private Structure	Thomas Hellyer	1681 Mason Dixon Highway	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	30.1
19	Residence/Private Structure	Mary Jane Walls	3730 Mason Dixon Highway	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	30.6
20	Residence/Private Structure	Donna Sue and David Jones	3106 Little Indian Creek Road	Core, WV 26541	Core, WV 26541	Clay	15	30.9
21	Residence/Private Structure	Tyler Elliot and Katherine Brewer	3120 Little Indian Creek Road	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	30.8
22	Residence/Private Structure	Laurie Cozort	30 Tennant Lane	Core, WV 26541	Core, WV 26541	Clay	15	30.4
23	Residence/Private Structure	Dave and Donna Sue Jones	3106 Little Indian Creek Road	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	30.5
24	Residence/Private Structure	Timothy Liming	3090 Little Indian Creek Road	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	31
25	Residence/Private Structure	Danny & Deanna Tennant	345 Danny T Lane	Core, WV 26541	Core, WV 26541	Clay	15	26
27,28	Residence/Private Structure	Darlene Klubeck	1537 Pedlar Run Road	Maldsville, WV 26541	Maldsville, WV 26541	Clay	15	25
32	Residence/Private Structure	Danny & Deanna S. Tennant	345 Danny T Lane	Maldsville, WV 26541	Maldsville, WV 26541	Clay	12	29.4

C. NOTIFICATION OF H₂S GAS PRESENCE

Detection of H₂S shall sound an alarm which notifies personnel to shut in the well(s) and evacuate to the predetermined safe zone immediately.

A wind sock and/or flags will be utilized on location to identify wind direction. A safe zone upwind and away from the well will be established at the beginning of each tour. Personnel are trained to evacuate the well and gather at this safe zone immediately at the first sound of an H₂S explosive gas alarm.

When in a historically known area, or after H₂S is first detected, operations will halt, evacuation procedures will be followed, and all personnel will be trained for detailed H₂S protocols before operations begin or resume.

After personnel are located in a safe area, the onsite supervisor will take a head count, and make the proper offsite notifications. The DEP Office of Oil and Gas will be notified by a phone call to both the local inspector and the emergency number. The local emergency responders may also be notified of the detection.

In the event that H₂S has been detected, the onsite supervisor shall use his discretion as to the severity of the event and whether the local community should be notified. NNE will make a diligent effort to identify local residents and businesses within a ½ mile radius of its unconventional well sites (*see attached). Notification of such residence may be done in the form of a phone call or a door to door visit. NNE also recognizes that in most emergency situations the local emergency responders will coordinate any notification or evacuation procedures for the community and NNE will work closely with such emergency responders in their efforts.

D. PRE-SPUD MEETINGS

Prior to drilling operations, an onsite "Pre-Spud" meeting will be held to address operations and the site safety plan. This meeting shall include the overseeing NNE Drilling/Completions Engineer, the staff or contracted site supervisor(s) ("Company Man"), any staff or contracted safety personnel, key contractors to the drilling process, the contracted rig's superintendent/tool pusher, and the local oil and gas inspector if available. Local emergency response personnel may also be invited to the pre-spud meeting. The regional DEP inspector will be notified 48-hours in advance of the meeting. All attending personnel will be documented. Contractors will be provided copy of and instructed to go over the site safety plan with their respective individual employees.

E. WELL SITE SAFETY MEETINGS

Safety Meetings will be held on-site, at a minimum, on a weekly basis and prior to the beginning of drilling, completion and work-over operations. Attendance at each safety meeting will be logged.

Additionally, as a means of safety and maintaining a head count in case of an incident, a check-in and check-out list of both personnel and visitors will be kept during all drilling, completion, and work over phases of operation. The rig/frac supervisor will be responsible for the checking in and out of all personnel on location. A sign will be posted at the entrance to the location directing all visitors to the company trailer.

2

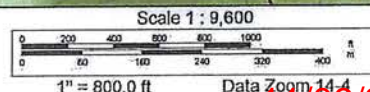
Maps and Diagrams



Data use subject to license.

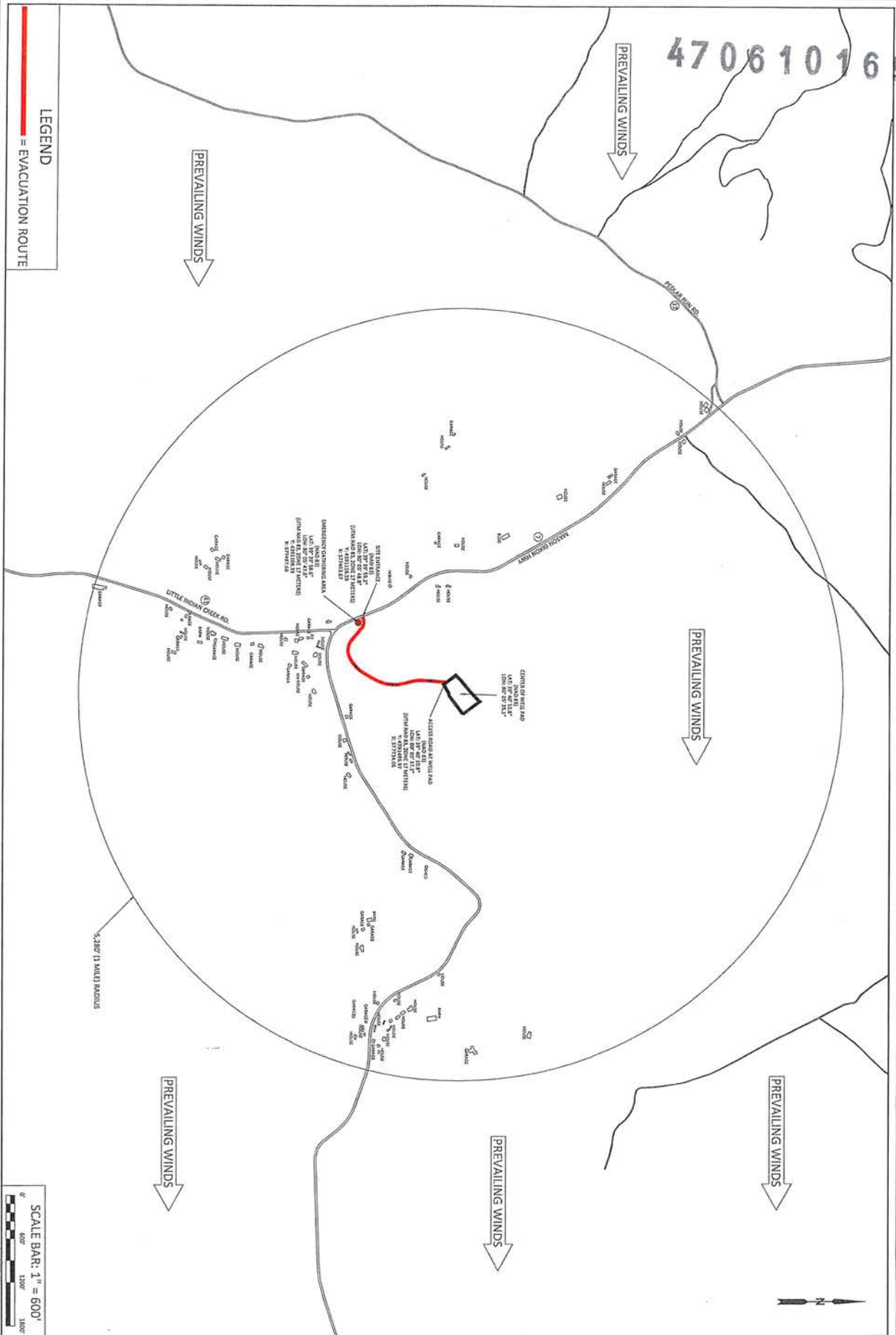
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11/06/2015

4706101690



LEGEND
 = EVACUATION ROUTE

SCALE BAR: 1" = 600'
 0' 600' 1200' 1800'

SHEET 1



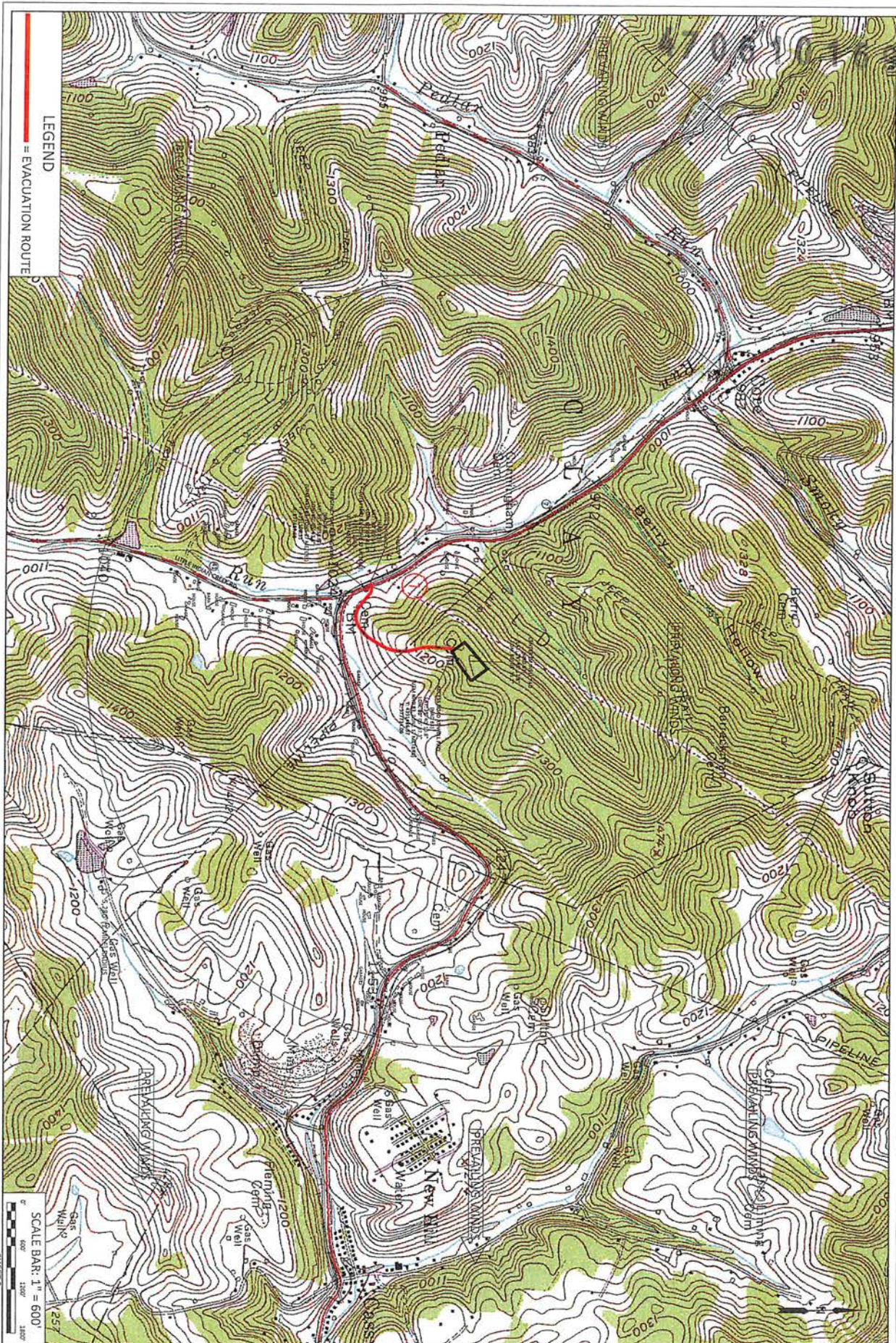
NO.	DATE	DESCRIPTION

JUNE 2015
 BOGGESS
 WELL PAD
 CLAY DISTRICT
 MONONGAHELA
 COUNTY, WV

**EVACUATION ROUTE/
 PREVAILING WINDS**
 THIS DOCUMENT WAS PREPARED BY:
 BOORD, BENCHEK AND ASSOC., INC.
 FOR: NORTHEAST NATURAL ENERGY LLC

