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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Friday, October 19, 2018  
WELL WORK PERMIT  
Horizontal 6A / Fracture

HG ENERGY II APPALACHIA, LLC  
5260 DUPONT ROAD

PARKERSBURG, WV 26101

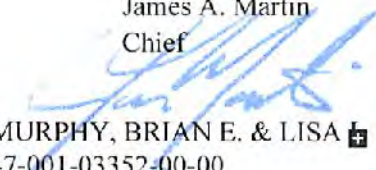
Re: Permit approval for AUD7IHS  
47-001-03352-00-00

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

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

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin  
Chief

Operator's Well Number:  
Farm Name: MURPHY, BRIAN E. & LISA   
U.S. WELL NUMBER: 47-001-03352-00-00  
Horizontal 6A Fracture  
Date Issued: 10/19/2018

Promoting a healthy environment.

## PERMIT CONDITIONS

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

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### CONDITIONS

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1. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
2. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
3. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
4. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
5. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
6. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov).

**EXISTING WELLS LOCATED WITHIN  
AUD7 PAD AND PROPOSED WELLS FHS, C**

CT	API	COUNTY	FARM	OPERATOR NAME
1	4700100077	BARBOUR	Bly S Haller	Hope Natural Gas Company
2	4700100114	BARBOUR	Samuel E Wright	Consol Gas Co.
3	4700100149	BARBOUR	Bly S Haller	Consol Gas Co.
4	4700100405	BARBOUR	Orma Casto	Consol Gas Co.
5	4700100493	BARBOUR	E Malcomb 1	Ross & Wharton Gas Co.
6	4700100659	BARBOUR	S-Western At Memphis	Consol Gas Co.
7	4700100678	BARBOUR	Dora B Andrick 1	Elvis Energy, LLC
8	4700100707	BARBOUR	Junior Lantz	Consol Gas Co.
9	4700100729	BARBOUR	James M O'Neal	Consol Gas Co.
10	4700100755	BARBOUR	Bly Haller 2	Energy Corp. of America
11	4700100802	BARBOUR	G L Daugherty	Dominion Eneyg Transmission Inc.
12	4700100845	BARBOUR	A Coontz	Energy Corp. of America
13	4700100960	BARBOUR	Bertsel Daugherty 1	Energy Corp. of America
14	4700100990	BARBOUR	Ruth Woods Dayton	EQT Production Co.
15	4700101087	BARBOUR	E Talbott	J & J Enterprises, Inc.
16	4700101101	BARBOUR	Robert McDaniel	J & J Enterprises, Inc.
17	4700101491	BARBOUR	Lee Ketchum	Energy Corp. of America
18	4700102303	BARBOUR	John P Jones	Berry Energy, Inc.
19	4700102333	BARBOUR	Larry/D Corley	Energy Corp. of America
20	4700102442	BARBOUR	Eugene F Williams	Donald Williams
21	4700102668	BARBOUR	Eugene F Williams Sr	Berry Energy, Inc.
22	4700102723	BARBOUR	Larry & Deanna Corley 4	Alliance Petroleum Corp.
23	4700102730	BARBOUR	William Daugherty etux 1	Alliance Petroleum Corp.
24	4700102731	BARBOUR	Mark B Farnsworth 2	Alliance Petroleum Corp.
25	4700102764	BARBOUR	Kenneth E Dadisman 1	R&R Oil & Gas, LLC
26	4700102765	BARBOUR	Richard Jones etal 1	Petroleum Development Corp.
27	4700102771	BARBOUR	Thomas K Wolfe 1	Alliance Petroleum Corp.
28	4700102775	BARBOUR	Forrest/Lila Spurgeon 1	Petroleum Development Corp.
29	4700103284	BARBOUR	Brian E. Murphy - AUD7 BHS	HG Energy II Appalachia, LLC
30				

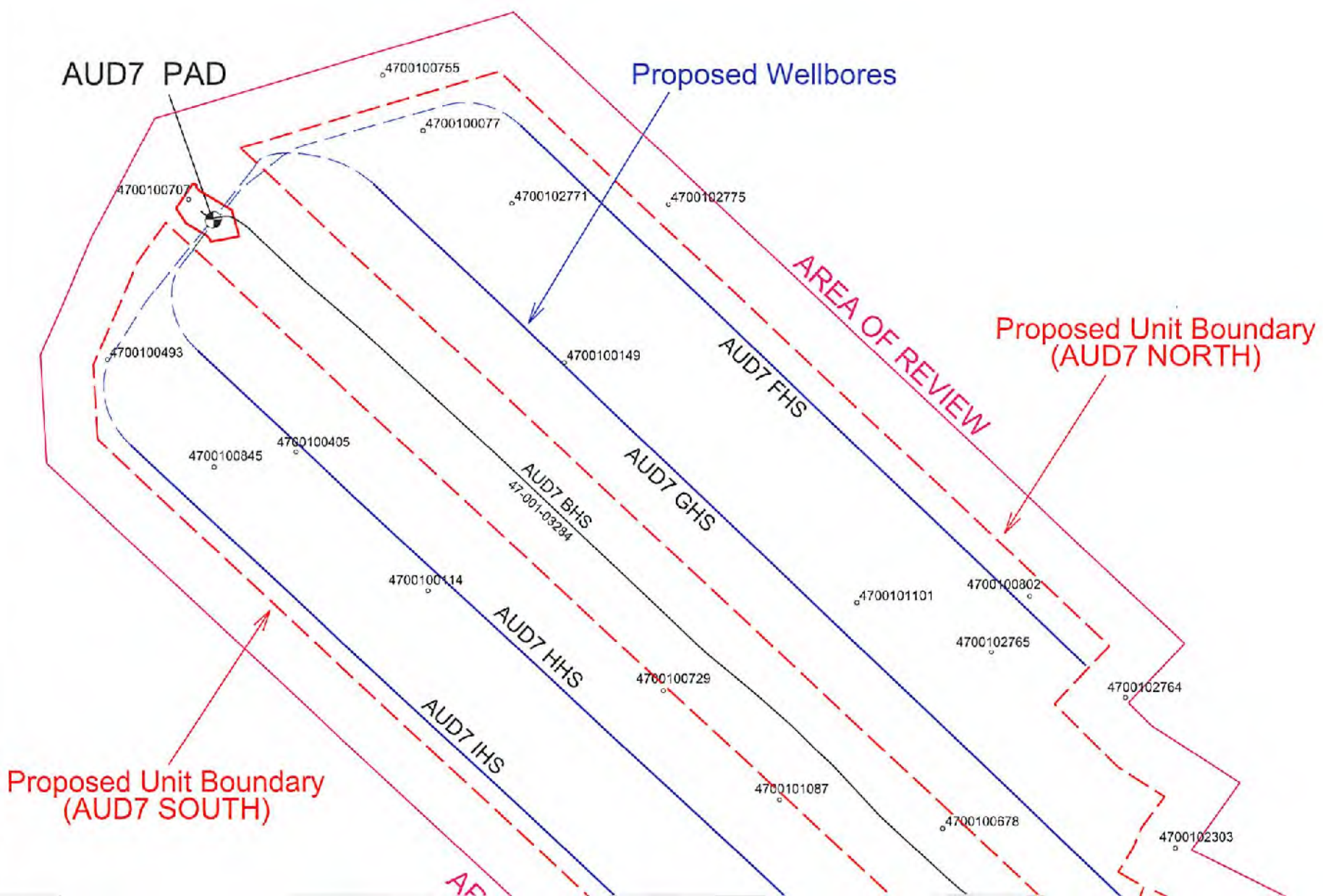
**SOURCE: WVGES DATASET (2017) and WVDEP WEBSITE (2/15/18)**

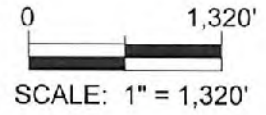
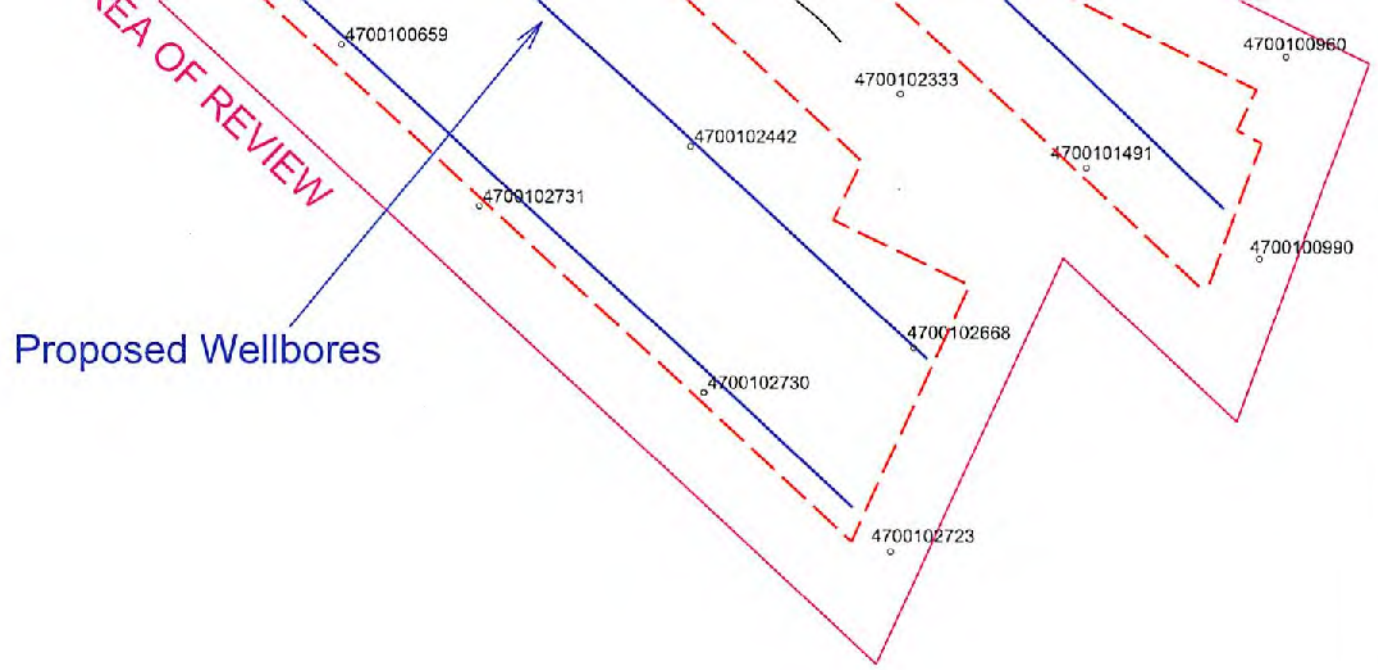
**THE AREA OF REVIEW FOR:**

**HS, HHS & IHS (Revised 2/15/2018)**

	FORMATION NAME	WELL TYPE	TVD	STATUS	LATITUDE	LONGITUDE
	Benson	Dry w/ Gas Show	4,145	P&A	39.124227	-80.076254
	Benson	Gas	4,087	ACTIVE	39.112244	-80.076016
	Benson	Gas	3,964	ACTIVE	39.118197	-80.071531
	Benson	Gas	4,109	ACTIVE	39.115829	-80.080458
	Benson	Gas	4,107	ACTIVE	39.118203	-80.086789
	Benson	Gas	3,863	ACTIVE	39.103336	-80.068612
	Benson	Gas	4,142	ACTIVE	39.106140	-80.058884
	Benson	Gas	4,217	ACTIVE	39.122396	-80.084081
	Benson	Gas	3,850	ABANDONED	39.109678	-80.068181
	Benson	Gas	4,163	ACTIVE	39.125661	-80.077604
	Benson	Dry w/ Gas Show	4,164	P&A	39.112199	-80.056026
	Benson	Gas	4,194	ACTIVE	39.115428	-80.083197
	Benson	Gas	4,079	ACTIVE	39.103246	-80.046028
	Benson	Gas	4,070	ABANDONED	39.099434	-80.046610
	Benson	Dry w/ Gas Show	3,947	P&A	39.106852	-80.064308
	Benson	Dry	4,062	P&A	39.112001	-80.061757
	Brallier	Gas	5,408	ACTIVE	39.101122	-80.050790
	Brallier	Gas	5,404	ABANDONED	39.105666	-80.051147
	Brallier	Gas	5,552	ACTIVE	39.102476	-80.055241
	Benson	Gas	4,188	ACTIVE	39.101460	-80.060266
	Greenland Gap Fm	Gas	4,750	ACTIVE	39.097690	-80.054868
	Greenland Gap Fm	Gas	3,998	ACTIVE	39.093849	-80.055372
	Greenland Gap Fm	Gas	4,059	ACTIVE	39.096820	-80.059893
	Greenland Gap Fm	Gas	4,187	ACTIVE	39.100300	-80.065291
	Greenland Gap Fm	Gas	4,252	ACTIVE	39.109581	-80.052823
	Greenland Gap Fm	Dry	4,075	P&A	39.110741	-80.057290
	Greenland Gap Fm	Gas	4,139	ACTIVE	39.122342	-80.073304
	Never Drilled	NA	NA	Never Drilled	39.122343	-80.068091
	Marcellus	Gas	7,648	ACTIVE	39.122190	-80.095241

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NOTE:  
See Attached Spreadsheet for Well Data

Area of Review for:

**AUD7 PAD**

- AUD7 FHS Wellbore
- AUD7 GHS Wellbore
- AUD7 HHS Wellbore
- AUD7 IHS Wellbore

Philippi District, Barbour County, W.Va.

