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west virginia department of environmental protection

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

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

Tuesday, August 28, 2018  
WELL WORK PERMIT  
Horizontal 6A / New Drill

HG ENERGY II APPALACHIA, LLC  
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for RIDDLE 1301 S-4H  
47-021-05795-00-00

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: RIDDLE 1301 S-4H  
Farm Name: EMARY W. & JESSICA R. FRY  
U.S. WELL NUMBER: 47-021-05795-00-00  
Horizontal 6A New Drill  
Date Issued: 8/28/2018

# 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

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1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than 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.

API Number: \_\_\_\_\_

## 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](mailto:DEPOOGNotify@wv.gov).

08/31/2018

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. 494519932 Gilmer Dekalb Burnt House  
Operator ID County District Quadrangle

2) Operator's Well Number: Riddle 1301 S-4H Well Pad Name: Riddle 1301

3) Farm Name/Surface Owner: Emary W. & Jessica R. Frymier Public Road Access: SR 47

4) Elevation, current ground: 1251' Elevation, proposed post-construction: 1237'

5) Well Type (a) Gas x Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_

Other \_\_\_\_\_

(b) If Gas Shallow x Deep \_\_\_\_\_

Horizontal x

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Target - Marcellus, Depth \_\_\_\_\_, Thickness - \_\_\_\_\_, Pressure - 4000# *Next page*

8) Proposed Total Vertical Depth: 6625'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16,963'

11) Proposed Horizontal Leg Length: 9903'

12) Approximate Fresh Water Strata Depths: NA

13) Method to Determine Fresh Water Depths: No actual well data to estimate from 47-021-05249 95'

14) Approximate Saltwater Depths: NA

15) Approximate Coal Seam Depths: NA

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

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

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

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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>Gilmer</u>	<u>Dekalb</u>	<u>Burnt House</u>
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Operator ID County District Quadrangle

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3) Farm Name/Surface Owner: Emary W. & Jessica R. Frymier Public Road Access: SR 47

4) Elevation, current ground: 1251' Elevation, proposed post-construction: 1237'

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

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Target - Marcellus, Depth - 6600' to 6640', Thickness - 40', Pressure - 4000#

8) Proposed Total Vertical Depth: 6625'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16,704'

11) Proposed Horizontal Leg Length: 9670'

12) Approximate Fresh Water Strata Depths: NA

13) Method to Determine Fresh Water Depths: No actual well data to estimate from

14) Approximate Saltwater Depths: NA

15) Approximate Coal Seam Depths: NA

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

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: \_\_\_\_\_

WW-6B  
(04/15)

API NO. 47- \_\_\_\_\_  
 OPERATOR WELL NO. Riddle 1301 S-4H  
 Well Pad Name: Riddle 1301

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	20"	N	J-55	94#	145' <del>420'</del> <sup>DM</sup>	145' <del>420'</del> <sup>DM</sup>	Drilled In
Fresh Water	13 3/8"	N	J-55	54.5#	1100'	1100'	CTS
Coal							
Intermediate	9 5/8"	N	J-55	40#	2650'	2650'	CTS
Production	5 1/2"	N	P-110	23#	16963'	16963'	CTS
Tubing							
Liners							

DM  
API  
47-021-524

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	20"	20"	0.438"	2110		Class A	
Fresh Water	13 3/8"	17 1/2"	0.380"	2730		Class A	1.20
Coal							
Intermediate	9 5/8"	12 1/4"	0.395"	3950		Class A	1.20
Production	5 1/2"	8 1/2"	0.415"	14520		Class A	Lead Yield = 1.19, Tail Yield = 1.94
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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WW-6B  
(10/14)

API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. Riddle 1301 S-4H  
Well Pad Name: Riddle 1301

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

Drill vertically through the Marcellus and into the Onondaga (100' or less) at an estimated total vertical depth of approximately 6,640'. Run Open Hole Logging tools. Plug back with cement to Kick Off point. Wait on Cement. Kick off / drill off of cement, plug and drill curve. Drill Horizontal leg to approximately 9,903'. Stimulate and produce the Marcellus formation. Should an unanticipated void be encountered in the coal, a minimum of 20' of casing will be installed 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): 15.84 acres

22) Area to be disturbed for well pad only, less access road (acres): 3.74 acres

23) Describe centralizer placement for each casing string:

Conductor - NA  
Surface Casing - Bow Springs (over collars) on first 2 joints then every third joint to 100' from surface  
Intermediate Casing - Bow Springs (over collars) on first 12 joints, then every third joint to 100' from surface  
Production Casing - 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 - NA  
Surface Casing - 15.6 ppg PNE-1 + 3% bwoc CaCl<sub>2</sub>0% Excess/Yield=1.20, CTS  
Intermediate Casing - Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl<sub>2</sub>0% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl<sub>2</sub> zero% Excess, CTS  
Production Casing - Lead: 14.5 ppg POZ.PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA17020% Excess/Lead Yield=1.19Tail Yield=1.94, CTS

25) Proposed borehole conditioning procedures:

Conductor - Once at casing setting depth, ensure hole is clean at TD  
Surface Casing - Circulate & condition @ TD w/ Air. RH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 6% bentonite Gel/Sol of poly flake, then clear casing w/ Fresh Water prior to pumping cement.  
Intermediate Casing - Circulate & condition @ TD w/ Air. RH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 6% bentonite Gel/Sol of poly flake, then clear casing w/ Fresh Water prior to pumping cement.  
Production Casing - 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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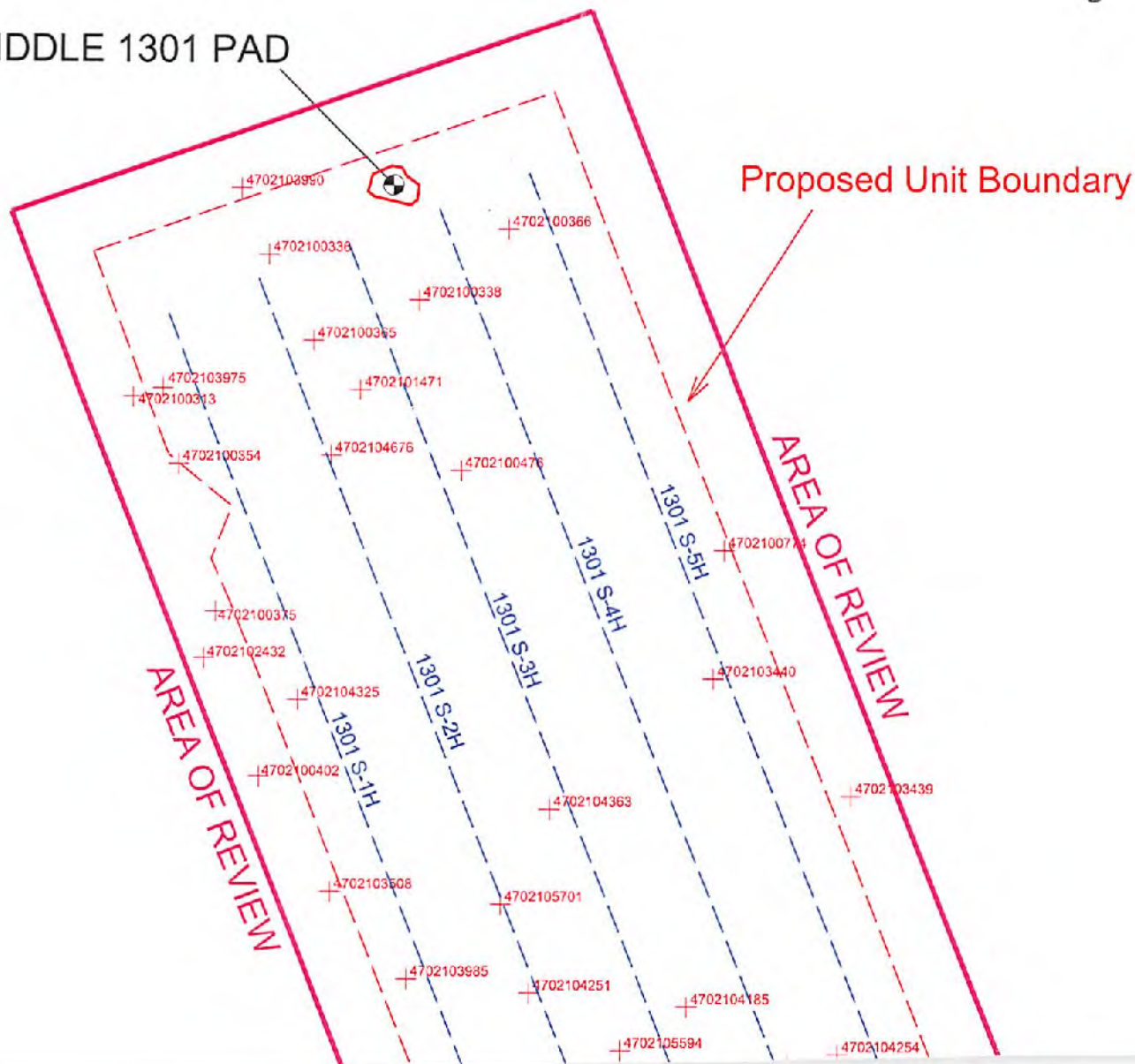
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\*Note: Attach additional sheets as needed.