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

11/06/2015



SHEET 7



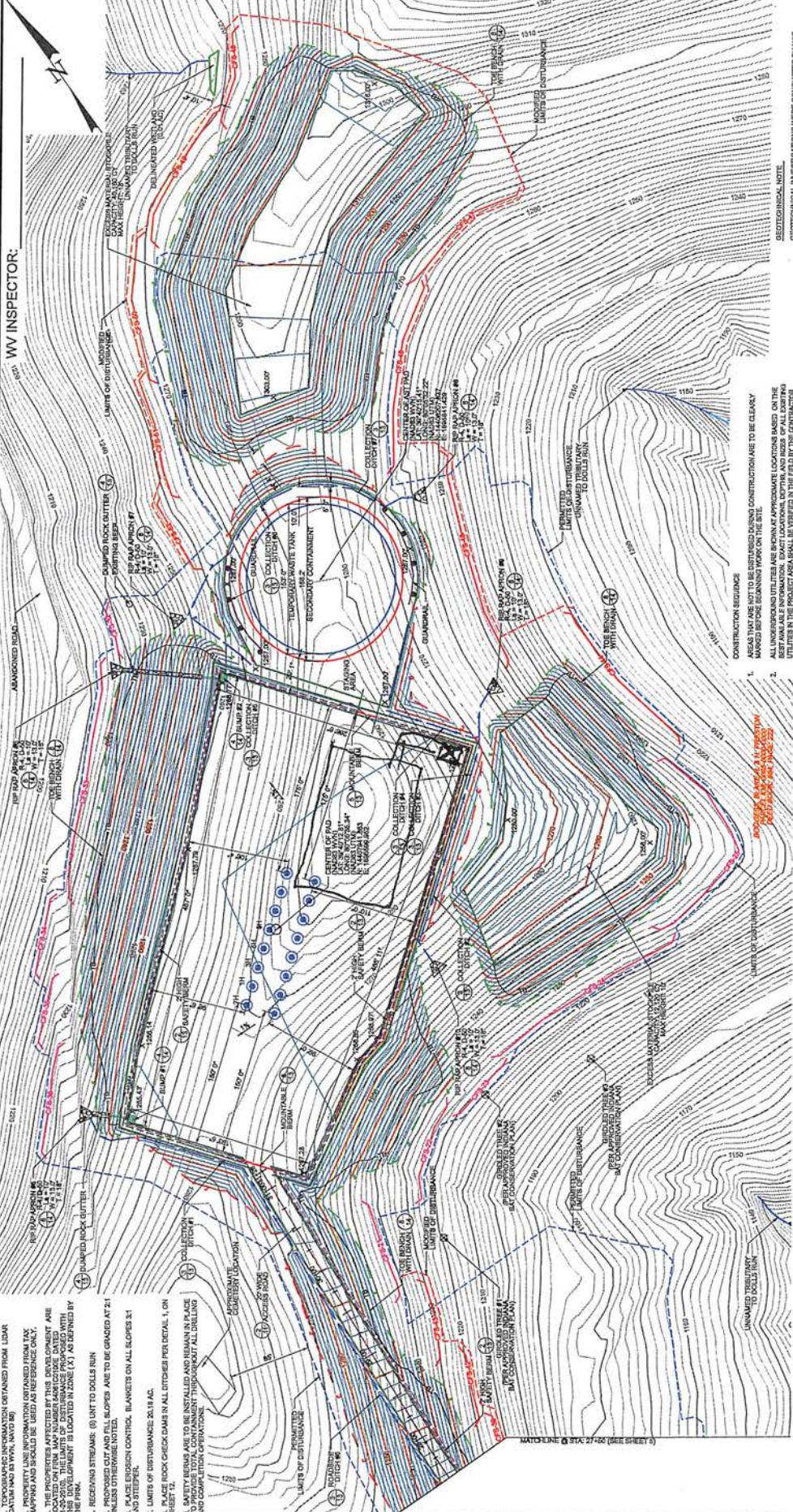
NO.	DATE	REVISIONS DESCRIPTION

JUNE 2015
 BOGDANS
 WELL PAD
 CLAY DISTRICT
 MONROEVILLE
 COUNTY, WV

**EVACUATION ROUTE/
 PREVAILING WINDS**
 THIS DOCUMENT WAS PREPARED BY:
 BOARD, BENCHEK AND ASSOC., INC.
 FOR: NORTHEAST NATURAL ENERGY LLC

BOARD, BENCHEK and ASSOC., INC.
 Engineering, Surveying, Construction,
 and Mining Services
 Southpointe, PA 15317 Phone: 724-746-1056

11/06/2015



NOTES:
1. ALL INFORMATION OBTAINED FROM LIDAR DATA AND IS VARY NAVD 83
2. PROPERTY LINE INFORMATION OBTAINED FROM TAX MAPS AND SHOULD BE USED AS REFERENCE ONLY.
3. THE PROPERTIES ADJACENT TO THE DEVELOPMENT ARE 10-20-20. THE LIMITS OF DISTURBANCE PROPOSED WITH THIS DEVELOPMENT IS LOCATED IN ZONE (X) AS DEFINED BY THE PLAN.
4. RECEIVING STRIKES: (R) UNIT TO DOLLS RUN UNLESS OTHERWISE NOTED. BLANKETS ON ALL SLOPES 3:1 AND STEEPER.
5. LIMITS OF DISTURBANCE: 25.15 AC.
6. PLACE ROCK CHECK DAMS IN ALL DITCHES PER DETAIL 1, ON ALL SLOPES.
7. BATTERY BENCHES ARE TO BE INSTALLED AS BEHIND IN PLACE TO PROVIDE TOTAL CONTAINMENT THROUGHOUT ALL DRILLING AND COMPLETION OPERATIONS.

LEGEND

---	EXISTING TREE LINE
---	EXISTING ROAD
---	EXISTING RIGHT-OF-WAY
---	PROPOSED RIGHT-OF-WAY
---	PROPOSED DRIVEWAY
---	MUNICIPAL BOUNDARY
---	PROPOSED FENCE
---	EXISTING FENCE
---	EXISTING GAS LINE
---	PROPOSED GAS LINE
---	PROPOSED WATER LINE
---	FALL LIMITS
---	CUT LIMITS
---	TOE BENCH WITH DRAIN
---	ROADWAY CENTERLINE
---	PROPOSED LIMITS OF DISTURBANCE
---	MODIFIED LIMITS OF DISTURBANCE
---	EXISTING UTILITY POLE

WELL HEAD COORDINATES

WELL SLOT 01 (NAD83)	Easting = 420000.00	Northing = 5370000.00
WELL SLOT 02 (NAD83)	Easting = 420000.00	Northing = 5370000.00
WELL SLOT 03 (NAD83)	Easting = 420000.00	Northing = 5370000.00
WELL SLOT 04 (NAD83)	Easting = 420000.00	Northing = 5370000.00
WELL SLOT 05 (NAD83)	Easting = 420000.00	Northing = 5370000.00
WELL SLOT 06 (NAD83)	Easting = 420000.00	Northing = 5370000.00
WELL SLOT 07 (NAD83)	Easting = 420000.00	Northing = 5370000.00
WELL SLOT 08 (NAD83)	Easting = 420000.00	Northing = 5370000.00
WELL SLOT 09 (NAD83)	Easting = 420000.00	Northing = 5370000.00
WELL SLOT 10 (NAD83)	Easting = 420000.00	Northing = 5370000.00

TRACKWASH TANK CAPACITY

TOTAL STORAGE VOLUME	42,000 BBL
STORAGE VOLUME	33,750 BBL
Z OF FREEBOARD	8,250 BBL

EARTHWORK SUMMARY (ANTHRAKITE TRAIL)

TOTAL EXCAVATION	64,660 CY
TOTAL FILL	78,110 CY
TOTAL IMPORT	14,450 CY
TOTAL EXPORT	13,890 CY
TOTAL FILL	32,000 CY
TOTAL EXCAVATION	11,960 CY
TOTAL FILL	11,960 CY
TOTAL EXCAVATION	11,960 CY
TOTAL FILL	11,960 CY
TOTAL EXCAVATION	11,960 CY
TOTAL FILL	11,960 CY

LIMITS OF DISTURBANCE SUMMARY

PERMITTED LIMITS OF DISTURBANCE	18.48 AC
MODIFIED LIMITS OF DISTURBANCE	25.15 AC
DIFFERENCE IN LIMITS OF DISTURBANCE	+6.67 AC

- ### CONSTRUCTION SEQUENCE
- AREAS THAT ARE NOT TO BE DISTURBED DURING CONSTRUCTION ARE TO BE CLEARLY MARKED BEFORE BEGINNING WORK ON THE SITE.
 - ALL UNDERGROUND UTILITIES ARE SHOWN AT APPROXIMATE LOCATIONS BASED ON THE AVAILABLE INFORMATION. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES IN THE PROJECT AREA SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR WITH A REPRESENTATIVE FROM THE APPROPRIATE UTILITY COMPANY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES AT LEAST SEVENTY-TWO (72) HOURS BEFORE ANY WORK IS COMMENCED ON THIS PROJECT.
 - PERMANENT ROADWAY CONSTRUCTION SHALL BE COMPLETED AND INSTALLED PRIOR TO CONDUCTING ANY CONSTRUCTION ACTIVITY ON THE SITE.
 - CONSTRUCTION ACTIVITY WILL BEGIN WITH THE CLEARING AND GRUBBING OF THE ACCESS ROAD FROM THE SITE POINT OF ACCESS TO THE DRILL PAD AND PIT LOCATIONS.
 - TEMPORARY ACCESS ROADWAY SEEDING AND MULCHING SHALL FOLLOW EXISTING ROADWAY CONSTRUCTION. SEEDING AND MULCHING SHALL BE INSTALLED WITHIN 48 HOURS OF THE COMPLETION OF EARTHMOVING ACTIVITIES.
 - THE REMAINING PROJECT AREA WILL THEN BE CLEARED AND GRUBBED FOLLOWING THE COMPLETION OF THE ACCESS ROADWAY CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES AT LEAST SEVENTY-TWO (72) HOURS BEFORE ANY WORK IS COMMENCED ON THIS PROJECT.
 - THE DRILL PAD AND PIT LOCATIONS WILL THEN BE CONSTRUCTED. PINE GRASSING SHALL BE INSTALLED AND PERMANENTLY SEEDING AND MULCHING SHALL BE INSTALLED WITHIN 48 HOURS OF THE COMPLETION OF THE DRILL PAD AND PIT LOCATIONS.
 - SOIL WILL BE REPAIRED, TOPSOILED, RESEED AND MULCHED.
 - TEMPORARY EROSION CONTROL STRUCTURES SHALL BE REMOVED IN PLACE UNTIL LINDERWORK TO PERMIT VEGETATIVE COVER IS ESTABLISHED.

GEOTECHNICAL NOTE

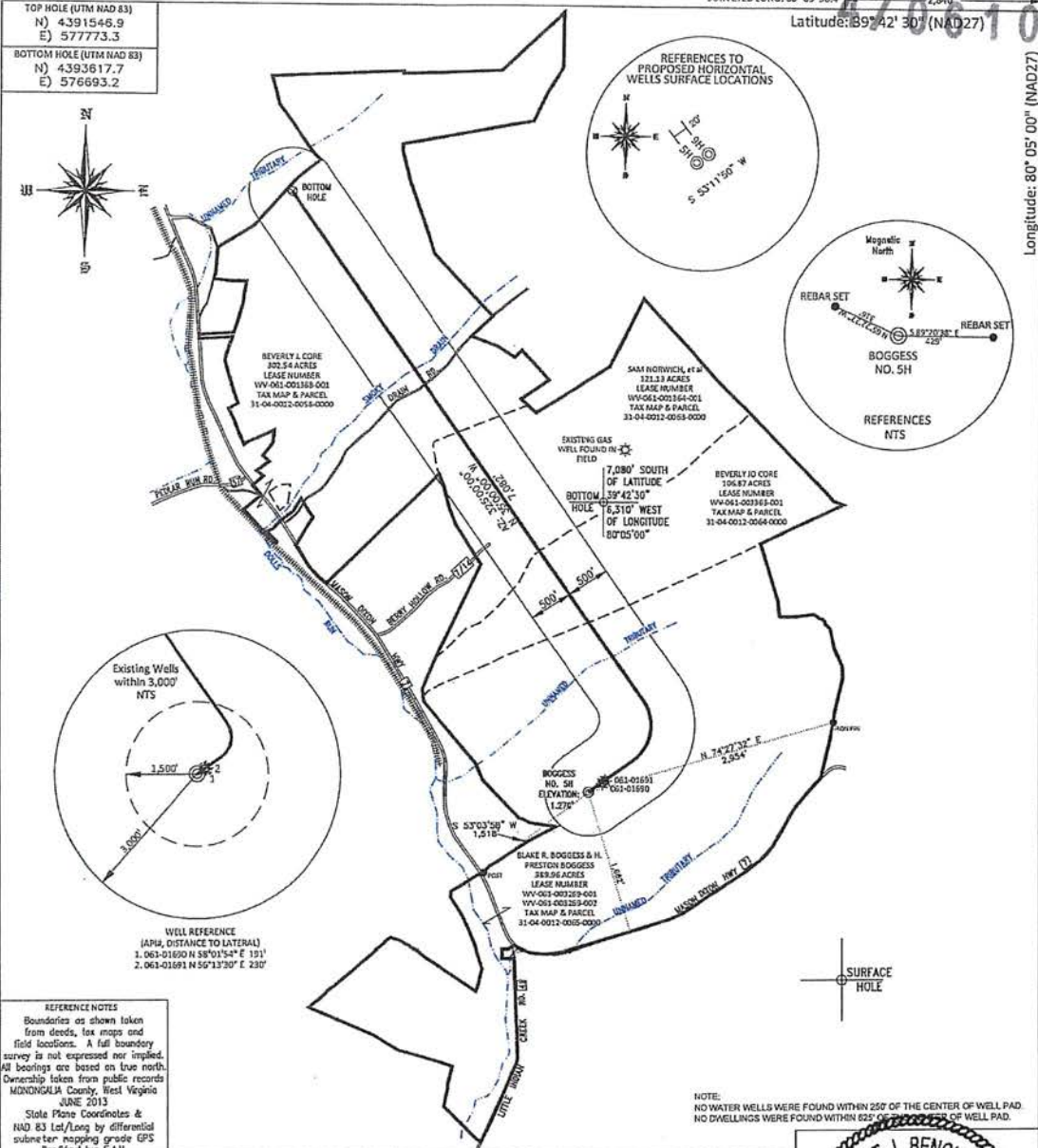
GEOTECHNICAL INVESTIGATIONS WERE CONDUCTED BY HVE, INC. ON 06/15/2015 AT THE SITE. THE INVESTIGATIONS WERE CONDUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR GEOTECHNICAL ENGINEERING, 2011 EDITION, AS PART OF THE SITE DESIGN. REFER TO HVE REPORT NO. HVE-2015-001 FOR DETAILED DATA. ALL UTILITY LOCATIONS AND DEPTHS SHOULD NOT BE MADE UNLESS REVIEWED BY HVE, INC. AND APPROVED BY THE APPROPRIATE UTILITY COMPANY.

CONSTRUCTION SEQUENCE

CONSTRUCTION ACTIVITY WILL BEGIN WITH THE CLEARING AND GRUBBING OF THE ACCESS ROAD FROM THE SITE POINT OF ACCESS TO THE DRILL PAD AND PIT LOCATIONS. TEMPORARY ACCESS ROADWAY SEEDING AND MULCHING SHALL FOLLOW EXISTING ROADWAY CONSTRUCTION. SEEDING AND MULCHING SHALL BE INSTALLED WITHIN 48 HOURS OF THE COMPLETION OF EARTHMOVING ACTIVITIES. THE REMAINING PROJECT AREA WILL THEN BE CLEARED AND GRUBBED FOLLOWING THE COMPLETION OF THE ACCESS ROADWAY CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES AT LEAST SEVENTY-TWO (72) HOURS BEFORE ANY WORK IS COMMENCED ON THIS PROJECT. THE DRILL PAD AND PIT LOCATIONS WILL THEN BE CONSTRUCTED. PINE GRASSING SHALL BE INSTALLED AND PERMANENTLY SEEDING AND MULCHING SHALL BE INSTALLED WITHIN 48 HOURS OF THE COMPLETION OF THE DRILL PAD AND PIT LOCATIONS. SOIL WILL BE REPAIRED, TOPSOILED, RESEED AND MULCHED. TEMPORARY EROSION CONTROL STRUCTURES SHALL BE REMOVED IN PLACE UNTIL LINDERWORK TO PERMIT VEGETATIVE COVER IS ESTABLISHED.