DATA SOURCE  
WVGES Data Set - 2017

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WW-6B  
(04/15)

API NO. 47-001 - 03352  
OPERATOR WELL NO. AUD7 IHS  
Well Pad Name: AUD7

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

1) Well Operator: HG Energy II Appalachia, L.P.

<u>494519932</u>	<u>Barbour</u>	<u>Philippi</u>	<u>Audra</u>
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Operator ID County District Quadrangle

2) Operator's Well Number: AUD7 IHS Well Pad Name: AUD7

3) Farm Name/Surface Owner: Brian E. & Lisa L. Murphy Public Road Access: Delta Rt. 8

4) Elevation, current ground: 1565' Elevation, proposed post-construction: 1565' (pad already built)

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):  
Target - Marcellus, Depth - 7500 - 7575', Thickness - 75', Pressure - 4000#

8) Proposed Total Vertical Depth: 7575'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20,204' ✓

11) Proposed Horizontal Leg Length: 11,463' (matches plot) ✓

12) Approximate Fresh Water Strata Depths: 160', 635', 725', 730'

13) Method to Determine Fresh Water Depths: Actual

14) Approximate Saltwater Depths: 1870'

15) Approximate Coal Seam Depths: 320', 635', 725', 730'

16) Approximate Depth to Possible Void (coal mine, karst, other): 328' - 336'

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: \_\_\_\_\_

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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	30"	N	LS	120 #	81'	81'	Conductor already set ✓
Fresh Water	20"	N	J-55	94 #	403'	403'	Surface casing already set ✓
Coal	13 3/8"	N	J-55	54.5 #	818'	818'	Coal Protection casing already set ✓
Intermediate	9 5/8"	N	J-55	36 #	2149'	2149'	Intermediate casing already set ✓
Production	5 1/2"	N	P-110	23#	20204'	20204'	20% excess, load yield = 1.19, Tail Yield <input checked="" type="checkbox"/>
Tubing							
Liners							

*David L. Reynolds 4-24-18*

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	30"	42"				Class A Type	1.22
Fresh Water	20"	26"	0.438	2110		Class A Type	1.20
Coal	13 3/8"	17 1/2"	0.380	2730		Class A Type	1.20
Intermediate	9 5/8"	12 3/8"	0.352	3520		Class A Type	1.28
Production	5 1/2"	8 1/2"	0.361	14360		Class A Type	Load yield = 1.19, Tail Yield = 1.04
Tubing							
Liners							

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

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

Drill and stimulate new horizontal Marcellus well. Well to be drilled to a TMD of 2024'. Well to be drilled to a TVD of 7575', formation at TVD - Marcellus Shale. Drill horizontal leg - stimulate and produce the Marcellus Formation. If an unexpected void is encountered, plan will be to set casing at a minimum of 30' past void and cement to surface with approved Class A type cement. There will not be any production, perforation or stimulation of any formations below the target formation.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals. See Attached List. Anticipated Max Pressure - 12,000 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 13.9 acres

22) Area to be disturbed for well pad only, less access road (acres): .96 acres

23) Describe centralizer placement for each casing string:

Conductor - NA  
Surface Casing - NA  
Coal Protection - NA  
Intermediate Casing - NA  
Production - Run 1 spiral centralizer every 3 joints from the 1st 5.5' long joint to the top of the curve.

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

Conductor - NA  
Surface Casing - NA  
Coal Protection - NA  
Intermediate Casing - NA  
Production - \*Lead: 14.5 ppg POZPNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170Taf: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA17020% ExcessLead Yield=1.19Taf Yield=1.94CTS\*

25) Proposed borehole conditioning procedures:

Conductor - NA  
Surface Casing - NA  
Coal Protection - NA  
Intermediate - NA  
Production - Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.

\*Note: Attach additional sheets as needed.

**HG Energy II Appalachia, LLC**  
**AUD7 Well Pad (GHS,FHS,HHS,IHS)**  
**Cement Additives**

Material Name	Material Type	Material Description	CAS #																		
Premium NE-1	Portland Cement	Premium NE-1 is a portland cement with early compressive strength properties.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Portland cement</td> <td>90 - 100</td> <td>65997-15-1</td> </tr> <tr> <td>Calcium oxide</td> <td>1 - 5</td> <td>1305-78-8</td> </tr> <tr> <td>Magnesium oxide</td> <td>1 - 5</td> <td>1309-48-4</td> </tr> <tr> <td>Crystalline silica: Quartz (SiO2)</td> <td>0.1 - 1</td> <td>14808-60-7</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Portland cement	90 - 100	65997-15-1	Calcium oxide	1 - 5	1305-78-8	Magnesium oxide	1 - 5	1309-48-4	Crystalline silica: Quartz (SiO2)	0.1 - 1	14808-60-7			
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Bentonite	Extender	Commonly called gel, it is a clay material used as a cement extender and to control excessive free water.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>bentonite</td> <td>90 - 100</td> <td>1302-78-9</td> </tr> <tr> <td>Crystalline silica: Quartz (SiO2)</td> <td>5 - 10</td> <td>14808-60-7</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	bentonite	90 - 100	1302-78-9	Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7									
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Calcium Chloride	Accelerator	A powdered, flaked or pelletized material used to decrease thickening time and increase the rate of strength development	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Calcium chloride</td> <td>90 - 100</td> <td>10043-52-4</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Calcium chloride	90 - 100	10043-52-4												
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Cello Flake	Lost Circulation	Graded (3/8 to 3/4 inch) cellophane flakes used as a lost circulation material.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>No hazardous ingredient</td> <td></td> <td></td> </tr> </tbody> </table>	Ingredient name	%	CAS number	No hazardous ingredient														
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FP-13L	Foam Preventer	FP-13L is a clear liquid organic phosphate antifoaming agent used in cementing operations. It is very effective minimizing air entrapment and preventing foaming tendencies of latex systems.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Tributyl phosphate</td> <td>90 - 100</td> <td>126-73-8</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Tributyl phosphate	90 - 100	126-73-8												
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Granulated Sugar	Retarder	Used to retard cement returns at surface. A proprietary product that provides expansive properties and improves bonding at low to moderate temperatures.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Sucrose</td> <td>90 - 100</td> <td>57-50-1</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Sucrose	90 - 100	57-50-1												
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EC-1	Gas Migration	Multi-purpose polymer additive used to control free fluid, fluid loss, rheology, and gas migration.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>No hazardous ingredient</td> <td></td> <td></td> </tr> </tbody> </table>	Ingredient name	%	CAS number	No hazardous ingredient														
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Poz (Fly Ash)	Base	A synthetic pozzolan, (primarily Silicon Dioxide). When blended with cement, Pozzolan can be used to create lightweight cement slurries used as either a filler slurry or a sulfate resistant completion cement.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Crystalline silica: Quartz (SiO2)</td> <td>5 - 10</td> <td>14808-60-7</td> </tr> <tr> <td>Calcium oxide</td> <td>1 - 5</td> <td>1305-78-8</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7	Calcium oxide	1 - 5	1305-78-8									
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R-3	Retarder	A low temperature retarder used in a wide range of slurry formulations to extend the slurry thickening time.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Organic acid salt</td> <td>40 - 50</td> <td>Trade secret.</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Organic acid salt	40 - 50	Trade secret.												
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S-5	Surfactant	Used to water wet casing and formation to facilitate cement bonding.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>2-Butoxyethanol</td> <td>20 - 30</td> <td>111-76-2</td> </tr> <tr> <td>Proprietary surfactant</td> <td>10 - 20</td> <td>Trade secret.</td> </tr> <tr> <td>D-Glucopyranose, oligomeric, C10-16-alkyl glycosides</td> <td>5 - 10</td> <td>110615-47-9</td> </tr> <tr> <td>Alkylarylsulfonate amine salt</td> <td>1 - 5</td> <td>Trade secret.</td> </tr> <tr> <td>Polyoxyalkylenes</td> <td>0.1 - 1</td> <td>Trade secret.</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	2-Butoxyethanol	20 - 30	111-76-2	Proprietary surfactant	10 - 20	Trade secret.	D-Glucopyranose, oligomeric, C10-16-alkyl glycosides	5 - 10	110615-47-9	Alkylarylsulfonate amine salt	1 - 5	Trade secret.	Polyoxyalkylenes	0.1 - 1	Trade secret.
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AUD7IHS  
Marcellus Shale Horizontal  
Barbour County, WV

Ground Elevation (RKB)		1565'	AUD7IHS SHL				226946.1N 1834437.3E			
Azm		132.999°	AUD7IHS LP				224869.7N 1833663.49E			
WELLBORE DIAGRAM			AUD7IHS BHL				217051.5N 1842047.72E			

WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
	42"	30" 120# LS	Conductor <i>*Conductor already set*</i>	0	81	N/A	CTS w/ 675 sks Class A, 15.6ppg, 1.22 cu-ft/sk, 820 cu-ft	N/A		
	26"	20" 94# J-55	Fresh Water Surface Casing <i>*Already Set*</i>  Coal(s)	160, 635, 725, 730 0	403	N/A	CTS w/ (438+464) sks Class A, 15.6ppg, 1.20 cu-ft/sk, 1080 cu-ft	N/A		
	17.5"	13-3/8" 54.5# J-55	   Coal Protection Casing <i>*Already Set*</i>	   0	   818	N/A	CTS w/ 655 sks Class A, 15.6ppg, 1.20 cu-ft/sk, 780 cu-ft	N/A		
	12.375"	9-5/8" 36# J-55	Little Lime / Big Lime Keener / Big Injun Gantz / Fifth Intermediate Casing <i>*Already Set*</i>	1167 / 1234 1308 / 1395 1600 / 2114 0	1234 / 1308 1367 / 1447 1674 2149	N/A	CTS w/ 740 sks Class A, 15.6ppg, 1.22 cu-ft/sk, 904 cu-ft	N/A		
	8.5" Curve	5-1/2" 23# P-110 HC CDC HTQ	Bradford Benson Sycamore Grit Burkett Tully Limestone Hamilton Marcellus	3060 3830 6390 7260 7280 7370 7500		9.5ppg-10.5ppg SOBM	Lead: 14.5 ppg POZ/PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170 Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess Lead Yield=1.19 Tail Yield=1.94 CTS	Run 1 spiral centralizer every 3 joints from the 1st 5.5' long joint to the top of the curve.	Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.415" wall thickness Burst=14520 psi Note:Actual centralizer schedules may be changed due to hole conditions
	8.5" Lateral		TMD / TVD Onondaga	20204 7590	7575	11.5ppg- 12.5ppg SOBM				

LP @ 7575' TVD / 8760'  
MD

8.5" Hole - Cemented Long String  
5-1/2" 23# P-110 HC CDC HTQ

+/-11444' ft Lateral

TD @ +/-7575' TVD  
+/-20204' MD

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**HG Energy II Appalachia, LLC**  
**List of Frac Additives by Chemical Name and CAS #**

**AUD7 Well Pad (GHS,FHS,HHS,IHS)**

Chemical Name	CAS #	Multiple CAS #'s
Pro Shale Slik 405	Mixture	68551-12-2 7647-14-5 12125-02-9 64742-47-8
Pro Hib II	Mixture	68412-54-4 68607-28-3 107-21-1 111-76-2 67-56-1 107-19-7
Silica Sand and Ground Sand	Mixture	14808-60-7 1344-28-1 1309-37-1 13463-67-7
Hydrochloric Acid 22 DEG BE	7647-01-0	
PROGEL - 4.5	64742-96-7	
BIO CLEAR 2000	Mixture	25322-68-3 10222-01-2
SCALE CLEAR SI 112	107-21-1	
PROBREAK 4	Mixture	57-50-1 107-21-1
Sulfamic Acid	5329-14-6	
PRO - Flow - 102-N	Mixture	67-63-0 68439-45-2 2687-96-9
PROGEL - 4	9000-30-0	

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WW-9  
(4/16)

API Number 47 - 001 - 03352

Operator's Well No. AUD7IHS

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name HG Energy II Appalachia, LLC OP Code 494519932