4702105795

RIDDLE 1301 PAD



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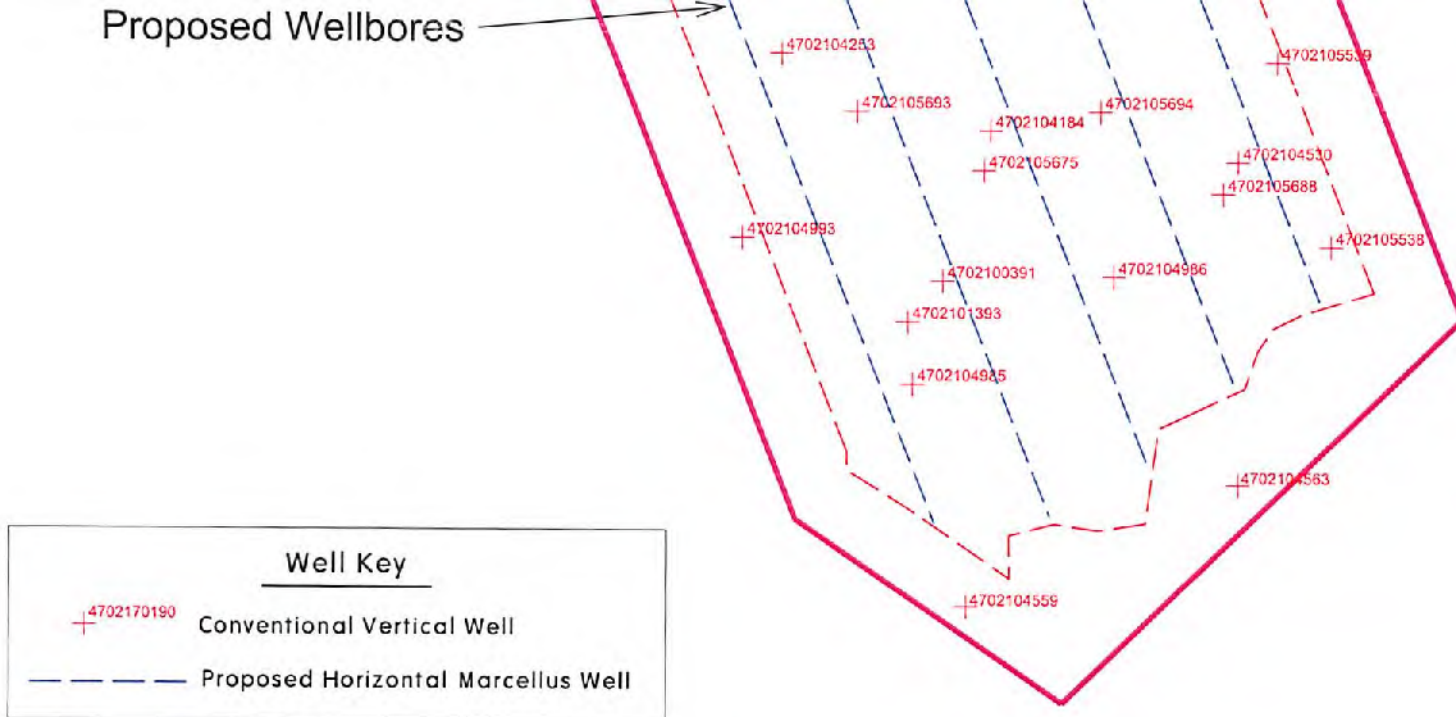
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Proposed Wellbores



NOTE:  
See Attached Spreadsheet for Well Data

HG ENERGY, II APPALACHIA, LLC  
5260 DuPont Road, Parkersburg, WV 26101

Area of Review for:

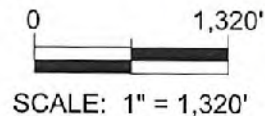
**RIDDLE 1301 PAD**

- Proposed 1301 S-1H
- Proposed 1301 S-2H
- Proposed 1301 S-3H
- Proposed 1301 S-4H
- Proposed 1301 S-5H

Dekalb District, Gilmer County, W.Va.

