



west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Thursday, March 28, 2019
WELL WORK PERMIT
Horizontal 6A / New Drill

HG ENERGY II APPALACHIA, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for 1209 S-10H
47-033-05946-00-00

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: 1209 S-10H
Farm Name: HG ENERGY II APPALACHIA
U.S. WELL NUMBER: 47-033-05946-00-00
Horizontal 6A New Drill
Date Issued: 3/28/2019

PERMIT CONDITIONS

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

CONDITIONS

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

PERMIT CONDITIONS

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



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

03/29/2019

January 24, 2019

EnerVest Operating Company
300 Capitol Street, Suite 200
Charleston, WV 25301

RE: Area of Review – Nays 1209 Well Pad (S-7H to S-12H)
Hydraulic Fracturing Notice

Dear Sir:

HG Energy II Appalachia, LLC, has developed a Marcellus pad (Nays 1209 well pad) located in Harrison County, WV. As an owner or operator of a conventional natural gas well in this area, we are requesting your assistance in this matter.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 6900' TVD) and existing conventional natural gas wells.

HG Energy anticipates conducting hydraulic fracturing of the Nays 1209 Pad during the fourth quarter of 2019. We have identified conventional natural gas wells operated by your company within 500' of one of the newly planned laterals (Nays 1209 S laterals). A plat for the wells is attached.

We recommend conventional well operators conduct the following activities before, during and after the fracturing operation.

1. Inspect surface equipment prior to fracturing to establish integrity and well conditions.
2. Observe wells closely during and after fracturing and monitor for abnormal increases in gas, water or pressure.
3. Inspect or install master valves rated at 3,000 psi or other necessary equipment for wellhead integrity.
4. Notify the OOG and HG Energy if any changes in water, gas production, pressure or other anomalies are identified.

Should you have any questions or desire further information, please contact me at 304-420-1119 or dwhite@hgenergyllc.com. You may also contact the WV Office of Oil and Gas at 304-926-0444.

Sincerely,

Diane White

Diane White

Enclosure

RECEIVED
Office of Oil and Gas

FEB - 5 2019

WV Department of
Environmental Protection



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

03/29/2019

January 24, 2019

EQT Production Company
115 Professional Place
Bridgeport, WV 26330

RE: Area of Review – Nays 1209 Well Pad (S-7H to S-12H)
Hydraulic Fracturing Notice

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HG Energy anticipates conducting hydraulic fracturing of the Nays 1208 Pad during the fourth quarter of 2019. We have identified conventional natural gas wells operated by your company within 500' of one of the newly planned laterals (Nays 1209 S Well Pad). A plat for the wells is attached.

We recommend conventional well operators conduct the following activities before, during and after the fracturing operation.

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

03/29/2019

January 24, 2019

Alliance Petroleum Corporation
67 Collins Run Road
Glenville, WV 26351

RE: Area of Review – Nays 1209 South Laterals/Well Pad (S-7H to S-12H)
Hydraulic Fracturing Notice

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

03/29/2019

January 24, 2019

Ross & Wharton Gas Company
29 Morton Avenue
Buckhannon, WV 26201

RE: Area of Review – Nays 1209 Well Pad (S-7H to S-12H)
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HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101
(304) 420-1100 - Office
(304) 863-3172 - Fax

03/29/2019

January 24, 2019

Dominion Energy Transmission
Attn: Charles Cunningham
2397 Davisson Run Road
Clarksburg, WV 26301

RE: Area of Review – Nays 1209 Well Pad (S-7H to S-12H)
Hydraulic Fracturing Notice

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5260 Dupont Road
Parkersburg, WV 26101
(304) 420-1100 - Office
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03/29/2019

January 24, 2019

Key Oil Company, Inc.
4225 Nashville Road
Franklin, KY 42134

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EXISTING WELLS 4,500' IN DEPTH OR GREATER:

1209 UNIT SOUTH PAD AND PROPOSED WELLS S-7H, S-8H, S-9H, S-10H, S-11H & S-12H

CT	API	COUNTY	FARM	OPERATOR NAME	FORMATION NAME	WELL TYPE	TVD	STATUS	LATITUDE	LONGITUDE
1	4703304811	Harrison	Elizabeth Layman	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	4499	ACTIVE	39.142105	-80.429888
2	4703300879	Harrison	Eric K & Susie G Decker	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	4520	ACTIVE	39.142085	-80.439027
3	4704104547	Lewis	Ruth Turner	Alliance Petroleum Corp.	Greenland Gap Fm	Gas	4569	ACTIVE	39.120742	-80.431373
4	4704105382	Lewis	Charles D Cole II	Dominion Energy Transmission, Inc.	Brallier	Gas	4573	ACTIVE	39.111751	-80.414088
5	4704104546	Lewis	Ruth E Turner	Alliance Petroleum Corp.	Greenland Gap Fm	Gas	4609	ACTIVE	39.124367	-80.429326
6	4704104668	Lewis	John H Neely	Key Oil Co.	Elk	Gas w/ Oil Show	4870	ACTIVE	39.118277	-80.425974
7	4704104667	Lewis	James B/C Sumpter	Key Oil Co.	Greenland Gap Fm	Gas w/ Oil Show	4906	ACTIVE	39.111461	-80.422622

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Office of Oil and Gas
FEB 5 2019
WV Department of
Environmental Protection

**EXISTING WELLS LOCATED WITHIN THE AREA OF REVIEW FOR:
1209 UNIT SOUTH PAD AND PROPOSED WELLS S-7H, S-8H, S-9H, S-10H, S-11H & S-12H**

RECEIVED
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 FEB - 5 2019
 WV Department of Environmental Protection

CT	API	COUNTY	FARM	OPERATOR NAME	FORMATION NAME	WELL TYPE	DEPTH	STATUS	LATITUDE	LONGITUDE
1	4703300063	Harrison	J A Hardway	Dominion Energy Transmission, Inc.	Fifty-foot	Storage	1626	ACTIVE	39.150649	-80.444245
2	4703300174	Harrison	J M Simon	Dominion Energy Transmission, Inc.	Berea Ss	Storage	1635	ACTIVE	39.137511	-80.444118
3	4703300176	Harrison	J B Gusman	Dominion Energy Transmission, Inc.	Gantz	Storage	1542	ACTIVE	39.149066	-80.444789
4	4703300188	Harrison	H Neeley	Dominion Energy Transmission, Inc.	Gordon Stray	Storage	1928	ACTIVE	39.138239	-80.42509
5	4703300189	Harrison	J B Gusman	Dominion Energy Transmission, Inc.	Gordon Stray	Storage	1945	ACTIVE	39.143536	-80.442195
6	4703300191	Harrison	J Q Musser	Dominion Energy Transmission, Inc.	Gordon	Storage	1845	ACTIVE	39.143391	-80.445922
7	4703300193	Harrison	J G Musser	Dominion Energy Transmission, Inc.	Fifty-foot	Storage	1715	PLUGGED	39.144441	-80.444918
8	4703300194	Harrison	J A Hardway	Dominion Energy Transmission, Inc.	Gantz	Storage	1580	ACTIVE	39.145423	-80.446108
9	4703300196	Harrison	L D Reed	Dominion Energy Transmission, Inc.	Thirty-foot	Storage	2070	ACTIVE	39.138853	-80.437952
10	4703300199	Harrison	J K Musser	Dominion Energy Transmission, Inc.	Thirty-foot	Storage	1976	ACTIVE	39.14084	-80.443046
11	4703300203	Harrison	S L Casto 1	Dominion Energy Transmission, Inc.	Fifty-foot	Storage	2057	ACTIVE	39.135554	-80.439959
12	4703300205	Harrison	W L Hughes	Dominion Energy Transmission, Inc.	Hampshire Grp	Storage	1904	ACTIVE	39.143536	-80.429337
13	4703300539	Harrison	J B Gusman	Dominion Energy Transmission, Inc.	Benson	Gas	4115	ACTIVE	39.148035	-80.441636
14	4703300551	Harrison	Bonnie M Detamore	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	4170	ACTIVE	39.140924	-80.44499
15	4703300552	Harrison	J B Gusman	Dominion Energy Transmission, Inc.	Benson	Gas	4220	ACTIVE	39.144988	-80.431946
16	4703300561	Harrison	Howard Neeley	Dominion Energy Transmission, Inc.	Benson	Gas	4431	ACTIVE	39.137295	-80.432505
17	4703300879	Harrison	Eric K & Susie G Decker	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	4520	ACTIVE	39.142085	-80.439027
18	4703302093	Harrison	Howard Neeley	Dominion Energy Transmission, Inc.	Gordon	Storage	2374	ACTIVE	39.137877	-80.4353
19	4703302258	Harrison	J B Gusman	Dominion Energy Transmission, Inc.	UNKNOWN	Storage	1759	ACTIVE	39.151084	-80.429896
20	4703304641	Harrison	William B Ferrell Jr	Dominion Energy Transmission, Inc.	Benson	Gas	4264	ACTIVE	39.151966	-80.43734
21	4703304811	Harrison	Elizabeth Layman	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	4499	ACTIVE	39.142105	-80.429888
22	4703305309	Harrison	Nays Riverbend Farm Inc	Dominion Energy Transmission, Inc.	Weir	Gas	1405	ACTIVE	39.146873	-80.441525
23	4704100174	Lewis	Alba V Hitt 1	Dominion Energy Transmission, Inc.	Up Devonian	Gas	4145	ACTIVE	39.129313	-80.437909
24	4704100234	Lewis	R A Beeghley	Dominion Energy Transmission, Inc.	Gantz	Storage	1742	ACTIVE	39.136739	-80.448136
25	4704100235	Lewis	Rosa Musser	Dominion Energy Transmission, Inc.	Gantz	Storage	4500	ACTIVE	39.135579	-80.442549
26	4704100323	Lewis	S G Hall	Dominion Energy Transmission, Inc.	Gantz	Storage	1760	ACTIVE	39.135724	-80.438452
27	4704100601	Lewis	Isaac Jackson	Dominion Energy Transmission, Inc.	Benson	Gas	4357	ACTIVE	39.121463	-80.424285
28	4704100666	Lewis	Nora Walker	UNKNOWN	Gantz	Storage	1589	ABANDONED	39.131084	-80.438265
29	4704101874	Lewis	M D Walker 5	Alliance Petroleum Corp.	Benson	Gas	4305	ACTIVE	39.113583	-80.426591
30	4704101875	Lewis	M D Walker 6	EQT Production Co.	Benson	Gas	4262	ACTIVE	39.119259	-80.436687
31	4704102225	Lewis	Howard Neely	Alliance Petroleum Corp.	Hampshire Grp	Gas	2484	ACTIVE	39.120162	-80.427649
32	4704102266	Lewis	F Colvin	Alliance Petroleum Corp.	Fifth Sand	Gas	2286	ACTIVE	39.117262	-80.424298

33	4704102285	Lewis	H Bailey	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	414	ACTIVE	39.132244	-80.426348
34	4704102566	Lewis	J H Bailey	Enervest Operating, LLC	Benson	Gas	425	ACTIVE	39.12472	-80.435962
35	4704104284	Lewis	Charles D Cole 1	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	432	ACTIVE	39.114361	-80.416852
36	4704104288	Lewis	Charles D Cole II 2	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	447	ACTIVE	39.117842	-80.419458
37	4704104423	Lewis	James Winemiller	Ross & Wharton Gas Co.	UNKNOWN	UNKNOWN	-	PLUGGED	39.108416	-80.410922
38	4704104424	Lewis	Roy C Bargerhuff	Ross & Wharton Gas Co.	UNKNOWN	UNKNOWN	4085	PLUGGED	39.110736	-80.420202
39	4704104546	Lewis	Ruth E Turner	Alliance Petroleum Corp.	Greenland Gap Fm	Gas	4609	ACTIVE	39.124367	-80.429326
40	4704104547	Lewis	Ruth Turner	Alliance Petroleum Corp.	Greenland Gap Fm	Gas	4569	ACTIVE	39.120742	-80.431373
41	4704104667	Lewis	James B/C Sumpter	Key Oil Co.	Greenland Gap Fm	Gas w/ Oil Show	4906	ACTIVE	39.111461	-80.422622
42	4704104668	Lewis	John H Neely	Key Oil Co.	Elk	Gas w/ Oil Show	4870	ACTIVE	39.118277	-80.425974
43	4704105118	Lewis	Kevin B/Sherri K Jerden	Berry Energy, Inc.	Benson	Gas	4389	ACTIVE	39.123497	-80.432491
44	4704105184	Lewis	Donald E & Glenna Linger	Berry Energy, Inc.	Greenland Gap Fm	Gas	4409	ACTIVE	39.118132	-80.435468
45	4704105215	Lewis	Lee Stalnaker	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	4309	ACTIVE	39.132534	-80.441803
46	4704105382	Lewis	Charles D Cole II	Dominion Energy Transmission, Inc.	Brallier	Gas	4573	ACTIVE	39.111751	-80.414088
47	4704105384	Lewis	Kevin B & Sherri K Jerden	Berry Energy, Inc.	Benson	Gas	4390	ACTIVE	39.121902	-80.435097
48	4704105386	Lewis	Walter Neely Jr Trust	Dominion Energy Transmission, Inc.	Greenland Gap Fm	Gas	3442	ACTIVE	39.125428	-80.422437

RECEIVED
 Office of Oil and Gas
 FEB 5 2019
 414
 425
 432
 447
 Department of
 Environmental Protection

PROPOSAL TO DRILL WITHIN DOMINION TRANSMISSION STORAGE FIELD

03/29/2019

FIELD/ZONES: **DOMINION FINK/KENNEDY/LOST CREEK -GANTZ SAND**

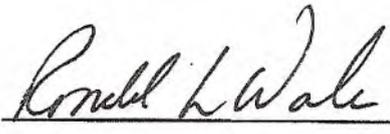
WELL NAME: **Nays 1209 S-10H**

Well # **Nays 1209 S-10H**

DISTRICT/COUNTY/STATE: **Union, Harrison, WV**

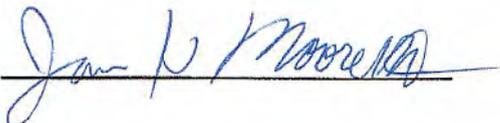
Submitted 
JOSH HINTON
HG ENERGY, LLC

DATE 1-28-19

Approved 

DATE 1/30/2019

Dominion Energy Transmission

Approved 

DATE 1/31/2019

Dominion Energy Transmission

Comments:

HG Energy has submitted this Casing & Cementing diagram and Drilling Plan to Dominion Transmission for Review. This signed document acknowledges that Dominion has reviewed the proposed casing program and the well's location within the Fink/Kennedy/Lost Creek storage field. This acknowledgement also confirms the proposed casing program is accurate to the proper storage zone as provided by HG Energy, LLC

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(04/15)

API NO. 47- _____
OPERATOR WELL NO. Nays 1209 S-10H
Well Pad Name: Nays 1209

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

03/29/2019

1) Well Operator: HG Energy II Appalachia, L 494519932 Harrison Union West Milford 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Nays 1209 S-10H Well Pad Name: Nays 1209

3) Farm Name/Surface Owner: Nays / HG Energy II Appalachia Public Road Access: Kincheloe Run Rd/SLS 35

4) Elevation, current ground: 1002' Elevation, proposed post-construction: 1007'

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

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

SOW
1/28/2019

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus at 6863'/6914' and 51' in thickness. Anticipated pressure at 4314#.