Watershed (HUC 10) Elk Creek Quadrangle Audra

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

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: NA

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number \_\_\_\_\_ )
- Reuse (at API Number TBD - At next anticipated well )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

Will closed loop system be used? If so, describe: Yes, cuttings and fluids will be collected in a closed loop drilling system, re-used or hauled to an approved disposal site or landfill.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air and freshwater

-If oil based, what type? Synthetic, petroleum, etc. NA

Additives to be used in drilling medium? Water, soap, KCl, barite

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Approved landfill

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

-Landfill or offsite name/permit number? See Attached List

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

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

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

Company Official Signature \_\_\_\_\_

Company Official (Typed Name) Diane White

Company Official Title Accountant

Subscribed and sworn before me this 23th day of April, 2018

Notary Public

My commission expires \_\_\_\_\_

**HG Energy II Appalachia, LLC**

Proposed Revegetation Treatment: Acres Disturbed 13.9 Prevegetation pH \_\_\_\_\_

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Hay 2 Tons/acre

Seed Mixtures

**Temporary**

**Permanent**

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5

**\*\* Pre-seed and mulch all cut area, maintain E&S standards during entire operation.**

**Attach:**

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature]

Comments: \_\_\_\_\_

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Title: OIL + GAS INSPECTOR

Date: 4-24-18

Field Reviewed? ( ) Yes (  ) No

# Cuttings Disposal/Site Water

## Cuttings -Haul off Company:

Eap Industries, Inc. DOT # 0876278  
1575 Smith Two State Rd. Atlasburg, PA 15004  
1-888-294-5227

Waste Management  
200 Rangos Lane  
Washington, PA 15301  
724-222-3272

Environmental Coordination Services & Recycling (ECS&R)  
3237 US Highway 19  
Cochranon, PA 16314  
814-425-7773

## Disposal Locations:

Apex Environmental, LLC Permit # 06-08438  
11 County Road 78  
Amsterdam, OH 43903  
740-543-4389

Westmoreland Waste, LLC Permit # 100277  
111 Conner Lane  
Belle Vernon, PA 15012  
724-929-7694

Sycamore Landfill Inc. Permit #R90-079001 05-2010  
4301 Sycamore Ridge Road  
Hurricane, WV 25526  
304-562-2611

Max Environmental Technologies, Inc. Facility Permit # PAD004835146 / 301071  
233 Max Lane  
Yukon, PA 25968  
724-722-3500

Max Environmental Technologies, Inc. Facility Permit # PAD05087072 / 301359  
200 Max Drive  
Bulger, PA 15019  
724-796-1571

Waste Management Kelly Run Permit # 100663  
1901 Park Side Drive  
Elizabeth, PA 15037  
412-384-7569

Waste Management South Hills (Arnoni) Permit # 100592  
3100 Hill Road  
Library, PA 15129  
724-348-7013  
412-384-7569

Waste Management Arden Permit # 100172  
200 Rangos Lane  
Washington, PA 15301  
724-222-3272

Waste Management Meadowfill Permit # 1032  
1488 Dawson Drive  
Bridgeport, WV 26330

Brooke County Landfill Permit # SWF-103-97 / WV 0109029  
Rd 2 Box 410  
Colliers, WV 26035  
304-748-0014

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Wetzel County Landfill Permit # SWF-1021-97 / WV 0109185  
Rt 1 Box 156A  
New Martinsville, WV 26035  
304-455-3800

Energy Solutions, LLC Permit # UT 2300249  
423 West 300 South  
Suite 200  
Salt Lake City, UT 84101

Energy Solutions Services, Inc. Permit # R-73006-L24  
1560 Bear Creek Road  
Oak Ridge, TN 37830

Northern A-1 Environmental Services Permit ID MID020906814  
3947 US 131 North, PO Box 1030  
Kalkaska, MI 49646  
231-258-9961

**Water Haul off Companies:**

Dynamic Structures, Clear Creek DOT # 720485  
3790 State Route 7  
New Waterford, OH 44445  
330-892-0164

Nabors Completion & Production Services Co.  
PO Box 975682  
Dallas, TX 75397-5682

Select Energy Services, LLC  
PO Box 203997  
Dallas, TX 75320-3997

Nuverra Environmental Solutions  
11942 Veterans Memorial Highway  
Masontown, WV 26542

Mustang Oilfield Services LLC  
PO Box 739  
St. Clairsville, OH 43950

Wilson's Outdoor Services, LLC  
456 Cracraft Road  
Washington, PA 15301

**Disposal Locations:**

Solidification  
Waste Management, Arden Landfill Permit # 100172  
200 Rangos Lane  
Washington, PA 15301  
724-225-1589

Solidification/Incineration  
Soil Remediation, Inc. Permit # 02-20753  
6065 Arrel-Smith Road  
Lowelville, OH 44436  
330-536-6825

Adams #1 (Buckeye Brine, LLC)  
Permit # 34-031-2-7177  
23986 Airport Road  
Coshocton, OH 43812  
740-575-4484  
512-478-6545

CMS of Delaware Inc. DBA CMS Oilfield Serv  
301 Commerce Drive  
Moorestown, NJ 08057

Force, Inc.  
1380 Rte. 286 Hwy. E, Suite 303  
Indiana, PA 15701

Solo Construction  
P.O. Box 544  
St. Mary's, WV 26170

Equipment Transport  
1 Tyler Court  
Carlisle, PA 17015

Myers Well Service, -----  
2001 Ballpark Court  
Export, PA 15632

Burns Drilling & Excavating  
618 Crabapple Road P.O. Box  
Wind Ridge, PA 15380

Nichlos 1-A (SWIW #13)  
Permit # 3862  
300 Cherrington Pkwy, Suite 200  
Coraopolis, PA 15108  
412-329-7275

Groselle (SWIW #34)  
Permit # 4096  
Rt. 88  
Garrettsville, OH  
713-275-4816

Kemble 1-D Well  
Permit # 8780  
7675 East Pike  
Norwich, Oh 43767  
614-648-8898  
740-796-6495

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Adams #2 (Buckeye Brine, LLC)  
2205 Westover Road  
Austin Tx 78703  
Permit # 34-031-2-7178  
740-575-4484  
512-478-6545

Adams #3 (Buckeye Brine, LLC)  
Permit #34-031-2-7241-00-00  
2630 Exposition, Suite 117  
Austin, TX 78703  
512-478-6545

Mozena #1 Well (SWIW # 13)  
Permit # 34-157-2-5511-00-00  
5367 E. State Street  
Newcomerstown, OH 43832  
740-763-3966

Goff SWD #1 (SWIW # 27)  
Permit # 34-119-2-8776-000  
300 Cherrington Pkwy, Suite 200  
Coraopolis, PA 15108  
412-329-7275

SOS D#1 (SWIW #12)  
Permit # 34-059-2-4202-00-00  
Silcor Oilfield Services, Inc.  
2939 Hubbard Road  
Youngstown, OH 44505

Dudley #1 UIC (SWIW #1)  
Permit # 34-121-2-2459-00-00  
Select Energy Services, LLC  
7994 S. Pleasants Hwy  
St. Marys, WV 26170  
304-665-2652

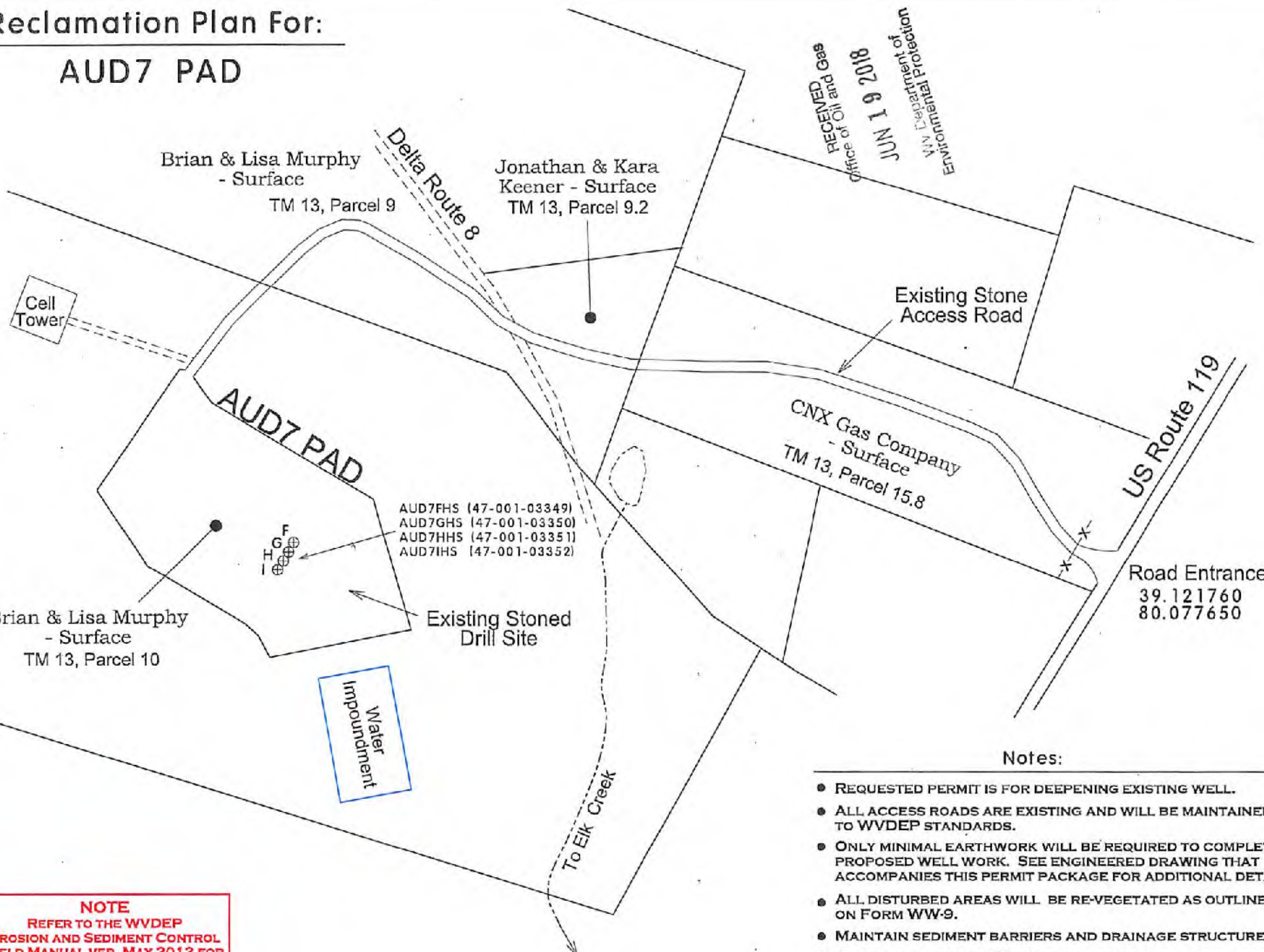
OH UIC #1 Buckeye UIC Barnesville 1 & 2  
CNX Gas Company, LLC  
1000 Consol Energy Drive  
Permit # 34-013-2-0609-00-00  
Permit # 34-013-2-0614-00-00  
304-323-6568

US Steele 11385  
Permit # 47-001-00561  
200 Evergreen Drive  
Waynesburg, PA 15730  
304-323-6568

Chapin #7 UIC (SWIW #7)  
Permit # 34-083-2-4137-00-00  
Elkhead Gas & Oil Company  
12163 Marne Rd. NE  
Newark, OH 43055  
740-763-3966

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# Reclamation Plan For: AUD7 PAD



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**NOTE**  
REFER TO THE WVDEP  
EROSION AND SEDIMENT CONTROL  
FIELD MANUAL VER. MAY 2012 FOR  
BMPs CONTROLLING EROSION AND  
SEDIMENT FROM SOIL-DISTURBING  
OPERATIONS.

**Notes:**

- REQUESTED PERMIT IS FOR DEEPENING EXISTING WELL.
- ALL ACCESS ROADS ARE EXISTING AND WILL BE MAINTAINED TO WVDEP STANDARDS.
- ONLY MINIMAL EARTHWORK WILL BE REQUIRED TO COMPLETE PROPOSED WELL WORK. SEE ENGINEERED DRAWING THAT ACCOMPANIES THIS PERMIT PACKAGE FOR ADDITIONAL DETAIL.
- ALL DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
- MAINTAIN SEDIMENT BARRIERS AND DRAINAGE STRUCTURES.
- ALL ROAD GRADES <5% EXCEPT AS NOTED.
- NO DRILL PIT WILL BE CONSTRUCTED AND A CLOSED LOOP SYSTEM WILL BE UTILIZED TO HANDLE DRILL CUTTINGS.
- DRAWING NOT TO SCALE.