DATA SOURCE  
WVGES Data Set - 2017; WVDEP Website

5/3/2018



**EXISTING WELLS LOCATED WITHIN THE AREA OF REVIEW FOR:  
1301 PAD AND PROPOSED WELLS S-1H, S-2H, S-3H, S-4H & S-5H**

08/31/2018

CT	API	COUNTY	FARM	OPERATOR NAME	FORMATION NAME	WELL TYPE	TVD	STATUS	LATITUDE	LONGITUDE
1	4702100313	Gilmer	S S Riddle 1	Mossor, L. & W.	Big Injun (Grnbr)	Gas	1920	Abandoned Well	39.030664	-80.942371
2	4702100336	Gilmer	S S Riddle 1	Mossor, L. & W.	Big Injun (Grnbr)	Gas	2108	Abandoned Well	39.033705	-80.938673
3	4702100338	Gilmer	A & J Vanney 1	Spartan Gas Co.	Gantz	Dry w/ Gas Show	2415	Plugged	39.032743	-80.934572
4	4702100354	Gilmer	J Houghton et al 2	David & Garnett Barr	Big Injun (Grnbr)	Gas	2192	Active Well	39.029238	-80.941111
5	4702100365	Gilmer	S S Riddle 2	Riddle Oil & Gas	Undf PRICE blw INJN	Gas	2137	Plugged	39.031876	-80.937451
6	4702100366	Gilmer	S S Riddle 1	McCall Drilling Co.	Berea Ss	Dry w/ Gas Show	2600	Plugged	39.034256	-80.932133
7	4702100375	Gilmer	R Napier 1	McCall Drilling Co.	Undf PRICE blw INJN	Gas	2169	Plugged	39.026090	-80.940108
8	4702100391	Gilmer	A B Cooper 1	Bowser & Meyer	Maxton	Gas	1624	Abandoned Well	39.010778	-80.928042
9	4702100402	Gilmer	Cunningham-Wright 2	McCall Drilling Co.	Undf PRICE blw INJN	Dry w/ Gas Show	2000	Plugged	39.022556	-80.938929
10	4702100476	Gilmer	A & J Vannoy Heirs 2	McKnight, W.	Gantz	Dry	2280	Plugged	39.029105	-80.933401
11	4702100774	Gilmer	LS Vannoy	Dominion Energy Transmission, Inc.	Undf PRICE blw INJN	Storage	1910	Active Well	39.027413	-80.926255
12	4702101393	Gilmer	A B Byrd 2	Ross & Wharton Gas Co.	Undf PRICE blw INJN	Gas w/ Oil Show	2155	Active Well	39.010004	-80.928878
13	4702101471	Gilmer	I F Vannoy	Hope Natural Gas Company	Gantz	Gas	2471	Plugged	39.030830	-80.936154
14	4702102432	Gilmer	Guy B Young Heirs 1	Murvin & Meier Oil Co.	Big Injun (Grnbr)	Oil and Gas	2650	Active Well	39.025090	-80.940411
15	4702103439	Gilmer	LM Law	Dominion Energy Transmission, Inc.		not available		Active Well	39.022175	-80.922816
16	4702103440	Gilmer	Stephen/B Mullinax	Dominion Transmission Inc		not available		Abandoned Well	39.024671	-80.926549
17	4702103508	Gilmer	W B Wright 1-A	Dorothy Frey	Big Injun (undiff)	Gas	2160	Active Well	39.020113	-80.936977
18	4702103975	Gilmer	Poe Riddle et ux 1	R&R Oil & Gas, LLC	Riley	Gas	4455	Active Well	39.030852	-80.941557
19	4702103985	Gilmer	Audra Cunningham 2	Murvin & Meier Oil Co.	Riley	Gas w/ Oil Show	4855	Active Well	39.018259	-80.934900
20	4702103990	Gilmer	P Riddle et ux 1	R&R Oil & Gas, LLC	Alexander	Gas	5002	Active Well	39.035115	-80.939424
21	4702104184	Gilmer	James W Anderson 1	Horizon Energy Corp.	Big Injun (undiff)	Gas	1866	Active Well	39.013618	-80.926905
22	4702104185	Gilmer	James W Anderson 2	Horizon Energy Corp.	Big Injun (undiff)	Gas w/ Oil Show	1860	Active Well	39.017679	-80.927278
23	4702104251	Gilmer	James W Anderson 3	Horizon Energy Corp.	Big Injun (undiff)	Oil and Gas	2027	Active Well	39.017969	-80.931553
24	4702104253	Gilmer	James W Anderson 5	Horizon Energy Corp.	Big Injun (undiff)	Gas	2183	Active Well	39.015068	-80.931925
25	4702104254	Gilmer	James W Anderson 4	Horizon Energy Corp.	Big Injun (undiff)	Oil and Gas	2142	Active Well	39.016664	-80.923188
26	4702104325	Gilmer	Ray F Bauman 2	Murvin & Meier Oil Co.	Riley	Oil and Gas	4812	Active Well	39.024205	-80.937876
27	4702104363	Gilmer	S McCartney	Dominion Energy Transmission, Inc.	Big Injun (Grnbr)	Oil and Gas	2101	Active Well	39.021885	-80.930996

4702105795

28	4702104530	Gilmer	F K Hinzman etux	Clowser Production Co.	Big Injun (Grnbr)	Gas	1884	Abandoned Well	39.013038	-80.920957
29	4702104559	Gilmer	James H Byrd 2	Standard Oil Co., Inc.	Rhinestreet Sh	Gas w/ Oil Show	5954	Active Well	39.004627	-80.927461
30	4702104563	Gilmer	Tom Minney	Standard Oil Co., Inc.	Rhinestreet Sh	Gas w/ Oil Show	5910	Active Well	39.006949	-80.920956
31	4702104676	Gilmer	R Bauman	Murvin & Meier Oil Co.	Berea Ss	Gas w/ Oil Show	2492	Active Well	39.029426	-80.936948
32	4702104985	Gilmer	Edgar Duellley Jr 1A	EQT Production Co.	Brallier	Gas	6195	Active Well	39.008833	-80.928763
33	4702104986	Gilmer	Edgar Duellley Jr 2A	EQT Production Co.	Brallier	Gas	6166	Active Well	39.010863	-80.923931
34	4702104993	Gilmer	James W Anderson 1A	EQT Production Co.	Brallier	Gas	6335	Active Well	39.011588	-80.932853
35	4702105538	Gilmer	Amanda Frymier	Dominion Energy Transmission, Inc.	Greenland Gap Frm	Oil and Gas	5126	Active Well	39.011443	-80.918726
36	4702105539	Gilmer	Amanda Frymier	Dominion Energy Transmission, Inc.	Greenland Gap Frm	Oil and Gas	5226	Active Well	39.014924	-80.920027
37	4702105594	Gilmer	Coastal Lumber Co	Dominion Energy Transmission, Inc.	Greenland Gap Frm	Oil and Gas	5121	Active Well	39.016739	-80.929076
38	4702105674	Gilmer	Coastal Lumber Co	Dominion Energy Transmission, Inc.	Greenland Gap Frm	Gas	5003	Active Well	39.016476	-80.924551
39	4702105675	Gilmer	Coastal Lumber Co	Consol Gas Co.	Misc Sands-BNSN/BRLR	Oil and Gas	4952	Active Well	39.012865	-80.927051
40	4702105688	Gilmer	Amanda Frymier	Dominion Energy Transmission, Inc.	Brallier	Gas	4893	Active Well	39.012432	-80.921307
41	4702105693	Gilmer	WELL WAS NEVER DRILLED						39.013976	-80.930107
42	4702105694	Gilmer	WELL WAS NEVER DRILLED						39.013976	-80.924273
43	4702105701	Gilmer	WELL WAS NEVER DRILLED						39.019851	-80.932329
44										
45										

SOURCE: WVGES DATASET (2017) and WVDEP WEBSITE

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05/17/2018

**Riddle 1301 Well Pad (S-3H, S-4H, S-5H)**  
**Cement Additives**

**Material Name** Premium NE-1  
**Material Type** Portland Cement  
**Material Description** Premium NE-1 is a portland cement with early compressive strength properties.

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

**Material Name** Bentonite  
**Material Type** Extender  
**Material Description** Commonly called gel, it is a clay material used as a cement extender and to control excessive free water.

Ingredient name	%	CAS number
bentonite	90 - 100	1302-78-9
Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7

**Material Name** Calcium Chloride  
**Material Type** Accelerator  
**Material Description** A powdered, flaked or pelletized material used to decrease thickening time and increase the rate of strength development.

Ingredient name	%	CAS number
Calcium chloride	90 - 100	10043-52-4

**Material Name** Cello Flake  
**Material Type** Lost Circulation  
**Material Description** Graded (3/8 to 3/4 inch) cellophane flakes used as a lost circulation material.

Ingredient name	%	CAS number
No hazardous ingredient		

**Material Name** FP-13L  
**Material Type** Foam Preventer  
**Material Description** FP-13L is a clear liquid organic phosphate anti-foaming agent used in cementing operations. It is very effective minimizing air entrapment and preventing foaming tendencies of latex systems.

Ingredient name	%	CAS number
Tributyl phosphate	90 - 100	126-73-8

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**Material Name** Granulated Sugar  
**Material Type** Retarder  
**Material Description** Used to retard cement returns at surface. A proprietary product that provides expansive properties and improves bonding at low to moderate temperatures.

Ingredient name	%	CAS number
Sucrose	90 - 100	57-50-1

**Material Name** EC-1  
**Material Type** Gas Migration  
**Material Description** Multi-purpose polymer additive used to control free fluid, fluid loss, rheology, and gas migration.

Ingredient name	%	CAS number
Calcium magnesium oxide	90 - 100	37247-91-9

Ingredient name	%	CAS number
No hazardous ingredient		

**Material Name** Poz (Fly Ash)  
**Material Type** Base  
**Material Description** 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.

Ingredient name	%	CAS number
Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7
Calcium oxide	1 - 5	1305-78-8

**Material Name** R-3  
**Material Type** Retarder  
**Material Description** A low temperature retarder used in a wide range of slurry formulations to extend the slurry thickening time.

Ingredient name	%	CAS number
Organic acid salt	40 - 50	Trade secret.

**Material Name** S-5  
**Material Type** Surfactant  
**Material Description** Used to water wet casing and formation to facilitate cement bonding.

Ingredient name	%	CAS number
2-Butoxyethanol	20 - 30	111-76-2
Proprietary surfactant	10 - 20	Trade secret.
D-Glucopyranose, oligomeric, C10-16-alkyl glycosides	5 - 10	110615-47-9
Alkylarylsulfonate amine salt	1 - 5	Trade secret.
Polyoxyalkylenes	0.1 - 1	Trade secret.