8) Proposed Total Vertical Depth: 6900'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20,692'

11) Proposed Horizontal Leg Length: 13,290'

12) Approximate Fresh Water Strata Depths: 135', 500'

13) Method to Determine Fresh Water Depths: Nearest offset well data

14) Approximate Saltwater Depths: None noted in offsets

15) Approximate Coal Seam Depths: 660' to 665'

16) Approximate Depth to Possible Void (coal mine, karst, other): None

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

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

Depth: _____

Seam: _____

Owner: _____

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Page 1 of 6 Environmental Protection

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API NO. 47- _____
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 Well Pad Name: Nays 1209

18)

CASING AND TUBING PROGRAM

03/29/2019

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"	New	LS	157.5	100'	100'	Drilled In
Fresh Water	20"	NEW	J-55	94	600'	600'	40% excess yield = 1.20, CTS
Coal	13 3/8"	NEW	J-55	68	1735'	1735'	40% excess yield = 1.20, CTS
Intermediate	9 5/8"	NEW	J-55	40	2500'	2500'	40% excess yield = 0% Excess Load
Production	5 1/2"	NEW	P-110	23	20692'	20692'	20% excess yield = 1.18, total yield = 1.18
Tubing							
Liners							

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"	30"	.500				CTS
Fresh Water	20"	24"	.438	2110	1200	Type 1, Class A	30 % excess yield = 1.20, CTS
Coal	13 3/8"	17 1/2"	.480	3450		Type 1/Class A	40% excess yield = 1.20, CTS
Intermediate	9 5/8"	12 1/4"	.395	3950		Type 1/Class A	40% excess yield = 0% Excess Load
Production	5 1/2"	8 1/2"	.415	14520	12500	Type 1/Class A	20% excess yield = 1.18, total yield = 1.18
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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WW-6B
(10/14)

API NO. 47- _____
OPERATOR WELL NO. Nays 1209 S-10H
Well Pad Name: Nays 1209

19) Describe proposed well work, including the drilling and plugging back of any pilot hole: 03/29/2019

Drill the vertical depth to the Marcellus at an estimated total vertical depth of approximately 6900 feet. Drill horizontal leg to estimated 13,290 TMD, stimulate and be capable of producing from the Marcellus Formation. Should we encounter an unanticipated void in the coal, we will install a minimum of 20' of casing below the void but not more than 100' below the void, set a basket and grout to surface.

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

The stimulation will be completed with 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. Maximum pressure not to exceed 12,500 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 16.148 acres

22) Area to be disturbed for well pad only, less access road (acres): 10.834 acres

23) Describe centralizer placement for each casing string:

No centralizers will be used with conductor casing.
Freshwater - centralized every 3 joints to surface.
Casing - One spacing on every joint.
Intermediate - One spacing on first 2 joints then every third joint to 100' from surface.
Production - Run 1 spiral centralizer every 3 joints from the top of the crown to surface. Run 1 spiral centralizer every 3 joints from the top 65' long joint to the top of the crown.

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

Conductor - N/A, Casing to be drilled in w/ Dual Rotary Rig.
Fresh Water - 14.8 ppg PMS-1 + 2% brack CaCl₂ 40% Brack Yield = 1.28, CTS
Casing - Lead: 44.4 ppg PMS-1 + 2.5% brack CaCl₂ 40% Brack Yield / Tail: 10.8 ppg PMS-1 + 2.5% brack CaCl₂ 40% Brack Yield, CTS
Intermediate - Lead: 14.8 ppg PMS-1 + 2.5% brack CaCl₂ 40% Brack Yield, Tail: 14.8 ppg PMS-1 + 2.5% brack CaCl₂ 40% Brack Yield, CTS
Production - Lead: 14.8 ppg PMS-1 + 2.5% brack CaCl₂ 40% Brack Yield, Tail: 14.8 ppg PMS-1 + 2.5% brack CaCl₂ 40% Brack Yield, CTS

25) Proposed borehole conditioning procedures:

Conductor - Ensure the hole is clean at TD.
Fresh Water - Once casing is at setting depth, circulate a minimum of one hole volume with fresh water prior to pumping cement.
Casing - Once casing is at setting depth, circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.
Intermediate - Once casing is at setting depth, circulate and condition prior at TD. Circulate a minimum of one hole volume prior to pumping cement.
Production - Once on bottom TD with casing, circulate at max allowable pump rate for at least 30 minutes 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.

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1209 S-10H
Marcellus Shale Horizontal
Harrison County, WV

				1209 S-10H SHL				237409.22N 1732701.94E			
Ground Elevation		1007'		1209 S-10H LP				237347.26N 1733550.92E			
Azm		160.752°		1209 S-10H BHL				224800.58N 1737932.04E			
WELLBORE DIAGRAM											
HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS		
30"	30" 157.5# LS	Conductor	0	100	AIR	N/A, Casing to be drilled in w/ Dual Rotary Rig	N/A	Ensure the hole is clean at TD.	Conductor casing = 0.5" wall thickness		
24"	20" 94# J-55	Fresh Water	0	135	AIR	15.6 ppg PNE-1 + 3% bwoc CaCl 40% Excess Yield=1.20 / CTS	Centralized every 3 joints to surface	Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement.	Surface casing = 0.438" wall thickness Burst=2110 psi		
		Fresh Water	0	600							
17.5"	13-3/8" 68# J-55 BTC	Kittaning Coal	680	665	AIR / KCL Salt Polymer	Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl 40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl zero% Excess. CTS	Bow Spring on every joint <i>*will also be running ECP for isolating storage zone*</i>	Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.480" wall thickness Burst=3450 psi		
		Little/Big Lime	1128 / 1167	1151 / 1243							
		Injun / Gantz (Storage)	1243 / 1535	1349 / 1585							
		Intermediate 1	0	1735							
12.25"	9-5/8" 40# J-55 BTC	Fifty / Thirty Foot	1650 / 1730	1697 / 1742	AIR / KCL Salt Polymer	Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl 40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl zero% Excess. CTS	Bow Spring on first 2 joints then every third joint to 100' form surface	Once casing is at setting depth, Circulate and condition mud at TD. Circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.395" wall thickness Burst=3950 psi		
		Gordon Stray / Gordon	1785 / 1850	1850 / 1940							
		5th Sand	2035	2070							
		Bayard Sand	2125	2160							
		Intermediate 2	0	2500							
8.5" Vertical	5-1/2" 23# P-110 HC CDC HTQ	Speechley	2745	2763	9.0ppg 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 5 joints from the top of the curve to surface.	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		
		Balltown	2965	3005							
		Benson	4050	4083							
8.5" Curve		West Falls	4620	5865	11.5ppg-12.5ppg SOBM		Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curve.				
		Rhinesstreet	5885	6140							
		Cashaqua	6140	6341							
		Middlesex	6341	6421							
		West River	6421	6514							
		Burkett	6514	6540							
		Tully Limestone	6540	6644							
Hamilton	6644	6863									
8.5" Lateral	Marcellus	6883	6914	11.5ppg-12.5ppg SOBM	Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curve.						
	TMD / TVD (Production)	20692	6900								
		Onondaga	6914								

LP @ 6900' TVD / 7402' MD

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

+/-13290' ft Lateral

TD @ +/-6900' TVD
+/-20692' MD

X=centralizers

BHL is located on topo map 4.151 feet south of Latitude: 39°07'30"
 SHL is located on topo map 6.773 feet south of Latitude: 39°10'00"

SEE PAGE 2 FOR PLAT DUE TO LENGTH OF LATERAL
SEE PAGE 3 FOR SURFACE OWNERS

03/29/2019

BHL is located on topo map 1.912 feet west of Longitude: 80°25'00"
 SHL is located on topo map 7.270 feet west of Longitude: 80°25'00"

	LESSOR	LEASE NO.	DIST-TM/PAR
A	J. B. GUSMAN ET AL	FK020606	20-444/11.2 12-444/21 12-444/22
B	HOWARD NEELY	FK014008	12-444/43 4-8B/1.33 12-465/14
C	W. L. RIFFE ET AL	FK064316	04-8B/1.32 04-8B/1 04-8B/1.31 04-8B/1.30 04-8B/1.14 04-8B/1.35 04-8B/1.13 04-8B/1.10 04-8B/1.26
D	ISAAC JACKSON	LC009807	4-8B/4 4-8B/5 4-8C/29
E	FREDA M. COLVIN ET VIR	CNX024530	P/O 4-8C/28
F	ROBERT BLAIR III		P/O 4-8B/28



SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83(M)
 N:4333356.56
 E:548191.39
 UTM 17-NAD83(FT)
 N:14217020.00
 E:1798524.60
 LAT/LON DATUM-NAD83
 LAT:39.148070
 LON:-80.442302

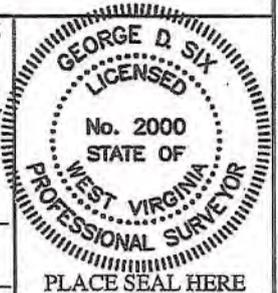
APPROX. LANDING POINT
 UTM 17-NAD83(M)
 N:4333341.79
 E:548450.35
 UTM 17-NAD83(FT)
 N:14216972.20
 E:1799374.20
 LAT/LON DATUM-NAD83
 LAT:39.147924
 LON:-80.439306

BOTTOM HOLE LOCATION (BHL)
 UTM 17-NAD83(M)
 N:4329541.65
 E:549848.70
 UTM 17-NAD83(FT)
 N:14204504.57
 E:1803961.94
 LAT/LON DATUM-NAD83
 LAT:39.113604
 LON:-80.423404

Blue Mountain
 11023 MASON DIXON HIGHWAY
 BURTON, WV 25562
 PHONE: (304) 662-6486

FILE #: 1209 S-10H
 DRAWING #: 1209 S-10H
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
 Signed: George D. Six
 R.P.E.: _____ L.L.S.: P.S. No. 2000



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304



DATE: JANUARY 25, 2019
 OPERATOR'S WELL #: 1209 S-10H
 API WELL #: 47 33
 STATE COUNTY PERMIT

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 WV Department of Environmental Protection

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

WATERSHED: MIDDLE WEST FORK CREEK ELEVATION: 1,007'±
 COUNTY/DISTRICT: HARRISON / UNION QUADRANGLE: WEST MILFORD, WV 7.5'
 SURFACE OWNER: HG ENERGY II APPALACHIA, LLC ACREAGE: 95.06±
 OIL & GAS ROYALTY OWNER: ANN COVINGTON, ET AL ACREAGE: 695.61±
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____
 TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: IVD: 6,900'± TMD: 20,693'±
 WELL OPERATOR HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT DIANE C. WHITE
 Address 5260 DUPONT ROAD Address 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

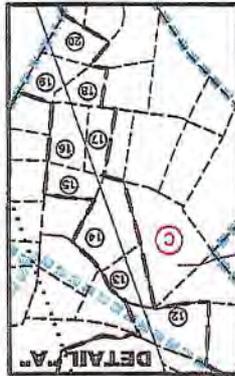
George D. S.

JANUARY 25, 2019



APR 2019/6/23/19
STATE 33 COUNTY PERMIT

- NOTES:
1. There are no water wells or developed springs within 250' of proposed well.
 2. There are no existing buildings within 625' of proposed well, wetland, pond, reservoir or lake.
 3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
 4. There are no visible trout streams within 300' of proposed well.
 5. Proposed well is greater than 1000' from surface groundwater lakes or public water supply.
 6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions. Field evidence found and/or tax map position, unless otherwise noted.