TOP HOLE (UTM NAD 83)
 N) 4391546.9
 E) 577773.3
 BOTTOM HOLE (UTM NAD 83)
 N) 4393617.7
 E) 576693.2

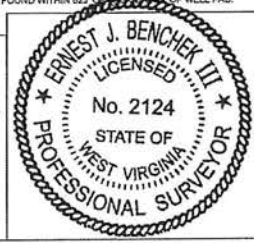
SURFACE HOLE DEC. LONG: 80.093440
 SURVEYED LONG: 80° 05' 36.4"
 Latitude: 89° 42' 30" (NAD27)



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 JUNE 2015
 State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS Briefed by EAM

FILE #: NEE14
 DRAWING #: 2459
 SCALE: PLAT: 1" = 1600'
 TACK MARK: 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: *[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: JUNE 1, 2015
 OPERATOR'S WELL #: BOGGESS NO. 5H
 API WELL #: 47 61
 STATE COUNTY PERMIT
 ELEVATION: 1,268'

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

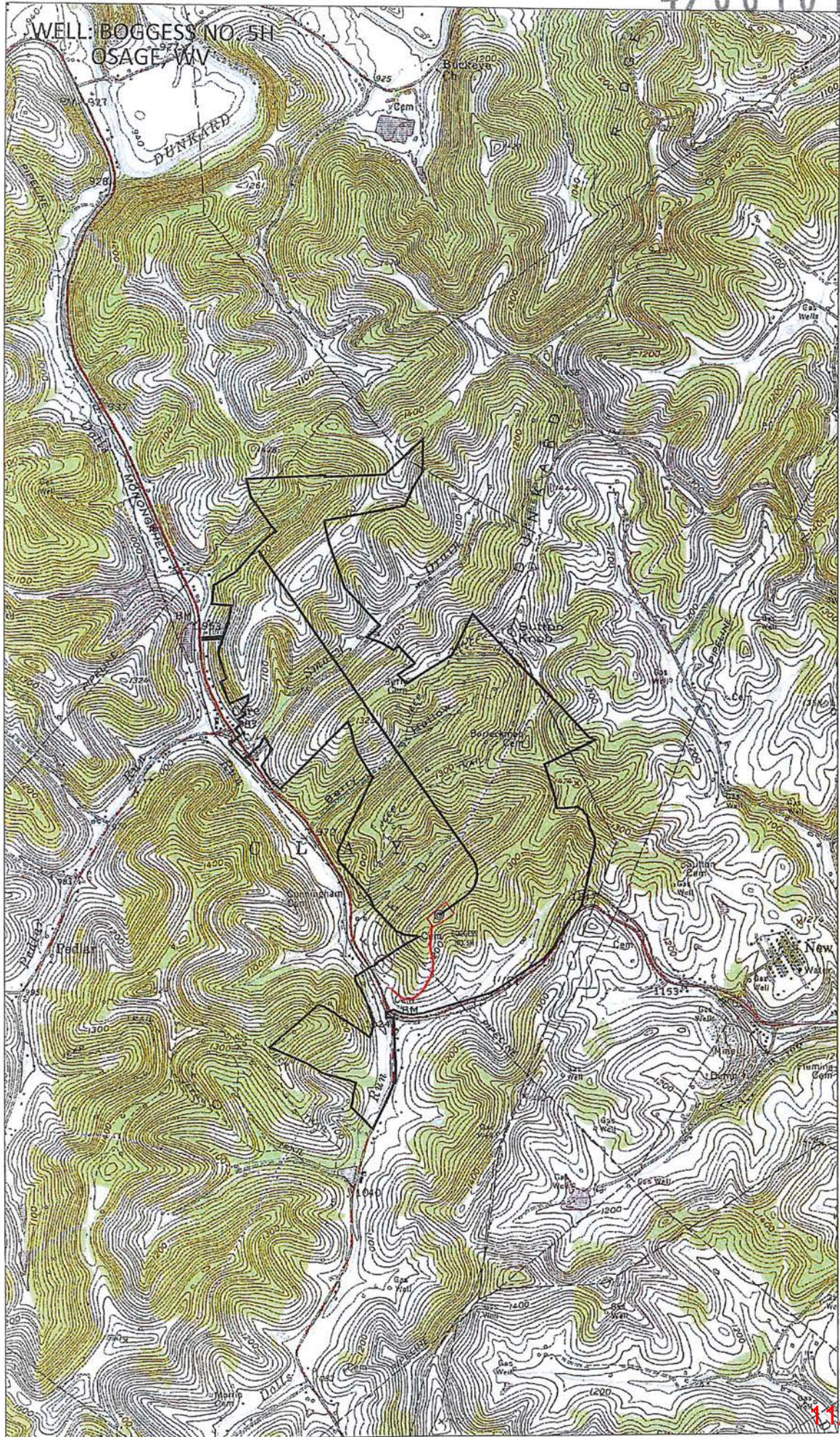
WATERSHED: DUNKARD CREEK
 COUNTY/DISTRICT: MONONGALIA / CLAY
 QUADRANGLE: OSAGE, WV
 SURFACE OWNER: BLAKE R. & PRESTON H. BOGGESS
 ACREAGE: 389.96 +/-
 OIL & GAS ROYALTY OWNER: BLAKE R. & PRESTON H. BOGGESS
 ACREAGE: 920.50 +/-
 LEASE NUMBERS:

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: 8,902' TMD: 16,004'
 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

Longitude: 80° 05' 00" (NAD27)
 SURFACE HOLE DEC. LAT: 39.707022
 SURVEYED LAT: 39° 42' 12.4"

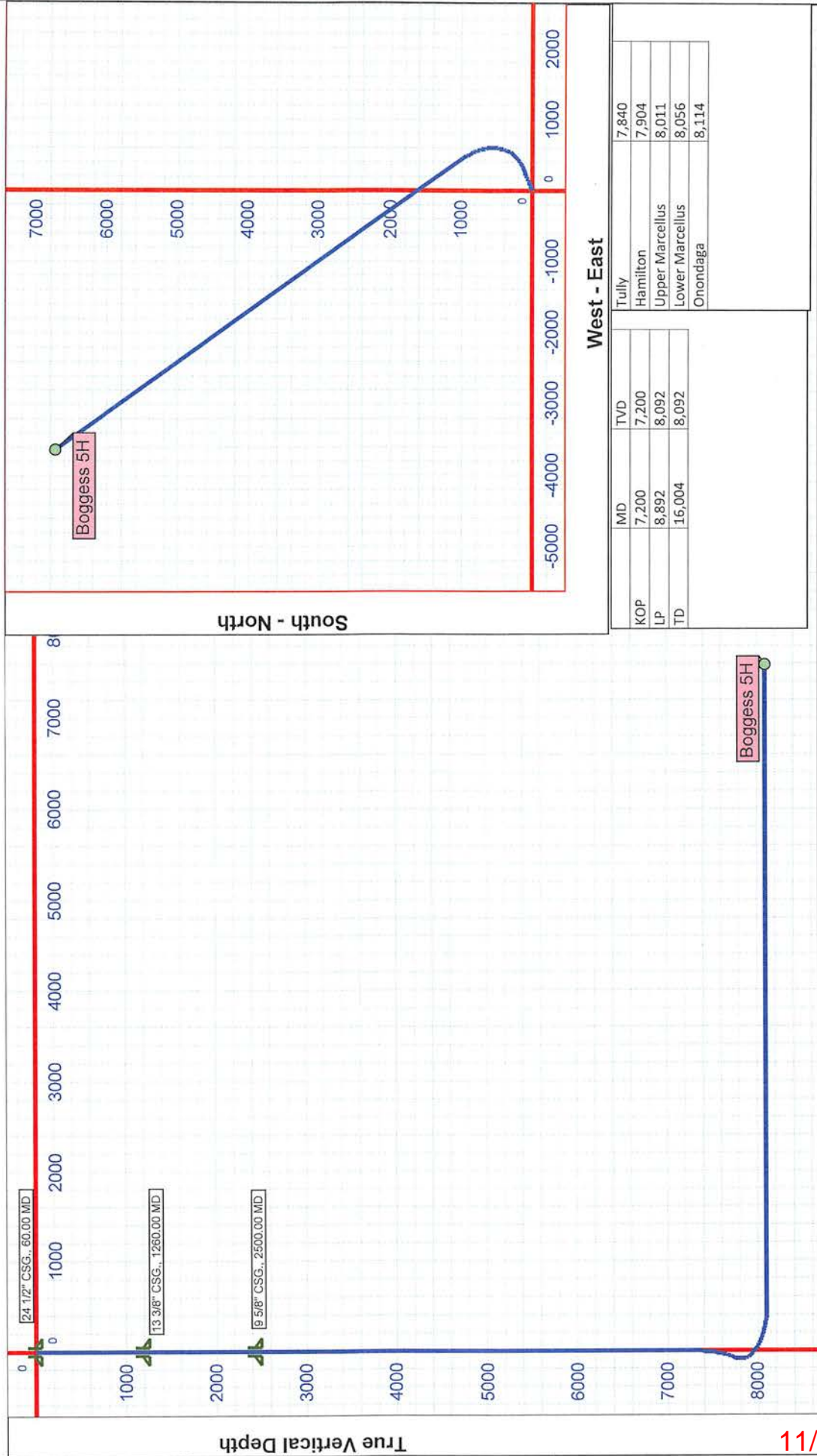
11/06/2015



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



Elevation (To MSL): 1268.00 ft
RKB: 18.00 ft
Projection System: US State Plane 1983
Projection Group: West Virginia Northern Zone
Projection Datum: GRS80
Magnetic Declination: -8.96
Grid Convergence: -0.37798 W
Date: Friday, May 08, 2015



3

Well Work

A(1.0) Description of Drilling Operations

The Boggess 5H well will be drilled on air to an approximate depth of 7,200' TVD/MD. The well will then be horizontally drilled on synthetic based mud from the KOP of approximately 8,092' TVD and 16,004' MD along a 325 degree azimuth.

A(1.1) Anticipated Equipment/Materials

During the drilling of a horizontal Marcellus gas well the following equipment and materials could be on the drilling location:

Equipment / Materials	Potential Hazard
Double Stand Drilling Rig	Medical, Fire/Explosion, Spill/Release
Mud Pumps	Medical, Fire/Explosion, Spill/Release
Mud Tanks	Medical, Fire/Explosion, Spill/Release
Fork Lift	Medical, Fire/Explosion, Spill/Release
Excavator	Medical, Fire/Explosion, Spill/Release
Diesel Tank	Medical, Fire/Explosion, Spill/Release
Diesel Fuel	Medical, Fire/Explosion, Spill/Release
Generators	Medical, Fire/Explosion, Spill/Release
Air Compressor	Medical, Fire/Explosion
Light Tower	Medical, Fire/Explosion, Spill/Release
Frac Tanks (mud, cement additives,	Medical, Fire/Explosion, Spill/Release
Drilling Mud Additives	Medical, Fire/Explosion, Spill/Release

A(2.0) Description of Completions Operations

The Boggess 5H well will be completed using a multi-stage / high-rate slickwater fracture treatment using sand as a proppant. The First Stage will be initiated via pressurization against a burst disc ran in the production casing string and perforated by pumping down guns on wireline. Subsequent stages will also 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 the fracture treatment, composite frac plugs will be drilled out using a service rig and/or snubbing unit.

A(2.1) Anticipated Equipment/Materials

During the completion of a horizontal Marcellus gas well the following equipment and materials could be on the drilling location:

Equipment / Materials	Potential Hazard
Approximately 10 - 15 Pump Trucks	Medical, Fire/Explosion, Spill/Release
2 Blender Trucks	Medical, Fire/Explosion, Spill/Release
Belt Truck	Medical, Fire/Explosion, Spill/Release
Perforation Truck	Medical, Fire/Explosion, Spill/Release
Crane	Medical, Fire/Explosion, Spill/Release
Sand Tanks	Medical, Fire/Explosion, Spill/Release
Frac Tanks	Medical, Fire/Explosion, Spill/Release
Man Lift	Medical, Fire/Explosion, Spill/Release
Acid Truck	Medical, Fire/Explosion, Spill/Release

Fork Lift	Medical, Fire/Explosion, Spill/Release
Gel Truck	Medical, Fire/Explosion, Spill/Release
Communications Truck	Medical, Fire/Explosion, Spill/Release
Diesel Truck	Medical, Fire/Explosion, Spill/Release
Diesel Fuel	
80/90 wt gear oil	Medical, Fire/Explosion, Spill/Release
5/40 motor oil	Medical, Fire/Explosion, Spill/Release
Antifreeze	Medical, Fire/Explosion, Spill/Release
Ethylene Glycol	Medical, Fire/Explosion, Spill/Release
Tri-Ethylene Glycol	Medical, Fire/Explosion, Spill/Release
Frac Sand	Medical, Fire/Explosion, Spill/Release
Hydrochloric Acid (HCl)	Medical, Fire/Explosion, Spill/Release
Friction Reducer	Medical, Fire/Explosion, Spill/Release
Gelling Agents	Medical, Fire/Explosion, Spill/Release
Biocide	Medical, Fire/Explosion, Spill/Release
Scale Inhibitor	Medical, Fire/Explosion, Spill/Release
Iron Control	Medical, Fire/Explosion, Spill/Release
Gel Breaker Agent	Medical, Fire/Explosion, Spill/Release
Corrosion Inhibitor	Medical, Fire/Explosion, Spill/Release

A(3.0) Description of Production Operations

During the production phase, the well stream will flow through buried, welded piping to Gas Production Units. At this point, the gas will be separated from the water and sent through a meter to a sales pipeline. The water will be piped and stored in above ground tanks on the well site. Well pressures and flow rates will be monitored and recorded to ensure proper facility operation. All facilities will be installed according to industry standards and will have appropriate safety systems in place.