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Riddle 1301 S-4H  
Marcellus Shale Horizontal  
Gilmer County, WV

\*Pilot Hole to be drilled, Run Open Hole Wireline Logs, then plug back with cement to KOP\*

Riddle 1301 S-4H SHL

741073.4N 2018327.8E

Ground Elevation 1237'

Riddle 1301 S-4H LP

740700.53N 2018772.65E

Azm 158.557°

Riddle 1301 S-4H BHL

731482.7N 2022393.1E

WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
	20"	20" 94# J-85	Conductor	0	120	AIR	Casing "Drilled In" with Dual Rotary Rig	N/A	Once at casing setting depth, ensure hole is clean at TD	Conductor casing = 0.438" wall thickness Burst=2110 psi
	17.5"	13-3/8" 54.5# J-55 BTC	Surface Casing	0	1100	AIR	15.6 ppg PNE-1 + 3% bwoc CaCl 40% Excess Yield=1.20 / CTS	Bow Springs (over collars) on first 2 joints then every third joint to 100' from surface	Circulate & condition @ TD w/ Air. RIH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 8% bentonite Gel/50# of poly flake, then clear casing w/ Fresh Water prior to pumping cement.	Surface casing = 0.380" wall thickness Burst=2730 psi
	12.25"	9-5/8" 40# J-55 BTC	Big Lime	2127	2182	AIR ( to 100' above storage) then Salt Polymer mud through "storage"	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 Springs (over collars) on first 12 joints, then every third joint to 100' from surface	Circulate & condition @ TD w/ Air. RIH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 8% bentonite Gel/50# of poly flake, then clear casing w/ Fresh Water prior to pumping cement.	Intermediate casing = 0.395" wall thickness Burst=3650 psi
			Big Injun	2182	2272					
			Weir	2442	2637					
			Berea Storage	2587	2693					
	8.5" Vertical	5-1/2" 23# P-110 HC CDC HTQ	Intermediate Casing	0	2650	AIR and/or 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
			Warren	3504	3544					
			Balltown	3902	3929					
			Riley	4512	4622					
			Benson	4962	4969					
			Alexander	5172	5237					
			Cashagua	6237	6357					
			Middlesex	6357	6457					
			Genesee	6457	6492					
Tully			6492	6497						
Hamilton	6497	6600								
8.5" Lateral	5-1/2" 23# P-110 HC CDC HTQ	Marcellus	6600	6640	11.5ppg-12.5ppg SOBM	Lead: 14.5 ppg POZ/PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170 Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess Lead Yield=1.19 Tail Yield=1.94 CTS	Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curve.	Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.415" wall thickness Burst=14520 psi Note Actual centralizer schedules may be changed due to hole conditions	
		TMD / TVD	6663	6626						
		Onondaga	6640	Pilot Hole TD: 6,750'						

LP @ 6625' TVD / 7060' MD

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

+/-9903' ft Lateral

TD @ +/-6625' TVD  
+/-16963' MD

4102105795

WW-9  
(4/16)

API Number 47 - \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. Riddla 1301 S-4H

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) Ellis Fork Quadrangle Burnt House 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 \_\_\_\_\_)

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Will closed loop system be used? If so, describe: Yes

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

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

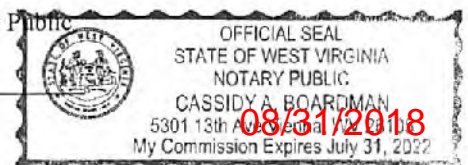
Company Official Title Agent

Subscribed and sworn before me this 2th day of May, 20 18

Cassidy A. Boardman

My commission expires 7/31/2022

Notary Public



HG Energy II Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 15.84 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	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

Pre-seed and mulch all disturbed areas as soon as possible. Maintain E&S controls through the drilling and completion process as per regulations.

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: Danny Miller

Comments: Preseed & mulch any disturbed areas

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Title OOB Inspector Danny Miller Date: 5-18-18

Field Reviewed?  Yes  No

## Cuttings Disposal/Site Water

### Cuttings Haul off Company:

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

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

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

### Disposal Locations:

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

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

Sycamore Landfill Inc, Permit #R30-079001 05-2010  
4301 Sycamore Ridge Road  
Hurricane, WV 25526  
304-562-2611

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

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

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

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

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

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

Brooke County Landfill Permit # SWF-103-87 / WV 0109029  
Rd 2 Box 410  
Colliers, WV 26035  
304-748-0014

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

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

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

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

**Water Haul off Companies:**

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

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

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

Nuverra Environmental Solutions  
 11942 Veterans Memorial Highway  
 Masontown, WV 26542

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

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

**Disposal Locations:**

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

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

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

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

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

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

Equipment Transport  
 1 Tyler Court  
 Carlisle, PA 17015

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

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

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

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

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

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

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

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

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

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

Dudley #1 UIC (SWIW #1)  
Permit # 34-121-2-2458-00-00  
Select Energy Services, LLC  
7994 S. Pleasants Hwy  
St. Marys, WV 26170  
304-665-2652

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

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

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

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# HG Energy II Appalachia, LLC

## Site Safety Plan *DM*

Riddle 1301 Well Pad  
15675 WV Highway 47 W  
Burnthouse, Gilmer County, WV

April 2018: Version 1

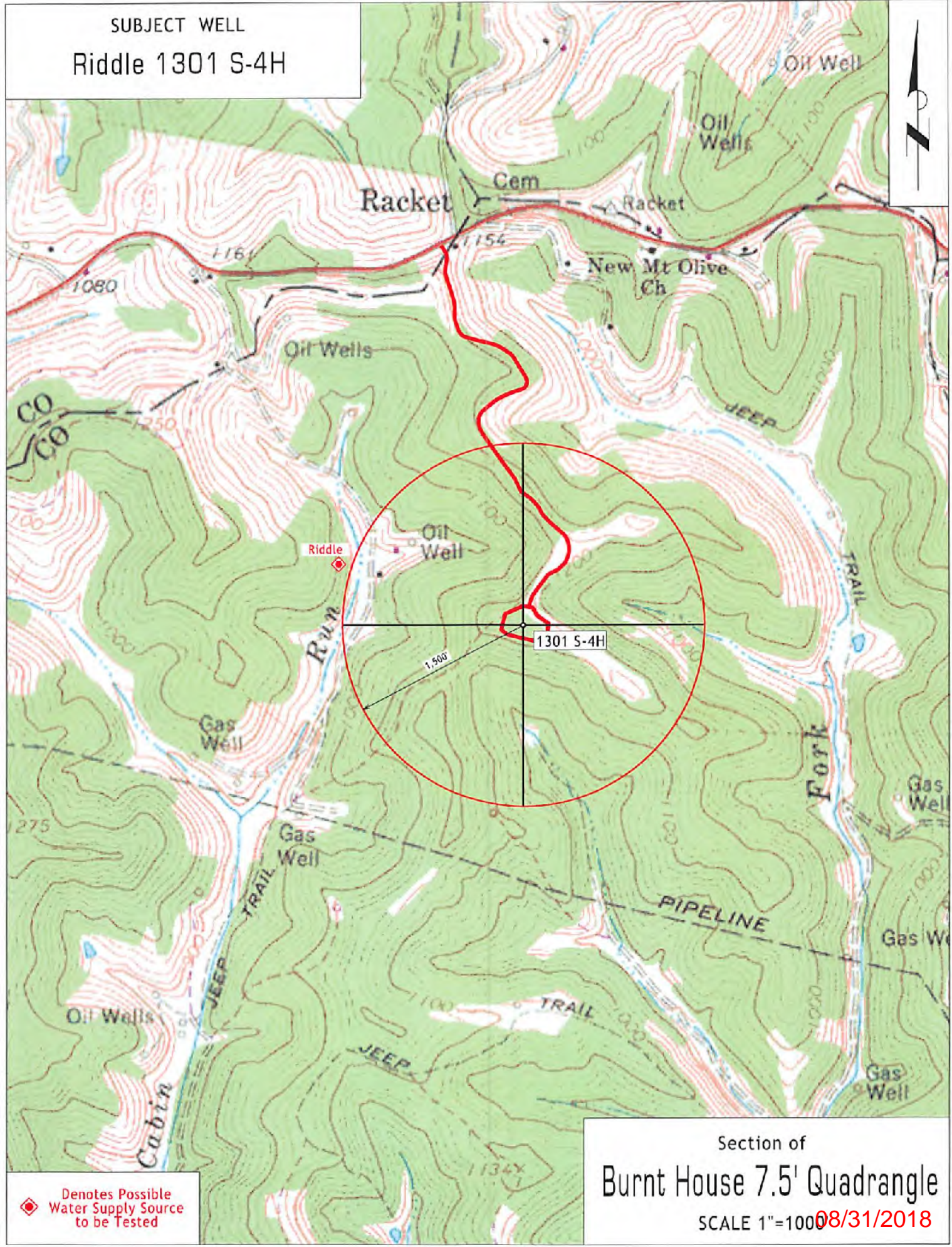
For Submission to  
West Virginia Department of Environmental Protection,  
Office of Oil and Gas

HG Energy II Appalachia, LLC.