APPROX LANDING POINT

UTM 17-NAD83(M)
N:4533334.79
E:548450.35
UTM 17-NAD83(FT)
N:14218974.20
E:1799374.20
LAT/LON DATUM-NAD83
LAT:39.147924
LON:-80.439306

BOTTOM HOLE LOCATION (BHL)

UTM 17-NAD83(M)
N:4329541.65
E:549848.70
UTM 17-NAD83(FT)
N:12404504.57
E:1803961.94
LAT/LON DATUM-NAD83
LAT:39.113604
LON:-80.423404

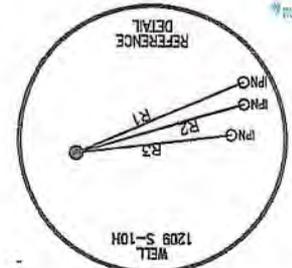
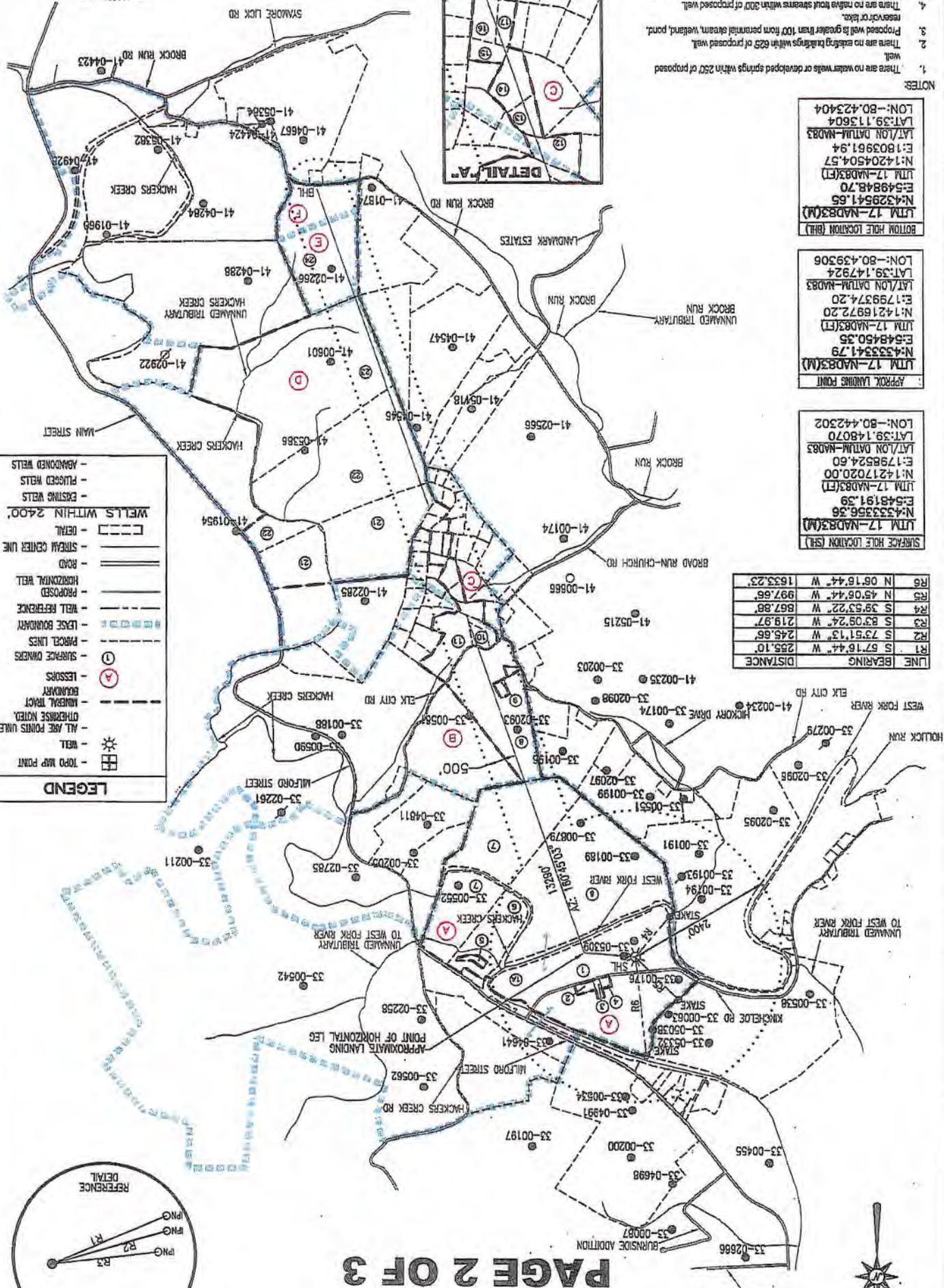
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UTM 17-NAD83(FT)
N:14217020.00
E:1798524.60
LAT/LON DATUM-NAD83
LAT:39.148070
LON:-80.442302

LINE	BEARING	DISTANCE
R1	S 67°16'44" W	255.10'
R2	S 73°51'13" W	245.66'
R3	S 83°09'24" W	219.97'
R4	S 39°53'22" W	867.88'
R5	N 45°08'44" W	997.66'
R6	N 06°16'44" W	1633.23'

LEGEND

- TOPD MAP POINT
- WELL
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT
- BOUNDARY
- LESSORS
- SURFACE OWNERS
- PARCEL LINES
- LEASE BOUNDARY
- WELL REFERENCE
- PROPOSED HORIZONTAL WELL
- ROAD
- STRAIGHT CENTER LINE
- DETAIL
- WELLS WITHIN 2400'
- EXISTING WELLS
- PLUGGED WELLS
- ABANDONED WELLS



1209 S-10H
PAGE 2 OF 3



1209 S-10H

PAGE 3 OF 3

03/29/2019

	SURFACE OWNER	DIST-TM/PAR
1	DANNY LEE & ALICIA A. STICKEL	P/O 20-444/11.2
1A	HG ENERGY II APPALACHIA, LLC	P/O 20-444/11.2
2	HG ENERGY II APPALACHIA, LLC	20-444/11.3
3	AARON C. & CHRISTINA P. MEDINA	20-444/11
4	HG ENERGY II APPALACHIA, LLC	20-444/11.1
5	ERIC K. & SUSIE G. DECKER	12-444/21.2
6	ERIC K. & SUSIE G. DECKER	12-444/21
7	ERIC K. & SUSIE G. DECKER	12-444/22
8	BARBARA LEE SETLIFF	12-444/43
9	REBECAH D. CARSON & PAMELA M. MINIGH	12-444/43.2
10	DAREN R. & AMANDA G. HENDERSHOT	4-8B/1.33
11	JOEL V. & KAY N. KROLL AND JOEL DANIEL KROLL	12-465/14
12	AMANDA & HAYMOND STUTLER	4-8B/1.32
13	MARK E. & INA K. WOLF	4-8B/1
14	MARK E. & INA K. WOLF	4-8B/1.31
15	CAROL MORRIS	4-8B/1.30
16	LINDA HOLDEN ASHCRAFT	4-8B/1.14
17	ALFRED & ELIZABETH ROBEY	4-8B/1.35
18	DUSTON R. MARSH	4-8B/1.13
19	DAVID D. AND ANDREA L. LAMB	4-8B/1.10
20	RICHARD B. WILFONG	4-8B/1.26
21	THOMAS E. & TERRI E. HAWKINS	4-8B/4
22	THOMAS E. & TERRI E. HAWKINS	4-8B/5
23	C. D. COLE II	4-8C/29
24	C. D. COLE II	4-8C/28

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BOTTOM HOLE LOCATION (BHL)
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UTM 17-NAD83(FT)
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E:1803961.94
LAT/LON DATUM-NAD83
LAT:39.113604
LON:-80.423404

JANUARY 25, 2019

API WELL #: 47 33

STATE COUNTY PERMIT



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>Harrison</u>	<u>Union</u>	<u>West Milford 7.5'</u>
------------------	-----------------	--------------	--------------------------

Operator ID County District Quadrangle

2) Operator's Well Number: Nays 1209 S-10H Well Pad Name: Nays 1209

3) Farm Name/Surface Owner: Nays / HG Energy II Appalachia Public Road Access: Kincheloe Run Rd/SLS 35

4) Elevation, current ground: 1002' Elevation, proposed post-construction: 1007'

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

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

6) Existing Pad: Yes or No No

SOW
1/28/2019

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus at 6863'/6914' and 51' in thickness. Anticipated pressure at 4314#.

8) Proposed Total Vertical Depth: 6900'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 20,692'

11) Proposed Horizontal Leg Length: 13,290'

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13) Method to Determine Fresh Water Depths: Nearest offset well data

14) Approximate Saltwater Depths: None noted in offsets

15) Approximate Coal Seam Depths: 660' to 665'

16) Approximate Depth to Possible Void (coal mine, karst, other): None

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

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

RECEIVED
Office of Oil and Gas

FEB - 5 2019

WW-6B
(04/15)

API NO. 47- _____ -
OPERATOR WELL NO. Nays 1209 S-10H
Well Pad Name: Nays 1209

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"	New	LS	157.5	100'	100'	Drilled In
Fresh Water	20"	NEW	J-55	94	600'	600'	40% excess yield = 1.20, CTS
Coal	13 3/8"	NEW	J-55	68	1735'	1735'	40% excess yield = 1.20, CTS
Intermediate	9 5/8"	NEW	J-55	40	2500'	2500'	40% excess yield = 1.20, CTS
Production	5 1/2"	NEW	P-110	23	20692'	20692'	20% excess yield = 1.19, tail yield = 1.20
Tubing							
Liners							

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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"	30"	.500				CTS
Fresh Water	20"	24"	.438	2110	1200	Type 1, Class A	30% excess yield = 1.20, CTS
Coal	13 3/8"	17 1/2"	.480	3450		Type 1/Class A	40% excess yield = 1.20, CTS
Intermediate	9 5/8"	12 1/4"	.395	3950		Type 1/Class A	40% excess yield = 1.20, CTS
Production	5 1/2"	8 1/2"	.415	14520	12500	Type 1/Class A	20% excess yield = 1.19, tail yield = 1.20
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 the vertical depth to the Marcellus at an estimated total vertical depth of approximately 6900 feet. Drill horizontal leg to estimated 13,290 TMD, stimulate and be capable of producing from the Marcellus Formation. Should we encounter an unanticipated void in the coal, we will install a minimum of 20' of casing below the void but not more than 100' below the void, set a basket and grout to surface.

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

The stimulation will be completed with 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. Maximum pressure not to exceed 12,500 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 16.148 acres

22) Area to be disturbed for well pad only, less access road (acres): 10.834 acres

23) Describe centralizer placement for each casing string:

No centralizers will be used with conductor casing.
Freshwater - centralized every 3 joints to surface.
Coal - Bow Spring on every joint.
Intermediate - Bow Spring on first 2 joints then every third joint to 100' from surface.
Production - Run 1 spiral centralizer every 5 joints from the top of the curve to surface. Run 1 spiral centralizer every 3 joints from the 1st 5.5' long joint to the top of the curve.

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

Conductor - N/A, Casing to be drilled in w/ Dual Rotary Rig.
Fresh Water - 15.8 ppg PNE-1 + 3% bwoc CaCl₂ 40% Excess Yield = 1.20, CTS
Coal - Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl₂ 40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl₂ zero% Excess, CTS
Intermediate - Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl₂ 40% Excess, Tail: 15.9 ppg, PNE-1 + 2.5% bwoc CaCl₂ zero% Excess, CTS
Production - Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc ECI + 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 MPA17020% Excess/Lead Yield=1.19 Tail Yield=1.94, CTS

25) Proposed borehole conditioning procedures:

Conductor - Ensure the hole is clean at TD.
Fresh Water - Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement.
Coal - Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.
Intermediate - Once casing is at setting depth, Circulate and condition mud at TD. Circulate a minimum of one hole volume prior to pumping cement.
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.

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*Note: Attach additional sheets as needed.



1209 S-10H
Marcellus Shale Horizontal
Harrison County, WV

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	1209 S-10H SHL					237409.22N 1732701.94E									
Ground Elevation	1007'					1209 S-10H LP					237347.26N 1733550.92E				
Azm	160.752°					1209 S-10H BHL					224800.58N 1737932.04E				

WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
	30"	30" 157.5# LS	Conductor	0	100	AIR	N/A, Casing to be drilled in w/ Dual Rotary Rig	N/A	Ensure the hole is clean at TD.	Conductor casing = 0.5" wall thickness
	24"	20" 94# J-55	Fresh Water	0	135	AIR	15.6 ppg PNE-1 + 3% bwoc CaCl 40% Excess Yield=1.20 / CTS	Centralized every 3 joints to surface	Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement.	Surface casing = 0.438" wall thickness Burst=2110 psi
			Fresh Water	0	600					
	17.5"	13-3/8" 68# J-55 BTC	Kittanning Coal	660	665	AIR / KCL Salt Polymer	Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl 40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl zero% Excess. CTS	Bow Spring on every joint <i>"will also be running ECP for isolating storage zone"</i>	Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.480" wall thickness Burst=3450 psi
			Little/Big Lime	1126 / 1167	1151 / 1243					
			Injun / Gantz (Storage)	1243 / 1535	1349 / 1585					
			Intermediate 1	0	1735					
	12.25"	9-5/8" 40# J-55 BTC	Fifty / Thirty Foot	1650 / 1730	1697 / 1742	AIR / KCL Salt Polymer	Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl 40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl zero% Excess. CTS	Bow Spring on first 2 joints then every third joint to 100' form surface	Once casing is at setting depth, Circulate and condition mud at TD. Circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.395" wall thickness Burst=3950 psi
			Gordon Stray / Gordon	1785 / 1850	1850 / 1940					
			5th Sand	2035	2070					
			Bayard Sand	2125	2160					
			Intermediate 2	0	2500					
8.5" Vertical	5-1/2" 23# P-110 HC CDC HTQ	Speechley	2745	2763	9.0ppg SOB M	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 5 joints from the top of the curve to surface.	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	
		Balltown	2965	3005						
		Benson	4050	4083						
8.5" Curve		Rhinestreet	5865	6140	11.5ppg-12.5ppg SOB M		Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curve.			
		Cashaqua	6140	6341						
		Middlesex	6341	6421						
		West River	6421	6514						
		Burkett	6514	6540						
		Tully Limestone	6540	6644						
		Hamilton	6644	6863						
8.5" Lateral	Marcellus	6863	6914	11.5ppg-12.5ppg SOB M	TMD / TVD (Production)	20692	6900			
	Onondaga	6914								

LP @ 6900' TVD / 7402' MD 8.5" Hole - Cemented Long String +/-13290' ft Lateral TD @ +/-6900' TVD +/-20692' MD

X=centralizers

HG ENERGY

Location: Harrison County, WV
 Field: Harrison (NAD27 SP Northern Zone 4701)
 Facility: 1209 Pad