# HG Energy II Appalachia, LLC

## Site Safety Plan

AUDRA 7 Well Pad  
291 Townsend Rd  
Philippi, WV  
Barbour County

December 2017: Version 1

For Submission to  
West Virginia Department of Environmental Protection,  
Office of Oil and Gas

HG Energy II Appalachia, LLC  
5260 Dupont Road  
Parkersburg, WV 26101

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*Samuel L. Dearden*  
4-24-18



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**AUD7IHS**  
Marcellus Shale Horizontal  
Barbour County, WV

Ground Elevation (RKB)		1565'	AUD7IHS SHL			226946.1N 1834437.3E				
Azm		132.999°	AUD7IHS LP			224869.7N 1833663.49E				
WELLBORE DIAGRAM			AUD7IHS BHL			217051.5N 1842047.72E				

WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
	42"	30" 120# LS	Conductor	0	81	N/A	CTS w/ 675 sks Class A, 15.6ppg, 1.22 cu-ft/sk, 820 cu-ft	N/A		
			*Conductor already set*							
	26"	20" 94# J-55	Fresh Water	160, 635, 725, 730		N/A	CTS w/ (438-464) sks Class A, 15.6ppg, 1.20 cu-ft/sk, 1080 cu-ft	N/A		
			Surface Casing *Already Set*	0	403					
			Coal(s)	320, 635, 725, 730						
	17.5"	13-3/8" 54.5# J-55				N/A	CTS w/ 556 sks Class A, 15.6ppg, 1.20 cu-ft/sk, 780 cu-ft	N/A		
			Coal Protection Casing *Already Set*	0	818					
	12.375"	9-5/8" 35# J-55	Little Lime / Big Lime	1167 / 1234	1234 / 1308	N/A	CTS w/ 740 sks Class A, 15.6ppg, 1.22 cu-ft/sk, 904 cu-ft	N/A		
			Keener / Big Injun	1308 / 1395	1367 / 1447					
			Gantz / Fifth	1800 / 2114	1874					
			Intermediate Casing *Already Set*	0	2149					
8.5" Curve	5-1/2" 23# P-110 HC CDC HTQ	Bradford	3060		9.5ppg-10.5ppg SOBM	Lead: 14.5 ppg POZ-PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170 Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess Lead Yield=1.19 Tail Yield=1.94 CTS	Run 1 spiral centralizer every 3 joints from the 1st 5.6' long joint to the top of the curve.	Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.415" wall thickness Burst=14520 psi Note: Actual centralizer schedules may be changed due to hole conditions	
		Benson	3830							
		Sycamore Grit	6390							
		Burkett	7260							
		Tully Limestone	7280							
		Hamilton	7370							
8.5" Lateral		Marcellus	7500	7575	11.5ppg- 12.6ppg SOEM					
		TMD / TVD	20204	7575						
		Onondaga	7590							

LP @ 7575' TVD / 8760'  
MD

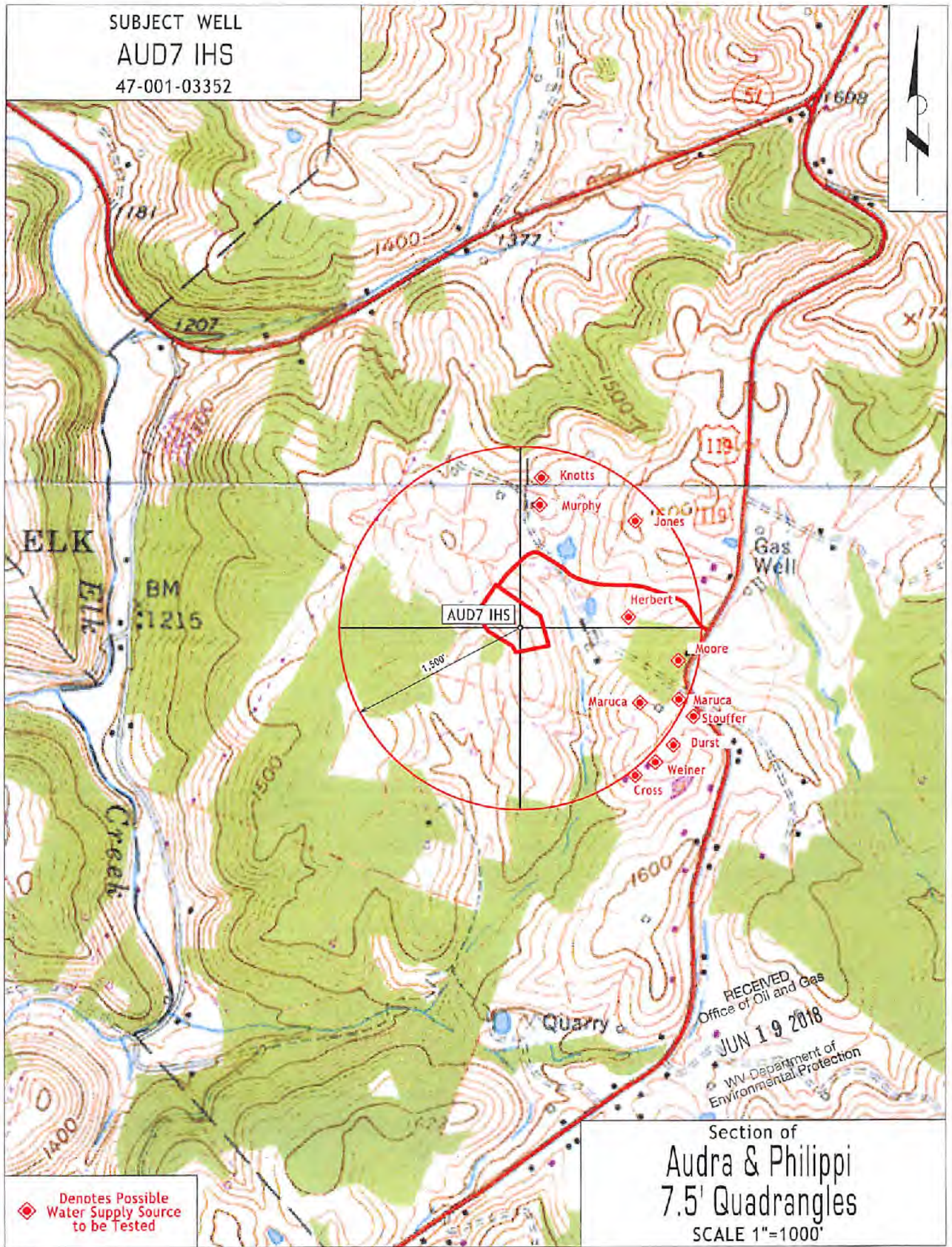
8.5" Hole - Cemented Long String  
5-1/2" 23# P-110 HC CDC HTQ

+/-11444' ft Lateral

TD @ +/-7975' TVD  
+/-20204' MD

X=centralizers

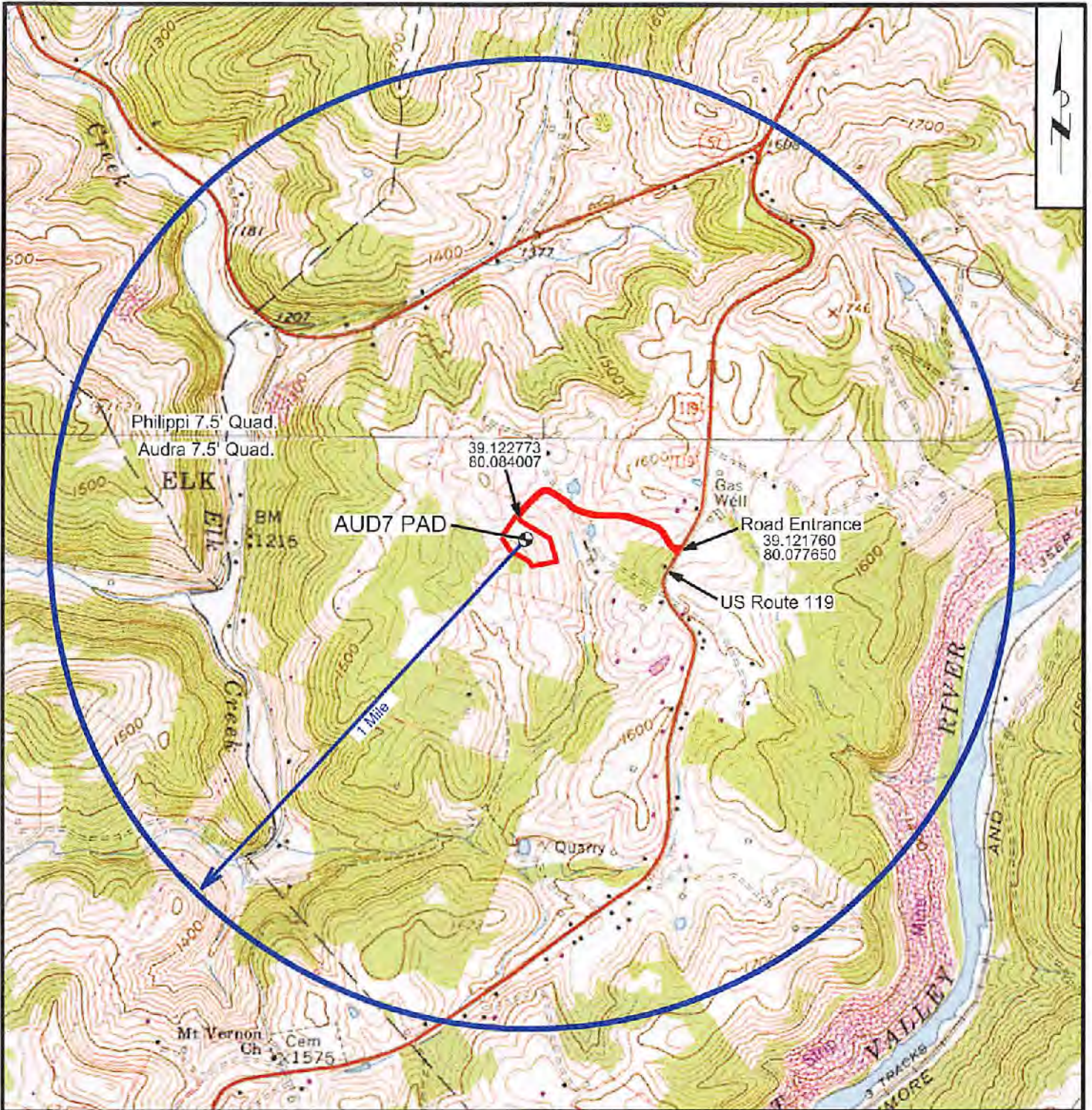
SUBJECT WELL  
AUD7 IHS  
47-001-03352



◆ Denotes Possible Water Supply Source to be Tested

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Section of  
Audra & Philippi  
7.5' Quadrangles  
SCALE 1"=1000'



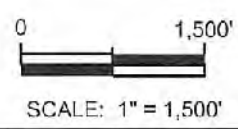
WELL SITE SAFETY PLAN FOR:

AUD7 PAD

Philippi District, Barbour County, W.Va.

TOPOGRAPHIC MAP  
Audra & Philippi 7.5' Quadrangles

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68' to Top Hole

4,278' to Bottom Hole  
LATITUDE 39 - 07 - 30

TOP HOLE LONGITUDE 80 - 05 - 00  
BTM HOLE LONGITUDE 80 - 02 - 30  
1,229' to Top Hole  
7.5' Spot  
11,050' to Bottom Hole

**HG Energy II  
Appalachia LLC  
Well No. AUD7 IHS**

Notes:  
Well No. AUD7 IHS  
WVSPC NAD 1927  
Top Hole Coordinates  
N: 226,946.1'  
E: 1,834,437.3'  
Landing Point Coordinates  
N: 224,869.7'  
E: 1,833,663.5'  
Bottom Hole Coordinates  
N: 217,051.5'  
E: 1,842,047.7'

Notes:  
Well No. AUD7 IHS  
West Virginia Coordinate System of 1927, North Zone  
based upon Differential GPS Measurements.  
Top Hole coordinates Bottom Hole coordinates  
Latitude: 39°07'17.85" Latitude: 39°05'40.52"  
Longitude: 80°05'00.77" Longitude: 80°03'23.42"  
UTM Zone 17, NAD 1983  
Top Hole Coordinates Bottom Hole Coordinates  
N: 4,330,684.2m N: 4,327,708.2m  
E: 579,239.0m E: 581,607.7m  
Plat orientation and corner and well references  
are based upon the grid north meridian.  
Well location references are based upon the magnetic  
meridian.