5260 Dupont Road  
Parkersburg, WV 26101

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SUBJECT WELL  
Riddle 1301 S-4H



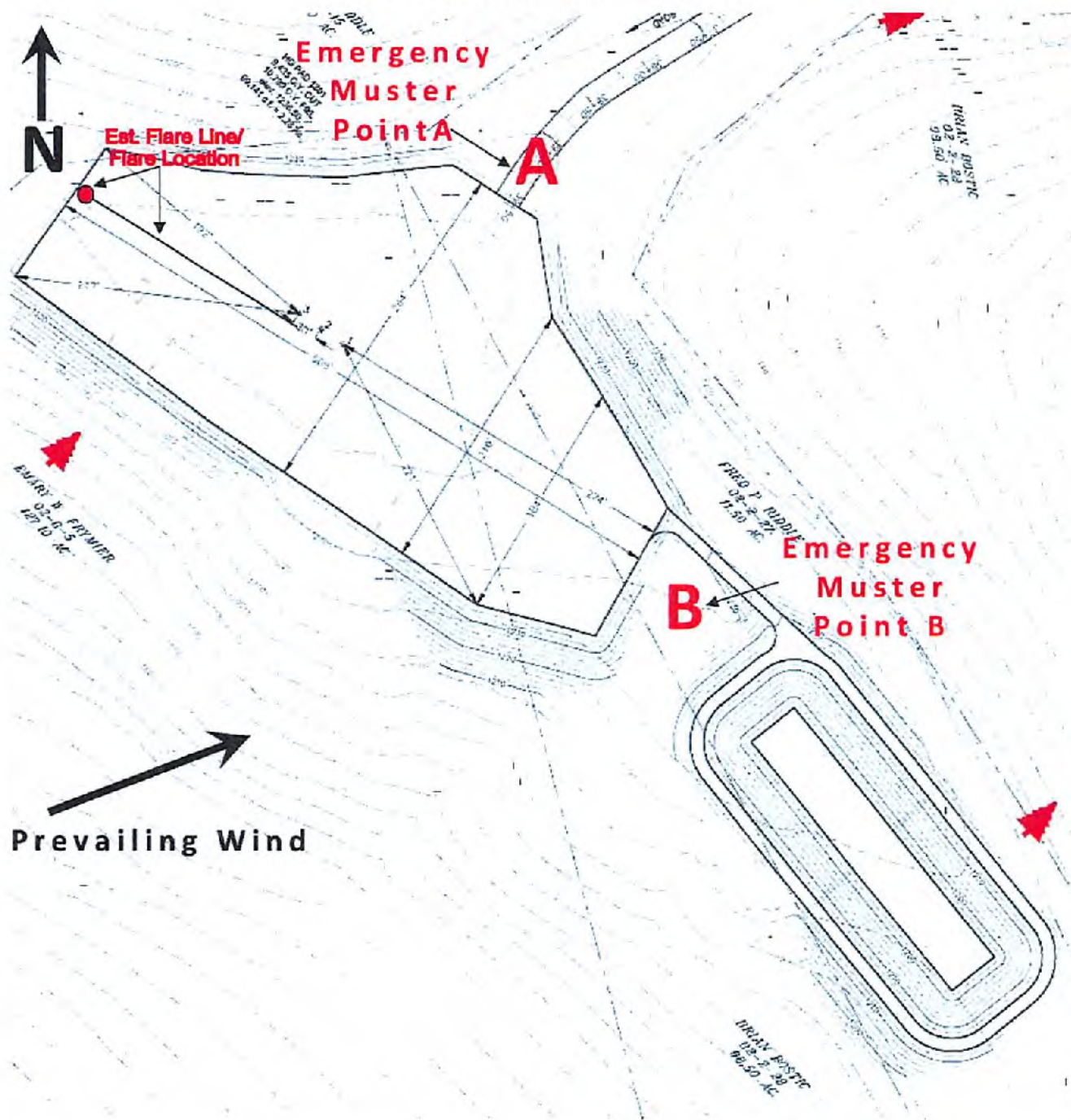
◆ Denotes Possible Water Supply Source to be Tested

Section of  
Burnt House 7.5' Quadrangle

SCALE 1"=1000 08/31/2018

**Appendix B: Mapping, Plots, and Siting**

**Plan View Map – (38-8 5.7.b.1)**



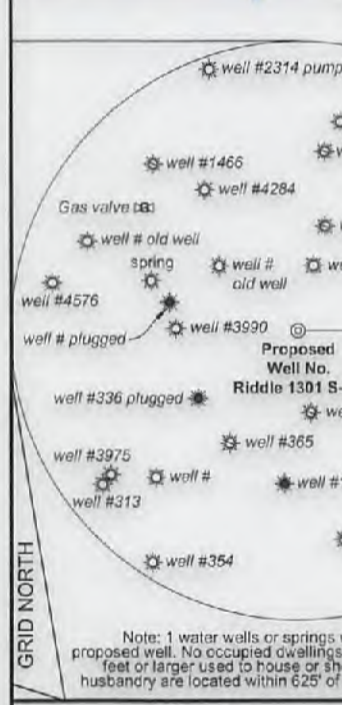
**HG Energy II Appalachia, LLC**  
**Well No. Riddle 1301 S-4H**

**Notes:**  
 Well No. Riddle 1301 S-4H  
 WVSPC NAD 1927  
 Top Hole Coordinates  
 N: 741,073.44' E: 2,018,327.80'  
 Landing Point Coordinates  
 N: 740,416.23' E: 2,018,615.62'  
 Bottom Hole Coordinates  
 N: 731,415.26' E: 2,022,150.84'