Slot: Slot #10
 Well: 1209 S-10H
 Wellbore: 1209 S-10H PWB

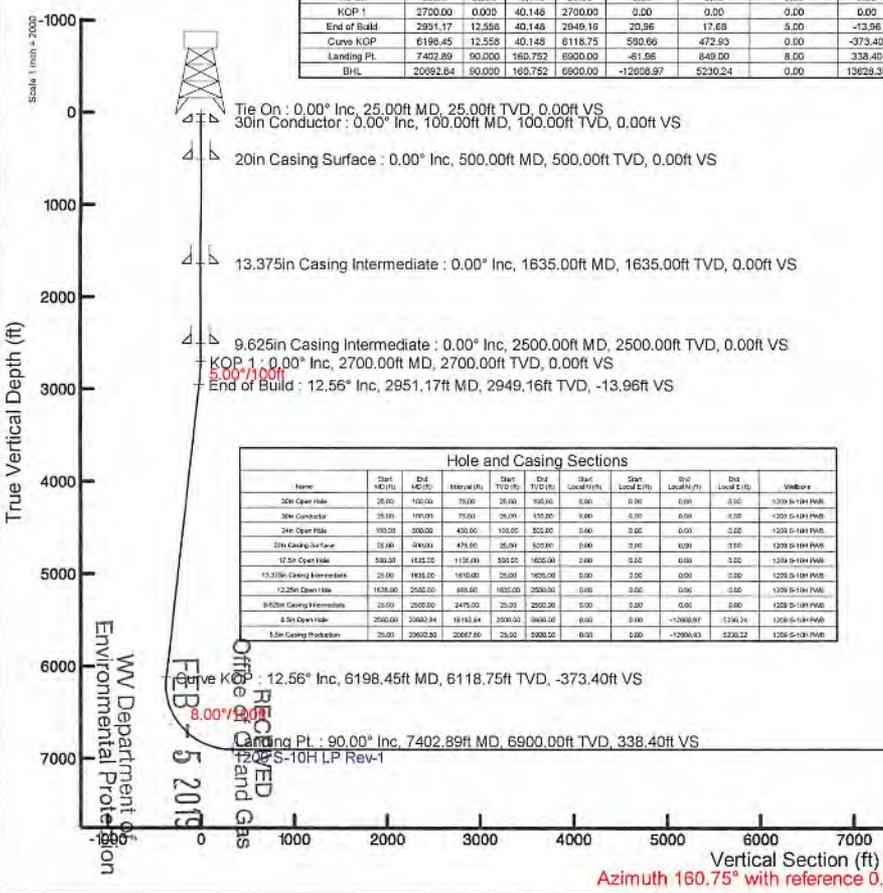
Plot reference wellbore is 1209 S-10H PWB Ex-01	Grid System: NAD27 Lambert West Virginia SP, Northern Zone (4701), US Feet
True vertical depths are referenced to Patterson 347 (RKB)	North Reference: Oklahoma
Measured depths are referenced to Patterson 347 (RKB)	Scale: True Distance
Patterson 347 (RKB) to Mean Sea Level: 1032 feet	Depths are in feet
Mean Sea Level to Mudline (At Slot: Slot #10): -1007 feet	Created by: salsap on 2019-01-15
Coordinates are as follows referenced to Slot	Database: US, SP, Environment, Data

Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
1209 Pad	1732374.000	237349.950	39°08'52.102"N	80°26'37.112"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude
Slot #10	58.27	327.95	1732701.940	237409.220	39°08'52.721"N
Patterson 347 (RKB) to Mud line (At Slot: Slot #10)					25ft
Mean Sea Level to Mud line (At Slot: Slot #10)					-1007ft
Patterson 347 (RKB) to Mean Sea Level					-1032ft

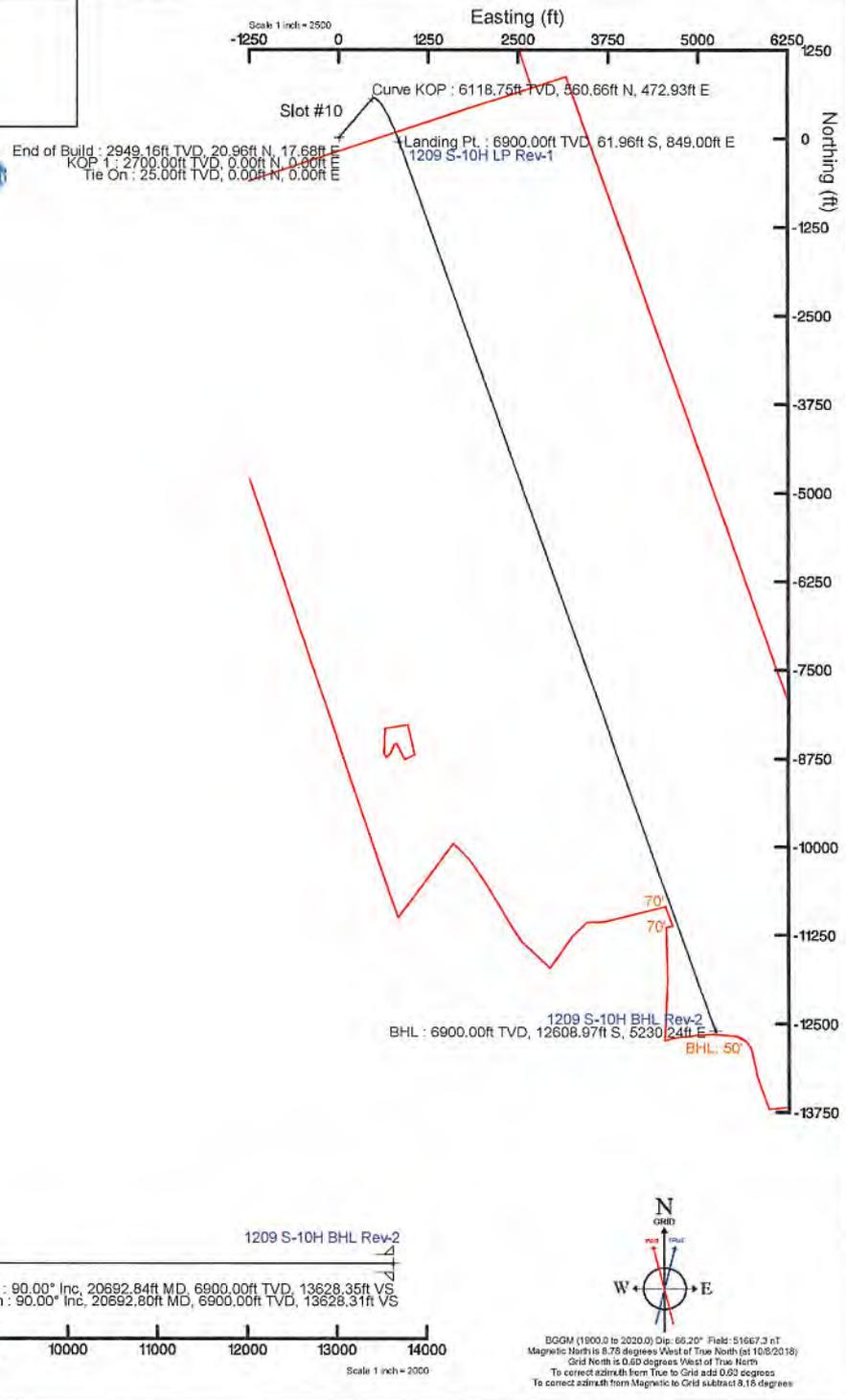
Survey Program					
Start MD (ft)	End MD (ft)	Tool	Level	Log Name/Comment	Wellbore
25.00	2026.00	DH Dynamic gpr - northseeking	DH Dynamic gpr - northseeking (Standard)		1209 S-10H PWB
2060.00	2060.00	BH MultiTrack Curve	BH MultiTrack Curve (Start)		1209 S-10H PWB

Targets							
Name	VD (ft)	TD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude
1209 S-10H BHL Rev-2	2060.00	1940.00	-1260.97	5230.24	1732555.00	237347.26	39°08'52.102"N
1209 S-10H LP Rev-1	1432.84	920.00	-61.26	849.00	1732555.00	237347.26	39°08'52.102"N

Well Profile Data							
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	25.00	0.00	0.00	25.00	0.00	0.00	0.00
KOP 1	2700.00	0.00	0.00	2700.00	0.00	0.00	0.00
End of Build	2949.17	12.56	0.00	2949.16	20.96	17.68	-13.96
Curve KOP	6198.45	12.56	0.00	6118.75	590.66	472.93	-373.40
Landing PL	7402.89	90.00	0.00	6900.00	-61.56	849.00	338.40
BHL	20692.84	90.00	0.00	6900.00	-1260.97	5230.24	0.00



Hole and Casing Sections										
Name	Start MD (ft)	End MD (ft)	Interval (ft)	Start TVD (ft)	End TVD (ft)	Start Local N (ft)	Start Local E (ft)	End Local N (ft)	End Local E (ft)	Wellbore
30in Open Hole	25.00	100.00	75.00	25.00	100.00	0.00	0.00	0.00	0.00	1209 S-10H PWB
30in Conductor	100.00	100.00	0.00	25.00	100.00	0.00	0.00	0.00	0.00	1209 S-10H PWB
24in Open Hole	100.00	200.00	100.00	100.00	200.00	0.00	0.00	0.00	0.00	1209 S-10H PWB
20in Casing Surface	15.00	200.00	185.00	25.00	185.00	0.00	0.00	0.00	0.00	1209 S-10H PWB
12.5in Open Hole	300.00	1635.00	1335.00	300.00	1635.00	0.00	0.00	0.00	0.00	1209 S-10H PWB
9.625in Casing Intermediate	25.00	1635.00	1610.00	25.00	1610.00	0.00	0.00	0.00	0.00	1209 S-10H PWB
12.25in Open Hole	1635.00	2500.00	865.00	1635.00	2500.00	0.00	0.00	0.00	0.00	1209 S-10H PWB
9.625in Casing Intermediate	25.00	2500.00	2475.00	25.00	2475.00	0.00	0.00	0.00	0.00	1209 S-10H PWB
3.5in Open Hole	2500.00	20692.84	18192.84	2500.00	18192.84	0.00	0.00	-1260.97	5230.24	1209 S-10H PWB
3.5in Casing Production	25.00	20692.84	20667.84	25.00	20667.84	0.00	0.00	-1260.97	5230.24	1209 S-10H PWB



BGGM (1900.0 to 2020.0) Dip: 66.20° Field: S1667.3 nT
 Magnetic North is 8.76 degrees West of True North (at 10/8/2018)
 Grid North is 0.60 degrees West of True North
 To correct azimuth from True to Grid add 0.60 degrees
 To correct azimuth from Magnetic to Grid subtract 8.16 degrees

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Nays 1209 Well Pad (N-1H to N-6H, S-7H to S-12H)
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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Magnesium oxide	1 - 5	1309-48-4																			
Crystalline silica: Quartz (SiO2)	0.1 - 1	14808-60-7																			
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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Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7																			
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												
			Ingredient name	%	CAS number																
Calcium chloride	90 - 100	10043-52-4																			
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														
			Ingredient name	%	CAS number																
No hazardous ingredient																					
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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Sucrose	90 - 100	57-50-1																			
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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Organic acid salt	40 - 50	Trade secret.																			
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>10615-47-9</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	10615-47-9	Alkylarylsulfonate amine salt	1 - 5	Trade secret.	Polyoxyalkylenes	0.1 - 1	Trade secret.
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List of Frac Additives by Chemical Name and CAS #

Nays 1209 Well Pad (N-1H to N-6H, S-7H to S-12H)

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 - _____ - _____
Operator's Well No. Nays 1209 S-10H

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 494501907

Watershed (HUC 10) West Fork Quadrangle West Milford 7.5'

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 _____)

*SOW
1/28/2019*

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, Freshwater and SOB M

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

Additives to be used in drilling medium? Water, Soap, KCl, Barite, Base Oil, Wetting Agents

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

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 Diane White

Company Official (Typed Name) Diane White

Company Official Title Agent

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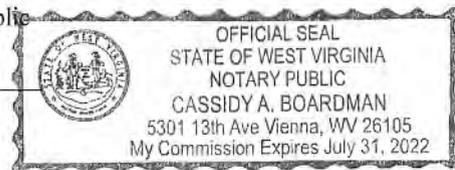
FEB - 5 2019

Subscribed and sworn before me this 23rd day of January, 2019

WV Department of
Environmental Protection

Cassidy A. Boardman Notary Public

My commission expires 7/31/2022



HG Energy II Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 16.148 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

Maintain E&S controls through the drilling and completion process

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: S. P. D. Warrick

Comments: Pre-seed/mulch as soon as reasonably possible per regulation.

Upgrade E&S if needed per WV DEP E&S manual.

Title: Harrison County DEP Oil & Gas Inspector

Date: 1/28/2019

Field Reviewed? () Yes () No

Cuttings Disposal/Site Water

Cuttings Haul off Company:

Eap Industries, Inc. DOT # 0876278
1875 Smith Two State Rd. Atlasburg, PA 15004
1-888-294-5227

03/29/2019

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

Environmental Coordination Services & Recycling (ECS&R)
8237 US Highway 19
Cochranon, PA 16314
814-425-7778

Disposal Locations:

Apex Environmental, LLC Permit # 06-08488
11 County Road 7B
Amsterdam, OH 43903
740-548-4889

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

Sycamore Landfill Inc, Permit #R80-079001 05-2010
4301 Sycamore Ridge Road
Hurricane, WV 25526
304-562-2611

Max Environmental Technologies, Inc. Facility Permit # PAD004838146 / 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
Liberty, PA 15129
724-348-7018
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 # SWR-103-97 / WV 0109029
Rd 2 Box 410
Colliers, WV 26025
304-748-0014

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Environmental Protection

Wetzel County Landfill Permit # SWF-1021-97 / WV 0109185
Rt 1, Box 158A
New Martinsville, WV 26035
804-455-8800

03/29/2019

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

Energy Solutions Services, Inc. Permit # R-79006-L24
1560 Bear Creek Road
Oak Ridge, TN 37830

Northern A-1 Environmental Services Permit ID MIP020906814
3947 US 131 North, PO Box 1030
Kalkaska, MI 49646
231-258-9961

Water Haul off Companies:

Dynamic Structures, Clear Creek DOT # 720488
3790 State Route 7
New Waterford, OH 44445
330-892-0184

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

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

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

Select Energy Services, LLC
PO Box 208997
Dallas, TX 75320-8997

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

Nuverra Environmental Solutions
11042 Veterans Memorial Highway
Masontown, WV 26542

Equipment Transport
1 Tyler Court
Carlisle, PA 17015

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

Myers Well Service, -----
2001 Ballpark Court
Export, PA 15622

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

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

Disposal Locations:

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

Nichols 1-A (SWIW #13)
Permit # 3862
300 Charrington Pkwy, Suite 200
Coraopolis, PA 15108
412-829-7275

Solidification/Incineration
Soil Remediation, Inc. Permit # 02-20753
6065 Arrel-Smith Road
Lowesville, OH 44436
330-586-6825

Grosella (SWIW #34)
Permit # 4096
Rt. 88
Garrettsville, OH
713-275-4818

Adams #1 (Buckeye Brine, LLC)
Permit # 34-031-2-7177
28986 Airport Road
Coshocton, OH 43812
740-575-4484
512-478-6545

Kambla 1-D Well
Permit # 8780
7675 East Pike
Norwich, Oh 43767
614-648-8898
740-786-6495

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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

Mozana #1 Well (SWIW # 13)
Permit # 34-157-2-5511-00-00
8367 E. State Street
Newcomerstown, OH 43882
740-768-3966

Goff SWD #1 (SWIW # 27)
Permit # 34-119-2-8778-000
300 Cherrington Pkwy, Suite 200
Coraopolis, PA 15108
412-828-7278

SOS D#1 (SWIW #12)
Permit # 34-059-2-4202-00-00
Silcor Oilfield Services, Inc.
2999 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 Bu keya 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 Steale 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
12168 Marne Rd. NE
Newark, OH 43055
740-768-3966

