west virginia department of environmental protection

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

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

November 10, 2016
PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well - 1

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

Re: Permit Modification Approval for KASSAY 8H
47-061-01740-00-00

Modifying azimuth of lateral well bore

NORTHEAST NATURAL ENERGY LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

Operator's Well Number: KASSAY 8H
Farm Name: KASSAY, NEHEMIAH
U.S. WELL NUMBER: 47-061-01740-00-00
Horizontal 6A / Horizontal 6A Well - 1
Date Issued: November 10, 2016

4706101740

WW-6B
(04/15)

API NO. 47-_____-_____
OPERATOR WELL NO. Kassay 8H
Well Pad Name: Kassay

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

1) Well Operator:	Northeast Natural Energy LLC	494498281	Monongalia	Clay	Blacksville
		Operator ID	County	District	Quadrangle

2) Operator's Well Number: Kassay 8H Well Pad Name: Kassay

3) Farm Name/Surface Owner: Nehemiah and Patty A. Kassay Public Road Access: County Route 25/3 (Yank Hollow Road)

4) Elevation, current ground: 1,534' Elevation, proposed post-construction: 1534'

5) Well Type (a) Gas X Oil _____ Underground Storage _____
Other _____
(b)If Gas Shallow X Deep _____
Horizontal X

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 8,288.50' , 103' , 3,600 psi

MJK 11/7/2016

8) Proposed Total Vertical Depth: 8,288.50'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16,396.24'

11) Proposed Horizontal Leg Length: 7,196'

12) Approximate Fresh Water Strata Depths: 50' , 1,100'

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

14) Approximate Saltwater Depths: 1,946' , 2,696'

15) Approximate Coal Seam Depths: 316' , 1,098'

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

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

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

RECEIVED
Office of Oil and Gas
NOV 09 2016
WV Department of Environmental Protection

WW-6B
(04/15)

API NO. 47- 4706101740 MOD
OPERATOR WELL NO. Kassay 8H
Well Pad Name: Kassay

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	1,230'	1,200'	CTS
Coal							
Intermediate	9-5/8"	New	J-55	40	2,780'	2,750'	CTS
Production	5-1/2"	New	P-110	20	16,396.24'	16,366.24'	3,851 Cu. Ft.
Tubing	2-7/8"	New	N-80	6.5	NA	8,500'	NA
Liners							

MJK 11/7/2016

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	24"	30"	.375	415		4,500 psi Grout	NA
Fresh Water	13-3/8"	17 1/2"	.38"	2,760	2,000	Class A	1.23
Coal							
Intermediate	9-5/8"	12 1/4"	.395"	3,950	3,000	Class A	1.3
Production	5-1/2"	8 3/4"	.361"	12,530	9,700	50:50 Poz	1.21
Tubing	2-7/8"	NA	.217"	10,570	3,600	NA	NA
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

RECEIVED
Office of Oil and Gas
NOV 09 2016
WV Department of
Environmental Protection

4706101740MOD

WW-6B
(10/14)

API NO. 47-_____-_____
OPERATOR WELL NO. Kassay 8H
Well Pad Name: Kassay

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

Drilling and completion of a horizontal Marcellus well. The well will be drilled on air to an approximate depth of 6,570.03' TVD/MD. The well will then be horizontally drilled on synthetic based mud from the KOP to approximately 8,288.5' TVD / 16,396.24' MD along both a 148 degree azimuth and a 139 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): N/A

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

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:

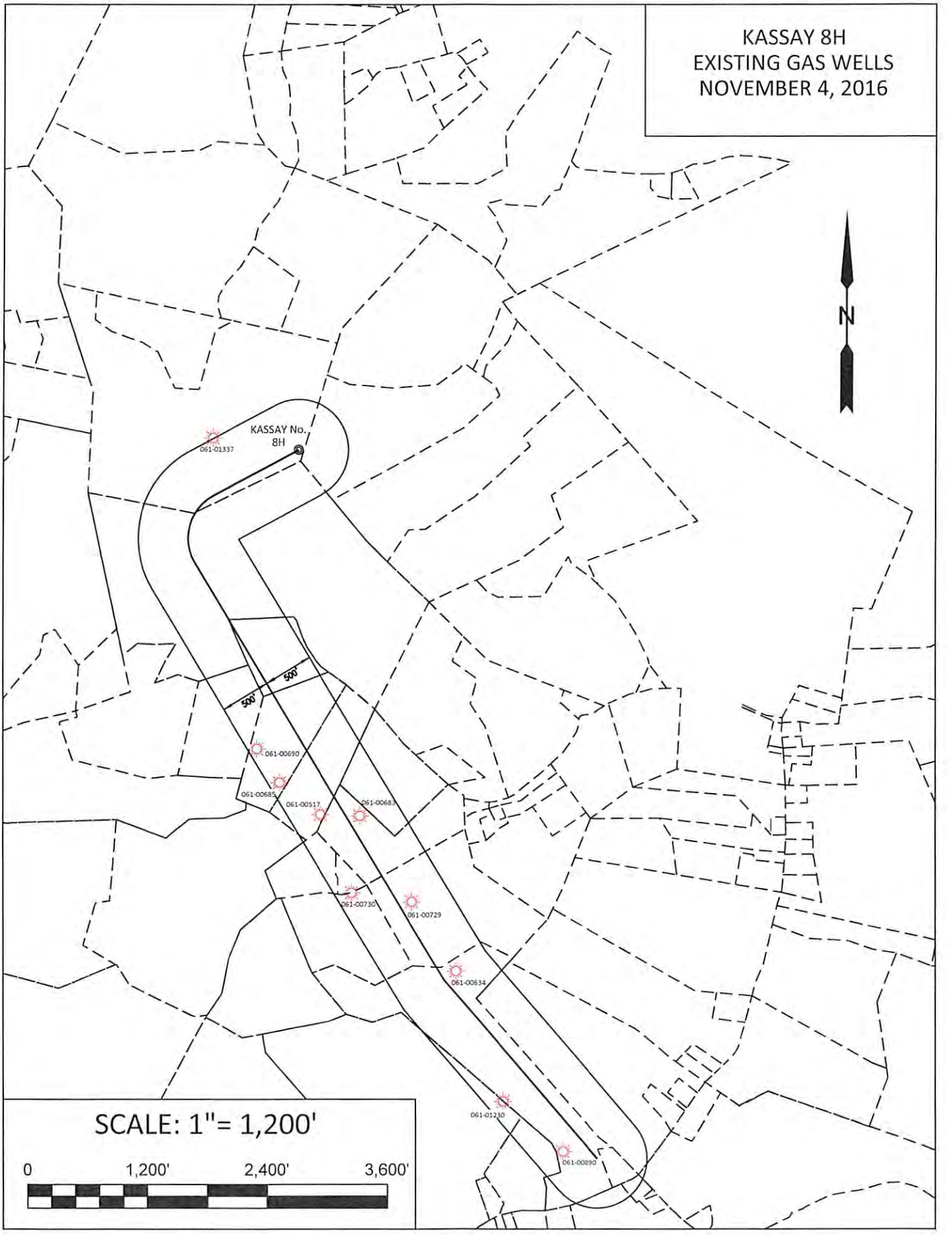
Surface string will use a 25.0 bbls Gel Pill + LCM + 25 lbs Cello Flake + 20 lbs/bbl Bentonite @ 8.4 ppg & 10 bbls fresh water spacer prior to cement. Intermediate string will use a 25.0 bbls Gel Pill + LCM + 25 lbs Cello Flake + 20 lbs/bbl Bentonite @ 8.4 ppg & 10 bbls fresh water spacer prior to cement. 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.

RECEIVED
Office of Oil and Gas
NOV 0 8 2016
WV Department of
Environmental Protection

*Note: Attach additional sheets as needed.

11/7/2016

61-01740MOD


KASSAY 8H
EXISTING GAS WELLS
NOVEMBER 4, 2016
N
KASSAY No. 8H
061-01337
500'
500'
061-00690
061-00685
061-00517
061-00683
061-00730
061-00729
061-00634
061-01230
061-00890
SCALE: 1"= 1,200'
0
1,200'
2,400'
3,600'