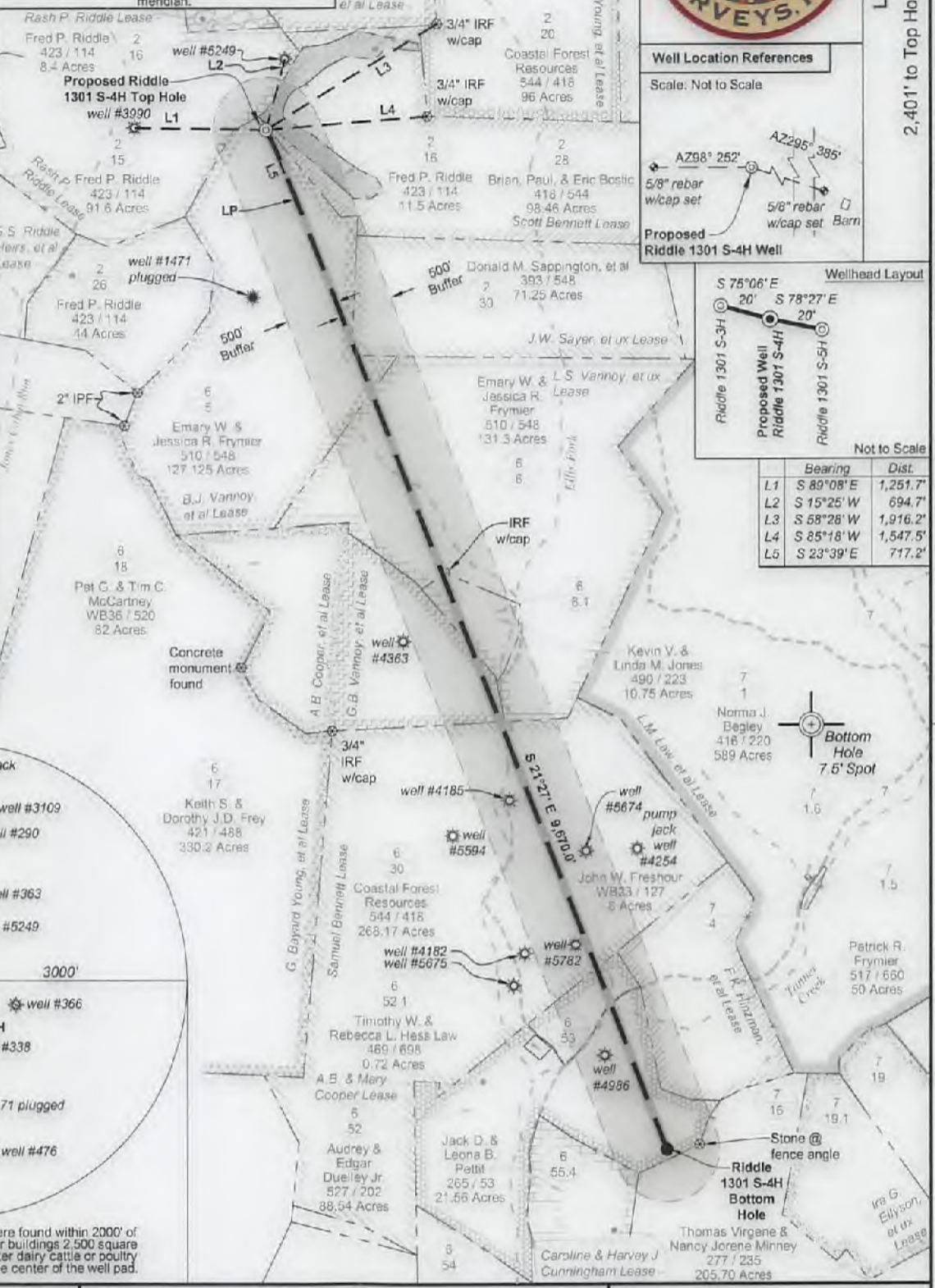
**Legend**  
 ☉ Proposed gas well  
 ⦿ Well Reference, as noted  
 ⦿ Monument, as noted  
 ⦿ Existing Well, as noted  
 ⦿ Existing Plugged Well, as noted  
 ⦿ Digitized Well, as noted  
 --- Creek or Drain  
 --- Existing Road  
 --- Surface boundary (approx.)  
 --- Interior surface tracts (approx.)



**SEAL**  
 I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.  
 Dwayne D. Matheny, P.S. 2070



**Notes:**  
 Well No. Riddle 1301 S-4H  
 West Virginia Coordinate System of 1927, South Zone based upon Differential GPS Measurements.  
 Top Hole coordinates Bottom Hole coordinates  
 Latitude: 39°02'06.26" Latitude: 39°00'30.77"  
 Longitude: 80°56'07.74" Longitude: 80°55'19.40"  
 UTM Zone 17, NAD 1983  
 Top Hole Coordinates Bottom Hole Coordinates  
 N: 4,320,690.144m N: 4,317,737.654m  
 E: 505,598.512m E: 506,783.341m  
 Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.



**Well Location References**  
 Scale: Not to Scale  
 AZ98° 252'  
 AZ295° 395'  
 5/8" rebar w/cap set  
 5/8" rebar w/cap set  
 Proposed Riddle 1301 S-4H Well

**Wellhead Layout**

Bearing	Dist.
L1 S 80°08' E	1,251.7'
L2 S 15°25' W	694.7'
L3 S 58°28' W	1,916.2'
L4 S 85°18' W	1,547.5'
L5 S 23°39' E	717.2'

FILE NO: 11-19-D-18  
 DRAWING NO: Riddle 1301 S-4H Well Plat  
 SCALE: 1" = 1500'  
 MINIMUM DEGREE OF ACCURACY: Submeter  
 PROVEN SOURCE OF ELEVATION: CORS, Harrisville, WV

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

DATE: May 8 20 18  
 OPERATOR'S WELL NO. Riddle 1301 S-4H  
 API WELL NO. 47 - 021 - 05795  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: 1,237' WATERSHED: Ellis Fork QUADRANGLE: Burnt House  
 DISTRICT: Dekalb Fred P. Riddle, COUNTY: Boone  
 SURFACE OWNER: Emary W. & Jessica R. Frymier ACREAGE: 127.125 / 11.50  
 ROYALTY OWNER: B. J. Vannoy; S. S. Riddle, et al LEASE NO: 260204000 260352000 ACREAGE: 127.125 / 11.50  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ 6,625' TVD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 16,705' MD

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

HG Energy II Appalachia, LLC  
Riddle 1301 S-4H Lease Chains

Land Tracking #	DTI Lease Number	H/S Lease Number	QLS Number	MPID	Original Lessor	Original Lessee	Agreement Type	Royalty	Book	Page
10	RN071867	29C352-000	254056000	02-0005-0005-0000	✓ Matrice J. Vannoy, by Isaac F. Vannoy, Attorney in Law, Isaac F. Vannoy and Catherine J. Vannoy, his wife, Janet Vannoy and R.J. Reay, her husband; Paul M. Vannoy and Lucile J. Vannoy, his wife, Anna Lee Jones, Committee for Asa B. Vannoy, Trustee	Hope Natural Gas Company Consolidated Gas Supply Corporation Consolidated Gas Transmission Corporation CNG Transmission Corporation Dominion Transmission, Inc. CNX Gas Company LLC CNX Gas Company LLC Noble Energy, Inc.	Oil And Gas Lease Merger/Name Change Assignment Merger/Name Change Merger/Name Change Sublicense Agreement Partial Assignment Assignment Assignment	NOT LESS THAN 1/8	DB 216 DB 229 DB 342 WV SOS WV SOS DB 518 DB 526 DB 551 DB 551	177 256 630 453 540 1 575
21	RN059931	259551-000	254637000	02-0096-0052-0000, 02-0096-0052-0001, 02-0036-0053-0000	✓ A.B. Cooper and May Cooper, his wife	Hope Natural Gas Company Consolidated Gas Supply Corporation Consolidated Gas Transmission Corporation CNG Transmission Corporation Dominion Transmission, Inc. CNX Gas Company LLC CNX Gas Company LLC Noble Energy, Inc.	Oil And Gas Lease Merger/Name Change Assignment Merger/Name Change Merger/Name Change Sublicense Agreement Assignment Assignment	NOT LESS THAN 1/8	DB 163 DB 229 DB 342 WV SOS WV SOS DB 518 DB 526 DB 551 DB 551	93 256 630 453 540 1 575
135	RN023290	253804-000	254557000	02-0008-0018-0000	✓ George B. Vannoy and Della Vannoy, his wife	R.G. Glasco The Freehold Oil & Gas Company The Freehold Oil & Gas Company R.G. Glasco Hope Natural Gas Company Consolidated Gas Supply Corporation Consolidated Gas Transmission Corporation CNG Transmission Corporation Dominion Transmission, Inc. CNX Gas Company LLC CNX Gas Company LLC Noble Energy, Inc.	Oil And Gas Lease Assignment Assignment Assignment Merger/Name Change Assignment Merger/Name Change Merger/Name Change Sublicense Agreement Partial Assignment Assignment Assignment	NOT LESS THAN 1/8	DB 58 DB 76 DB 72 DB 57 DB 229 DB 342 WV SOS WV SOS DB 518 DB 526 DB 551 DB 551	454 158 68 327 256 630 453 540 1 575
14	RN023288	253824-000	254554000	02-0096-0006-0000, 02-0096-0006-0001	✓ S. Vannoy and Mary J. Vannoy, his wife	R.G. Glasco The Freehold Oil & Gas Company The Freehold Oil & Gas Company R.G. Glasco Hope Natural Gas Company Consolidated Gas Supply Corporation Consolidated Gas Transmission Corporation CNG Transmission Corporation Dominion Transmission, Inc. CNX Gas Company LLC CNX Gas Company LLC Noble Energy, Inc.	Oil And Gas Lease Assignment Assignment Assignment Merger/Name Change Assignment Merger/Name Change Merger/Name Change Sublicense Agreement Partial Assignment Assignment Assignment	NOT LESS THAN 1/8	DB 58 DB 76 DB 72 DB 57 DB 229 DB 342 WV SOS WV SOS DB 518 DB 526 DB 551 DB 551	452 58 68 327 256 630 453 540 1 575
55	TEO	25420000	25420000	02-0008-0055-0004	✓ Harvey J. Cunningham	Hope Natural Gas Company Consolidated Gas Supply Corporation Consolidated Gas Transmission Corporation CNG Transmission Corporation Dominion Transmission, Inc. CNX Gas Company LLC CNX Gas Company LLC Noble Energy, Inc.	Oil And Gas Lease Assignment Assignment Assignment Sublicense Agreement Assignment Assignment	LESS THAN 1/8	568	509
18	RN039301	259348-000	254614000	02-06-0730-0000	✓ Samuel Bennett, widower	Hope Natural Gas Company Consolidated Gas Supply Corporation Consolidated Gas Transmission Corporation CNG Transmission Corporation Dominion Transmission, Inc. Consolid Energy Holdings, LLC, XVI Consolid Gas Company CNX Gas Company, LLC	Oil And Gas Lease Merger/Name Change Assignment Merger/Name Change Merger/Name Change Assignment Merger/Name Change Merger/Name Change	NOT LESS THAN 1/8	DB 103 DB 229 DB 342 WV SOS WV SOS DB 453 WV SOS DB 459	504 256 630 453 301 413