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HG Energy II Appalachia, LLC

Site Safety Plan

**1209 Unit Well Pad
327 Gooseman Rd Jane Lew
Harrison County, WV 26378**

May 2018: Version 2

**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

*Saw
1/28/2019*

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Environmental Protection

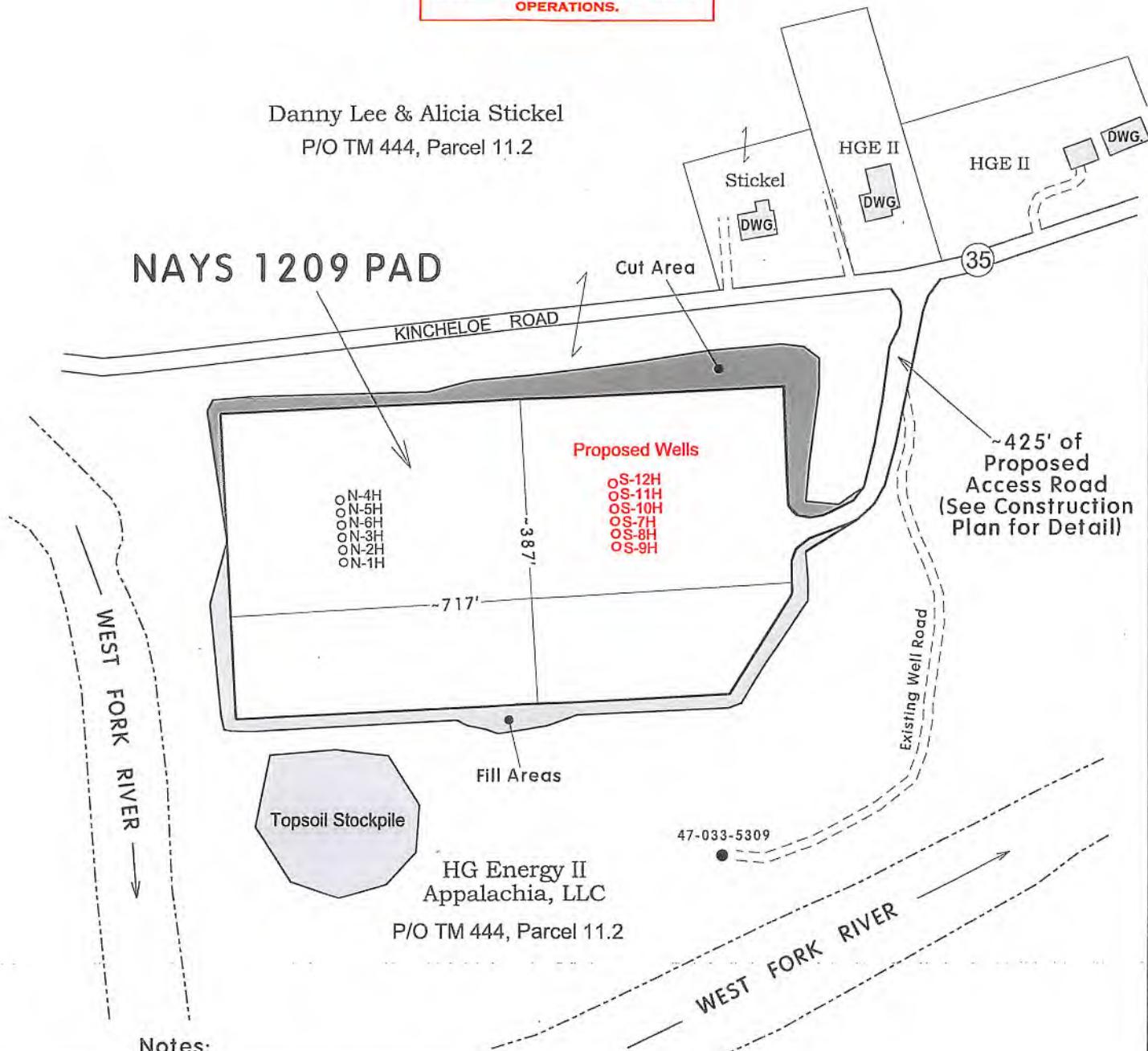
Reclamation Plan For: NAYS 1209 PAD

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



Danny Lee & Alicia Stickel
P/O TM 444, Parcel 11.2

NAYS 1209 PAD



Notes:

- REQUESTED PERMIT IS FOR DRILLING NEW HORIZONTAL WELL.
- LOCATION AND ACCESS ROADS WILL BE CONSTRUCTED AS SHOWN ON THE ENGINEERED DRAWINGS WHICH ACCOMPANY THIS PERMIT APPLICATION. REFERENCE IS HEREBY MADE TO THOSE PLANS FOR MORE DETAIL ON E&S MEASURES TO BE TAKEN TO ENSURE COMPLIANCE WITH WVDEP RECLAMATION STANDARDS.
- ALL DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
- MAINTAIN SEDIMENT BARRIERS AND DRAINAGE STRUCTURES.
- 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
P/O TM 444, Parcel 11.2

HG ENERGY

Location: Harrison County, WV Slot: Slot #07
 Field: Harrison (NAD27 SP Northern Zone 4701) Well: 1209 S-7H
 Facility: 1209 Pad Wellbore: 1209 S-7H PWB

Grid reference is based on 1209 G701 PWB Ex-01
 GCS System: NAD83 / Lambert West Virginia SP Northern Zone (N701, US feet)
 True vertical coordinates are referenced to Paterson 347 (RKS)
 North Reference: OSNAD27
 Measured depths are referenced to Paterson 347 (RKS)
 South: True #0000
 Paterson 347 (RKS) is Mean Sea Level 1032 feet
 Curves are in feet
 Mean Sea Level is based on (M) Slot #02075 - 1037 feet
 Created by: mcafee on 2018-03-15
 Coordinates are in feet referenced to slot
 Database: WA_WPL_External_US_Data

Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
1209 Pad	1732374.000	237349.999	39°08'52.103"N	80°28'27.112"W		
Slot Name	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #07	44.25	328.80	1732370.500	237334.200	39°08'52.573"N	80°28'32.947"W
Slot #01	0.00	0.00	1732374.000	237349.999	39°08'52.102"N	80°28'27.112"W
Slot #02	15.02	-0.45	1732373.500	237364.970	39°08'52.250"N	80°28'37.119"W
Slot #03	29.93	-1.11	1732372.800	237379.850	39°08'52.397"N	80°28'37.130"W
Slot #04	74.79	-3.16	1732370.840	237424.740	39°08'52.607"N	80°28'37.162"W
Slot #05	99.77	-2.51	1732371.490	237409.750	39°08'52.602"N	80°28'37.152"W
Slot #06	44.83	-1.76	1732372.640	237384.800	39°08'52.549"N	80°28'37.140"W
Slot #08	29.30	379.38	1732370.340	237379.280	39°08'52.432"N	80°28'37.937"W
Slot #09	14.02	320.74	1732370.890	237363.970	39°08'52.274"N	80°28'30.876"W
Slot #10	59.27	327.95	1732370.940	237406.220	39°08'52.721"N	80°28'30.867"W
Slot #11	74.19	327.20	1732370.190	237424.140	39°08'52.869"N	80°28'30.869"W
Slot #12	89.11	326.55	1732370.540	237435.060	39°08'53.016"N	80°28'32.979"W

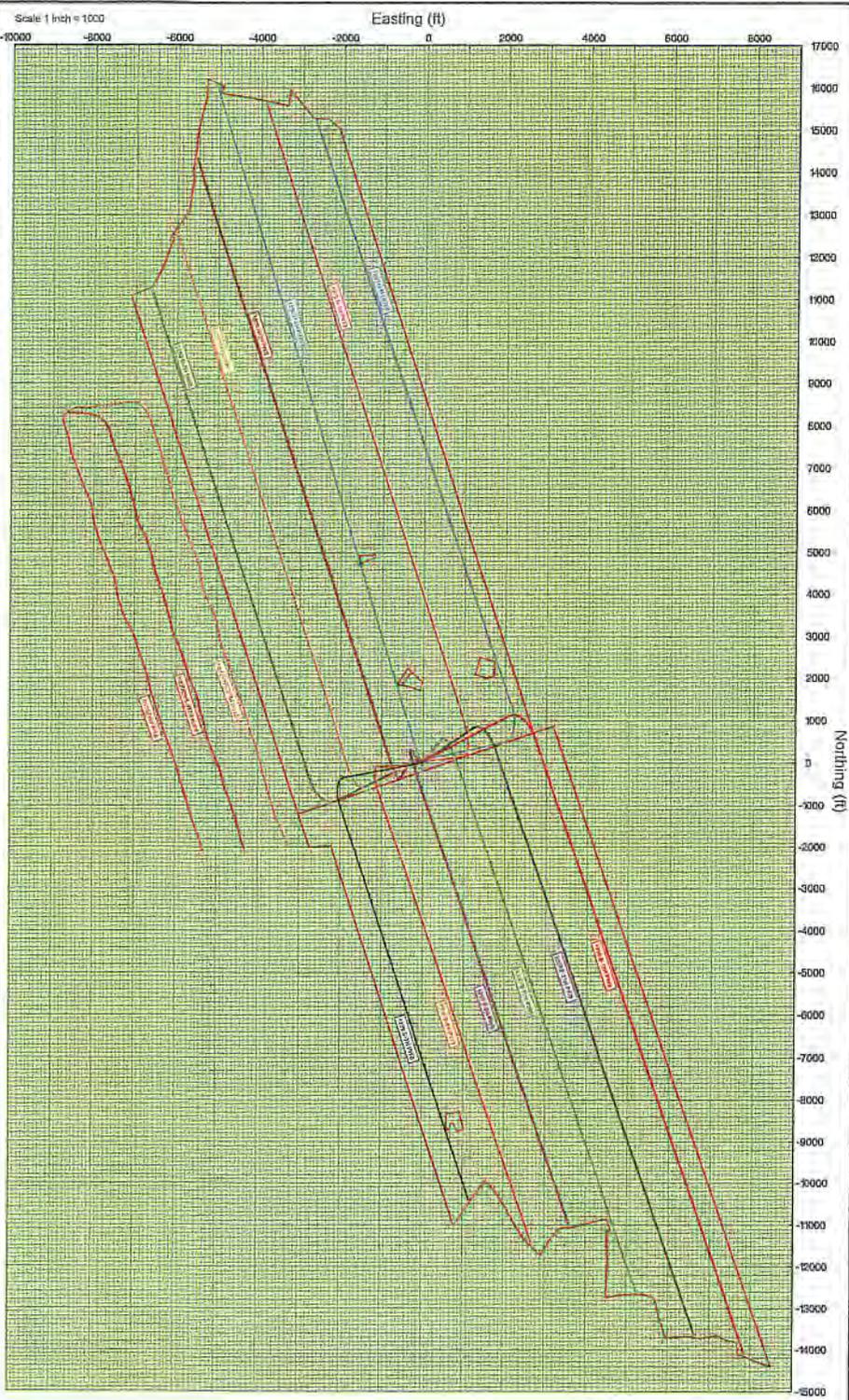
Paterson 347 (RKS) is Mud line (Facility - 1209 Pad) 25ft
 Mean Sea Level to Mud line (Facility - 1209 Pad) -1007ft

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
KSTS Pad	1724085.200	245709.600	39°10'13.760"N	80°28'25.720"W		
Slot Name	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #01	75.80	25.00	1724080.000	245778.400	39°10'14.512"N	80°28'25.405"W
Comment: KSTS04H		6.40	1724071.000	245719.000	39°10'13.949"N	80°28'22.641"W
Comment: KSTS04S		19.20	1724084.400	245757.300	39°10'14.322"N	80°28'23.464"W

Paterson 347 (RKS) is Mud line (Facility - KSTS Pad) 25ft
 Mean Sea Level to Mud line (Facility - KSTS Pad) -1134ft
 Paterson 347 (RKS) is Mean Sea Level 1032ft

Well Data

Slot	Well	Wellbore	Wellpath
Slot #01	1209 N-1H	1209 N-1H PWB	1209 N-1H PWB Ex-01
Slot #01	KSTS04H ST01	KSTS04H ST01 AWB	KSTS04H ST01 AWB Proj: 18211'
Slot #02	1209 N-2H	1209 N-2H PWB	1209 N-2H PWB Ex-01
Slot #03	1209 N-3H	1209 N-3H PWB	1209 N-3H PWB Ex-01
Slot #04	1209 N-4H	1209 N-4H PWB	1209 N-4H PWB Ex-03
Slot #04	KSTS04H	KSTS04H ST01 AWB	KSTS04H ST01 AWB Proj: 18205'
Slot #05	1209 N-5H	1209 N-5H PWB	1209 N-5H PWB Ex-01
Slot #05	KSTS04H	KSTS04H AWB	KSTS04H AWB Proj: 17540'
Slot #06	1209 N-6H	1209 N-6H PWB	1209 N-6H PWB Ex-01
Slot #07	1209 S-7H	1209 S-7H PWB	1209 S-7H PWB Ex-01
Slot #08	1209 S-8H	1209 S-8H PWB	1209 S-8H PWB Ex-01
Slot #09	1209 S-9H	1209 S-9H PWB	1209 S-9H PWB Ex-01
Slot #10	1209 S-10H	1209 S-10H PWB	1209 S-10H PWB Ex-01
Slot #11	1209 S-11H	1209 S-11H PWB	1209 S-11H PWB Ex-00
Slot #12	1209 S-12H	1209 S-12H PWB	1209 S-12H PWB Ex-00



BHL is located on topo map 4,151 feet south of Latitude: 39° 07' 30"
 SHL is located on topo map 6,773 feet south of Latitude: 39° 10' 00"

SEE PAGE 2 FOR PLAT DUE TO LENGTH OF LATERAL
 SEE PAGE 3 FOR SURFACE OWNERS

03/29/2019

BHL is located on topo map 1,912 feet west of Longitude: 80° 25' 00"
 SHL is located on topo map 7,270 feet west of Longitude: 80° 25' 00"