Kassay 8H Area of Review

API Number	Well Name	Well Number	Operator	Latitude (NAD 27)	Longitude (NAD 27)	TMP	TVD	Producing Formation
47-061-01337	Nehemiah Kassay	6L2	Noumenon Corporation	39.658519	-80.197662	4-17-48	NA	Plugged 2015
47-061-00690	Delila Brewer	1	Consolidation Coal Company	39.650354	-80.19518	4-17-57	1427	Plugged 1982
47-061-00685	E.A Tennant	1	Consolidation Coal Company	39.648903	-80.194805	4-17-57	1427	Plugged 1982
47-061-00683	E.A Tennant	2	Consolidation Coal Company	39.648177	-80.192365	4-17-77	1800	Plugged 1982
47-061-00517	E.A Tennant	3	NNE Resources LLC	39.648467	-80.193491	4-17-58	2224	Big Injun
47-061-00730	Lavina Tennant	5	Consolidation Coal Company	39.646435	-80.191803	4-17-77	1442	Plugged 1983
47-061-00729	A. Tennant	1	Consolidation Coal Company	39.646	-80.189925	4-20-15	1388	Plugged 1983
47-061-00634	Martha Eddy	1	Consolidation Coal Company	39.644549	-80.188424	4-20-21	1546	Plugged 1981
47-061-00890	Audie Tennant	M1-487	Consolidation Coal Company	39.639323	-80.18467	4-20-21	1455	Plugged 1988
47-061-01230	Victor E. Wise	4325	Consolidation Coal Company	39.640501	-80.187093	4-20-24	1718	Plugged 1996

47-061-01740 MOD

4706101740

MOD

northeast
NATURAL ENERGY

Kassay 8H

SITE SAFETY PLAN

November 3, 2016

11/7/2016

RECEIVED
Office of Oil and Gas
NOV 09 2016
WV Department of
Environmental Protection

4706101740

WW-6A1
(5/13)

Operator's Well No. Kassay 8H

MOD

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

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

(1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;

(2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
See Attachment	See Attachment	See Attachment	See Attachment	See Attachment

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

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

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

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

Well Operator: Northeast Natural Energy LLC
By: Hollie Medley
Its: Regulatory Coordinator

RECEIVED
Office of Oil and Gas
NOV 09 2016
WV Department of Environmental Protection