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Land Tracking #	DTI Lease Number	HQ Lease Number	QLS Number	MPID	Original Lessor	Original Lessee	Agreement Type	Royalty	Book	Page
					CNX Gas Company LLC	Noble Energy, Inc.	Partial Assignment		DB 526	540
					CNX Gas Company LLC	Noble Energy, Inc.	Assignment		DB 551	1
					Noble Energy, Inc.	HQ Energy II Appalachia LLC	Assignment		DB 551	575
12	RN020333	259823-000	254512000	02-0002-0030-0000	✓ J.W. Sayre and Nancy M. Sayre, his wife	H.L. Lambert	Oil and Gas Lease	NOT LESS THAN 1/8	DB 51	445
					H.H. Lambert	The Carter Oil Company	Assignment		DB 54	41
					The Carter Oil Company	Mountain State Gas Company	Agreement (GAS)		DB 74	344
					The Carter Oil Company	Mountain State Gas Company	Agreement		DB 74	342
					Mountain State Gas Company	Hope Natural Gas Company	Agreement		DB 74	365
					Hope Natural Gas Company	Consolidated Gas Supply Corporation	Merge/Name Change		DB 229	266
					Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment		DB 342	630
					Consolidated Gas Transmission Corporation	CNG Transmission Corporation	Merge/Name Change		WV SOS	
					CNG Transmission Corporation	Dominion Transmission, Inc.	Merge/Name Change		WV SOS	
					Dominion Transmission, Inc.	CNX Gas Company LLC	Sublease Agreement		DB 518	483
					CNX Gas Company LLC	Noble Energy, Inc.	Partial Assignment		DB 526	540
					CNX Gas Company LLC	Noble Energy, Inc.	Assignment		DB 551	1
					Noble Energy, Inc.	HQ Energy II Appalachia LLC	Assignment		DB 551	575

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

4702105795

May 21, 2018

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

RE: Drilling Under Roads – Riddle 1301 S-4H  
DeKalb District, Gilmer 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](mailto:dwhite@hgenergyllc.com) or 304-420-1119.

Very truly yours,

*Diane White*

Diane C. White

Enclosures

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WV Department of  
Environmental Protection

08/31/2018

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WW-6A  
(9-13)

API NO. 47- -  
OPERATOR WELL NO. Riddle 1301 S-4H  
Well Pad Name: Riddle 1301

**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:** 7/17/2018 **Date Permit Application Filed:** 5/21/18

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: Fred Riddle  
Address: 12579 Staunton Tpk  
Smithville, WV 26178

Name: Paul & Brian Bostic  
Address: 840 Irish Heights Drive  
Summersville, WV 26651

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

Name: Shane Gragg  
Address: 173 Wright Hollow  
Auburn, WV 26325

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

SURFACE OWNER(s) (Impoundments or Pits)

Name: Fred Riddle  
Address: 12579 Staunton Tpk  
Smithville, WV 26178

COAL OWNER OR LESSEE

Name: NA  
Address: \_\_\_\_\_

COAL OPERATOR

Name: NA  
Address: \_\_\_\_\_

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

Name: NA  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: Dominion Energy Transmission  
Address: 2397 Davison Run Road  
Clarksburg, WV 26301

\*Please attach additional forms if necessary

08/31/2018

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(8-13)

MAY 25 2018

WV Department of  
Environmental ProtectionAPI NO. 47-  
OPERATOR WELL NO. Riddle 1301 S-4H  
Well Pad Name: Riddle 1301**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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Well 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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API NO. 47- \_\_\_\_\_ - \_\_\_\_\_  
OPERATOR WELL NO. Riddle 1301 S-4H  
Well Pad Name: Riddle 1301

**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:** 5/17/2018 **Date Permit Application Filed:** 5/21/18

Notice of:

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

RECEIVED  
Office of Oil and Gas  
MAY 25 2018  
WV Department of  
Environmental Protection

**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: Fred Riddle  
Address: 12579 Staunton Tpke  
Smithville, WV 26178

Name: Paul & Brian Bostic  
Address: 840 Irish Heights Drive  
Summersville, WV 26651

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

Name: Shane Gragg  
Address: 173 Wright Hollow  
Auburn, WV 26325

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

SURFACE OWNER(s) (Impoundments or Pits)

Name: Fred Riddle  
Address: 12579 Staunton Tpke  
Smithville, WV 26178

COAL OWNER OR LESSEE

Name: NA  
Address: \_\_\_\_\_

COAL OPERATOR

Name: NA  
Address: \_\_\_\_\_

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

Name: NA  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: NA  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary

08/31/2018

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(8-13)

API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. Riddle 1301 S-4H  
Well Pad Name: Riddle 1301

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

**Water Well Testing:**

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

**Water Testing Laboratories:**

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

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

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

**Written Comment:**

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

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

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Office of Oil and Gas  
MAY 25 2018  
WV Department of  
Environmental Protection

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.**

08/31/2018

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

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

WW-6A  
(8-13)

4702105795  
API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. Riddle 1301 S-4H  
Well Pad Name: Riddle 1301

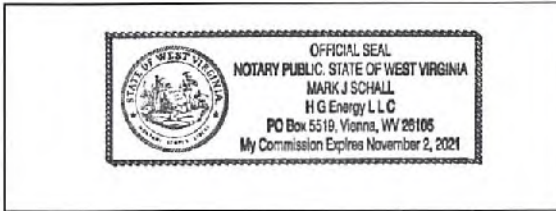
**Notice is hereby given by:**

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

Address: 5250 Dupont Road  
Facsimile: \_\_\_\_\_

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 17th day of May, 2018.