A(3.1) Anticipated Equipment/Materials**Production**

Equipment / Materials	Potential Hazard
Well Head	Medical, Fire/Explosion, Spill/Release
Buried Flow Line	Medical, Fire/Explosion, Spill/Release
Sand Separator	Medical, Fire/Explosion, Spill/Release
Gas Processing Unit	Medical, Fire/Explosion, Spill/Release
Water Tanks	Medical, Fire/Explosion, Spill/Release
Condensate Tank	Medical, Fire/Explosion, Spill/Release
Water Truck Hauling & Hook Up Equipment	Medical, Fire/Explosion, Spill/Release
Pig Launcher	Medical, Fire/Explosion, Spill/Release

M & R Station

Equipment / Materials	Potential Hazard
Flowline	Medical, Fire/Explosion, Spill/Release
Pig Receiver	Medical, Fire/Explosion, Spill/Release
Two Phase Separator	Medical, Fire/Explosion, Spill/Release
Filter Units	Medical, Fire/Explosion, Spill/Release
Heater Unit	Medical, Fire/Explosion, Spill/Release
Dehydration Tower	Medical, Fire/Explosion, Spill/Release
50 – 100 Barrel Water Tank	Medical, Fire/Explosion, Spill/Release
Meter House	Medical, Fire/Explosion, Spill/Release
Meter Skid	Medical, Fire/Explosion, Spill/Release

B DISTRIBUTION OF THE SITE SAFETY PLAN

Copies of this Plan will be located at NNE's corporate office building in Charleston, West Virginia, its field office in Morgantown, West Virginia, with the Designated Response Coordinators and field operation sites when applicable. This Plan may be accessed electronically by all NNE employees on the company's shared drive/share point. All NNE employees are to abide by the provisions of this Plan and are required to participate in its implementation. This Plan will also be shared with external entities such as the Monongalia County Office of Emergency Management within at least seven (7) days prior to earth disturbance and/or well work.

Efforts will be made to familiarize police, fire departments, emergency response teams and the County Emergency Management Coordinator with the layout of the well site, the properties and dangers associated with the equipment and materials that are on site, places where personnel would normally be working, and the possible evacuation routes should an emergency occur.

4

Chemical Inventory & Material Safety Data Sheets ("MSDS")

A Material Safety Data Sheets (“MSDS”)

MSDS Sheets will be provided upon request on a CD or USB drive.

B Location of MSDS

MSDS sheets will be kept in the company trailer during the drilling and completion phases of operation. Any Contractors that bring hazardous materials on site will provide MSDS for such. The onsite supervisor will be responsible for ensuring that all MSDS sheets are obtained and are easily accessible in case of an emergency.

C DRILLING MUD

1,500 bbl of 12.9 ppg synthetic drilling mud will be used along with the below listed chemicals. The mud will be kept in an open top above ground mud pit and circulated by nozzles and paddles.

Material	Unit	Amount
Barite	4000lb	9
Calcium Chloride Powder	50lb	200
Carbo Gel	50lb	60
Base Oil	1 gal	1440
Lime	50lb	69
Mil Sorb	50lb	87

5

Blow Out Preventer ("BOP") and Well Control

A BOP EQUIPMENT – DRILLING PHASE

From the shoe of the intermediate casing string (9-5/8") to KOP, the well will continue to be drilled on air. For this section, at a minimum, an 11" 3,000 PSI annular-type BOP will be utilized as a means of well control. Installation of this equipment will be dependent upon two different conditions...

- Should the top-hole drilling rig have a substructure large enough to sit upon a cellar, an 11" 5,000 PSI API flanged casing head will be welded onto the top of the intermediate casing string (9-5/8") below grade after it has been set and cement has cured for a minimum of 8 hours. It is upon this casing head that the annular-type BOP will be bolted and torqued to specification as a means of well control for the section.
- Should the top-hole drilling rig have a substructure too small to sit upon a cellar, the intermediate casing string (9-5/8") will be landed at surface and a screw-on or weld flange annular-type BOP will be used as a means of well control for the section. Under this scenario, a cellar will be installed around the wellbore after the top-hole rig is released from the pad. Once installed, an 11" 5,000 PSI API flanged casing head will then be welded onto the top of the intermediate casing string (9-5/8") below grade.

For the remainder of the drilling of the well on fluid; at a minimum and from bottom to top; an 11" 5,000 PSI kill spool, an 11" 5,000 PSI blind ram-type BOP, an 11" 5,000 PSI pipe ram-type BOP, and an 11" 5,000 PSI annular-type BOP will be bolted and torqued to specification upon the 11" 5,000 PSI casing head.

B PROCEDURE AND SCHEDULE FOR TESTING BOP

For the bottom and horizontal wellbore drilling phase, function testing of BOP equipment shall occur upon initial installation, weekly, and after each trip. Pressure testing of all BOP equipment shall occur upon initial installation and every twenty-one (21) days thereafter, should the well not be completed within that time. Annular preventers are to be tested to seventy percent (70%) of the rated capacity and ram preventers should be tested to eighty percent (80%) of the rated capacity according to the following procedure;

- The WV DEP Regional Oil and Gas Inspector will be notified 24 hrs. in advance of the pressure testing of all BOP equipment.
- For the testing of the 3,000 PSI annular-type BOP before drilling through the shoe of the intermediate casing string to KOP, a cup-type tester will be lowered into the intermediate casing (9-5/8") or a plug-type tester will be inserted into the

casing head if installed. After a successful function test, the annular BOP will be closed around drill pipe and the void between the cup or plug will be pressurized using fluid as a medium. This shall consist of a minimum five minute low pressure (300 PSI maximum) test, and a thirty minute high pressure (2,100 PSI minimum) test. Annular preventer and valves shall be tested from the direction they are exposed to wellbore pressure. A successful test shall consist of less than a 10% bleed off after buildup over the entire duration of the low/high test period.

- For the testing of the BOP stack from KOP to TD of the well, a plug-type tester will be placed into the bowl of the 11" 5M x 9-5/8" casing head. After a successful functional test, all rams, valves, TIW valves, chokes, and annular preventers will be pressure tested from the direction they are subjected to wellbore pressure. The annular preventer will be tested by pressurization around drill pipe using water as a medium and subject to a minimum five minute low pressure (300 PSI maximum) test, and a minimum thirty minute high pressure (2,100 PSI minimum for 3M equipment, 3,500 PSI minimum for 5M equipment) test. Rams, valves, TIW, and choke components shall be tested using water as a medium and subject to a minimum five minute low pressure (300 PSI maximum) test, and a minimum thirty minute high pressure (2,400 PSI minimum for 3M equipment, 4,000 PSI minimum for 5M equipment) test. Each individual component must pass its respective test before drilling may commence. A successful test shall consist of less than a 10% bleed off after buildup over the entire duration of the low/high test period.

C ASSEMBLY INSTALLATION SCHEDULE

- During top hole operations a 11" 5,000 PSI API flanged casing head will be welded onto the top of the intermediate casing string (9-5/8") below grade and an 11" 3,000 PSI annular-type BOP will be used to KOP
- From curve to TD the following will be added to the flanged casing;
11" 5,000 PSI kill spool, 11" 5,000 PSI blind ram-type BOP, 11" 5,000 PSI pipe ram-type BOP, and 11" 5,000 PSI annular-type BOP 11" 5,000 PSI casing head.

D PERSONNEL WITH WELL CONTROL TRAINING

Throughout operations, the following Northeast Natural Energy representatives shall have and maintain IADC well control certification:

- Jay Hewitt – Drilling Manager
- Ian Costello – Completions Engineer
- Ryan Warner – Production Engineer
- Any onsite consultant hired to oversee drilling or completions operations

E SYSTEM OF MAINTAINING DETAILED RECORDS

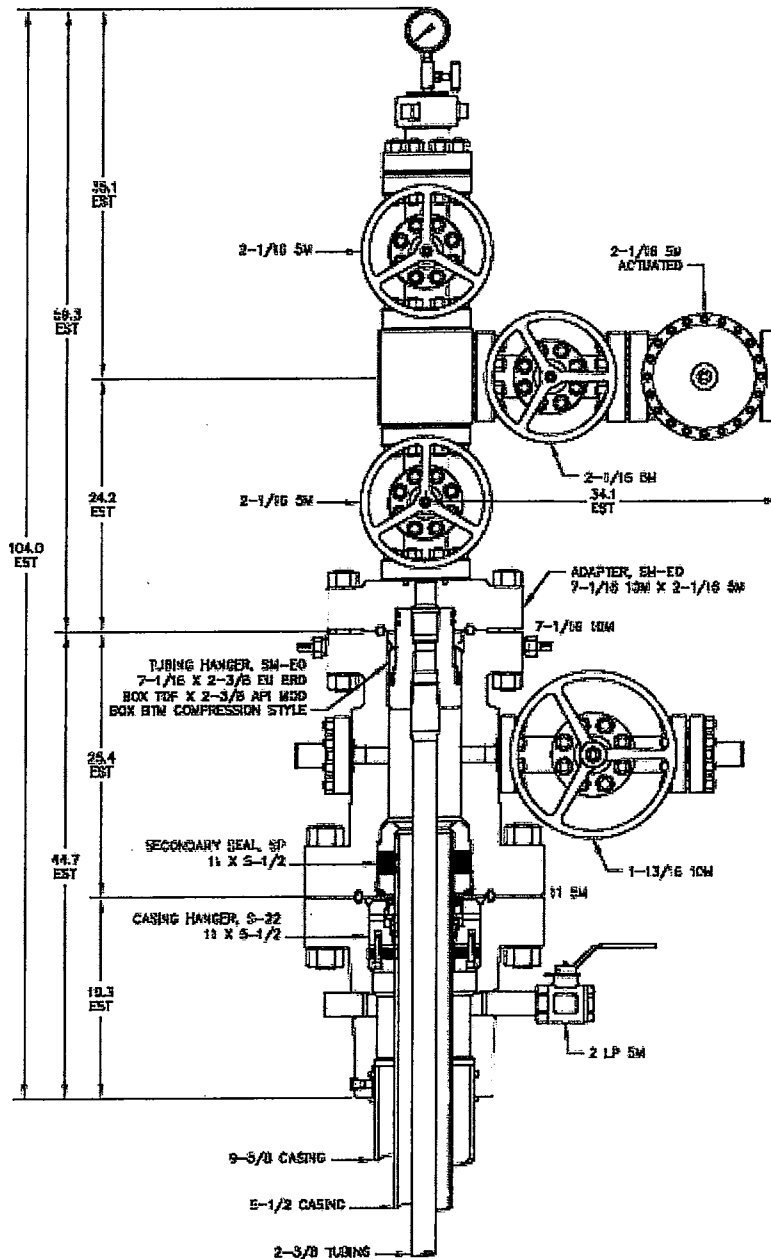
A detailed Driller's Log shall be maintained, including but not limited to, lost circulation, the presence of hydrogen sulfide gas, fluid entry, kicks, and abnormal pressures.

F NOTIFICATION OF THE OFFICE OF OIL AND GAS

The WV DEP Office of Oil and Gas will be immediately notified of the presence of hydrogen sulfide gas above 10 ppm, significant kicks, or blow-out events.

G WELL HEAD ASSEMBLY

A 5,000 PSI production tree will be placed upon the tubing spool after the drill out process. This unit will consist of, at a minimum and from bottom to top; one flanged 2-1/16" 5,000 PSI gated master valve, a studded three-way tee, a flanged 2-1/16" 5,000 PSI gated swab valve, and a 5,000 PSI flanged tree cap. The side outlet of the studded three-way tee shall include a flanged 2-1/16" 5,000 PSI gated wing valve. A schematic of the proposed wellhead and tree assembly is attached for reference.



H WELL KILLING PROCEDURE

An oil-based synthetic drilling fluid will be utilized for the bottom and horizontal sections of the well. A total onsite volume of 1,600 Bbls (1.5 times the hole volume) will be maintained at 12.5 ppg. Enough weighting material, in the form of barite, will be kept onsite to increase the density of the entire volume of drilling mud by 1.0 ppg. This constitutes enough weighting material to initiate a 16 ppg slug, should a kick be encountered.

Dual-purpose paddle style mixing/reserve tanks will be used for the blending of mud additives and weighting material. A minimum of two units will be employed, with the final number based upon the drilling contractor selected.

The well will be drilled in an overbalanced manner to maintain control over formation fluids. Should a kick be detected, the well will be killed by either the IADC approved "Driller's Method" or "Wait and Weight" method. Bottomhole pressure will be calculated from SIDPP obtained post-kick, and the drilling fluid density will be increased by adding barite to the system and circulated throughout the wellbore when using the "Wait and Weight" method. After circulation with either method, the well will then be checked for flow, and if none is detected, then drilling operations will resume.

6

Hydrogen Sulfide ("H₂S")

A DETECTION, MONITORING AND WARNING EQUIPMENT

Based upon previous experience and history in the area, no H₂S is expected to be encountered during the drilling or completion activities of the Boggess 5H. As a means of additional protection, mud loggers will be utilized during the drilling process to monitor any gas stream from the well through the flowline during the bottom and horizontal sections. Additional portable detection equipment shall be available on or near potential sources of explosive or hydrogen sulfide gases on the pad throughout all operations. Monitoring equipment shall be calibrated by and in accordance with the supplying contractor's guidelines. Detection of either shall sound an alarm which notifies personnel to shut in the well(s) and evacuate to the predetermined safe zone immediately.

B H₂S TRAINING

A safe zone upwind and away from the well will be established at the beginning of each tour. Personnel are trained to evacuate the well and gather at this safe zone immediately at the first sound of an H₂S explosive gas alarm.

When in a historically known area, or after H₂S is first detected, operations will halt, evacuation procedures will be followed, and all personnel will be trained for detailed H₂S protocols before operations begin or resume.

C NOTIFYING THE OFFICE OF OIL AND GAS

In the event that H₂S is encountered, after all personnel have gathered in the safe zone, the onsite supervisor will take a head count, and then proper offsite notifications shall be made. The DEP Office of Oil and Gas will be notified by a phone call to both the local inspector and the emergency number.

D PROTECTION ZONES

A wind sock and/or flags will be utilized on location to identify wind direction, and safe zone upwind and away from the well will be established at the beginning of each tour. Personnel are trained to evacuate the well and gather at this safe zone immediately at the first sound of an H₂S explosive gas alarm.