	LESSOR	LEASE NO.	DIST-TM/PAR
A	J. B. GUSMAN ET AL	FK020606	20-444/11.2 12-444/21 12-444/22
B	HOWARD NEELY	FK014008	12-444/43 4-8B/1.33 12-465/14
C	W. L. RIFFE ET AL	FK064316	04-8B/1.32 04-8B/1 04-8B/1.31 04-8B/1.30 04-8B/1.14 04-8B/1.35 04-8B/1.13 04-8B/1.10 04-8B/1.26
D	ISAAC JACKSON	LC009807	4-8B/4 4-8B/5 4-8C/29
E	FREDA M. COLVIN ET VIR	CNX024530	P/O 4-8C/28
F	ROBERT BLAIR III		P/O 4-8B/28



SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83(M)
 N:4333356.36
 E:548191.39
 UTM 17-NAD83(FT)
 N:14217020.00
 E:1798524.60
 LAT/LON DATUM-NAD83
 LAT:39.148070
 LON:-80.442302

APPROX. LANDING POINT
UTM 17-NAD83(M)
 N:4333341.79
 E:548450.35
 UTM 17-NAD83(FT)
 N:14216972.20
 E:1799374.20
 LAT/LON DATUM-NAD83
 LAT:39.147924
 LON:-80.439306

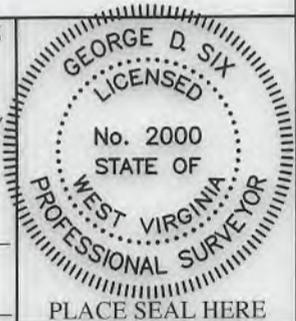
BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M)
 N:4329541.65
 E:549848.70
 UTM 17-NAD83(FT)
 N:14204504.57
 E:1803961.94
 LAT/LON DATUM-NAD83
 LAT:39.113604
 LON:-80.423404



FILE #: 1209 S-10H
 DRAWING #: 1209 S-10H
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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

Signed: George D. Six
 R.P.E.: _____ L.L.S.: P.S. No. 2000



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304



DATE: JANUARY 25, 2019
 OPERATOR'S WELL #: 1209 S-10H
 API WELL #: 47 33 05946
 STATE COUNTY PERMIT

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

WATERSHED: MIDDLE WEST FORK CREEK ELEVATION: 1,007'±
 COUNTY/DISTRICT: HARRISON / UNION QUADRANGLE: WEST MILFORD, WV 7.5'
 SURFACE OWNER: HG ENERGY II APPALACHIA, LLC ACREAGE: 95.06±
 OIL & GAS ROYALTY OWNER: ANN COVINGTON, ET AL ACREAGE: 695.61±
 DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): _____
 TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,900'± TMD: 20,693'±
 WELL OPERATOR HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT DIANE C. WHITE
 Address 5260 DUPONT ROAD Address 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

1209 S-10H

PAGE 3 OF 3

03/29/2019

	SURFACE OWNER	DIST-TM/PAR
1	DANNY LEE & ALICIA A. STICKEL	P/O 20-444/11.2
1A	HG ENERGY II APPALACHIA, LLC	P/O 20-444/11.2
2	HG ENERGY II APPALACHIA, LLC	20-444/11.3
3	AARON C. & CHRISTINA P. MEDINA	20-444/11
4	HG ENERGY II APPALACHIA, LLC	20-444/11.1
5	ERIC K. & SUSIE G. DECKER	12-444/21.2
6	ERIC K. & SUSIE G. DECKER	12-444/21
7	ERIC K. & SUSIE G. DECKER	12-444/22
8	BARBARA LEE SETLIFF	12-444/43
9	REBECAH D. CARSON & PAMELA M. MINIGH	12-444/43.2
10	DAREN R. & AMANDA G. HENDERSHOT	4-8B/1.33
11	JOEL V. & KAY N. KROLL AND JOEL DANIEL KROLL	12-465/14
12	AMANDA & HAYMOND STUTLER	4-8B/1.32
13	MARK E. & INA K. WOLF	4-8B/1
14	MARK E. & INA K. WOLF	4-8B/1.31
15	CAROL MORRIS	4-8B/1.30
16	LINDA HOLDEN ASHCRAFT	4-8B/1.14
17	ALFRED & ELIZABETH ROBEY	4-8B/1.35
18	DUSTON R. MARSH	4-8B/1.13
19	DAVID D. AND ANDREA L. LAMB	4-8B/1.10
20	RICHARD B. WILFONG	4-8B/1.26
21	THOMAS E. & TERRI E. HAWKINS	4-8B/4
22	THOMAS E. & TERRI E. HAWKINS	4-8B/5
23	C. D. COLE II	4-8C/29
24	C. D. COLE II	4-8C/28

SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83(M)
N:4333356.36
E:548191.39
UTM 17-NAD83(FT)
N:14217020.00
E:1798524.60
LAT/LON DATUM-NAD83
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APPROX. LANDING POINT
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UTM 17-NAD83(FT)
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E:1799374.20
LAT/LON DATUM-NAD83
LAT:39.147924
LON:-80.439306

BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83(M)
N:4329541.65
E:549848.70
UTM 17-NAD83(FT)
N:14204504.57
E:1803961.94
LAT/LON DATUM-NAD83
LAT:39.113604
LON:-80.423404

JANUARY 25, 2019

API WELL #: 47 33
 STATE COUNTY PERMIT

WW-6A1
(5/13)

Operator's Well No. Nays 1209 S-10H

**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 Sheets"

**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, 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.

RECEIVED
Office of Oil and Gas
FEB 5 2019

Well Operator: HG Energy II Appalachia, LLC WV Department of Environmental Protection
 By: Diane White *Diane White*
 Its: Agent

HG Energy II Appalachia, LLC 1209 S-10 LEASE CHAIN

RECEIVED
 Office of Oil and Gas
 FEB - 5 2019
 WV Department of
 Environmental Protection

TRACT #	LEGACY LEASE NUMBER	TAX MAP	LEASE NUMBER	GRANTOR/LESSOR	GRANTOR/LESSEE	ROYALTY	DEED BOOK	PAGE				
A	FK020606	17-20-0444-0011-0000, 17-20-0444-0011-0001, 17-20-0444-0011-0002, 17-20-0444-0011-0003, 17-20-0444-0012-0000, 17-12-0444-0013-0000, 17-12-0444-0014-0000, 17-12-0444-0021-0000, 17-12-0444-0021-0001, 17-12-0444-0022-0000, 17-12-0445-0001-0000, 17-12-0445-0002-0000, 17-12-0445-0009-0000, 17-12-0445-0010-0000, 17-12-0445-0011-0000	Q100370000	J.B. GUSMAN AND ADALINE GUSMAN	TREAT AND CRAWFORD	NOT LESS THAN 1/8	158	8				
				TREAT AND CRAWFORD	UNITED FUEL GAS COMPANY	ASSIGNMENT	226	359				
				UNITED FUEL GAS COMPANY	FAYETTE COUNTY GAS COMPANY	ASSIGNMENT	UNRECORDED					
				FAYETTE COUNTY GAS COMPANY	HOPE NATURAL GAS	ASSIGNMENT	201	3				
				HOPE NATURAL GAS COMPANY	CONSOLIDATED GAS SUPPLY COMPANY	MERGER/NAME CHANGE	903	179				
				CONSOLIDATED GAS SUPPLY CORPORATION	CONSOLIDATED GAS TRANSMISSION CORPORATION	ASSIGNMENT	1136	250				
				CONSOLIDATED GAS TRANSMISSION CORPORATION	CNG TRANSMISSION CORPORATION	MERGER/NAME CHANGE	51	795				
				CNG TRANSMISSION CORPORATION	DOMINION TRANSMISSION, INC.	MERGER/NAME CHANGE	58	362				
				DOMINION TRANSMISSION, INC.	DOMINION EXPLORATION & PRODUCTION, INC.	ASSIGNMENT	1409	680				
				DOMINION TRANSMISSION, INC.	DOMINION EXPLORATION & PRODUCTION, INC.	ASSIGNMENT	1442	356				
				DOMINION EXPLORATION & PRODUCTION, INC.	DOMINION TRANSMISSION, INC.	ASSIGNMENT	1457	978				
				DOMINION TRANSMISSION, INC.	CNX GAS COMPANY LLC	MEMORANDUM FARMOUT AGREEMENT	1522	33				
				CNX GAS COMPANY LLC	NOBLE ENERGY, INC.	LIMITED PARTIAL ASSIGNMENT (50%)	1543	1235				
				DOMINION TRANSMISSION, INC.	CNX GAS COMPANY LLC AND NOBLE ENERGY, INC.	PARTIAL ASSIGNMENT (32%)	1576	125				
				CNX GAS COMPANY LLC	NOBLE ENERGY, INC.	ASSIGNMENT	1584	942				
				NOBLE ENERGY, INC.	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	1600	692				
				DOMINION TRANSMISSION, INC.	DOMINION ENERGY TRANSMISSION, INC.	MERGER/NAME CHANGE	WVSOS					
				DOMINION ENERGY TRANSMISSION, INC.	HG ENERGY II APPALACHIA, LLC	SECOND AMENDMENT TO MEMORANDUM OF FARMOUT AGREEMENT	1601	581				
				B	FK014008	17-12-0444-0032-0000, p/o 17-12-0444-0043-0000, p/o 17-12-0445-0020-0000, 17-12-0445-0030-0001, 17-12-0445-0030-0002, 17-12-0445-0030-0003, 17-12-0445-0030-0004, 17-12-0445-0030-0005, 17-12-0445-0032-0000, 17-12-0445-0044-0000, p/o 17-12-0465-0001-0000, 17-12-0465-0002-0000, 17-12-0465-0003-0000, 17-12-0465-0012-0000, p/o 21-04-0088-0001-0000, 21-04-0088-0001-0001, 21-04-0088-0001-0005, p/o 21-04-0088-0001-0007, p/o 21-04-0088-0001-0009, p/o 21-04-0088-0004-0000	Q100369000	HOWARD NEELY, A SINGLE MAN	HOPE NATURAL GAS COMPANY	NOT LESS THAN 1/8	174	142
								HOPE NATURAL GAS COMPANY	CONSOLIDATED GAS SUPPLY CORPORATION	MERGER/NAME CHANGE	903	179
CONSOLIDATED GAS SUPPLY CORPORATION	CONSOLIDATED GAS TRANSMISSION CORPORATION	ASSIGNMENT	1136					250				
CONSOLIDATED GAS TRANSMISSION CORPORATION	CNG TRANSMISSION CORPORATION	MERGER/NAME CHANGE	51					795				
CNG TRANSMISSION CORPORATION	DOMINION TRANSMISSION, INC.	MERGER/NAME CHANGE	58					362				
DOMINION TRANSMISSION, INC.	CNX GAS COMPANY LLC	MEMORANDUM FARMOUT AGREEMENT	1522					33				
CNX GAS COMPANY LLC	NOBLE ENERGY, INC.	LIMITED PARTIAL ASSIGNMENT (50%)	1543					1235				
DOMINION TRANSMISSION, INC.	CNX GAS COMPANY LLC AND NOBLE ENERGY, INC.	PARTIAL ASSIGNMENT (32%)	1576					125				
CNX GAS COMPANY LLC	NOBLE ENERGY, INC.	ASSIGNMENT	1584					942				
NOBLE ENERGY, INC.	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	1600					660				
NOBLE ENERGY, INC.	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	1600					692				
DOMINION TRANSMISSION, INC.	DOMINION ENERGY TRANSMISSION, INC.	MERGER/NAME CHANGE	WVSOS									
DOMINION ENERGY TRANSMISSION, INC.	HG ENERGY II APPALACHIA, LLC	SECOND AMENDMENT TO MEMORANDUM OF FARMOUT AGREEMENT	1601					581				
		p/o 21-04-0088-0001-0000; 21-04-0088-0001-0002; 21-04-0088-0001-0003; 21-04-0088-0001-0004; 21-04-0088-0001-0006; p/o 21-04-0088-0001-0008; 21-04-0088-0001-0010; 21-04-0088-0001-0011; p/o 21-04-0088-0001-0012; 21-04-0088-0001-0013;						W.L. RIFFE AND OLIVE G. RIFFE, HIS WIFE; GEORGE PICKENS AND CLARA PICKENS, HIS WIFE; CLYDE PICKENS, WIDOWER; ESCAR PICKENS AND MAE PICKENS, HIS WIFE	HOPE NATURAL GAS COMPANY	NOT LESS THAN 1/8	221	89

1209S LEASE CHAIN

E	CNX024530 FK068505	21-04-008C-0028-0000	CNX024530	CNG TRANSMISSION CORPORATON	DOMINION TRANSMISSION, INC.	MERGER/NAME CHANGE	WVSOS		
				DOMINION EXPLORATION AND PRODUCTION, INC.	DOMINION TRANSMISSION, INC.	ASSIGNMENT		651	137
				DOMINION TRANSMISSION, INC.	CONSOL ENERGY HOLDINGS LLC XVI	ASSIGNMENT		651	318
				CONSOL ENERGY HOLDINGS LLC XVI	CONSOL GAS COMPANY	MERGER/NAME CHANGE	WVSOS		
				CONSOL GAS COMPANY	CNX GAS COMPANY LLC	MERGER/NAME CHANGE	WVSOS		
				CNX GAS COMPANY LLC	NOBLE ENERGY, INC.	ASSIGNMENT		659	521
				CNX GAS COMPANY LLC	NOBLE ENERGY, INC.	ASSIGNMENT		717	1
				NOBLE ENERGY, INC.	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT		722	170
				ROBERT BLAIR III	HG ENERGY II APPALACHIA, LLC	NOT LESS THAN 1/8		739	78
				F		21-04-008C-0003-0000			

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 REGISTRATION



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

03/29/2019

January 29, 2019

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

RE: Drilling Under Roads – Nays 1209 S-10H
Union District, Harrison County
West Virginia

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 or 304-420-1119.

Very truly yours,

Diane White

Diane C. White

Enclosures

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

Date of Notice Certification: 01/25/2019

API No. 47- _____ - _____

Operator's Well No. Nays 1209 S-10H

Well Pad Name: Nays 1209

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>548191.4</u>
County:	<u>Harrison</u>		Northing:	<u>4333356.4</u>
District:	<u>Union</u>	Public Road Access:	<u>Kincheloe Run Road / SR35</u>	
Quadrangle:	<u>West Milford 7.5'</u>	Generally used farm name:	<u>Nays</u>	
Watershed:	<u>West Fork</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 checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input 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 style="padding-left: 40px;"><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 style="text-align: center;">OOG OFFICE USE ONLY</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> <p style="text-align: center;">RECEIVED Office of Oil and Gas</p>
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Required Attachments:

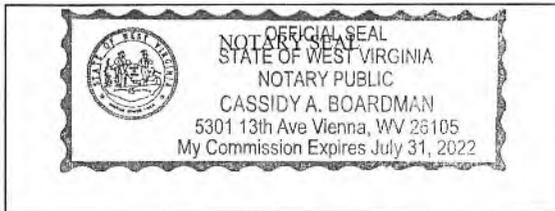
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Environmental Protection Advertisement with publication 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.