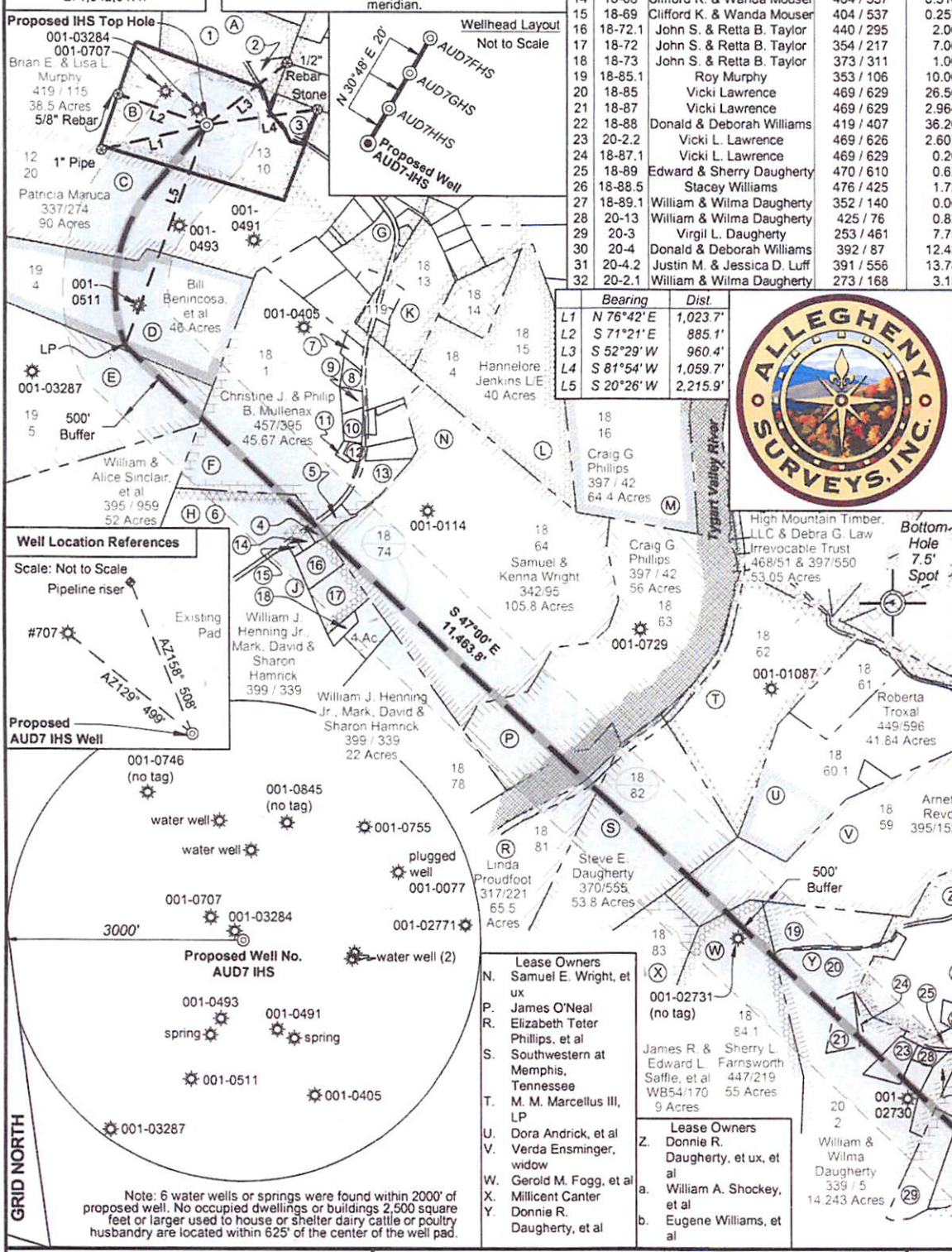
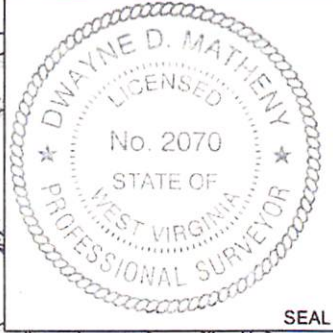
No.	TM-Par	Owner	Bk / Pg	Acres
1	13-9	Brian E. & Lisa L. Murphy	419 / 115	15.92
2	13-9-2	Jonathan T. & Kara Keener	421 / 34	1.99
3	13-11	Gene F. Herbert III	403 / 184	2.74
4	18-67	John S. & Retta B. Taylor	444 / 479	0.225
5	18-65	E.L. Watson c/o Corelogic	421 / 110	0.95
6	18-66	Sherman & C. Wilkinson	464 / 51	8.00
7	18-1-3	Randall Lee Stafford	479 / 148	1.00
8	18-1-1	Jerry D. Stalnaker, et ux	224 / 417	1.00
9	18-1-5	Jerry D. Stalnaker, et ux	252 / 481	0.94
10	18-1-4	David & Darius Nuzum	250 / 40	1.17
11	18-1-7	Keith & Sharon Nuzum	461 / 616	0.31
12	18-1-6	Keith & Sharon Nuzum	461 / 616	0.59
13	18-65-2	Samuel & Kenna Wright	342 / 95	3.72
14	18-68	Clifford K. & Wanda Mouser	404 / 537	0.514
15	18-69	Clifford K. & Wanda Mouser	404 / 537	0.257
16	18-72.1	John S. & Retta B. Taylor	440 / 295	2.00
17	18-72	John S. & Retta B. Taylor	354 / 217	7.00
18	18-73	John S. & Retta B. Taylor	373 / 311	1.00
19	18-85.1	Roy Murphy	353 / 106	10.00
20	18-85	Vicki Lawrence	469 / 629	26.50
21	18-87	Vicki Lawrence	469 / 629	2.964
22	18-88	Donald & Deborah Williams	419 / 407	36.20
23	20-2-2	Vicki L. Lawrence	469 / 626	2.607
24	18-87.1	Vicki L. Lawrence	469 / 629	0.20
25	18-89	Edward & Sherry Daugherty	470 / 610	0.62
26	18-88.5	Stacey Williams	476 / 425	1.72
27	18-89.1	William & Wilma Daugherty	352 / 140	0.06
28	20-1-3	William & Wilma Daugherty	425 / 76	0.82
29	20-3	Virgil L. Daugherty	253 / 461	7.75
30	20-4	Donald & Deborah Williams	392 / 87	12.43
31	20-4-2	Justin M. & Jessica D. Luff	391 / 558	13.78
32	20-2-1	William & Wilma Daugherty	273 / 168	3.15

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 rules issued and prescribed by the Department of Environmental Protection.

*Dwayne D. Matheny*  
Dwayne D. Matheny, P.S. 2070

Legend

- ⊙ Proposed gas well
- ⊙ Monument, as noted
- ⊙ Existing Well, as noted
- - - Creek or Drain
- - - Existing Road
- - - Surface boundary (approx.)
- - - Interior surface tracts (approx.)



Bearing	Dist.
L1 N 76°42' E	1,023.7'
L2 S 71°21' E	885.1'
L3 S 52°29' W	960.4'
L4 S 81°54' W	1,059.7'
L5 S 20°26' W	2,215.9'



FILE NO: 279-10-P-17  
DRAWING NO: AUD7 IHS Well Plat  
SCALE: 1" = 1500'  
MINIMUM DEGREE OF ACCURACY: Submeter  
PROVEN SOURCE OF ELEVATION: CORS, Bridgeport, WV

**STATE OF WEST VIRGINIA**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**OIL AND GAS DIVISION**

DATE: February 19 2018  
OPERATOR'S WELL NO. AUD7 IHS  
API WELL NO  
47 - 001 - 00552  
STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION: 1565' WATERSHED: Elk Creek  
DISTRICT: Philippi Brian E. &  
SURFACE OWNER: Lisa L. Murphy  
ROYALTY OWNER: Junior & Lucy P. Lantz, et al; et al LEASE NO: 085710 ACREAGE: 37.83;  
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ 7.575' TVD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 20,204' MD

WELL OPERATOR: HG Energy Appalachia, LLC DESIGNATED AGENT: Diane C. White  
ADDRESS: 5260 Dupont Road ADDRESS: 5260 Dupont Road  
Parkersburg, WV 26101 Parkersburg, WV 26101

68' to Top Hole

4,278' to Bottom Hole

LATITUDE 39 - 07 - 30

TOP HOLE LONGITUDE 80 - 05 - 00  
BTM HOLE LONGITUDE 80 - 02 - 30  
1,229' to Top Hole  
Top Hole 7.5' Spot

**HG Energy II  
Appalachia LLC  
Well No. AUD7 IHS**

Notes:  
Well No. AUD7 IHS  
WVSPC NAD 1927  
Top Hole Coordinates  
N: 226,946.1'  
E: 1,834,437.3'  
Landing Point Coordinates  
N: 224,869.7'  
E: 1,833,663.5'  
Bottom Hole Coordinates  
N: 217,051.5'  
E: 1,842,047.7'

Notes:  
Well No. AUD7 IHS  
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
Top Hole coordinates Bottom Hole coordinates  
Latitude: 39°07'17.85" Latitude: 39°05'40.52"  
Longitude: 80°05'00.77" Longitude: 80°03'23.42"  
UTM Zone 17, NAD 1983  
Top Hole Coordinates Bottom Hole Coordinates  
N: 4,330,684.2m N: 4,327,708.2m  
E: 579,239.0m E: 581,607.7m  
Plate orientation and corner and well references are based upon the grid north meridian.  
Well location references are based upon the magnetic meridian.

No.	TM-Par	Owner	Bk / Pg	Acres
1	13-9	Brian E. & Lisa L. Murphy	419 / 115	15.92
2	13-9.2	Jonathan T. & Kara Keener	421 / 34	1.99
3	13-11	Gene F. Herbert III	403 / 184	2.74
4	18-67	John S. & Retta B. Taylor	444 / 479	0.225
5	18-65	E.L. Watson c/o Corelogic	421 / 110	0.95
6	18-86	Sherman & C. Wilkinson	464 / 51	8.00
7	18-1.3	Randall Lee Stafford	479 / 148	1.00
8	18-1.1	Jerry D. Stalnaker, et ux	224 / 417	1.00
9	18-1.5	Jerry D. Stalnaker, et ux	252 / 481	0.94
10	18-1.4	David & Darius Nuzum	250 / 40	1.17
11	18-1.7	Keith & Sharon Nuzum	461 / 616	0.31
12	18-1.6	Keith & Sharon Nuzum	461 / 616	0.59
13	18-65.2	Samuel & Kenna Wright	342 / 95	3.72
14	18-68	Clifford K. & Wanda Mouser	404 / 537	0.514
15	18-69	Clifford K. & Wanda Mouser	404 / 537	0.257
16	18-72.1	John S. & Retta B. Taylor	440 / 295	2.00
17	18-72	John S. & Retta B. Taylor	354 / 217	7.00
18	18-73	John S. & Retta B. Taylor	373 / 311	1.00
19	18-85.1	Roy Murphy	353 / 106	10.00
20	18-85	Vicki Lawrence	469 / 629	28.50
21	18-87	Vicki Lawrence	466 / 629	2.964
22	18-88	Donald & Deborah Williams	419 / 407	38.20
23	20-2.2	Vicki L. Lawrence	469 / 626	2.607
24	18-87.1	Vicki L. Lawrence	469 / 629	0.20
25	18-89	Edward & Sherry Daugherty	470 / 610	0.62
26	18-98.5	Stacey Williams	476 / 425	1.72
27	18-89.1	William & Wilma Daugherty	352 / 140	0.06
28	20-13	William & Wilma Daugherty	425 / 76	0.82
29	20-3	Virgil L. Daugherty	253 / 461	7.75
30	20-4	Donald & Deborah Williams	392 / 87	12.43
31	20-4.2	Justin M. & Jessica D. Luff	391 / 556	13.78
32	20-2.1	William & Wilma Daugherty	273 / 168	3.15

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 rules issued and prescribed by the Department of Environmental Protection.