E LIST OF PERSONAL PROTECTIVE EQUIPMENT ("PPE")

Since drilling in a historically known area to not contain H₂S through the intervals drilled, H₂S specific PPE will not be kept on site. Centralized H₂S alarms, and supplemental personal alarms, will be maintained and used throughout the drilling and completion process. Personnel on site will be notified to cease the current operation safely, shut-in all wells on the pad, and evacuate all personnel to the pre-determined safe zone at the first signal of H₂S from these alarms. It is at this time that NNE personnel would assess the hazards, and bring in H₂S specialists and PPE to mitigate the situation. Normal work would return to the pad after all personnel passed a specific H₂S training and were equipped with the proper PPE.

7

Flaring

A FLARING PLAN

Post frac, a system of 2" and 3" Figure 1502 integrated-hammer pup joints will be assembled from the wellhead to a 5,000 PSI plug catcher and choke manifold. The choke manifold shall consist of two parallel adjustable chokes to control the initial flow of the well. Using the same construction iron, from the choke manifold, flow will enter a high capacity temporary production unit. The liquid fraction from the well will be diverted to gas buster equipped frac- tanks on location. All or part of the gas fraction from the well will be diverted to a thirty foot flare stack approximately 150' downwind of the wellhead. Any gas not diverted to a flare line shall be diverted to sales.

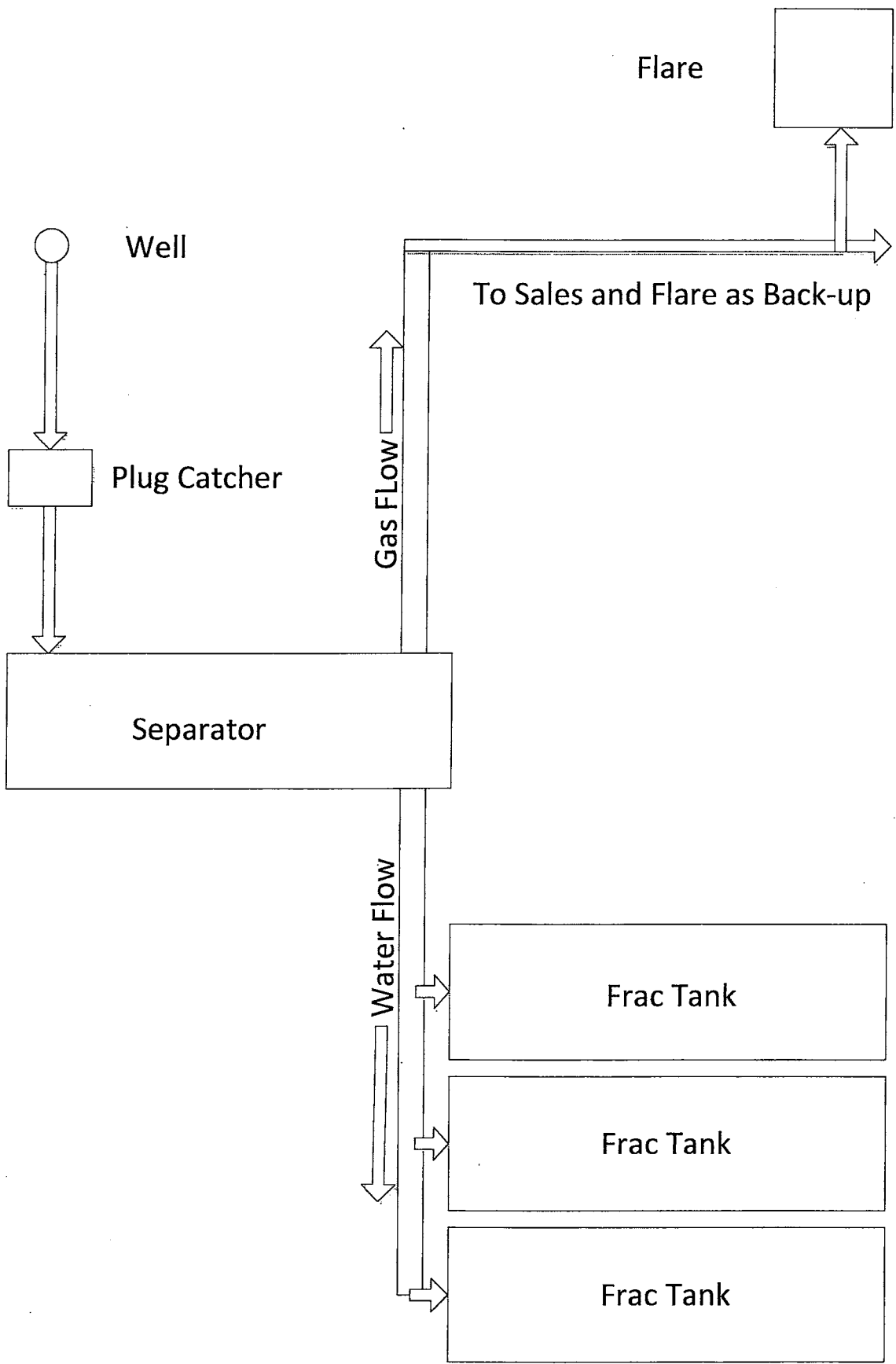
Iron pipe used in the flow/flare line assembly shall be banded at the joints with chain or steel cable. The flow/flare assembly shall be anchored in place by attachment to concrete blocks at vendor recommended intervals.

The flare stack will be equipped with an electronic ignition system, and a minimum of two backup ignition sticks will be kept on location at all times.

All gas diverted through the choke manifold shall either be burned through the flare stack or sent to sales. The local fire department will be given prior notice of the window in which gas flaring is to occur. They will also be notified immediately prior to lighting the flare, if possible, otherwise, as soon after lighting the flare as possible.

A 50' circumference shall be maintained around the flare stack which is to be kept free of flammable materials at all times prior to and during the flaring of any gas.

It is expected to flare the gas fraction of the well stream for a one week period.



8

Collision Avoidance Safeguards, Practices and Standards

Scope of Work:

To ensure that wells are drilled in a safe manner that mitigates the risk of underground collisions on multi-well pads. Key portions of work will be described including roles, responsibilities and steps taken when returning to pads with existing producing or stimulated wells.

Definitions:

- 1) Proposed Wellbore- Involves sections of the vertical top-hole, the KOP, the lateral landing, and the lateral drilling to the total measured depth TMD.
- 2) Nudge- Technique generally used in the vertical top-hole section. The well path is nudged from vertical to pass areas of possible magnetic interferences and to reduce the risk of collision by maintaining separation with other wellbores.
- 3) KOP- Kick off Point. Diverting a well path from one trajectory to another
- 4) MWD- Measurement While Drilling
- 5) LWD- Logging While Drilling
- 6) EM - Electromagnetic Telemetry
- 7) SF- Separation Factor or Clearance Factor:

$$SF^* = CC \div [UR_{ref} + UR_{off}]$$

CC - Well separation distance (center to center of wellbores)
 UR_{ref} – radius ellipse of uncertainty on reference well
 UR_{off} – radius ellipse of uncertainty on offset well
 Note: ellipses are half-axes or radii.

*Calculation options may be considered
- 8) TMD- Total Measured Depth
- 9) Gyro – High accuracy well bore survey instrument unaffected by magnetic interference.
- 10)QC / QA – Quality Control and Quality Assurance
- 11) HSE – Health Safety and the Environment
- 12)UBHO Sub – Universal Bottom Hole Orientation Sub

Established descriptions of risk:

- | | | |
|----------------------|---------|--------------------------|
| 1) $SF \leq 1.0$ | Level 1 | Extreme collision risk |
| 2) $SF = 1.0$ to 1.5 | Level 2 | High collision risk |
| 3) $SF = 1.5$ to 2.0 | Level 3 | Moderate collision risk |
| 4) $SF > 2.0$ | Level 4 | Low to no collision risk |

*Please see attached directional schematic.

Well Planning:

Prior to drilling any well, a directional plan will be developed to ensure that the well is properly placed with consideration to permits, lease limitations and future drilling considerations. The well should be planned to maintain a SF of ≥ 2.0 whenever possible. If a SF of <2.0 is encountered, additional risk mitigation steps may be required such as downhole mechanical barriers and increased survey frequency.

Survey Protocol:

When drilling wells on a pad without producing or stimulated wells, surveys will be taken every 500' in the vertical portion of the wellbore.

When drilling wells on pads with producing or stimulated wells, the survey frequency will be at a minimum of every 250' and will be increased as needed.

Tool Alignment Procedure:

All work groups responsible for the placement of the wellbore share responsibility in ensuring accuracy. The Company Representative, Directional Drilling Supervisor and Gyro Supervisor are all responsible for the alignment of the UBHO Sub and the motor to ensure that azimuthal directional is correct. All parties should visually verify the orientation of the shoe and agree upon a coordinate system and reference point. When possible, MWD tools will be used to minimize risk of incorrect orientation.

Directional Planning and Controls – Vertical Wellbore:

When drilling on pads without producing or stimulated wells, all wells should be planned with a minimum SF ≥ 1.5 . Surveys should be taken at intervals of 500' to record the well path as it is drilled but the frequency can be increased if needed.

Drilling parameters should be held constant for the vertical portions of all wells to ensure the natural drilling path is similar for all wells on the pad.

Following the drilling of the vertical section of the wellbore, a gyro survey will be taken. Anti-collision software will be used to analyze this data to ensure safe wellbore spacing. Internally, Hawkeye will be used for tracking and planning 3D wellbore geometry and, as a redundancy, the directional company will utilize their own software to confirm results.

If drilling wells on a pad with existing producing or completed wells, additional steps in directional planning may be required. If possible, all additional wells to an active pad should be planned with a SF ≥ 2.0 . If a well cannot be planned in such a manner, additional means of risk mitigation will be considered including nudging the wellbores, use of MWD/EM, down hole barriers in at risk wells and increased survey frequency.

Directional Planning and Controls – Curve and Lateral Wellbore:

While drilling the curve and lateral portions of the wellbores, MWD technology will be used to ensure the well path is drilled according to the drilling plan and the state permit. Azimuth, gamma ray and other data will be collected and transmitted to surface. The information will be analyzed by the Directional Drilling Contractor, Company Representative, Drilling Manager and Geologist to ensure the quality of the data and proper interpretation.

The path of the well being drilled will be monitored in relationship to all adjacent wells to ensure adequate SF is maintained during the vertical, curve and horizontal portions of the wellbore.

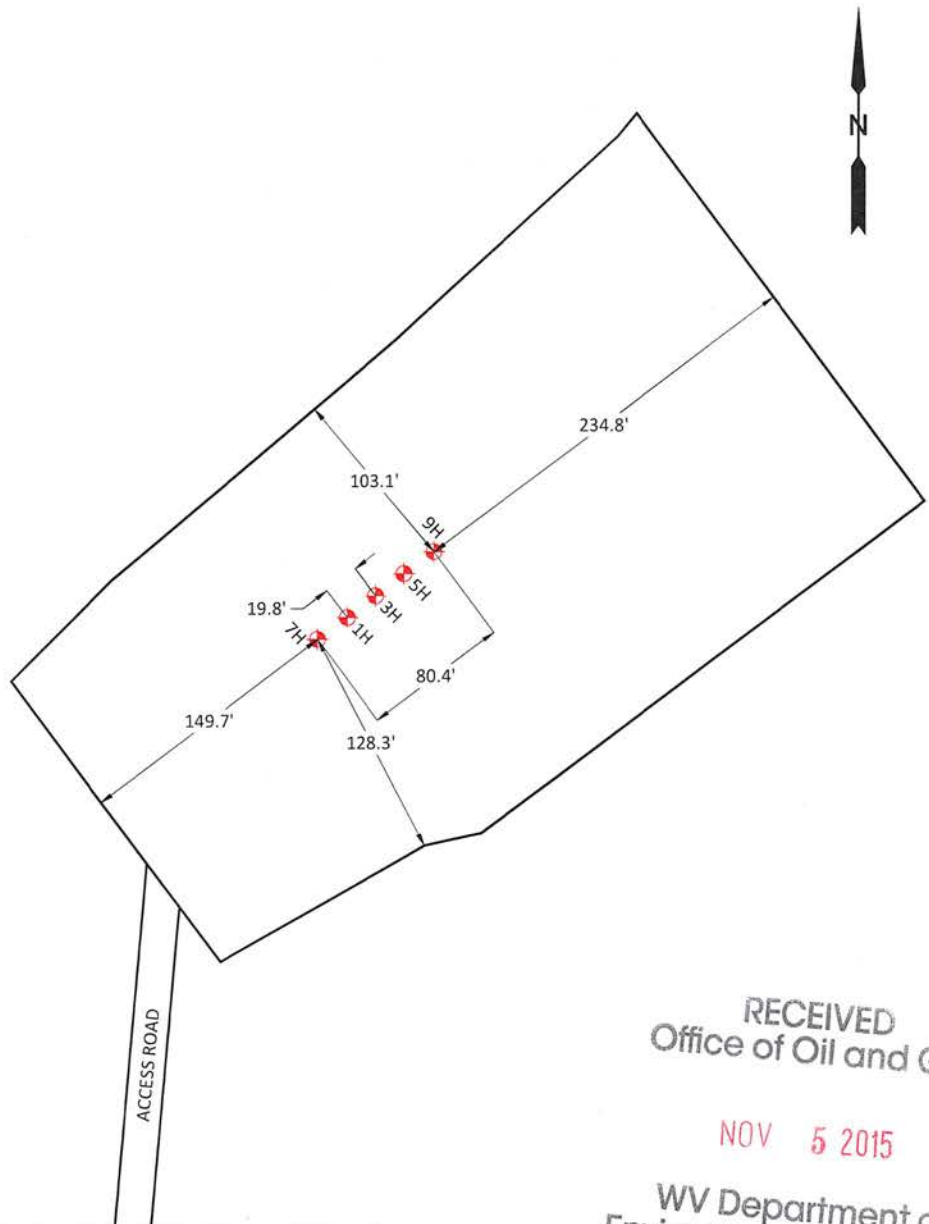
Other Data:

Prior to drilling new wells on a pad, a site overview with the wellhead arrangement will be developed. Among the information that should be included is API number, surface footage separation and wellbore status. Additionally, all survey data for each existing well will be compiled for use in well planning.