4706101740

MOD

WW-6A1 Operator's Well No. Kassay 8H

NNE Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page	Tax Map & Parcel
WV-061-003302-002	KASSAY, NEHEMIAH AND PATTY A.	Northeast Natural Energy LLC	.125 or greater	1506/143	17-48
WV-061-001109-000	SHUMAN, INC.	*Chesapeake Appalachia, LLC	.125 or greater	1439/243	17-48
WV-061-001423-001	COLLINS, CATHY ANN	*Chesapeake Appalachia, LLC	.125 or greater	1377/172	17-59.1,59.2,59
WV-061-001423-002	JONES, LULA HAZE TENNANT	*Chesapeake Appalachia, LLC	.125 or greater	1377/226	17-59.1,59.2,59
WV-061-001423-004	GLOVER, BETTY ANN	*Chesapeake Appalachia, LLC	.125 or greater	1377/232	17-59.1,59.2,59
WV-061-001423-005	TENNANT, SHIRLEY	*Chesapeake Appalachia, LLC	.125 or greater	1377/229	17-59.1,59.2,59
WV-061-001423-006	MAYLE, PATRICIA ELLEN	*Chesapeake Appalachia, LLC	.125 or greater	1377/238	17-59.1,59.2,59
WV-061-001423-007	TENNANT, JACOB W. AND ELIZABETH B.	Northeast Natural Energy LLC	.125 or greater	1524/196	17-59.1,59.2,59
WV-061-003308-001	CHESAPEAKE APPALACHIA, LLC	*Chesapeake Appalachia, LLC	.125 or greater	1487/224	17-59.1,59.2,59
WV-061-002467-002	TENNANT, LINDSAY J.	*Chesapeake Appalachia, LLC	.125 or greater	1421/389	17-56,58
WV-061-002994-001	BRUMMAGE, RAY AND JANICE O.	*Chesapeake Appalachia, LLC	.125 or greater	1428/841	17-57
WV-061-002994-002	BONNELL, DIANE LYNN	*Chesapeake Appalachia, LLC	.125 or greater	1429/701	17-57
WV-061-002994-003	BRUMMAGE, JACK AND JANET	*Chesapeake Appalachia, LLC	.125 or greater	1429/335	17-57
WV-061-002994-004	WADE, GLADYS E. AND ALLEN E.	*Chesapeake Appalachia, LLC	.125 or greater	1428/852	17-57
WV-061-002994-005	BRUMMAGE, MICHAEL L.	*Chesapeake Appalachia, LLC	.125 or greater	1427/135	17-57
WV-061-002994-006	BARBER, BEN L., ET AL	*Chesapeake Appalachia, LLC	.125 or greater	1452/020	17-57
WV-061-002994-007	JOHNSON, PATRICIA	*Chesapeake Appalachia, LLC	.125 or greater	1435/188	17-57
WV-061-002994-008	WILSON, ROBERT E.	*Chesapeake Appalachia, LLC	.125 or greater	1442/164	17-57
WV-061-002994-009	WILSON, HOWARD E.	*Chesapeake Appalachia, LLC	.125 or greater	1450/395	17-57
WV-061-002994-010	WILSON, DAVID A.	*Chesapeake Appalachia, LLC	.125 or greater	1457/773	17-57
WV-061-002994-011	WILSON, STARLETT L.	*Chesapeake Appalachia, LLC	.125 or greater	1456/694	17-57
WV-061-002994-012	BOLNER, SANDRA L. AND CHARLES E.	*Chesapeake Appalachia, LLC	.125 or greater	1456/694	17-57
WV-061-002478-001	HAMILTON, FRANCES H., ET AL	*Chesapeake Appalachia, LLC	.125 or greater	1429/307	17-58
WV-061-002534-001	SHUMAN, INC.	*Chesapeake Appalachia, LLC	.125 or greater	1429/366	20-21
WV-061-001952-001	BASHAW, LINDA KAY	*Chesapeake Appalachia, LLC	.125 or greater	1502/044	20-21
WV-061-001952-002	HELDRETH, BARBARA J.	*Chesapeake Appalachia, LLC	.125 or greater	1502/052	20-21
WV-061-002143-001	TENNANT, DAVID GEORGE	*Chesapeake Appalachia, LLC	.125 or greater	1505/596	20-21
WV-061-002143-002	TENNANT, DELILAH S.	*Chesapeake Appalachia, LLC	.125 or greater	1511/535	20-21
WV-061-002143-005	MOORE, RUBY I.	*Chesapeake Appalachia, LLC	.125 or greater	1511/532	20-21
WV-061-002143-006	TENNANT, EDWARD	*Chesapeake Appalachia, LLC	.125 or greater	1511/489	20-21
WV-061-002143-007	BUTCHER, RICHARD D.	*Chesapeake Appalachia, LLC	.125 or greater	1511/510	20-21
WV-061-002263-001	TENNANT, ROY	*Chesapeake Appalachia, LLC	.125 or greater	1507/237	20-21
WV-061-002263-002	TENNANT, JUANITA RUTH	*Chesapeake Appalachia, LLC	.125 or greater	1507/466	20-21
WV-061-002514-001	FRANCIS, SANDRA K.	*Chesapeake Appalachia, LLC	.125 or greater	1517/842	20-21
WV-061-002549-001	TENNANT, JERRY LEE	*Chesapeake Appalachia, LLC	.125 or greater	1526/144	20-21
WV-061-002549-002	TENNANT, FLOYD	*Chesapeake Appalachia, LLC	.125 or greater	1526/145	20-21
WV-061-002549-003	SIERS, RICHARD	*Chesapeake Appalachia, LLC	.125 or greater	1526/153	20-21
WV-061-002549-004	GABELMAN, JANET	*Chesapeake Appalachia, LLC	.125 or greater	1526/151	20-21
WV-061-002549-005	FLINT, RONALD	*Chesapeake Appalachia, LLC	.125 or greater	1526/141	20-21
WV-061-002549-006	BESS, BARBARA	*Chesapeake Appalachia, LLC	.125 or greater	1526/139	20-21
WV-061-002549-007	TENNANT, EDWARD	*Chesapeake Appalachia, LLC	.125 or greater	1523/422	20-21
WV-061-002549-008	TENNANT, STEPHEN	*Chesapeake Appalachia, LLC	.125 or greater	1523/419	20-21
WV-061-002549-009	TENNANT, LOUIE MAE	*Chesapeake Appalachia, LLC	.125 or greater	1523/417	20-21

RECEIVED
Office of Oil and Gas
NOV 09 2016
WV Department of
Environmental Protection