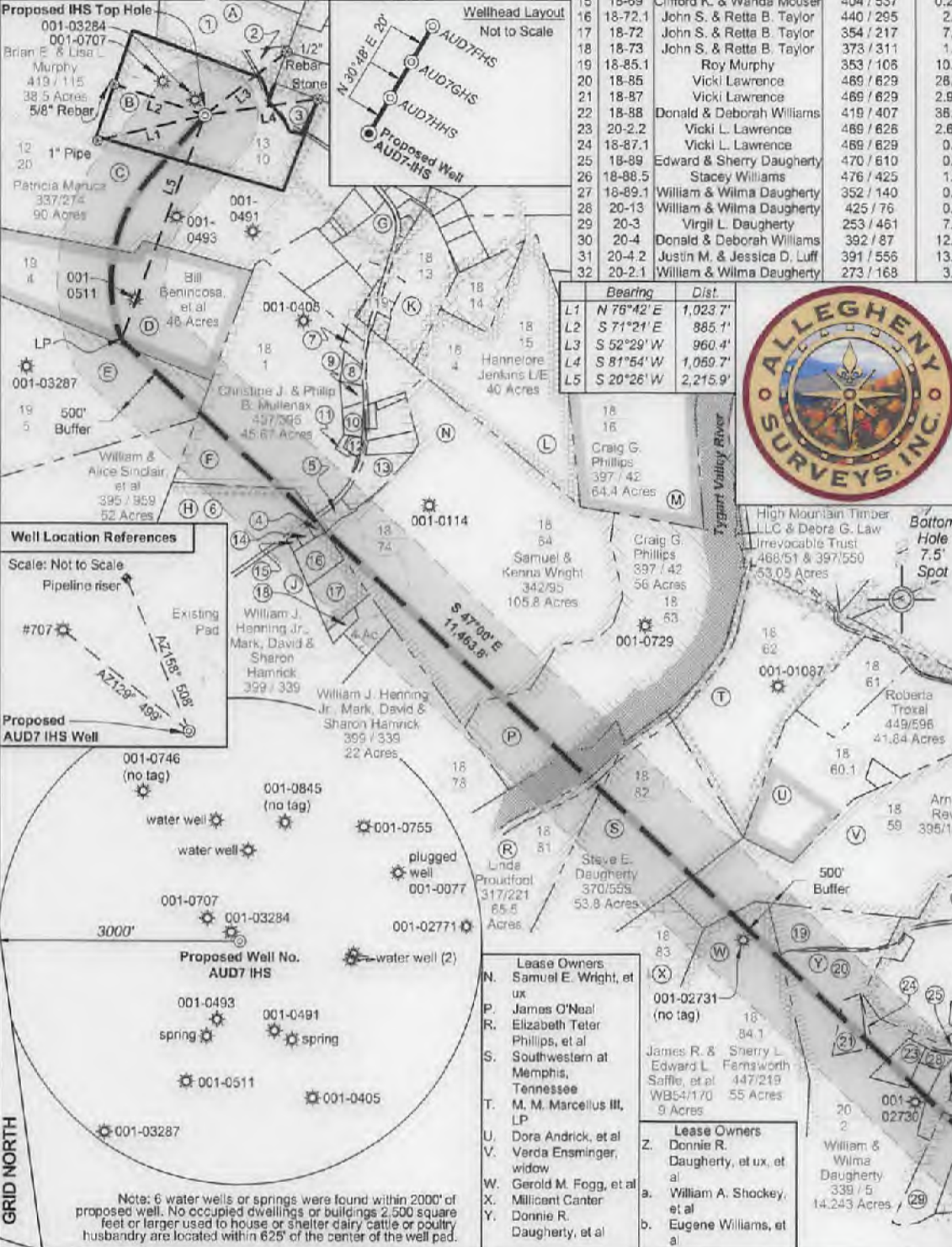
*Dwayne D. Matheny*  
Dwayne D. Matheny, P.S. 2070

Legend

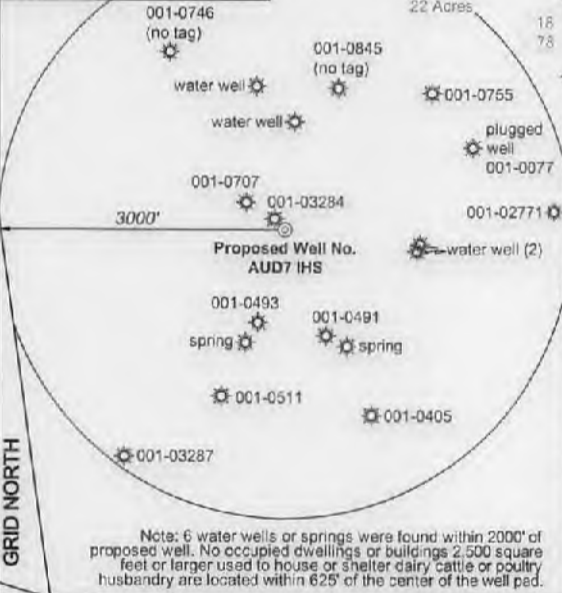
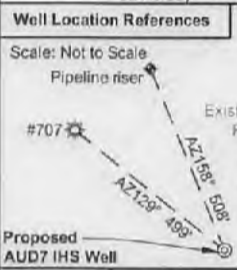
- ⊙ Proposed gas well
- ⊙ Monument, as noted
- ⊙ Existing Well, as noted
- Creek or Drain
- - - Existing Road
- Surface boundary (approx.)
- - - Interior surface tracts (approx.)



SEAL



Bearing	Dist.
L1 N 76°42' E	1,023.7'
L2 S 71°21' E	885.1'
L3 S 52°29' W	960.4'
L4 S 81°54' W	1,059.7'
L5 S 20°26' W	2,215.9'



- Lease Owners
- N. Samuel E. Wright, et ux
  - P. James O'Neal
  - R. Elizabeth Teter Phillips, et al
  - S. Southwestern at Memphis, Tennessee
  - T. M. M. Marcellus III, LP
  - U. Dora Andrick, et al
  - V. Varda Ensminger, widow
  - W. Gerold M. Fogg, et al
  - X. Millicent Canter
  - Y. Donnie R. Daugherty, et al

FILE NO: 279-10-P-17  
DRAWING NO: AUD7 IHS Well Plat  
SCALE: 1" = 1500'  
MINIMUM DEGREE OF ACCURACY: Submeter  
PROVEN SOURCE OF ELEVATION: CORS, Bridgeport, WV

**STATE OF WEST VIRGINIA**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**OIL AND GAS DIVISION**

DATE: February 19 2018  
OPERATOR'S WELL NO. AUD7 IHS  
API WELL NO  
47 - 001 - 03352  
STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
LOCATION: ELEVATION: 1565' WATERSHED: Elk Creek QUADRANGLE: Audra  
DISTRICT: Philippi Brian E. & COUNTY: Barbour  
SURFACE OWNER: Lisa L. Murphy ACREAGE: 38.5  
ROYALTY OWNER: Junior & Lucy P. Lantz, et al; et al LEASE NO: 085710 ACREAGE: 37.83;  
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ 7.575' TVD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 20,204' MD

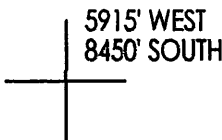
WELL OPERATOR: HG Energy Appalachia, LLC DESIGNATED AGENT: Diane C. White  
ADDRESS: 5260 Dupont Road ADDRESS: 5260 Dupont Road  
Parkersburg, WV 26101 Parkersburg, WV 26101



ADDITIONAL SURFACE OWNERS:

- A - JONATHAN KEENER
- B - CNX GAS COMPANY, LLC
- C - DUANE MOORE
- D - ROBERT STAFFORD
- E - GENE HERBERT, JR.
- F - DAVID CROSS
- G - JERRY STALNAKER
- H - ROBERT STAFFORD
- I - JERRY STALNAKER
- J - SHEILA MAXSON
- K - EDWARD WATSON
- L - PRENTIS JENKINS
- M - COASTAL FOREST RESOURCES CO.
- N - GARY CARPER
- O - PEGGY JONES
- P - STANLEY ANDRICK
- Q - LORI DAUGHERTY
- R - WILLIAM ANDRICK
- S - CLAYTON ANDRICK
- T - SADIE WILLIAMS
- U - ROY MURPHY
- V - SHERRY FARNSWORTH
- W - JAMES DAUGHERTY
- X - WILLIAM HENNING
- Y - JOHN TAYLOR
- Z - WANDA MOUSER
- AA - JERRY LANTZ
- BB - MIKE ROSS, INC.
- CC - CONE GATHERING LLC
- DD - WILLIAM ANNON
- EE - TIMOTHY KNOTTS

SCALED COOR.  
BOTTOM HOLE:




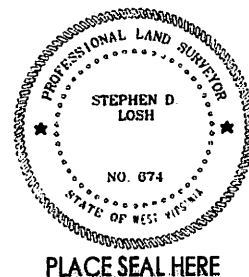
GRID NORTH

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

FILE NUMBER: \_\_\_\_\_  
 DRAWING NUMBER: CNXAUD7IHSR1.1.PCS  
 SCALE: 1" = 1300'  
 MINIMUM DEGREE OF ACCURACY: SUBMETER  
 PROVEN SOURCE OF ELEVATION: DGPS SURVEY  
RTK CENTIMETER SYSTEM

I THE UNDERSIGNED, HEREBY STATE 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 ENERGY.

(SIGNED)   
 STEPHEN D. LOSH, P.S. #674



STATE OF WEST VIRGINIA  
 DIVISION OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS  
 #10 McJUNKIN ROAD  
 NITRO, WV 25143-2506  
 FORM WW-6

LAND SURVEYING SERVICES  
 21 CEDAR LANE, BRIDGEPORT, WV 26330  
 PHONE: 304-842-2018 OR 842-5762

DATE: JULY 17, 2017  
 OPERATORS WELL NO.: AUD7IHS  
 API WELL NO. 47 - 001 - 03352  
 STATE COUNTY PERMIT

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  CBM   
 (IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION 1568' WATERSHED ELK CREEK  
 DISTRICT PHILIPPI COUNTY BARBOUR

QUADRANGLE AUDRA LEASE NUMBER SEE ABOVE

SURFACE OWNER BRIAN E. & LISA L. MURPHY ACREAGE 38.00 (13-10)

OIL & GAS ROYALTY OWNER O. CASTO, ET. AL. UNIT LEASE ACREAGE 1059.13

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION   
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE (SPECIFY) HORIZONTAL

TARGET FORMATION MARCELLUS PLUG & ABANDON  CLEAN OUT & REPLUG   
 ESTIMATED DEPTH TVD = 7950' TMD = 18260'

WELL OPERATOR HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT DIANE C. WHITE

ADDRESS 5260 DUPONT ROAD, PARKERSBURG, WV 26101 ADDRESS 5260 DUPONT ROAD, PARKERSBURG, WV 26101

COUNTY NAME  
PERMIT

WW-6A1  
(3/13)

Operator's Well No. \_\_\_\_\_

**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 Attached Lease Chains"

**RECEIVED**  
 Office of Oil and Gas  
**JUN 19 2018**  
 WV Department of  
 Environmental Protection

**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: HG Energy II Appalachia, LLC  
 By: Diane White *Diane White*  
 Its: Agent

Tract	HG Lease Number	MPID	Original Lessor	Original Lessee	Agreement Type	Royalty	Book	Page
B	CNXC85710	7-13-10, 7-13-11	Junior Lantz and Lucy P. Lantz, his wife; Elmer Dean, single ✓	Consolidated Gas Supply Corporation	Oil And Gas Lease	NOT LESS THAN 1/8	L72	823
			Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment		L99	481
			Consolidated Gas Transmission Corporation	CNG Transmission	Merger/Name Change		HC 51	795
			CNG Transmission	Dominion Transmission, Inc	Merger/Name Change		HC 58	362
			Dominion Transmission, Inc	Consol Energy Holdings LLC XVI	Assignment		L151	423
			Consol Energy Holdings LLC XVI	Consol Gas Company	Merger		16	577
			Consol Gas Company	CNX Gas Company LLC	Merger		17	1
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HG Energy II Appalachia LLC ✓	Assignment		178	1
C	Q083485000	7-12-20	Elsie Malcolm ✓	Reeves Lewenthal	Oil And Gas Lease	NOT LESS THAN 1/8	L66	426
			Reeves Lewenthal	Apollo Petroleum	Assignment		L72	563
			Apollo Petroleum	Eastern American Energy Corporation	Assignment		L126	145
			Eastern American Energy Corporation	Energy Corporation of America	Merger / Name Change		L438	429
			Eastern American Energy Corporation	Energy Corporation of America	Merger / Name Change		16	486
			Energy Corporation of America	CNX Gas Company LLC	Assignment		L185	36
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HG Energy II Appalachia LLC ✓	Assignment		178	1
			D	Q098699000	7-19-4	Pearlie Malcolm ✓	Reeves Lewenthal	Oil And Gas Lease
Reeves Lewenthal	Apollo Petroleum	Assignment					L72	503
Apollo Petroleum	Eastern American Energy Corporation	Assignment					L126	145
Eastern American Energy Corporation	Energy Corporation of America	Merger / Name Change					L438	429
Eastern American Energy Corporation	Energy Corporation of America	Merger / Name Change					16	486
Energy Corporation of America	CNX Gas Company LLC	Assignment					L194	557
CNX Gas Company LLC	Noble Energy	Assignment					155	406
CNX Gas Company LLC	Noble Energy	Assignment					177	231
Noble Energy	HG Energy II Appalachia LLC ✓	Assignment					178	1
E	CNX068959	1-19-5				Lucille C Chesser ✓	Hope Natural Gas Company	Oil And Gas Lease
			Hope Natural Gas Company	Consolidated Gas Supply Corp.	Merger/Name Change		L53	261
			Consolidated Gas Supply Corp.	Consolidated Gas Transmission Corp.	Merger/Name Change		L20	342
			Consolidated Gas Transmission Corp.	CNG Transmission Corp	Merger/Name Change		HC 51	795
			CNG Transmission Corp	Dominion Transmission, Inc.	Merger/Name Change		HC 58	362
			Dominion Transmission, Inc.	Consol Energy Holdings, LLC, XVI	Assignment		151	423
			Consol Energy Holdings, LLC, XVI	Consol Gas Company	Merger/Name Change		16	577
			Consol Gas Company	CNX Gas Company LLC	Merger/Name Change		17	1
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
Noble Energy	HG Energy II Appalachia LLC ✓	Assignment		178	1			
F	CNX068852	07-0018-0065-0002, 07-0018-0065-0000, 07-0018-0001-0000, 07-0018-0001-0007, 07-0018-0001-0002, 07-0018-0001-0003, 07-0018-0001-0001, 07-0018-0001-0005, 07-0018-0001-0004, 07-0018-0001-0006	Orma Casto and Carrie Casto, his wife; L.C. Robinson and Dolly Robinson, his wife; Carl B. Malcolm and Elsie Malcolm ✓	Hope Natural Gas Company	Oil And Gas Lease	NOT LESS THAN 1/8	L41	90
			Hope Natural Gas Company	Consolidated Gas Supply Corporation	Merger		L53	261
			Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment		L99	481
			Consolidated Gas Transmission Corporation	CNG Transmission	Merger / Name Change		HC 51	795