Contingency Plans:

The wellbore being drilled will be monitored in relation to existing wellbores. Should the active well approach an existing well and the SF be < 1.5 , drilling should be suspended until risks are mitigated by adjusting the directional plan, increasing survey frequency and verifying any necessary mechanical barriers are present in the adjacent wells. If a SF ≤ 1 is experienced, the WV DEP Office of Oil and Gas Regional Inspector will be immediately contacted.

Should a collision occur, the WV DEP Office of Oil and Gas Regional Inspector will be immediately contacted, drilling will be suspended and all existing wells will be monitored for integrity. If a loss of pressure control in any well is experienced, Wild Well Control, or another professional well control company, will be contracted for technical support and services. If there is not a loss of pressure control, a separate well work procedure will be developed to repair or plug and abandon the effected wells.

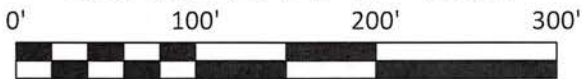


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SCALE BAR: 1"=100'



PREPARED FOR
NORTHEAST NATURAL ENERGY LLC
BOGCESS WELL PAD
CLAY DISTRICT, MONONGALIA COUNTY, WV

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

LEGEND

- =PROPOSED WELL
- =EXISTING WELL

Well Number	API Number	Status
Bogcess 5H	Permit Applied	Proposed
Bogcess 9H	Permit Applied	Proposed

Proposed: Boggess 5H & 9H
Northeast Natural Energy LLC



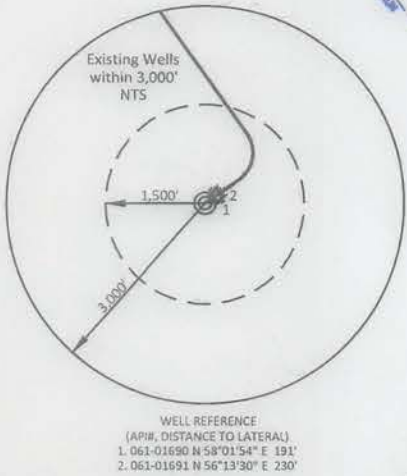
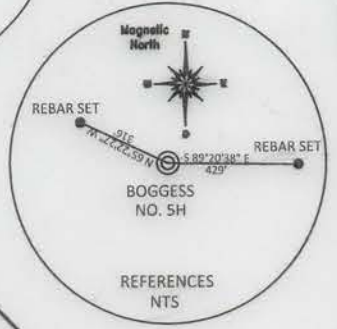
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WV Department of
Environmental Protection

11/06/2015

TOP HOLE (UTM NAD 83)
 N) 4391546.9
 E) 577773.3
 BOTTOM HOLE (UTM NAD 83)
 N) 4393617.7
 E) 576693.2



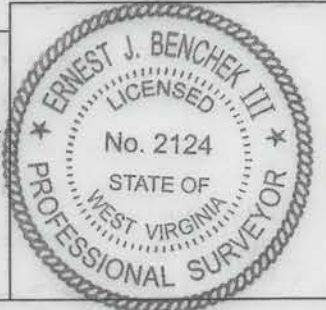
WELL REFERENCE!
 (API#; DISTANCE TO LATERAL)
 1. 061-01690 N 58°01'54" E 191'
 2. 061-01691 N 56°13'30" E 230'

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 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 625' OF THE CENTER OF WELL PAD.

FILE #: NEE14
 DRAWING #: 2459
 SCALE: PLAT: 1" = 1600'
 TICK MARK: 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 / CLAY
 SURFACE OWNER: BLAKE R. & PRESTON H. BOGCESS
 OIL & GAS ROYALTY OWNER: BLAKE R. & PRESTON H. BOGCESS
 LEASE NUMBERS:

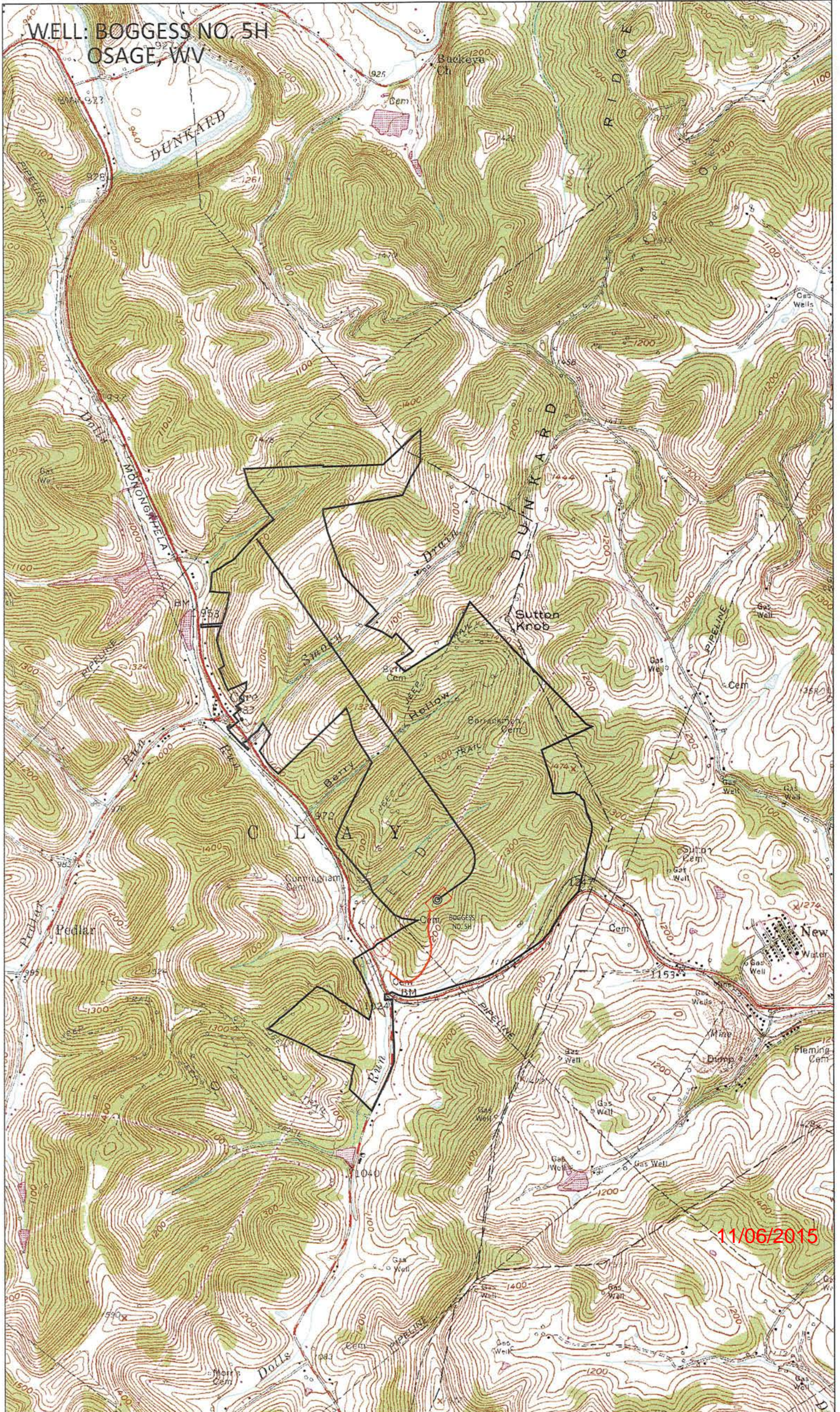
DATE: JUNE 1, 2015
 OPERATOR'S WELL #: BOGCESS NO. 5H
 API WELL #: 47 61 01690 MOD
 STATE COUNTY PERMIT
 ELEVATION: 1,268'
 QUADRANGLE: OSAGE, WV
 ACREAGE: 389.96 +/-
 ACREAGE: 920.50 +/-

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: 8,902' TMD: 16,004'
 WELL OPERATOR: NORTHEAST NATURAL ENERGY LLC
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301
 DESIGNATED AGENT: JOHN ADAMS
 ADDRESS: 707 VIRGINIA STREET EAST, SUITE 1200
 CITY: CHARLESTON STATE: WV ZIP CODE: 25301

SURFACE HOLE DEC. LAT: 39.670122
 SURVEYED LAT: 39° 40' 12.4"

11/06/2015

WELL: BOGGESS NO. 5H
OSAGE, WV



11/06/2015

WW-6A1

Operator's Well No.

Bogges 5H

NNE Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page	Tax Map & Parcel
WV-061-003269-001	BOGGESE, BLAKE R.	*Novus Exploration, LLCC	0.125 or greater	1399/010	8-12-65
WV-061-003269-002	BOGGESE, H. PRESTON	*Novus Exploration, LLCC	0.125 or greater	1399/006	8-12-65
WV-061-003592-001	SHUMAN, INC.	Northeast Natural Energy LLC	0.125 or greater	1526/462	8-12-65
WV-061-003363-001	BERNATOWICZ, JOYCE F., TRUSTEE OF DONALD F. FRAZEE TRUST	Northeast Natural Energy LLC	0.125 or greater	1502/564	8-12-64
WV-061-001364-001	PLATT, ROBERT G.	*Chesapeake Appalachia, LLC	0.125 or greater	1372/350	8-12-63
WV-061-001368-001	MYERS, JUNE C.	*Chesapeake Appalachia, LLC	0.125 or greater	1374/205	8-12-58
WV-061-003586-001	CORE, CHARLES	Northeast Natural Energy LLC	0.125 or greater	1523/710	8-12-58

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JUL 14 2015

11/06/2015

4706101690

Chesapeake Appalachia, LLC.

Northeast Natural Energy
Assignment
BK 120/769

Received
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JUL 14 2015

11/06/2015

4706101690

Novus Exploration, LLC.



Chesapeake Appalachia, LLC.
Assignment
BK 114/749



Northeast Natural Energy
Assignment
BK 120/769

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Office of Oil & Gas
JUL 14 2015

11/06/2015

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

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

Date of Notice: 6/4/2015 Date Permit Application Filed: 7/7/2015

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

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

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)

Name: See Attachment
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: See Attachment
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: See Attachment
Address: _____

COAL OPERATOR

Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: See Attachment
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

*Please attach additional forms if necessary

Received
Office of Oil & Gas
JUL 14 2015

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

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 Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

Office of Environmental Policy & Compliance
July 1, 2015

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

Received
Office of Oil & Gas
JUL 14 2015

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Received
Office of Oil & Gas
JUL 14 2015

4706101690

WW-6A
(8-13)

API NO. 47- _____
OPERATOR WELL NO. Boggess 5H
Well Pad Name: Boggess

Notice is hereby given by:

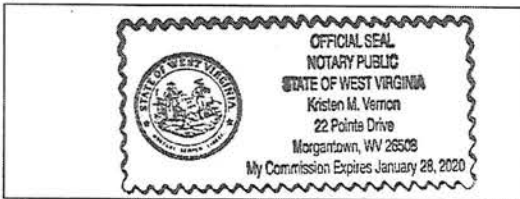
Well Operator: Northeast Natural Energy LLC
Telephone: 304-241-5752, ext. 7108
Email: hmedley@nne-llc.com

Address: 707 Virginia Street E., 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.

Helli M. Medley



Subscribed and sworn before me this 4th day of November 2015.

Dustin Notary Public

My Commission Expires January 28, 2020

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NOV 5 2015

WV Department of
Environmental Protection

11/06/2015

4706101690

Boggess 5H & 9H – Notice of Permit Modification Application – 2015-6-4

7011 0470 0002 7478 8444

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$ 595
Certified Fee	345
Return Receipt Fee (Endorsement Required)	280
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 1220

MAIL & MORE™ CMRA
MORGANTOWN WV 26606

Postmark
JUN 04 2015

Sent To
Street, Apt. No.,
or PO Box No. Mr. Blake R. Boggess
1584 Mason Dixon Highway
City, State, ZIP+4 Madsville, WV 26541

PS Form 3800, August 2006 See Reverse for Instructions

Received
Office of Oil & Gas
JUL 14 2015

11/06/2015

4706101690

Bogges 5H & 9H – Notice of Permit Modification Application – 2015-6-4

7011 0470 0002 7478 8451

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
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For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$ 6.35	MAIL & MORE - CMRA MORGANTOWN WV 26508
Certified Fee	3.45	
Return Receipt Fee (Endorsement Required)	2.80	
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	\$ 12.60	

Postmark
JUN 04 2015

Sent To
 Street, Apt. No.,
 or PO Box No. Mr. H. Preston Bogges
 119 Pine Springs Drive, S.E.
 City, State, ZIP+4 Copperhill, VA 24079

PS Form 3800, August 2006 See Reverse for Instructions

Received
Office of Oil & Gas
JUL 14 2015

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Bogges 5H & 9H – Notice of Permit Modification Application – 2015-6-4

7011 0470 0002 7476 8437

U.S. Postal Service™	
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For delivery information visit our website at www.usps.com ®	
OFFICIAL USE	
Postage	\$ 595
Certified Fee	34.5
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 1220

MAIL & MORE - CMRA
MORGANTOWN WV 26508

Postmark Here
JUN 04 2015

<i>Sent To</i>	
Street, Apt. No., or PO Box No.	Mr. Roy L. Eddy
City, State, ZIP+4	297 Stull Hollow Road Maidsville, WV 26541

PS Form 3800, August 2006 See Reverse for Instructions

Received
Office of Oil & Gas
JUL 14 2015

11/06/2015

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Bogges 5H & 9H – Notice of Permit Modification Application – 2015-6-4

9962 8242 2000 0440 TT02

U.S. Postal Service™
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For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$ 595	MAIL & MORE - CARPA MORGANTOWN, WV 26508 Postmark Here JUN 04 2015
Certified Fee	345	
Return Receipt Fee (Endorsement Required)	280	
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	\$ 1220	

Sent To
 Street, Apt. No.,
 or PO Box No.
 City, State, ZIP+4

Mr. & Mrs. Dave Jones
 3106 Little Indian Creek Road
 Core, WV 26541

PS Form 3800, August 2006 See Reverse for Instructions

Received
Office of Oil & Gas
JUL 14 2015

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Bogges 5H & 9H – Notice of Permit Modification Application – 2015-6-4