4706101740

MON

WW-6A1 Operator's Well No. Kassay 8H

NNE Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page	Tax Map & Parcel
WV-061-002549-010	DEWITT, DIANA	*Chesapeake Appalachia, LLC	.125 or greater	1523/427	20-21
WV-061-002566-001	SIERS, ROSE	*Chesapeake Appalachia, LLC	.125 or greater	1429/711	20-21
WV-061-002566-002	TENNANT, BERNICE	*Chesapeake Appalachia, LLC	.125 or greater	1426/757	20-21
WV-061-002566-003	BRUMMAGE, TERRY	*Chesapeake Appalachia, LLC	.125 or greater	1425/341	20-21
WV-061-001944-001	BASHAW, LINDA KAY	*Chesapeake Appalachia, LLC	.125 or greater	1394/140	20-15
WV-061-001944-002	HELDRETH, BARBARA	*Chesapeake Appalachia, LLC	.125 or greater	1396/098	20-15
WV-061-001944-003	MCWHORTER, ELEANOR L.	*Chesapeake Appalachia, LLC	.125 or greater	1394/143	20-15
WV-061-001944-004	TENNANT, DANNY D.	*Chesapeake Appalachia, LLC	.125 or greater	1395/170	20-15
WV-061-001944-008	TENNANT, ROY	*Chesapeake Appalachia, LLC	.125 or greater	1398/273	20-15
WV-061-002088-001	MCWHORTER, ELEANOR L.	*Chesapeake Appalachia, LLC	.125 or greater	1394/219	20-15
WV-061-002088-005	TENNANT, DANNY D.	*Chesapeake Appalachia, LLC	.125 or greater	1401/102	20-15
WV-061-004020-000	EDDY, MARK & BETTY A.	Northeast Natural Energy LLC	.125 or greater	1505/646	17-77,77.1
WV-061-004010-000	TENNANT, ALBERT	*C.J. Ford	.125 or greater	27/16	17-77,77.1

*See Attachment

RECEIVED
Office of Oil and Gas
NOV 09 2016
WV Department of
Environmental Protection

61-01740
MOD

Chesapeake Appalachia, LLC.

|

Northeast Natural Energy
Assignment
BK 120/769

RECEIVED
Office of Oil and Gas
NOV 09 2016
WV Department of
Environmental Protection

61-01740 M01)

C. J. Fod (Charles J. Ford)

South Penn Oil Company
Assignment
DB 27/287
South Penn Oil Company

South Penn Natural Gas Company
Assignment
DB 304/457
South Penn Natural Gas Company

South Penn Oil Company
Deed
DB 580/311
Pennzoil Company

New Dunstan, Inc.
Assignment
AB 20/484
New Dunstan, Inc.

Pennzoil Company & Pennzoil Producing Company

Deed
DB 210/611
Pennzoil Company & Pennzoil Production Company

Pennzoil Products Company
Assignment
AR 23/280
Pennzoil Products Company

Eddy Brothers (Mark V. Eddy & Harry Eddy)