RECEIVED  
 Office of Oil and Gas  
 JUN 19 2018  
 Department of Environmental Protection

Tract	HG Lease Number	MPID	Original Lessor	Original Lessee	Agreement Type	Royalty	Book	Page
			CNG Transmission	Dominion Transmission, inc.	Merger / Name Change		HC 58	362
			Dominion Transmission, inc.	Consol Energy Holdings LLC XVI	Assignment		L151	423
			Consol Energy Holdings LLC XVI	Consol Gas Company	Merger		16	577
			Consol Gas Company	CNX Gas Company LLC	Merger		17	1
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HG Energy II Appalachia LLC ✓	Assignment		178	1
H	CNX070975	7-18-66	Kewisel V. Davis et ux ✓	Hope Natural Gas Company	Oil And Gas Lease	NOT LESS THAN 1/8	44	271
			Hope Natural Gas Company	Consolidated Gas Supply Corporation	Merger		L53	261
			Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment		L99	481
			Consolidated Gas Transmission Corporation	CNG Transmission	Merger / Name Change		HC 51	795
			CNG Transmission	Dominion Transmission, inc.	Merger / Name Change		HC 58	362
			Dominion Transmission, inc.	Consol Energy Holdings LLC XVI	Assignment		L151	423
			Consol Energy Holdings LLC XVI	Consol Gas Company	Merger		16	577
			Consol Gas Company	CNX Gas Company LLC	Merger		17	1
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HG Energy II Appalachia LLC ✓	Assignment		178	1
N	Q087535000	7-18-64	Samuel E. Wright et ux ✓	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	166	495
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HG Energy II Appalachia LLC ✓	Assignment		178	1
P	CNX086912	7-18-63	James O'Neal ✓	Consolidated Gas Supply Corporation	Oil And Gas Lease	NOT LESS THAN 1/8	73	221
			Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment		L76	441
			Consolidated Gas Transmission Corporation	Sulpetro Resources, Inc.	Assignment-45%		L103	273
			Sulpetro Resources, Inc.	Sulpetro United States, Inc.	Assignment - 45%		L103	279
			Sulpetro United States, Inc.	Steaua Romana (US) Inc.	Assignment - 45%		L103	286
			Consolidated Gas Transmission Corporation	CNG Transmission	Merger/Name Change		HC 51	795
			Steaua Romana (US) Inc.	Ambrit Energy Corporation	Merger/Name Change		L130	535
			Ambrit Energy Corporation	CNG Transmission	Assignment-45%		L130	535
			CNG Transmission	Dominion Transmission, Inc.	Merger/Name Change		HC 58	362
			Dominion Transmission, Inc.	Consol Energy Holdings LLC XVI	Assignment		L151	423
			Consol Energy Holdings LLC XVI	Consol Gas Company	Merger		16	577
			Consol Gas Company	CNX Gas Company LLC	Merger		17	1
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HG Energy II Appalachia LLC ✓	Assignment		178	1
R	CNX068926	7-18-81	Elizabeth Teter Phillips et al ✓	Hope Natural Gas Company	Oil And Gas Lease	NOT LESS THAN 1/8	41	276
			Hope Natural Gas Company	Consolidated Gas Supply Corporation	Merger		L53	261
			Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment		L99	481
			Consolidated Gas Transmission Corporation	CNG Transmission	Merger / Name Change		HC 51	795
			CNG Transmission	Dominion Transmission, inc.	Merger / Name Change		HC 58	362
			Dominion Transmission, inc.	Consol Energy Holdings LLC XVI	Assignment		L151	423
			Consol Energy Holdings LLC XVI	Consol Gas Company	Merger		16	577
			Consol Gas Company	CNX Gas Company LLC	Merger		17	1
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HC Energy II Appalachia LLC ✓	Assignment		178	1

Tract	HG Lease Number	MPID	Original Lessor	Original Lessee	Agreement Type	Royalty	Book	Page
S	CNX069113	7-18-82	Southwestern at Memphis, Tennessee	Consolidated Gas Supply Corporation	Oil And Gas Lease	NOT LESS THAN 1/8	L68	538
			Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment		L99	481
			Consolidated Gas Transmission Corporation	CNG Transmission	Merger/Name Change		HC 51	795
			CNG Transmission	Dominion Transmission, Inc.	Merger/Name Change		HC 58	362
			Dominion Transmission, Inc	Consol Energy Holdings LLC XVI	Assignment		L151	423
			Consol Energy Holdings LLC XVI	Consol Gas Company	Merger		16	577
			Consol Gas Company	CNX Gas Company LLC	Merger		17	1
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HC Energy II Appalachia LLC	Assignment		178	1
W	Q084849001	7-18-04.1	Gerald M. Fogg	Petroleum Development Corporation	Oil And Gas Lease	NOT LESS THAN 1/8	131	398
			Peggy C. Hasdley et al	Petroleum Development Corporation		NOT LESS THAN 1/8	130	515
			Millicent Cantler	Petroleum Development Corporation		NOT LESS THAN 1/8	130	406
			Anne H. Collins	Petroleum Development Corporation		NOT LESS THAN 1/8	130	414
			Richard C. Hopkins	Petroleum Development Corporation		NOT LESS THAN 1/8	130	402
			Nancy B. Collins	Petroleum Development Corporation		NOT LESS THAN 1/8	130	410
			R. Holt Poling et ux	Petroleum Development Corporation		NOT LESS THAN 1/8	130	418
			Jack W. Cantler	Petroleum Development Corporation		NOT LESS THAN 1/8	130	523
			Rachel Bocoek	Petroleum Development Corporation		NOT LESS THAN 1/8	130	446
			Betty Kriika	Petroleum Development Corporation		NOT LESS THAN 1/8	130	531
			Suzanne C. Sandell	Petroleum Development Corporation		NOT LESS THAN 1/8	130	519
			Lucinda H. Rogers	Petroleum Development Corporation		NOT LESS THAN 1/8	130	527
			John A. Mosesso	Petroleum Development Corporation		NOT LESS THAN 1/8	130	422
			Petroleum Development Corporation	PDC Mountaineer, LLC	Assignment		160	444
			PDC Mountaineer, LLC	CNX Gas Company LLC and Noble Energy, Inc.	Assignment		163	181
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HC Energy II Appalachia LLC	Assignment		178	1
Y & Z	Q084849017	7-18-87, 7-18-85, 7-20-2.2, 7-20-2.1	Edith B. Trader et vir	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	514
			Theodore K. Andrick et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	519
			Clayton G. Andrick et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	524
			Lorraine H. Allman	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	529
			Charlotte R. Williams	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	76
			West L. Andrick et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	81
			Dorothy L. Treiter	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	91
			Charles H. Lindsey et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	96
			Jean E. Ruth	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	459
			Thomas B. Andrick	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	464
			Sadie M. Williams	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	469
			Lloyd M. Allman et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	474
			Grant Allman et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	479
			Gladolene Martin et vir	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	484
			Stanley McDaniel et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	489
			Arnett Wayne Andrick	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	494
			Fonfella E. Moore	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	509
			Jerry P. Andrick et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	499
			Linda Allman Still	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	164	504
			Gale M. Steele	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	101
			Larry M. Williams et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	106
			Betty J. Hutchison	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	111
			Roger L. Andrick et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	391
			Erk D. Lawrence et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	158
			Larry H. Williams et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	85
			Deborah Kay Stout et vir	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	165	176
			Joe C. Andrick et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	166	300

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Tract	HG Lease Number	MPID	Original Lessor	Original Lessee	Agreement Type	Royalty	Book	Page
	Q084849044		Wellington Virl Andrick Jr.	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	186	305
	Q084849014		Donnie R. Daugherty et ux	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	131	337
	Q084849016		Rev David E. Brown et al	CNX Gas Company LLC	Oil And Gas Lease	NOT LESS THAN 1/8	131	344
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HG Energy II Appalachia LLC	Assignment		178	1
V	CNX057990	7-18-59	Verda Ensminger, widow	Consolidated Gas Supply Corporation	Oil And Gas Lease	NOT LESS THAN 1/8	L56	142
			Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment		L99	481
			Consolidated Gas Transmission Corporation	CNG Transmission	Merger/Name Change		HC 51	795
			CNG Transmission	Dominion Transmission, Inc.	Merger/Name Change		HC 58	362
			Dominion Transmission, Inc	Consol Energy Holdings LLC XVI	Assignment		L151	423
			Consol Energy Holdings LLC XVI	Consol Gas Company	Merger		16	577
			Consol Gas Company	CNX Gas Company LLC	Merger		17	1
			CNX Gas Company LLC	Noble Energy	Assignment		155	406
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HG Energy II Appalachia LLC	Assignment		178	1
b	Barry Energy Lease	7-20-4, 7-20-3, 7-20-4.2	Jerry L. Ware and Barbara J. Ware	Berry Energy Consultants and Managers, Inc.	Oil And Gas Lease	NOT LESS THAN 1/8	114	344
			Elizabeth W. S. Cuthbert and William R. Cuthbert	Berry Energy Consultants and Managers, Inc.	Oil And Gas Lease	NOT LESS THAN 1/8	114	391
			Joseph Pitman and Gladys Daugherty	Berry Energy Consultants and Managers, Inc.	Oil And Gas Lease	NOT LESS THAN 1/8	120	323
			Eugene F. Williams, Sr. and Sadie M. Williams; Nancy Williams	Berry Energy Consultants and Managers, Inc.	Oil And Gas Lease	NOT LESS THAN 1/8	122	341
			Berry Energy Consultants and Managers, Inc.	HG Energy II Appalachia LLC	Assignment	NOT LESS THAN 1/8	TBD	TBD
a	Q064832001	7-20-5	William A. Shockley et ux	Petroleum Development Corporation	Oil And Gas Lease	NOT LESS THAN 1/8	130	78
	Q064832002		Jerry L. Ware and Barbara J. Ware	W.R. McDaniel	Oil And Gas Lease	NOT LESS THAN 1/8	131	208
			W.R. McDaniel	Petroleum Development Corporation	Assignment		131	228
			PDC Mountaineer, LLC	CNX Gas Company LLC and Noble Energy, Inc.	Assignment		163	181
			CNX Gas Company LLC	Noble Energy	Assignment		177	231
			Noble Energy	HG Energy II Appalachia LLC	Assignment		178	1

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**HG Energy, LLC**  
5260 Dupont Road  
Parkersburg, WV 26101  
(304) 420-1100 - Office  
(304) 863-3172 - Fax

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May 29, 2018

Laura Adkins  
WV DEP  
Division of Oil & Gas  
601 57<sup>th</sup> Street  
Charleston, WV 25304

RE: Drilling Under Roads – AUD7 IHS  
Philippi District, Barbour County  
West Virginia

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Dear Ms. Adkins:

HG Energy II Appalachia, LLC, has the right to drill, stimulate and produce wells that are drilled under the County and State Roads as designated on the plats.

Should you have any questions or desire further information, please contact me at [dwhite@hgenergyllc.com](mailto:dwhite@hgenergyllc.com) or 304-420-1119.