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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 25th day of January, 2019.

Cassidy A. Boardman Notary Public

My Commission Expires 7/31/2022

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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WV Department of
Environmental Protection

WW-6A
(9-13)

API NO. 47- _____ - 03/29/2019
OPERATOR WELL NO. Nays 1209 S-10H
Well Pad Name: Nays 1209

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: 01/23/2019 **Date Permit Application Filed:** 02/08/19

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: HG Energy II Appalachia, LLC
Address: 5260 Dupont Road
Parkersburg, WV 26101
Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: HG Energy II Appalachia, LLC
Address: 5260 Dupont Road
Parkersburg, WV 26101
Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
Name: HG Energy II Appalachia, LLC
Address: 5260 Dupont Road
Parkersburg, WV 26101

COAL OWNER OR LESSEE
Name: NA
Address: _____

COAL OPERATOR
Name: NA
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: HG Energy II Appalachia, LLC
Address: 5260 Dupont Road
Parkersburg, WV 26101

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: Dominion Energy Transmission - Attn: Ronald Walden
Address: 925 White Oaks Blvd
Bridgeport, WV 26330

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WV Department of Environmental Protection

*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 or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

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

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March 29, 2019
WV Department of Environmental Protection

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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WW-6A
(8-13)

API NO. 47- _____ - **03/29/2019**
OPERATOR WELL NO. Nays 1209 S-10H
Well Pad Name: Nays 1209

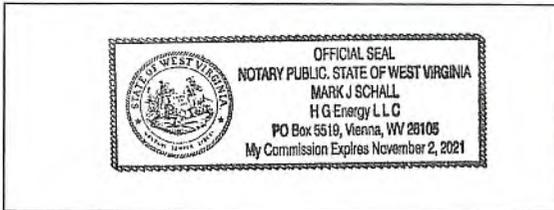
Notice is hereby given by:

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

Address: 5260 Dupont Road
Parkersburg, WV
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 deprivacyofficer@wv.gov.



Subscribed and sworn before me this 23rd day of January, 2019.

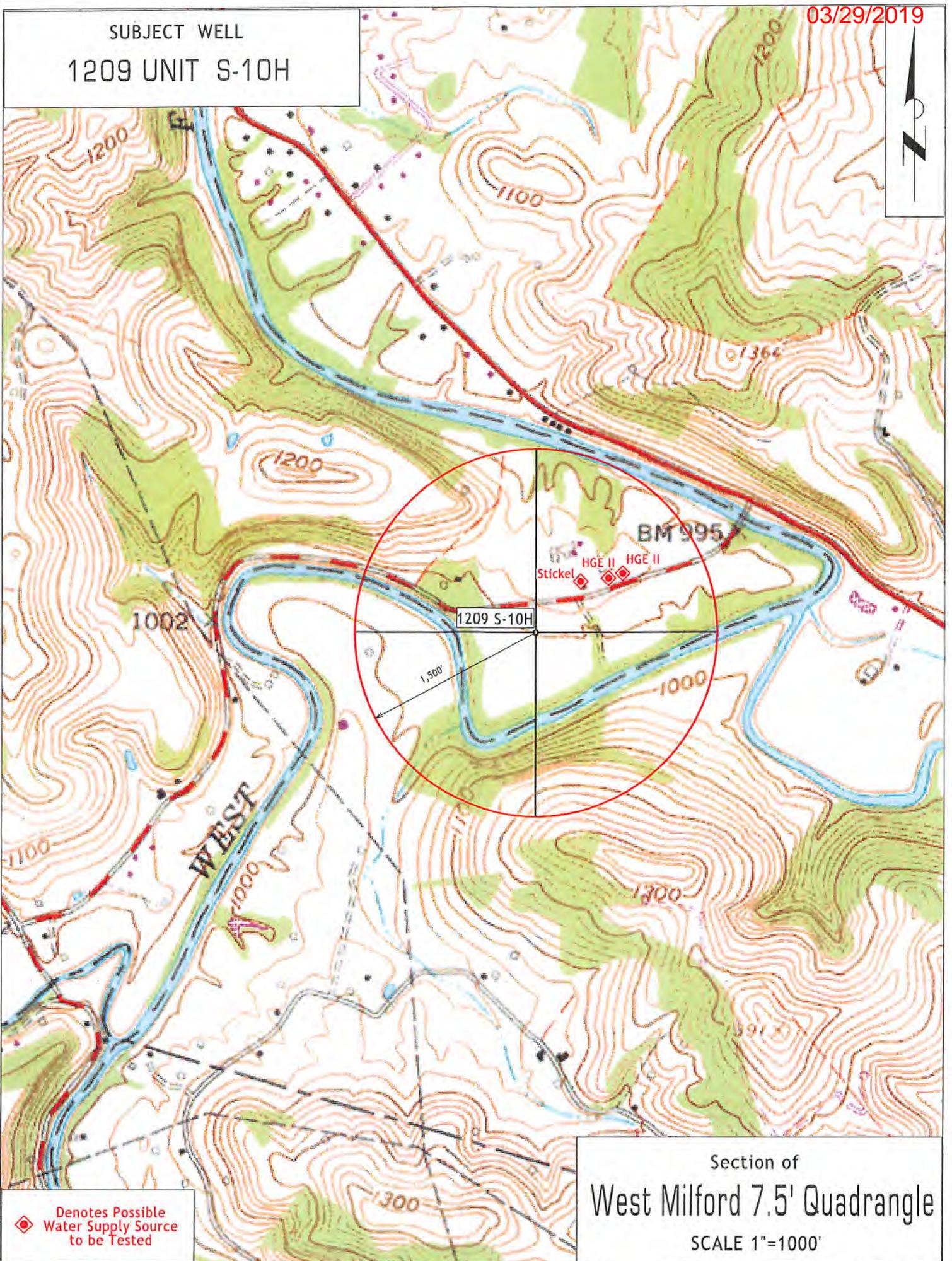
Mark J Schall

Notary Public

My Commission Expires 11/2/2021

03/29/2019

SUBJECT WELL
1209 UNIT S-10H



◆ Denotes Possible Water Supply Source to be Tested

Section of
West Milford 7.5' Quadrangle
SCALE 1"=1000'

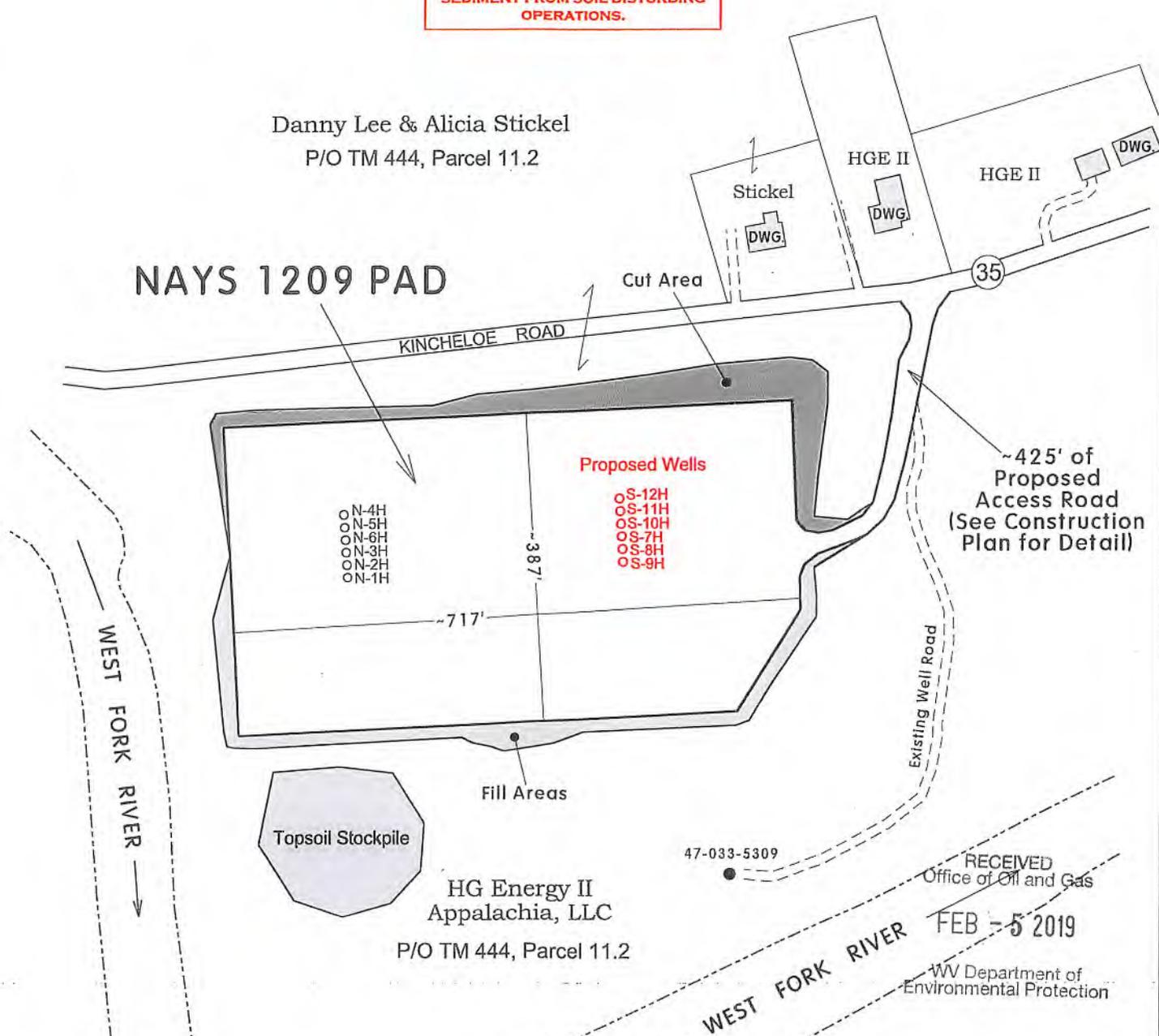
Reclamation Plan For: NAYS 1209 PAD

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



Danny Lee & Alicia Stickel
P/O TM 444, Parcel 11.2

NAYS 1209 PAD



WEST FORK RIVER

Notes:

- REQUESTED PERMIT IS FOR DRILLING NEW HORIZONTAL WELL.
- LOCATION AND ACCESS ROADS WILL BE CONSTRUCTED AS SHOWN ON THE ENGINEERED DRAWINGS WHICH ACCOMPANY THIS PERMIT APPLICATION. REFERENCE IS HEREBY MADE TO THOSE PLANS FOR MORE DETAIL ON E&S MEASURES TO BE TAKEN TO ENSURE COMPLIANCE WITH WVDEP RECLAMATION STANDARDS.
- ALL DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
- MAINTAIN SEDIMENT BARRIERS AND DRAINAGE STRUCTURES.
- 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
P/O TM 444, Parcel 11.2

47-033-5309

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

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

Date of Notice: 1/22/19 **Date of Planned Entry:** 1/29/19

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

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

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

Notice is hereby provided to:

SURFACE OWNER(s)
Name: HG Energy II Appalachia, LLC
Address: 5260 Dupont Road
Parkersburg, WV 26101

Name: _____
Address: _____

Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: _____
Address: _____

MINERAL OWNER(s)
Name: See Attached List
Address: _____

*please attach additional forms if necessary

Notice is hereby given:

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

State: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>39.148070 / 80.442302</u>
County: <u>Harrison</u>	Public Road Access: <u>SR 19</u>
District: <u>Union</u>	Watershed: <u>West Fork</u>
Quadrangle: <u>West Milford 7.5'</u>	Generally used farm name: <u>Nays</u>

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

Notice is hereby given by:

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

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

WW-6A3

(1-12)

1209S - 10H

Page 1 Continued

Mineral Owners

Ann Covington
1401 Torrey Pines Dr
Columbia, MO 65203-4825

Ann Mason Brashear Fitzgerald
625 Windsor Place
Tyler, TX 75703-5773

AnnaBelle Lawton Family Trust
1228 N. Park Ave
Winter Park, FL 32789

Beverly Mae Street
9062 Water Tupelo Road
Fort Myers, FL 33912

Broad Run Baptist Church
Cemetery Association
PO Box 504
Jane Lew, WV 26378

Buckner W. Hornor
486 Irish Hill Rd
Hopkinton, NH 03229-2202

C. J. Martin, II
PO Box 788
Buckhannon, WV 26201

Carolyn Louise Street
205 Hidden Meadows Circle
Renfrew, PA 16053

Catherine E Davisson
83 Cameron Rd
Clarksburg, WV 26301

Celia Linn Ferrell Baiker
5958 Chestnut Ct
Virginia Beach, VA 45424

Chandra D. Beam
PO Box 382
Jane Lew, WV 26378

Charles E. Garton Trust
PO Box 1234
Weston, WV 26452

David Neely Thrush
865 Seddon Cove Way
Tampa, FL 33602

Deborah Nay Stutler
9967 WV Route 18S
New Milton, WV 26411

Delores Jean Moats
90 Kincaidville Road
Walkersville, WV 26447

Donald R. Wilson
212 NE 56th St
Oak Island, NC 28465-4919

Donna Hutton Lloyd
828 Tremont Ave
Lexington, KY 40502

Eric R. Smith
PO Box 363
Jane Lew, WV 26378

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Mineral Owners

Ethel Jane Harman
PO Box 443
Jane Lew, WV 26378

Frank H. Neely
21 Belmeade Terrace
Uniontown, PA 15401

Freeda Y. Beam
PO Box 362
Jane Lew, WV 26378

Gary Manford
824 Mullen Road
Los Ranchos, NM 87107

Geneva Bruffey
500 Henrie Lane
Williamstown, WV 26187

Gregory Hurd and Trisha Hurd
PO Box 714
Jane Lew, WV 26378

Jack Street Testamentary Trust
205 Hidden Meadows Circle
Renfrew, PA 16053

Jack T. Street Residuary Trust Fund A and B
Carolyn Louise Street, Trustee
205 Hidden Meadows Circle
Renfrew, PA 16053