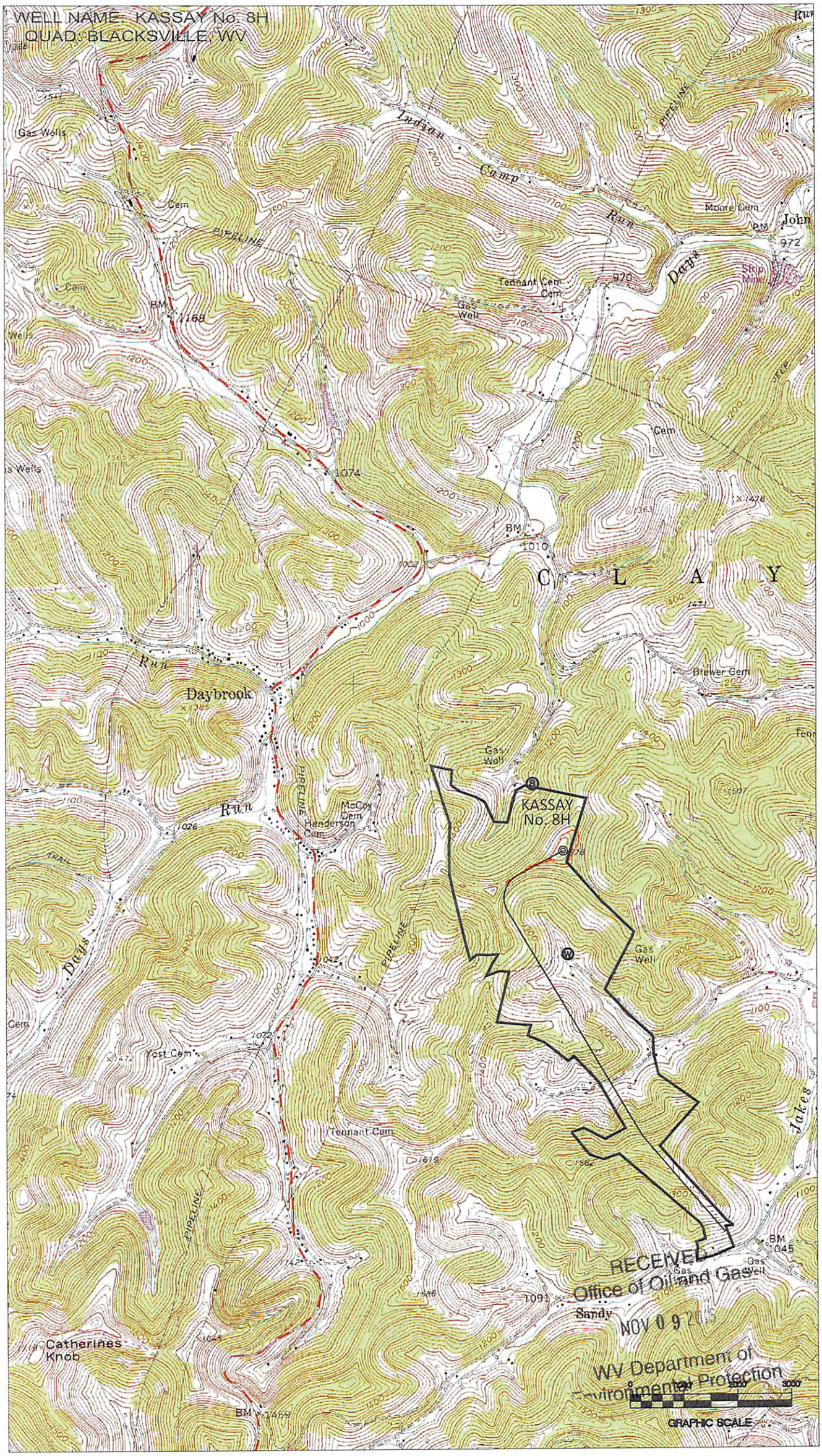
Assignment
DB 1063/553