7011 0470 0002 7478 8468

U.S. Postal Service™	
CERTIFIED MAIL™ RECEIPT	
<i>(Domestic Mail Only; No Insurance Coverage Provided)</i>	
For delivery information visit our website at www.usps.com ®	
OFFICIAL USE	
Postage	\$ 595
Certified Fee	345
Return Receipt Fee (Endorsement Required)	280
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 1220
MAIL & MORE™ CMRA Postmark MORGANTOWN WV 26508	
JUN 04 2015	
Sent To Street, Apt. No., or PO Box No. City, State, ZIP+4	
Mr. Chad C. Forman 1543 Mason Dixon Highway Core, WV 26541	
PS Form 3800, August 2006 See Reverse for Instructions	

Received
Office of Oil & Gas
JUL 14 2015

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4706101690

Bogges 5H & 9H – Notice of Permit Modification Application – 2015-6-4

7011 0470 0002 7478 7959

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$ 595
Certified Fee	345
Return Receipt Fee (Endorsement Required)	280
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 1220

MAIL & MORE - CMRA
MORGANTOWN, WV 26508

Postmark Here
JUN 04 2015

Sent To
Ms. Mary Jane Walls
Street, Apt. No.;
or PO Box No. 3230 Mason Dixon Highway
City, State, ZIP+4 Core, WV 26541

PS Form 3800, August 2006 See Reverse for Instructions

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Office of Oil & Gas
JUL 14 2015

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Bogges 5H & 9H – Notice of Permit Modification Application – 2015-6-4

7011 0470 0002 7478 8475

U.S. Postal Service™ CERTIFIED MAIL™ RECEIPT <i>(Domestic Mail Only; No Insurance Coverage Provided)</i>	
For delivery information visit our website at www.usps.com .	
OFFICIAL USE	
Postage	\$ 414
Certified Fee	345
Return Receipt Fee (Endorsement Required)	250
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 10.39
Sent To	Consolidated Coal Company Engineering & Operations Support Coal
Street, Apt. No., or PO Box No.	Attn: Analyst CNX Center
City, State, ZIP+4	1000 Consol Energy Drive Canonsburg, PA 15317

MAIL & MORE - CMRA
POSTMARK
CANONSBURG, WV 26008

JUN 04 2015

PS Form 3800, August 2006 See Reverse for Instructions

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Office of Oil & Gas
JUL 14 2015

11/06/2015

4706101690

Bogges 5H & 9H – Notice of Permit Modification Application – 2015-6-4

7011 0470 0002 7478 8383

U.S. Postal Service™
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For delivery information visit our website at www.usps.com

OFFICIAL USE

Postage	\$ 4.14
Certified Fee	3.45
Return Receipt Fee (Endorsement Required)	2.80
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$ 10.39

MAIL & MORE™ CMRA
MORGANTOWN WV 26508

JUN 04 2015

Sent To
 Street, Apt. No.,
 or PO Box No. Murray Energy Corporation
 Attn: Alex P. O'Neill
 Coal, Oil & Gas Relations Manager
 City, State, ZIP+4 46226 National Road
 St. Clairsville, OH 43950

PS Form 3800, August 2008 See Reverse for Instructions

Received
Office of Oil & Gas
JUL 14 2015

11/06/2015

**Horizontal Natural Gas Well Work Permit
Application Notice By Publication**

Notice is hereby given:

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

Paper: The Dominion Post

Public Notice Date: 5/12/2015; 5/19/2015

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

Applicant: Northeast Natural Energy LLC **Well Number:** Bogges 5H & 9H

Address: 707 Virginia Street East, Suite 1200
Charleston, WV 25301

Business Conducted: Natural gas production.

Location –

State: West Virginia County: Monongalia
District: Clay Quadrangle: Osage, WV
UTM Coordinate NAD83 Northing: 4391546.9 (Bogges 5H); 4391550.6 (Bogges 9H)
UTM coordinate NAD83 Easting: 577773.3 (Bogges 5H); 577778.2 (Bogges 9H)
Watershed: Dunkard Creek

Coordinate Conversion:

To convert the coordinates above into longitude and latitude, visit: http://tagis.dep.wv.gov/convert/llutm_conus.php

Electronic notification:

To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx> to sign up.

Reviewing Applications:

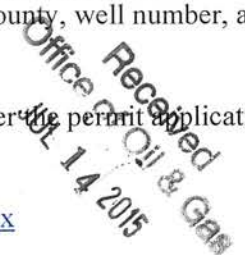
Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE Charleston, WV 25304 (304-926-0450). Full copies or scans of the proposed permit application will cost \$15, whether mailed or obtained at DEP headquarters. Copies may be requested by calling the office or by sending an email to DEP.oog@wv.gov.

Submitting Comments:

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57th Street, SE Charleston, WV 25304. Please reference the county, well number, and operator when using this option.

Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

For information related to horizontal drilling visit: www.dep.wv.gov/oil-and-gas/pages/default.aspx



vs.

Horizontal Natural Gas Well Work Permit Application Notice By Publication

May 12, 19

Whereby given: West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant in the county in which the well is located or is proposed to be located a Class II legal advertisement.

Dominion Post
Publication Date: 5/12/2015; 5/19/2015

The applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more including pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of thirty day period.

Applicant: Northeast Natural Energy LLC Well Number: Boggess 5H & 9H
Address: 7 Virginia Street East, Suite 1200
Martinsburg, WV 25301

Produced: Natural gas production.

State: West Virginia County: Monongalia

District: Clay Quadrangle: Osage

JTM Coordinate NAD83 Northing: 4391546.9 (Boggess 5H); 4391550.6 (Boggess 9H)

JTM Coordinate NAD83 Easting: 577773.3 (Boggess 5H); 577778.2 (Boggess 9H)

Watershed: Dunkard Creek

Conversion: Convert the coordinates above into longitude and latitude, visit: http://tagis.dep.wv.gov/convert/lutm_conus.

Notification: Please email when applications have been received or issued by the Office of Oil and Gas, visit http://www.wv.gov/dep/Pages/DEPMailingLists.aspx to sign up.

Applications: A proposed permit application may be reviewed at the WV Department of Environmental Protection located at 601 57th Street, SE Charleston, WV 25304 (304-926-0450). Full copies or scans of a permit application will cost \$15, whether mailed or obtained at DEP headquarters. Copies may be obtained by calling the office or by sending an email to DEP.oog@wv.gov.

Comments: Comments may be submitted online at https://apps.dep.wv.gov/oog/comments/comments.cfm, or by letter to the Office of Oil and Gas, 601 57th Street, SE Charleston, WV 25304. Please reference the county and operator when using this option.

For more information on comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

For more information related to horizontal drilling visit: www.dep.wv.gov/oil-and-gas/pages/default.aspx

STATE OF WEST VIRGINIA
COUNTY OF MONONGALIA

I, Eric Wilson, Advertising Director of THE DOMINION POST, a newspaper of general circulation published in the City of Morgantown, County and State of West Virginia, do hereby certify that the annexed

Legal Notice

was published in the said THE DOMINION POST once a week for 3 successive weeks commencing on the 11th day of May, 2015 and ending on the 19th day of May, 2015

The publisher's fee for said publication is \$470.80

Given under my hand this 19th day of May, 2015

[Handwritten Signature]

(SEAL)

Advertising Director of THE DOMINION POST

Subscribed and sworn to before me this 19th day of May, 2015

[Handwritten Signature]

Notary Public of Monongalia County, W. Va.

My commission expires on the 13th day of July, 2024



Official Seal
Notary Public, State of West Virginia
Kathy J Custer
469 Westwood St
Star City WV 26505
My Commission Expires April 13, 2024

Office of Oil & Gas
JUL 14 2015

11/06/2015



NORTHEAST NATURAL ENERGY, LLC

Location: Monongalia County, WV
 Field: Monongalia
 Facility: Boggess Pad
 Slot: Slot 05
 Well: Boggess 5H
 Wellbore: Boggess 5H PWB



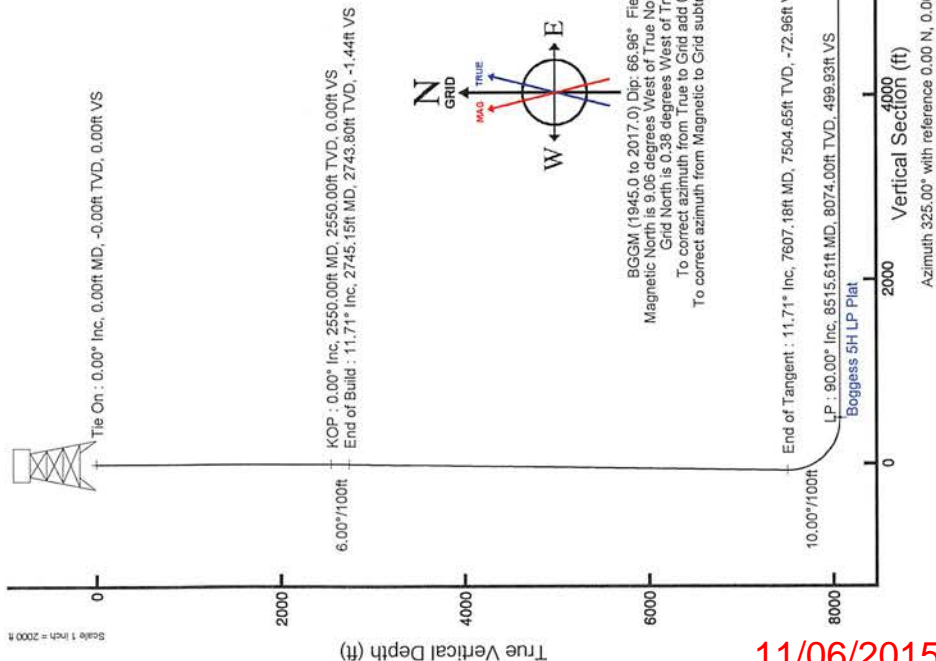
This information was obtained from Boggess 5H PWB Project.
 True vertical depths are referenced to Rig on Slot 05 (RT).
 Measured depths are referenced to Rig on Slot 05 (RT).
 Rig on Slot 05 (RT) to Mean Sea Level: 2550.00 ft.
 Mean Sea Level to True Vertical Depth (TVD): 2550.00 ft.
 Coordinates are in feet referenced to Slot 05.

Design Comment	MD (ft)	Inc (ft)	As Pt	TVD (ft)	Locat N (ft)	Locat E (ft)	DLS (1/100ft)	VS (ft)
Tie On	0.00	0.000	50.157	2550.000	0.00	0.00	0.00	0.00
KOP	2550.00	0.000	50.157	2550.000	0.00	0.00	0.00	0.00
End of Build	2745.15	11.709	50.157	2743.800	10.19	17.06	6.00	-1.44
End of Tangent	7607.18	11.709	50.157	7504.650	516.07	864.23	0.00	-72.96
LP	8074.00	90.000	325.000	8074.000	1052.86	632.04	0.00	499.93
BHL	15598.25	90.000	325.000	8074.000	8984.62	-3430.41	0.00	7392.93

Facility Name	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude
Boggess Pad	1807481.600	4267469.000	39°42'12.200"N	80°10'35.030"W
Slot 05	24.00	31.40	39°42'12.200"N	80°10'35.030"W

Targets	Level E (ft)	Level N (ft)	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude
Boggess 5H PWB	7504.65	-12.60	1807481.60	4267469.00	39°42'12.200"N	80°10'35.030"W
Boggess 5H PWB	7504.65	-12.60	1807481.60	4267469.00	39°42'12.200"N	80°10'35.030"W
Boggess 5H PWB	7504.65	-12.60	1807481.60	4267469.00	39°42'12.200"N	80°10'35.030"W
Boggess 5H PWB	7504.65	-12.60	1807481.60	4267469.00	39°42'12.200"N	80°10'35.030"W

Design Comment	MD (ft)	Inc (ft)	As Pt	TVD (ft)	Locat N (ft)	Locat E (ft)	DLS (1/100ft)	VS (ft)
Tie On	0.00	0.000	50.157	2550.000	0.00	0.00	0.00	0.00
KOP	2550.00	0.000	50.157	2550.000	0.00	0.00	0.00	0.00
End of Build	2745.15	11.709	50.157	2743.800	10.19	17.06	6.00	-1.44
End of Tangent	7607.18	11.709	50.157	7504.650	516.07	864.23	0.00	-72.96
LP	8074.00	90.000	325.000	8074.000	1052.86	632.04	0.00	499.93
BHL	15598.25	90.000	325.000	8074.000	8984.62	-3430.41	0.00	7392.93





Clearance Report

Bogges 5H PWP Permit
Closest Approach
Page 1 of 34



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Bogges 5H
Field	Monongalia	Wellbore	Bogges 5H PWB
Facility	Bogges Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert West Virginia SP, Northern Zone (4701), US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	Gotfbral
Scale	0.999941	Report Generated	09/June/2015 at 15:38
Convergence at slot	0.38° West	Database/Source file	W\NorthEast\Bogges_5H_PWB_CR.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	24.00	31.40	1801513.00	426773.60	39°40'12.730"N	80°05'35.630"W
Facility Reference Pt			1801481.60	426749.60	39°40'12.490"N	80°05'36.030"W
Field Reference Pt			1777685.71	440640.65	39°42'28.114"N	80°10'41.690"W

WELLPATH DATUM

Calculation method	Minimum Curvature	Rig on Slot 05 (RT) to Facility Vertical Datum	0.00ft
Horizontal Reference Pt	Slot	Rig on Slot 05 (RT) to Mean Sea Level	1268.00ft
Vertical Reference Pt	Rig on Slot 05 (RT)	Rig on Slot 05 (RT) to Mud Line at Slot (Slot 05)	0.00ft
MD Reference Pt	Rig on Slot 05 (RT)		
Field Vertical Reference	Mean Sea Level		

POSITIONAL UNCERTAINTY CALCULATION SETTINGS

Ellipse Confidence Limit	3.00 Std Dev	Ellipse Start MD	0.00ft	Surface Position Uncertainty	included
Declination	9.06° West of TN	Dip Angle	66.96°	Mag Field Strength	52296 nT
Slot Surface Uncertainty @1SD		Horizontal	0.100ft	Vertical	1.000ft
Facility Surface Uncertainty @1SD		Horizontal	8.200ft	Vertical	3.000ft