Very truly yours,

Diane C. White

Enclosures

WW-6AC  
(1/12)

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

**Date of Notice Certification:** 05/29/2018

**API No.** 47- 001 - 03352

**Operator's Well No.** AUD7 IHS

**Well Pad Name:** AUD7

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>39.121721</u>
County: <u>Barbour</u>		Northing: <u>80.083348</u>
District: <u>Phillippi</u>	Public Road Access: <u>SR 119</u>	
Quadrangle: <u>Audra 7.5'</u>	Generally used farm name: <u>Brian &amp; Lisa Murphy</u>	
Watershed: <u>Elk Creek</u>		

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p align="center"><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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**Required Attachments:**

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

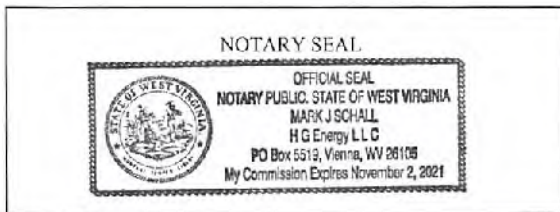


WW-6AC  
(1/12)

**Certification of Notice is hereby given:**

THEREFORE, I Diane White, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>HG Energy II Appalachia, LLC</u>	Address:	<u>5260 Dupont Road</u>
By:	<u>Diane White <i>Diane White</i></u>		<u>Parkersburg, WV 26101</u>
Its:	<u>Agent</u>	Facsimile:	<u>304-863-3172</u>
Telephone:	<u>304-420-1119</u>	Email:	<u>dwhite@hgenergyllc.com</u>



Subscribed and sworn before me this 29th day of May.

*Mark J Schall* Notary Public

My Commission Expires 6/18/2018

**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](mailto:depprivacyofficer@wv.gov).

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WW-6A  
(9-13)

API NO. 47- 001 - 03352  
OPERATOR WELL NO. AUD7 IHS  
Well Pad Name: AUD7

**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:** 05/30/2018 **Date Permit Application Filed:** 06/15/2018

**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: Brian E. & Lisa L. Murphy  
 Address: RR 1, Box 85-B2  
Philippi, WV 26416  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
 Name: Kanawha Energy Company  
 Address: P. O. Box 266  
Julian, WV 25529  
 COAL OPERATOR  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

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SURFACE OWNER(s) (Road and/or Other Disturbance)  
 Name: CONSOL  
 Address: P. O. Box 1248  
Jane Lew, WV 26378  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)  
 Name: \*\* See Attached List \*\*  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)  
 Name: Brian E. & Lisa L. Murphy  
 Address: RR 1, Box 85-B2  
Philippi, WV 26416

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

\*Please attach additional forms if necessary

**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 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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.depro.wv.gov/oil-and-gas/pages/default.aspx](http://www.depro.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

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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 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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.**

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### **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.

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WW-6A  
(8-13)

API NO. 47- 061 - 03352  
OPERATOR WELL NO. AUD7 IHS  
Well Pad Name: AUD7

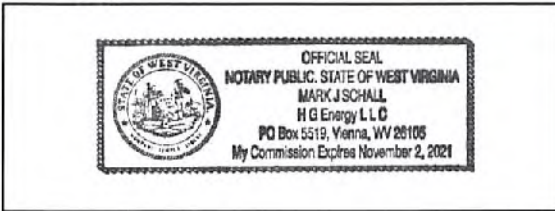
**Notice is hereby given by:**

Well Operator: HG Energy II Appalachia, LLC  
Telephone: 304-420-1119  
Email: dwhite@hgenergyllc.com *Diane White*

Address: 5260 Dupont Road  
Parkersburg, WV 26101  
Facsimile: 304-863-3172

**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](mailto:depprivacyofficer@wv.gov).



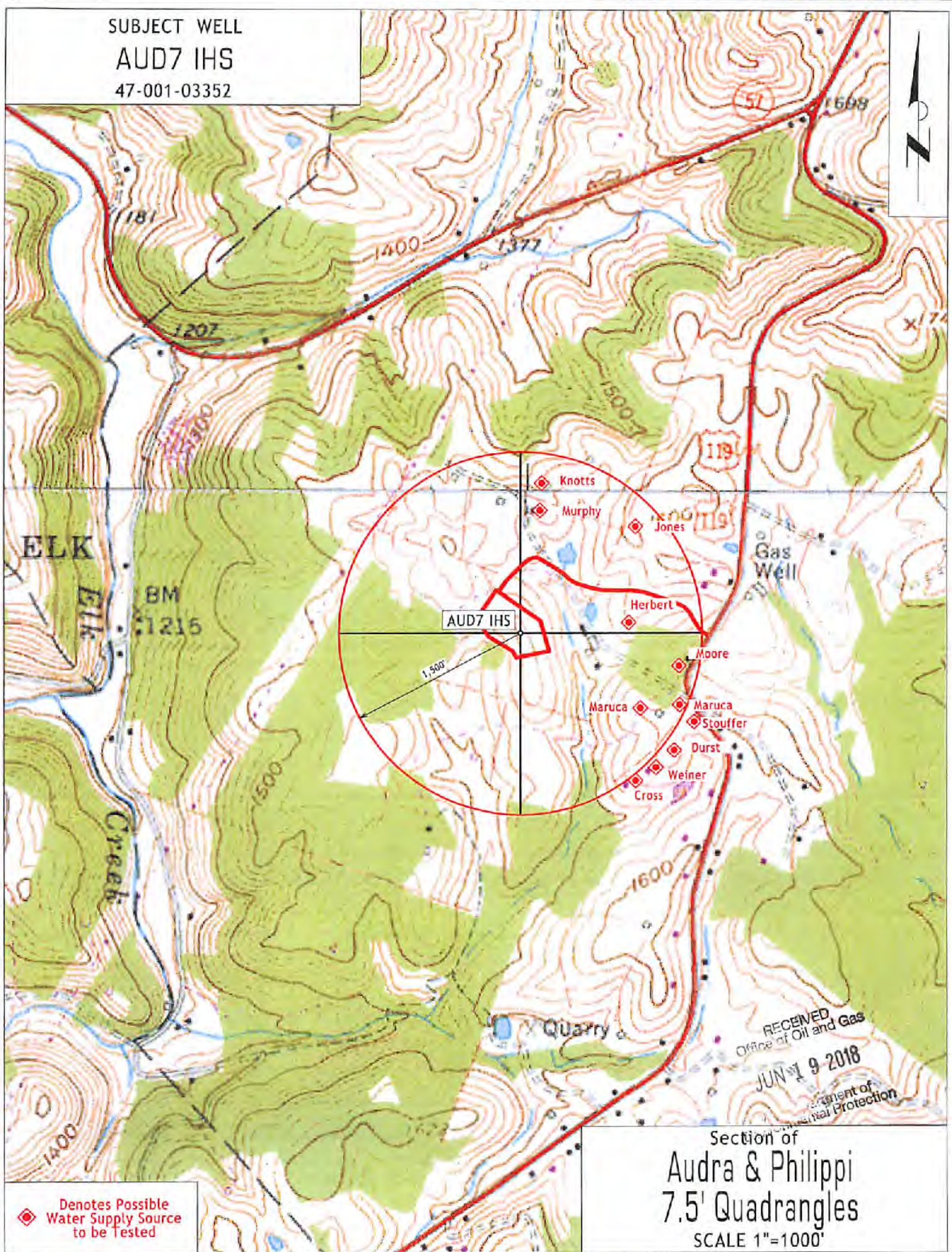
Subscribed and sworn before me this 30th day of May, 2018.

*[Signature]*  
\_\_\_\_\_  
Notary Public

My Commission Expires 11/2/2021

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SUBJECT WELL  
AUD7 IHS  
47-001-03352



◆ Denotes Possible Water Supply Source to be Tested

Section of  
Audra & Philippi  
7.5' Quadrangles  
SCALE 1"=1000'

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Department of Environmental Protection

State of West Virginia

Office of Oil and Gas

WW-6A – Additional Form

Notice of Application

AUD7 Well Pad - AUD7 FHS, GHS, HHS, IHS

List of Surface Owners of Possible Water Wells and/or Water Purveyors

Brian E & Lisa L Murphy, RR1, Box 85-B2, Philippi, WV 26416

Timothy J & Rebecka L Knotts, 440 Townsend Road, Philippi, WV 26416

Richard G & Gayle E Jones HWS, 1086 Buckhannon Road, Philippi, WV 26416

Gene F Herbert III, 541 Old Weston Road, Buckhannon, WV 26201

Duane E Moore, 1386 Buckhannon Road, Philippi, WV 26416

Patricia Maruca, 13 Townsend Road, Philippi, WV 26416

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**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

**Notice Time Requirement:** Notice shall be provided at least **TEN (10)** days prior to filing a permit application.

**Date of Notice:** 05/29/2018

**Date Permit Application Filed:** 05/10/2018

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

HAND DELIVERY       CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

**Notice is hereby provided to the SURFACE OWNER(s):**

Name: Brian E. & Lissa L. Murphy

Address: RR 1, Box 85 - B2

Philippi, WV 26416

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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JUN 19 2018  
WV Department of  
Environmental Protection

**Notice is hereby given:**

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

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>4330684.23</u>
County: <u>Barbour</u>	Northing: <u>579239.03</u>
District: <u>Phillippi</u>	Public Road Access: <u>US 119</u>
Quadrangle: <u>Audra</u>	Generally used farm name: <u>Brian E. &amp; Lissa L. Murphy</u>
Watershed: <u>Elk Creek</u>	

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: HC Energy II Appalachia, LLC  
Address: 5260 Dupont Road  
Parkersburg, WV 26101  
Telephone: 304-420-1119  
Email: dwhite@hgenergyllc.com  
Facsimile: 304-863-3172

Authorized Representative: Diane White *diane white*  
Address: 5260 Dupont Road  
Parkersburg, WV 26101  
Telephone: 304-420-1119  
Email: dwhite@hgenergyllc.com  
Facsimile: 304-863-3172

**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](mailto:depprivacyofficer@wv.gov).

WW-6A5  
(1/12)

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

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

**Date of Notice:** 05/29/2018      **Date Permit Application Filed:** 06/15/2018

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

CERTIFIED MAIL                       HAND  
RETURN RECEIPT REQUESTED              DELIVERY

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

**Notice is hereby provided to the SURFACE OWNER(s)**

(at the address listed in the records of the sheriff at the time of notice):

Name: Brian E. & Lisa L. Murphy

Address: RR 1, Box 85 - B2

Phillippi, WV 26416

Name: \_\_\_\_\_

Address: \_\_\_\_\_

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**Notice is hereby given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>4330684.23</u>
County:	<u>Barbour</u>		Northing:	<u>579239.03</u>
District:	<u>Phillippi</u>	Public Road Access:	<u>US 119</u>	
Quadrangle:	<u>Audra</u>	Generally used farm name:	<u>Brian E. &amp; Lisa L. Murphy</u>	
Watershed:	<u>Elk Creek</u>			

**This Notice Shall Include:**

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

Well Operator: HG Energy II Appalachia, LLC

Telephone: 304-420-1119

Email: dwhite@hgenergyllc.com

*Diane White*

Address: 5290 Dupont Road

Parkersburg, WV 26101

Facsimile: 304-863-3172

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## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

## Division of Highways

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

Thomas J. Smith, P. E.  
Secretary of Transportation/  
Commissioner of Highways

February 27, 2018

Jill M. Newman  
Deputy Commissioner

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

Subject: DOH Permits for the AUD 7HS Well Pad, Barbour County  
AUD 7FHS                      AUD 7GHS                      AUD 7HHS                      AUD 7IHS

Dear Mr. Martin,

This well site will be accessed from Permit #07-2013-0267 transferred to HG Energy II Appalachia, LLC for access to the State Road for a well site located off of US Route 119 in Barbour County.

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

Very Truly Yours,

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

Cc: Diane White  
HG Energy II Appalachia, LLC  
CH, OM, D-7  
File

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HG Energy II Appalachia, LLC  
List of Frac Additives by Chemical Name and CAS #

AUD7 Well Pad (GHS,FHS,HHS,IHS)

*Good  
ws  
=*

Chemical Name	CAS #	Multiple CAS #'s
Pro Shale Slik 405	Mixture	68551-12-2 7647-14-5 12125-02-9 64742-47-8
Pro Hib II	Mixture	68412-54-4 68607-28-3 107-21-1 111-76-2 67-56-1 107-19-7
Silica Sand and Ground Sand	Mixture	14808-60-7 1344-28-1 1309-37-1 13463-67-7
Hydrochloric Acid 22 DEG BE	7647-01-0	
PROGEL - 4.5	64742-96-7	
BIO CLEAR 2000	Mixture	25322-68-3 10222-01-2
SCALE CLEAR SI 112	107-21-1	
PROBREAK 4	Mixture	57-50-1 107-21-1
Sulfamic Acid	5329-14-6	
PRO - Flow - 102-N	Mixture	67-63-0 68439-45-2 2687-96-9
PROGEL - 4	9000-30-0	

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