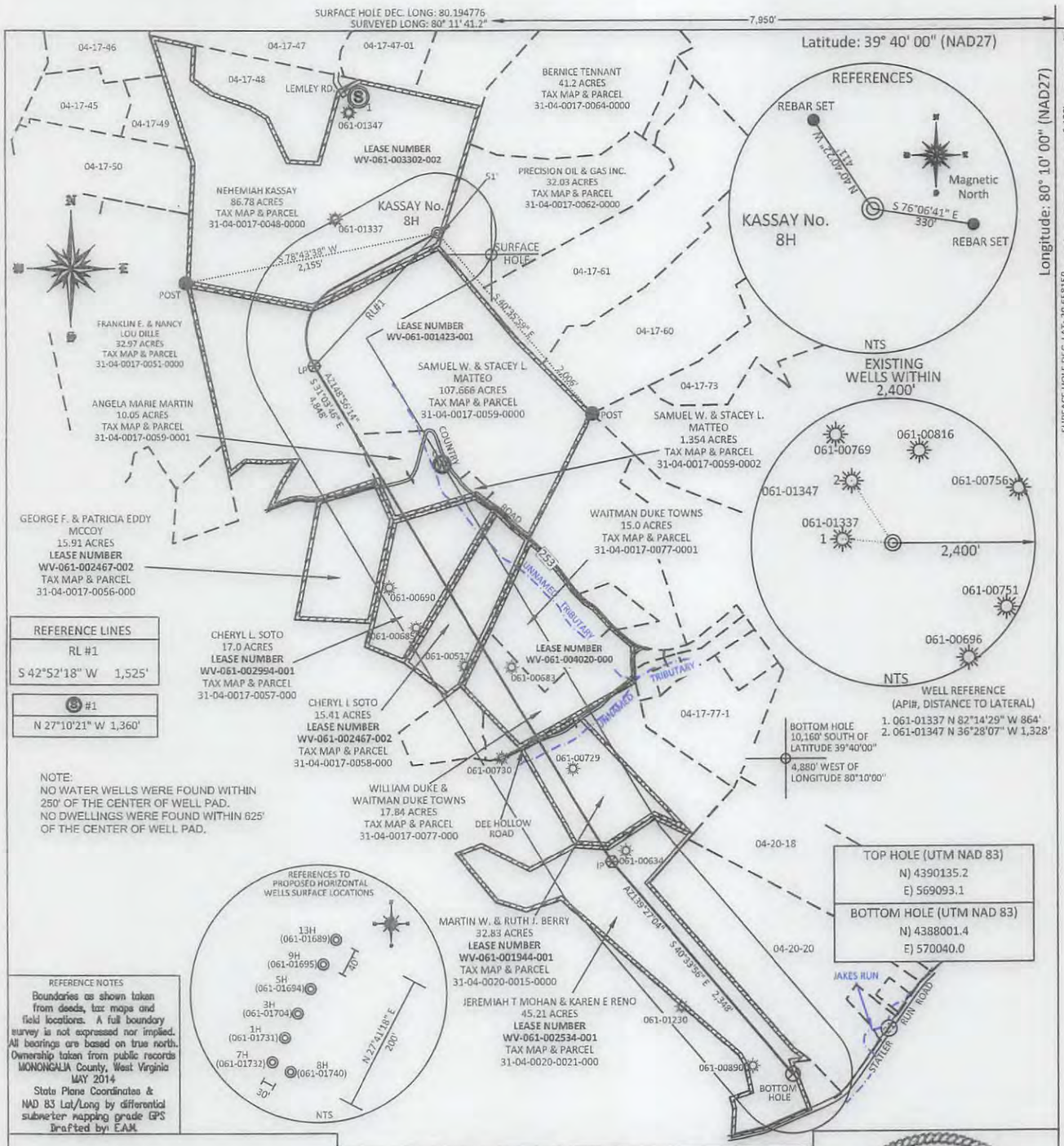
Eddy Brothers (Mark V. Eddy & Harry Eddy)