Jackson L. Smith
PO Box 457
Lost Creek, WV 26385

James R. Kettering Jr.
PO Box 511
Fairmont, WV 26555-0511

James Y and Jean S Hornor
5002 Esmond Lane
Castle Rock, CO 80108-9027

Jane Elizabeth Horn
958 McCanns Run Road
Jane Lew, WV 26378

Jane Elizabeth Thrush
49 Buckeye Ave
Oakland, CA 94618

Jane Lew Water Commission
PO Box 845
Jane Lew, WV 26378

Jeffrey Alan Street
6017 Pine Ridge Road Suite 190
Naples, FL 34119

Jill Lambert
fka Jill Justice
219 Ballantrae St
Valparaiso, IN 46385

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Mineral Owners

Joan Rose Jackson
113 Apple Creek Est
Elkins, WV 26241

John Daniel Justice
1715 Locust Ave
Ashland, KY 41101

John Henry McWhorter
5392 Duck Creek Road
Lost Creek, WV 26385

John P. Hutton
1906 Oak Ridge Dr
Charleston, WV 25311

Larry Robert Street
111 Dale Wood Drive
Lavalette, WV 25535

Lawrence Blair Thrush, Jr
9 Fox Chase Road
Charlestown, WV 25304-2755

Lawton Family Trust
1228 N. Park Ave
Winter Park, FL 32789-2542

Lewis County Board of Education
358 Court Ave
Weston, WV 26452

Linn Baiker
5958 Chestnut Ct
Virginia Beach, VA 45424

Lonnie C. Paugh and Karen L. Paugh
PO Box 573 Jane Lew, WV 26378
Jane Lew, WV 26378

Lonnie Kincaid
28 Bablin Ingo Road
Ireland, WV 26376

Lucille Davisson
1108 Oakbridge Drive
Hurricane, WV 25526-8838

Lundy H. McMillion
and Deborah H. McMillion
101 Locust St
Jane Lew, WV 26378

Mark Fitzpatrick
84 Keith Fork Road
Weston, WV 26452

Mary H. Balmer
619 Ohio Ave
Eustis, FL 32726-5121

Mary Jane Lewis
146 E Main St
Clarksburg, WV 26301

Mary Louise Thrush McDowell
2607 West 16th St
Wilmington, DE 19806

Matthew William Street
13761 Fieldshire Terrace
Carmel, IN 46074

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Mineral Owners

Mike Ross Inc
PO Box 880
Glenville, WV 26351

Mildred L. Haller
608 Center Ave
Weston, WV 26452

Oren Justice
1715 Locust Ave
Ashland, KY 41101

Paul Allen Hornor Jr.
161 Cooing Dove Drive 9
Bridgeport, WV 26330-6749

Peter K. Thrush
1168 Halleck Road
Morgantown, WV 26508-2370

R.L. Roberts
2871 West Virginia HWY 5 W
Glenville, WV 26351-7727

Robert M. Hutton
1099 Lynwood BLVD
Nashville, TN 37215

Robert T & Cynthia M Swiger
PO Box 908
Jane Lew, WV 26378

Roger Justice
877 Plymouth Rd NE
Atlanta, GA 30306

Shayne P. Baldwin
PO Box 872
Jane Lew, WV 26378

Sidney Wallace Street
2863 Yajoa Place
Hacienda Hieghts, CA 91745

Stephanie A. Snow-McKisic
PO Box 767
Jane Lew, WV 26378

Suzanne Louise Street
174 Willamette Drive
Bear, DE 19701

Thom William Street
316 Morgan Circle North
Lehigh Acres, FL 33936

Thomas E and Terri E Hawkins
7865 US Highway 19 North
Jane Lew, WV 26378-7931

Thomas Earl Thrush
2300 McFarlin Road
Nolensville, TN 37135

Thomas H. Wilson
1412 Western Ave
Morgantown, WV 26505-2148

Tom William Street
316 Morgan Circle North
Lehigh Acres, FL 33936

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Mineral Owners

Trina Noreene Smallwood
4444 River Forest Road
Marianna, FL 32446

Vivian Dianne Evert
828 Hidden Lake Road
Roberts, WI 54032

Walter Parke Thrush
263 Glen Abbey Lane
Clarksburg, WV 26301

Waymon B. Kincaid
3999 Georgetown Road
Horner, WV 26372

Wesley Crafe Brashear Jr
1205 Creek Point Dr.
Frisco, TX 75703-5773

Willard H and Judy McWhorter
2042 Elk City Rd
Jane Lew, WV 26378

William C. White
PO Box 770
Jane Lew, WV 26378

William R. Stalnaker
160 Stalnaker Estates
Glenville, WV 26351-7727

Zane Anthony Justice
2706 Algonquin Ave
Ashland, KY 41102

HG Energy II Appalachia, LLC was not noticed via certified mail.

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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: 10/29/2018 **Date Permit Application Filed:** 11/09/2018

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: HG Energy II Appalachia, LLC Name: _____
Address: 5260 Dupont Road Address: _____
Parkersburg, WV 26101 _____

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: West Virginia UTMNAD 83 Easting: 548191.4
County: Harrison Northing: 4333356.4
District: Union Public Road Access: Kincheloe Road/ SR35
Quadrangle: West Milford 7.5' Generally used farm name: Cone
Watershed: West Fork

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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

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

* Notice was not sent because HG Energy II Appalachia, LLC is the owner of the Surface Property and the Operator submitting the well work application.

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

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**
Date of Notice: 10/31/2018 **Date Permit Application Filed:** 11/09/2018

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

- CERTIFIED MAIL RETURN RECEIPT REQUESTED
- HAND 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: HG Energy II Appalachia, LLC	Name: _____
Address: 5260 Dupont Road Parkersburg, WV 26101	Address: _____

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: West Virginia	UTM NAD 83	Easting: 548191.1
County: Harrison		Northing: 4333360.9
District: Union	Public Road Access:	Kincheloe Run Road/ SR35
Quadrangle: Audra 7.5'	Generally used farm name:	Cone
Watershed: Elk Creek		

This Notice Shall Include:

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

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

Oil and Gas Privacy Notice:

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* Notice was not sent because HG Energy LLC Appalachia is the owner of the Surface Property and the Operator submitting the well work application.

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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

November 1, 2018

Jill M. Newman
Deputy Commissioner

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

Subject: DOH Permit for the Nays 1209 Well Pad, Harrison County
S-10H Well Site

Dear Mr. Martin,

This well site will be accessed from Permit #04-2018-0673 issued to HG Energy II Appalachia for access to the State Road for a well site located off of Harrison County 35 SLS.

The operator has signed a STATEWIDE 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,

A handwritten signature in blue ink that reads "Gary K. Clayton".

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

Cc: Diane C. White
HG Energy II, LLC
CH, OM, D-4
File

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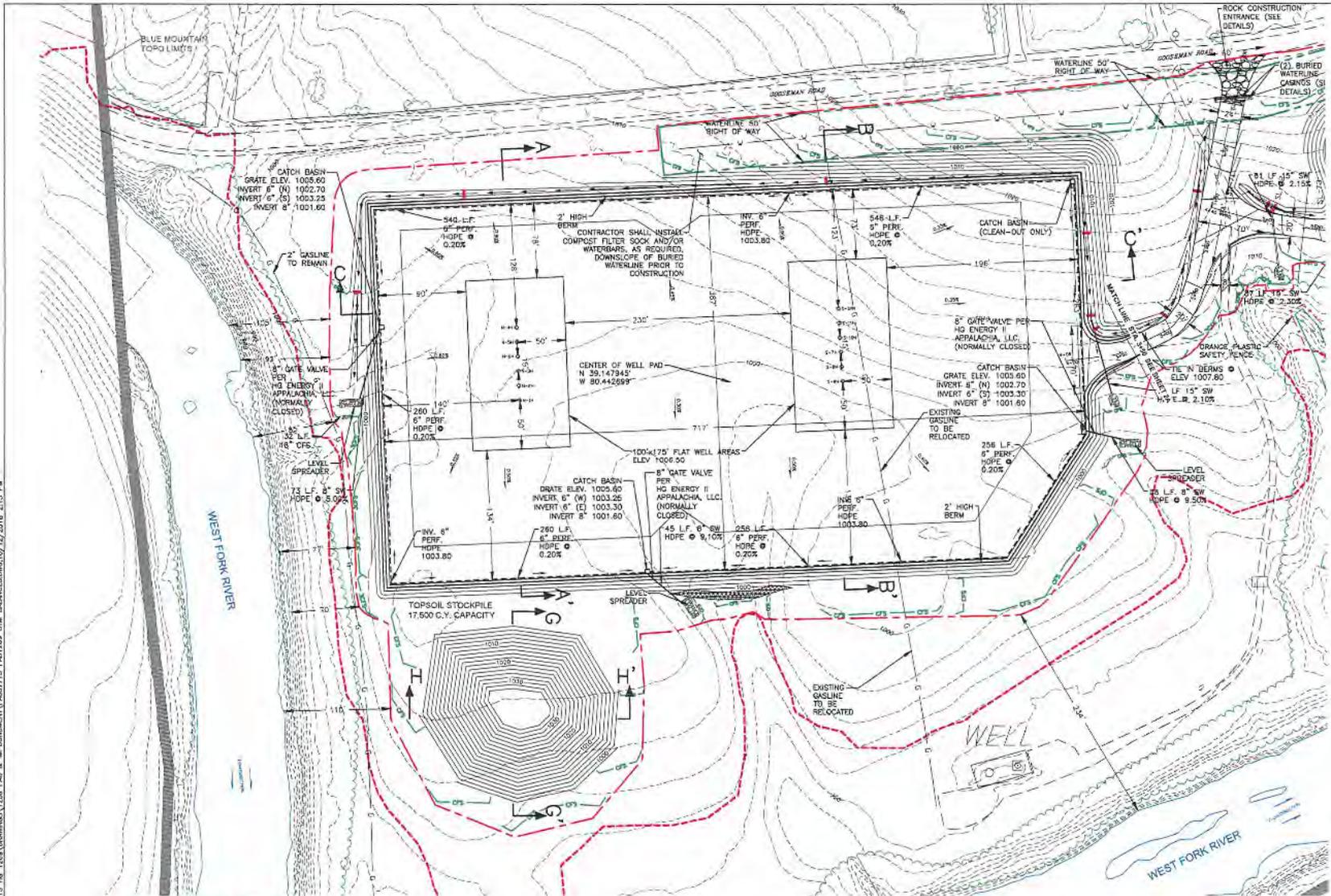
List of Frac Additives by Chemical Name and CAS #

Nays 1209 Well Pad (N-1H to N-6H, S-7H to S-12H)

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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S:\PROJECT FILES\600--PW07715 - HG 1209 (Brown) 1209 PAD & IMPOUNDMENT\PW07715\1209 PAD & IMPOUNDMENT\DWG\10/17/2018 2:13 PM



**APPROVED
WVDEP OOG**
10/16/2018

COORDINATES: UTM WITH NAD 83
DATUM, ZONE 17, U.S. FOOT, CENTRAL

WEST VIRGINIA **CALL BEFORE YOU DIG!**
Dial 811 or 800.245.4848
Max Utility of West Virginia

LEGEND

- ROCK CHECK DAM
- RIPRAP APRON
- ACCESS ROAD/PAD CHANNEL
- COMPOST FILTER SOCK 8" UNLESS OTHERWISE NOTED
- STACKED COMPOST FILTER SOCK 8"
- APPROXIMATE LIMITS OF DISTURBANCE
- APPROXIMATE 50' EXCLUSIVE RIGHT OF WAY
- APPROXIMATE PROPERTY LINE
- EXISTING INDEX CONTOUR
- EXISTING INTERMEDIATE CONTOUR
- PROPOSED FINAL GRADE INDEX CONTOUR
- PROPOSED FINAL GRADE INTERMEDIATE CONTOUR
- LIMITS OF BLUE MOUNTAIN MAPPING
- EXISTING TREE LINE
- APPROXIMATE 100' W/ FLOODPLAIN BOUNDARY
- 8' CHAIN LINK FENCE WITH SECURITY WIRE
- EXISTING GASLINE

- NOT VEGEAN GENERAL NOTES**
- REFERENCED THIS SHEET WITH THE CONSTRUCTION NOTES AND DETAILS.
 - CONTRACTOR SHALL CONFORM WITH ALL PROTECTION BARBERS BEARS & SHALL BE RESPONSIBLE TO OBTAIN ALL OTHER NECESSARY PERMITS AND OTHER RELATED OR PROCEEDS BY CONTRACTOR PRIOR TO BEGINNING WORK AT THE SITE.
 - SITE SHALL BE CONSTRUCTED IN ACCORDANCE WITH WELL DRILLING PERMIT CONSTRUCTION RESPONSE TO CONSTRUCTION DISTURBANCE PREVENTION PLAN AND LOCAL REQUIREMENTS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING UTILITY LINES AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING UTILITY LINES AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING UTILITY LINES AND SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING UTILITY LINES.
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REVISIONS

NO.	DATE	DESCRIPTION
1	5/23/18	ISSUE PERMIT AND APPROVED THE OOG CONSENT
2	6/28/18	FINAL PERMIT REVISION: ADDS EXISTING GASLINE, MOSES STOCKPILE
3	8/12/18	APPROXIMATE REVISION: ASSUMES SITE RELAY AND STOCKPILE
4	7/22/18	MOUSE CATCHER TOP SOIL CONCRETE
5	10/19/18	FINAL PERMIT REVISION: ADDS EXISTING GASLINE, MOSES STOCKPILE, EXISTING AND PROPOSED UTILITY LINES
6	10/17/18	APPROXIMATE TO MAKE PERMIT REVISIONS: MOSES STOCKPILE

SCALE - FEET
0 50 100

WEST VIRGINIA DEPARTMENT OF ENVIRONMENT & NATURAL RESOURCES
30468
STATE OF WEST VIRGINIA

**SITE DEVELOPMENT PLAN
WITH EROSION AND SEDIMENTATION CONTROLS
HG 1209 PAD & IMPOUNDMENT
UNION DISTRICT
HARRISON COUNTY, WEST VIRGINIA**

PREPARED FOR
**HG ENERGY II APPALACHIA, LLC
PARKERSBURG, WEST VIRGINIA**

APPROVED: MFP 05/23/2018
CHECKED: MFP 05/23/2018
DESIGNED: MFP 05/23/2018
PROJECT NO.: 6000-PW07715
DRAWING NUMBER: PA007715-001
SHEET 28

Penn E&R
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