Positional Uncertainty values in the WELLPATH DATA table are the projection of the ellipsoid of uncertainty onto the vertical and horizontal planes

4706101690

11/06/2015



Clearance Report

Boggett 5H PWP Permit
Closest Approach
Page 2 of 34



REFERENCE WELLPATH IDENTIFICATION

Operator	NORTHEAST NATURAL ENERGY, LLC	Slot	Slot 05
Area	Monongalia County, WV	Well	Boggett 5H
Field	Monongalia	Wellbore	Boggett 5H PWB
Facility	Boggett Pad		

ANTI-COLLISION RULE

Rule Name	Baker Hughes Stop Drilling	Rule Based On	Ratio
Plane of Rule	Closest Approach	Threshold Value	1.00
Subtract Casing & Hole Size	yes	Apply Cone of Safety	no

SURVEY PROGRAM - Ref Wellbore: Boggett 5H PWB Ref Wellpath: Boggett 5H PWP Permit

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	2650.00	Generic gyro - northseeking (Standard)		Boggett 5H PWB
2650.00	15690.32	NaviTrak (AT Curve Short Spaced)		Boggett 5H PWB

CALCULATION RANGE & CUTOFF

From: 0.00ft MD	To: 15598.25ft MD	C-C Cutoff: (none)
-----------------	-------------------	--------------------

OFFSET WELL CLEARANCE SUMMARY (4 Offset Wellpaths selected) Ratios are calculated in Closest Approach plane

Offset Facility	Offset Slot	Offset Well	Offset Wellbore	Offset Wellpath	C-C Clearance Distance			ACR Separation Ratio			
					Ref MD [ft]	Min C-C Clear Dist [ft]	Diverging from MD [ft]	Ref MD of Min Ratio [ft]	Min Ratio	Min Ratio Dvrg from [ft]	ACR Status
Boggett Pad	Slot 03	Boggett 3H	Boggett 3H PWB	Boggett 3H PWP Permit	0.00	19.76	15400.00	2557.98	1.00	15500.00	PASS
Boggett Pad	Slot 09	Boggett 9H	Boggett 9H PWB	Boggett 9H PWP Permit	0.00	20.46	2500.00	2543.53	1.00	15598.25	PASS
Boggett Pad	Slot 01	Boggett 1H	Boggett 1H PWB	Boggett 1H PWP Permit	0.00	39.52	15400.00	2540.82	2.22	15500.00	PASS
Boggett Pad	Slot 07	Boggett 7H	Boggett 7H PWB	Boggett 7H PWP Permit	0.00	59.98	2550.00	2572.94	3.08	14600.00	PASS

11/06/2015

4706101690

WW-6A
(8-13)

API NO. 47- _____ - _____
OPERATOR WELL NO. Bogges 5H
Well Pad Name: Bogges

4706101690

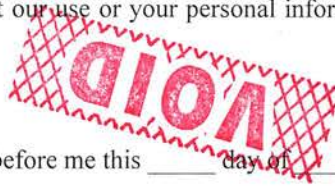
Notice is hereby given by:

Well Operator: Northeast Natural Energy LLC
Telephone: 304-241-5752, ext. 7108
Email: hmedley@nne-llc.com

Address: 707 Virginia Street E., 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 of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



Subscribed and sworn before me this _____ day of _____.

Notary Public

My Commission Expires _____

Received
Office of Oil & Gas
JUL 14 2015

11/06/2015

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	94.71	60'	60'	GTS
Fresh Water	13-3/8"	New	J-55	54.5	1,290'	1,260'	CTS
Coal							
Intermediate	9-5/8"	New	J-55	40	2,530'	2,500'	CTS
Production	5-1/2"	New	P-110	20	16,004'	15,974'	3,672 Cu. Ft.
Tubing	2-7/8"	New	N-80	6.5	NA	8,500'	NA
Liners							

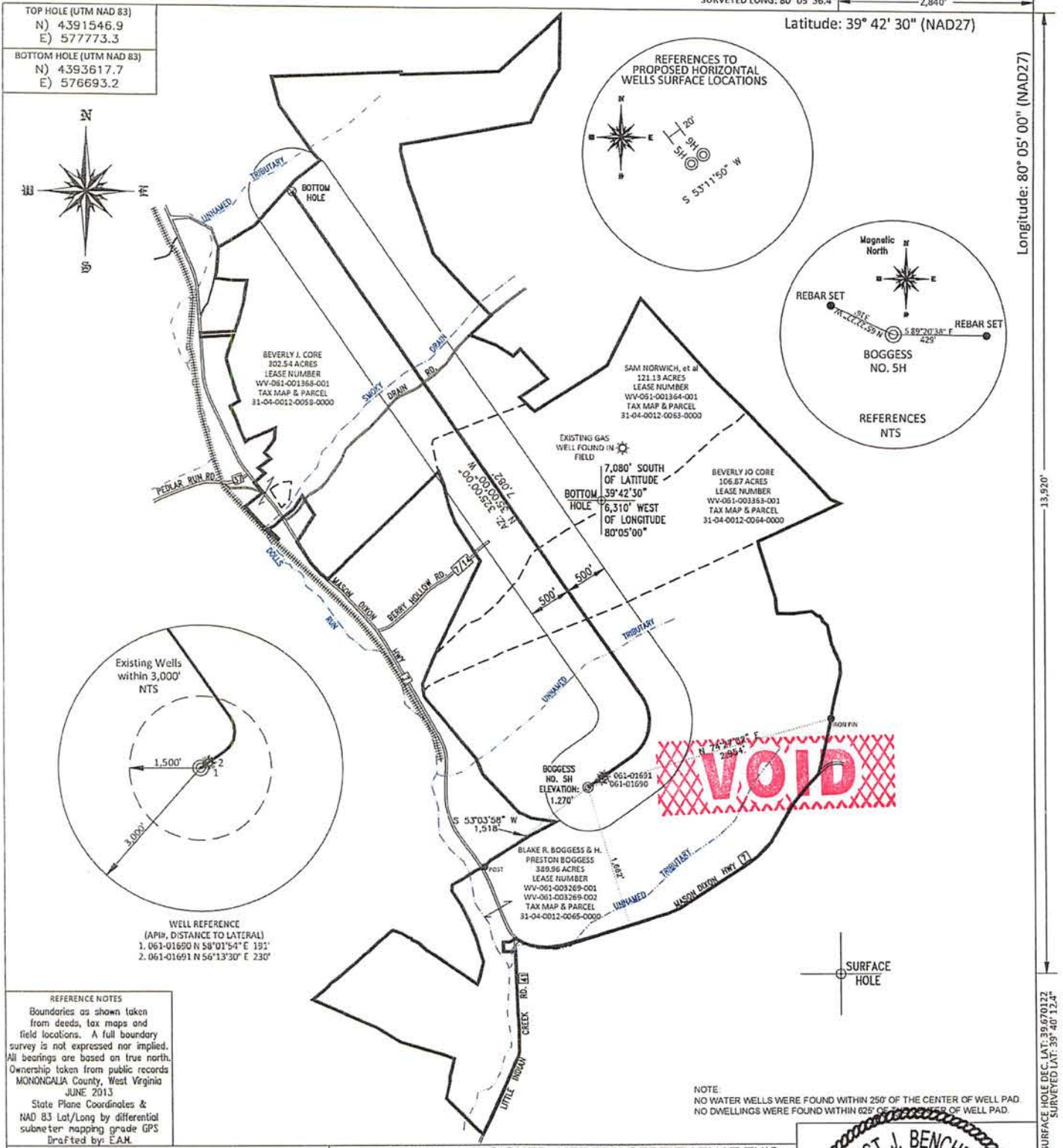
Northeast Natural Energy LLC requests the ability to drill beyond elevation for the purpose of isolating the Red Rock Formation.

VOID *mgk 6/17/2015*

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 pst 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"	10,570	3,600	NA	NA
Liners							

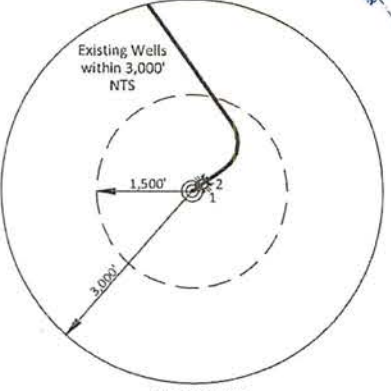
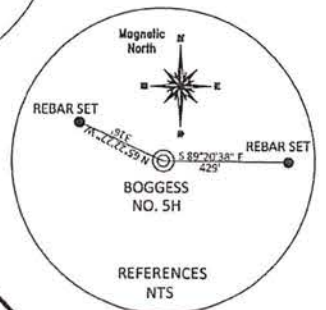
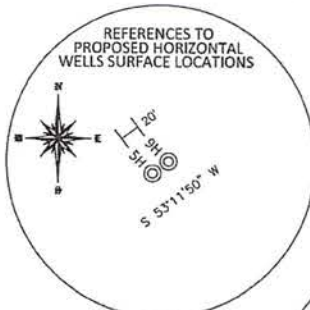
PACKERS

Kind:				
Sizes:				
Depths Set:				

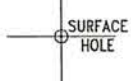


TOP HOLE (UTM NAD 83)
N) 4391546.9
E) 577773.3

BOTTOM HOLE (UTM NAD 83)
N) 4393617.7
E) 576693.2



VOID



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 JUNE 2013
 State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS
 Drafted by: E.A.M.

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.

FILE #: NEE14
 DRAWING #: 2459
 SCALE: 1" = 1600'
 TICK MARK: 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 WYDEP
 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 ELEVATION: 1,268'

COUNTY/DISTRICT: MONONGALIA / CLAY QUADRANGLE: OSAGE, WV

SURFACE OWNER: BLAKE R. & PRESTON H. BOGGESS ACREAGE: 389.96 +/-

OIL & GAS ROYALTY OWNER: BLAKE R. & PRESTON H. BOGGESS ACREAGE: 920.50 +/-

LEASE NUMBERS:

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY):

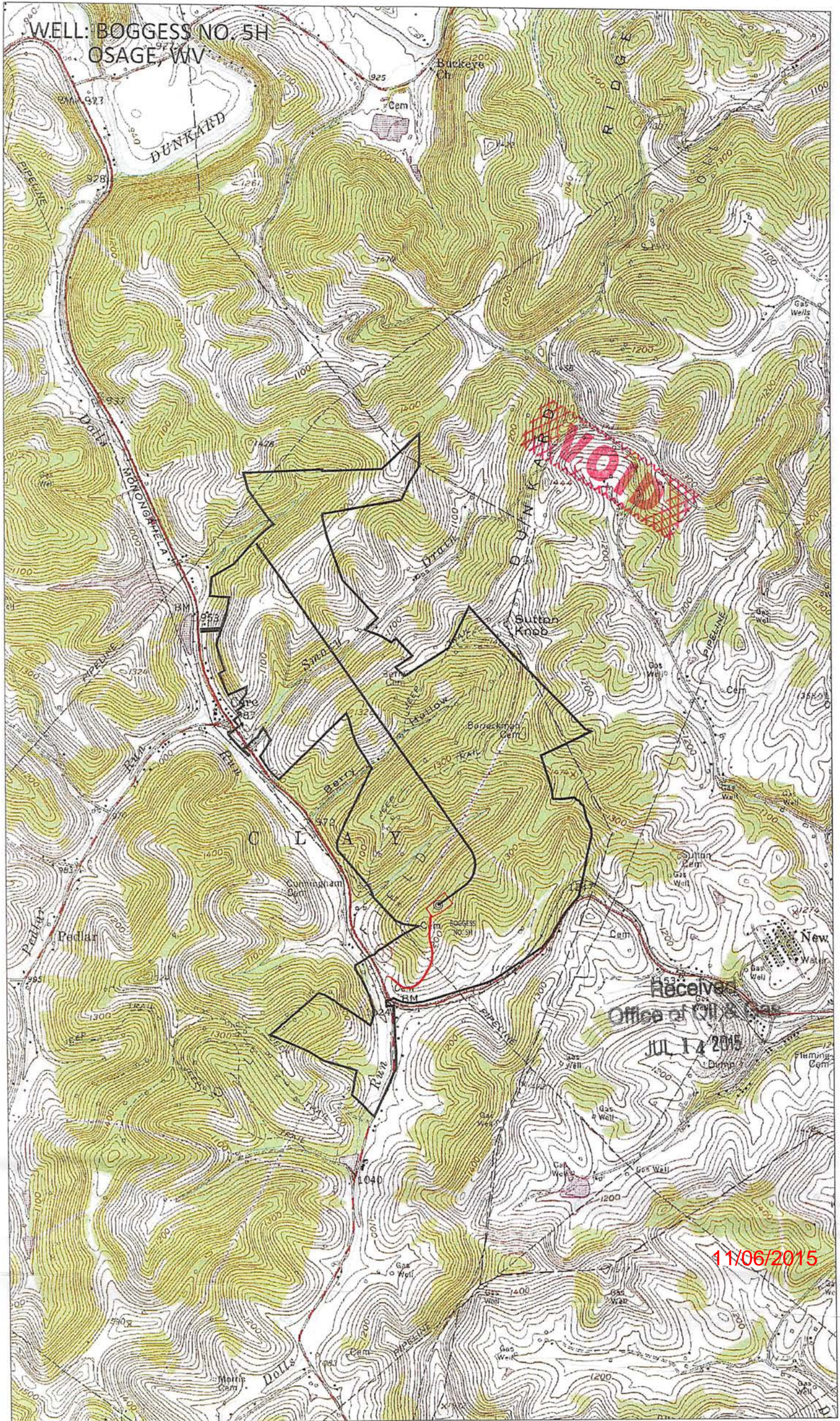
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 8,902' FMD: 16,004'

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

DATE: JUNE 1, 2015
 OPERATOR'S WELL #: BOGGESS NO. 5H
 API WELL #: 47 61 STATE COUNTY PERMIT

Received
 Office of Oil & Gas
 JUL 14 2015

WELL: BOGGESS NO. 5H
OSAGE WV



11/06/2015