NNE Resources, LLC
Assignment
AB 123/370

RECEIVED
Office of Oil and Gas
NOV 09 2016
WV Department of
Environmental Protection

WELL NAME: KASSAY No. 8H
QUAD: BLACKSVILLE, WV





FILE #: NNE15
DRAWING #: 2606
SCALE: PLAT: 1" = 1200' TICK: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: _____

L.L.S. #2124 : Ernest J. Benchek III

ERNEST J. BENCHEK III LICENSED No. 2124 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: NOVEMBER 4, 2016

OPERATOR'S WELL #: KASSAY NO. 8H

API WELL #: 47 (STATE) 61 (COUNTY) 01740 HLA MOD (PERMIT)

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

WATERSHED: DUNKARD CREEK
AS-BUILT ELEVATION: 1,534'

COUNTY/DISTRICT: MONONGALIA / CLAY
QUADRANGLE: BLACKSVILLE

SURFACE OWNER: NEHEMIAH KASSAY
ACREAGE: 86.78 +/-

OIL & GAS ROYALTY OWNER: NEHEMIAH & PATTY A. KASSAY
ACREAGE: 410.626 +/-

LEASE NUMBERS: _____

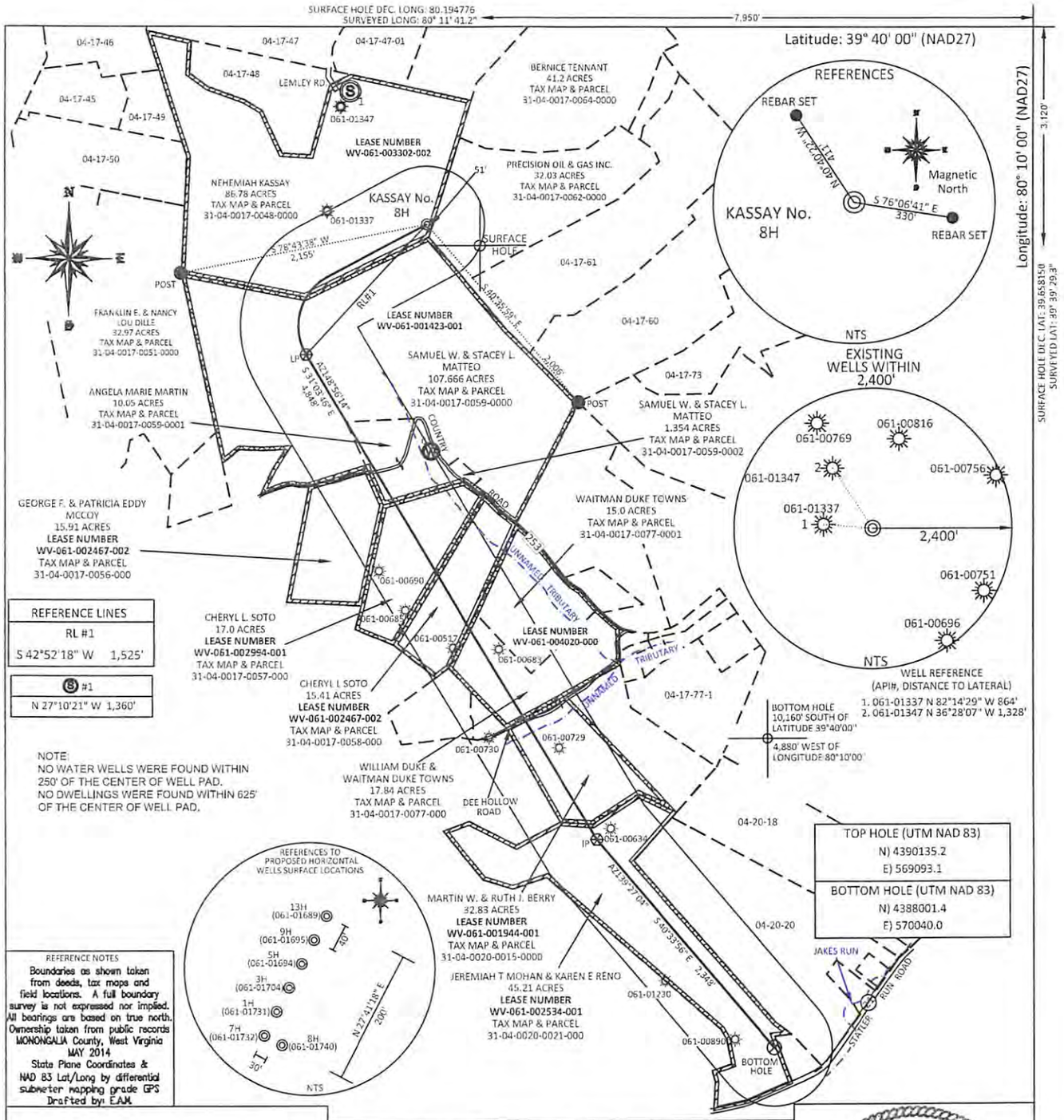
DRILL ☒ CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☒
PLUG OFF FORMATION ☐ PERFORATE NEW FORMATION ☐ PLUG & ABANDON ☐
CLEAN OUT & REPLUG ☐ OTHER CHANGE ☐ (SPECIFY): _____

TARGET FORMATION: MARCELLUS
ESTIMATED DEPTH: TVD: 8,288.5' TMD: 16,405.87'

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



FILE #: NNE15

DRAWING #: 2606

SCALE: PLAT: 1" = 1200' TICK: 1" = 2000'

MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: _____

L.L.S. #2124 : Ernest J. Benchek III

ERNEST J. BENCHEK III * LICENSED * No. 2124 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: NOVEMBER 4, 2016

OPERATOR'S WELL #: KASSAY NO. 8H

API WELL #: 47 (STATE) 61 (COUNTY) 01740 (PERMIT) H6A MOD

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

WATERSHED: DUNKARD CREEK

AS-BUILT ELEVATION: 1,534'

COUNTY/DISTRICT: MONONGALIA / CLAY

QUADRANGLE: BLACKSVILLE

SURFACE OWNER: NEHEMIAH KASSAY

ACREAGE: 86.78 +/-

OIL & GAS ROYALTY OWNER: NEHEMIAH & PATTY A. KASSAY

ACREAGE: 410.626 +/-

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: 8,288.5' TMD: 16,405.87'

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

northeast
NATURAL ENERGY

4706101740

November 7, 2016

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

Re: Kassay 8H Permit Application Modification
API # 47-061-01740

Dear Permit Reviewer,

Northeast Natural Energy LLC ("NNE") would like to request a modification to its existing Kassay 8H Permit (061-01740). NNE has adjusted the horizontal well bore to allow for more efficient development of the permitted Kassay Well Pad.

Please find enclosed with this request a revised WW-6B Form, WW-6A1 Form and Attachment, Revised Site Safety Plan, Well Bore Schematic, Area of Review Map and Spreadsheet, and Mylar Plat for the 8H well.

Should you have any questions please contact me at 304.212.0422 or by email at hmedley@nne-llc.com.

Sincerely,

Hollie M. Medley
Regulatory Coordinator

RECEIVED
Office of Oil and Gas
NOV 09 2016
WV Department of
Environmental Protection