[Signature] Notary Public

My Commission Expires 11/2/2021

RECEIVED  
Office of Oil and Gas

MAY 25 2018

WV Department of  
Environmental Protection

08/31/2018



WW-6A  
(8-13)

Riddle 1301 S-4H

Page 1 Continued

**Additional Surface Owners to be Noticed:**

Emary Frymier /  
840 Ellis Fork Road  
Coxs Mills, WV 26342

Karen Smittle /  
12 Turtle Creek Drive  
Morgantown, WV 26505

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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:** 4-27-18      **Date of Planned Entry:** 5-04-18

**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: Fred P Riddle

Address: 12579 Staunton Tpke  
Smithville, WV 26178

Name: Paul & Brian Boslic

Address: 840 Irish Heights Drive  
Summersville, WV 26651

Name: Emary Frymier

Address: 840 Ellis Fork Road  
Coxs Mills, WV 26342

COAL OWNER OR LESSEE

Name: NA

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

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MINERAL OWNER(s)

Name: Fred P Riddle

Address: HC 68, Box 27  
Smithville, WV 26178

\*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>39.035158</u>
County: <u>Harrison</u>	Public Road Access: <u>80.935314</u>
District: <u>Union</u>	Watershed: <u>Middle West Fork Creek</u>
Quadrangle: <u>West Milford 7.5'</u>	Generally used farm name: <u>Danny Lee &amp; Alicia A Stickel</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 57<sup>th</sup> 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](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: HG Energy II Appalachia, LLC

Telephone: 304-420-1119

Email: dwhite@hgenergyllc.com

Address: 5260 Dupont Road  
Parkersburg, WV 26101

Facsimile: 304-863-5172

**Oil and Gas Privacy Notice:**

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

WW-6A3Riddle 1301 S-4H(1-12)Page 2 of 4Surface Owner

Karen Smittle ✓  
 12 Turtle Creek Drive  
 Morgantown, WV 27508

Mineral Owners

Theodore N Riddle ✓  
 2173 Lake Washington Road  
 Washington, WV 26181

Douglas Edward Riddle ✓  
 3581 Sweetwater Circle  
 Corona, CA 92882

Don E Riddle ✓  
 2173 Lake Washington Road  
 Washington, WV 26181

Anita J Riddle Scott ✓  
 2173 Lake Washington Road  
 Washington, WV 26181

Trustees of the Diocese of the  
 Episcopal Church of WV ✓  
 PO Box 1508  
 Parkersburg, WV 26101

Robert W. Bickel ✓  
 407 Chester Drive  
 Moorestown, NJ 08057

Mary Ellen Bickel Cross ✓  
 616 Newbern Court  
 Burlington, NC 27215

Emily Bukey Schneider ✓  
 425 Glencrest Drive  
 Solana, CA 92075

Mineral Owners

Jack E & Brenda Kay McCartney ✓  
 786 Newberne Rd  
 Coxs Mills, SV 26342

Emary W. Frymier & Jessica R. ✓  
 840 Ellis Rork Road  
 Coxs Mills, SV 26342

Karen Smittle ✓  
 12 Turtle Creek Drive  
 Morgantown, WV 26508

John Patterson ✓  
 23 Meadowbrook Road  
 Williamsville, NY 14221

Michael E. Patterson ✓  
 4639 Farmington Court  
 Indianapolis, IN 46254

Sara E. Eloge ✓  
 3132 Sunset Drive  
 Charlotte, NC 28209

Michael C. Patterson ✓  
 3136 Selwyn Avenue  
 Charlotte, NC 28209

Betty B. Takacs ✓  
 2771 East West Lane  
 Quinton, VA 23141

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WW-6A3  
(1-12)

Riddle 1301 S-4H

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Mineral Owners

David Ray Hinzman /  
106 Sixth Street  
Beckley, WV 25801

Kenneth Paul Hinzman /  
106 Sixth Street  
Beckley, WV 25801

Dean Sayre /  
4251 West 59th Street  
Cleveland, OH 44144

Donald M Sappington /  
240 Morris Street  
Morgantown, WV 26505

Lula Mae Bolinger Graham /  
2308 Gihon Road  
Parkersburg, WV 26101

Linda Lou Haga /  
2558 Pennsylvania Ave Apt. A  
Charleston, WV 25302

Donna Marie Totter /  
PO Box 293  
West Union, WV 26456

Ellen Sue Hoban /  
1044 Westview Drive  
Fairmont, WV 26554

Robert E. Palmer II /  
114 McClellan Lane  
Hiddenite, NC 28636

Wendy Jo LeMasters /  
2063 Crites Road  
Grafton, WV 26354

Mineral Owners

Cheryl Ann LeMasters /  
168 County Road 6022A  
Dayton, TX 77535

Martha & James S. Sigel ^  
6410 Oyster Island Cove  
Apollo Beach, FL 33572

Brian A Prunty /  
1222 20th Street, Apt 2  
Parkersburg, WV 26101

Laura Lee Prunty /  
5374 County Line Road  
Winfield, PA 17889

Marilyn Sue Mocker /  
5322 County Line Road  
Winfield, PA 17889

Deborah Kay Stevenson /  
5746 Kitridge Road  
Dayton, OH 45424

David James Simonette /  
1269 Carlyle Drive  
Reynoldsburg, OH 43068

Jenny Lori Whitaker /  
4439 Leppert Road  
Hilliard, OH 43026

Daniel S Simonette /  
1820 Friendship Lane  
New Concord, OH 43762

Lydia Ellen Simonette /  
464 Diven Lane  
Gahanna, OH 43230

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WW-6A3Riddle 1301 S-4H(1-12)Page 4 of 4Mineral Owners

Michael J Algeo  
173 W Gregory Road  
Central Point, OR 97502

John William Currey II  
4 Cherryridge Drive  
Shinnston, WV 26431

Marcia Lynn Jones  
4 Cherryridge Drive  
Shinnston, WV 26431

Linda LaVaughn Osbourn  
4 Cherryridge Drive  
Shinnston, WV 26431

Melissa Ann Rice  
4 Cherryridge Drive  
Shinnston, WV 26431

Jack E & Brenda Kay McCartney  
786 Newberne Road  
Coxs Mills, WV 26342

Kevin V & Linda M Jones  
PO Box 430  
Grantsville, WV 26147

Geneva M Anderson, Trustee  
1509 Bentwood Drive  
Sun City Center, FL 33573

Lynn B Cooper Junior & Patty J Cooper, H/W  
210 Castle Springs Road  
Anderson, SC 29621

Amanda A Frymier  
1913 Newberne Rd  
Coxs Mills, WV 26342

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

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

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

**Date of Notice:** 05/09/2018

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

**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: Fred Riddle  
Address: 12579 Staunton Tpke  
Smithville, WV 26178

Name: Paul & Brian Bostic  
Address: 840 Irish Heights Drive  
Summersville, WV 26651

**Notice is hereby given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>505598.5</u>
County:	<u>Gilmer</u>		Northing:	<u>4320680.1</u>
District:	<u>Dekalb</u>	Public Road Access:	<u>SR 47</u>	
Quadrangle:	<u>Burnt House</u>	Generally used farm name:	<u>Fred P. Riddle</u>	
Watershed:	<u>Ellis Fork</u>			

**This Notice Shall Include:**

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

**Notice is hereby given by:**

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

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

**Oil and Gas Privacy Notice:**

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

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(1/12)**

**Riddle 1301 S-4H**

**Page 1 Continued**

**Surface Owners to be Noticed Continued:**

Emary Frymier /  
840 Ellis Fork Road  
Coxs Mills, WV 26342

Karen Smittle /  
12 Turtle Creek Drive  
Morgantown, WV 26104

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05/25/2018

WW-6A5  
(1/12)

Operator Well No. Riddle 1301 S-4H

4702105795

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

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

Date of Notice: 05/10/2018 Date Permit Application Filed: 05/15/2018

**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: Fred Riddle  
Address: 12579 Staunton Tpke  
Smithville, WV 26178

Name: Paul & Brian Bostic  
Address: 840 Irish Heights Drive  
Summersville, WV 26651

**Notice is hereby given:**

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

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>505598.5</u>
County: <u>Gilmer</u>	Northing: <u>4320680.1</u>
District: <u>Dekalb</u>	Public Road Access: <u>SR 47</u>
Quadrangle: <u>Burnt House</u>	Generally used farm name: <u>Fred P. Riddle</u>
Watershed: <u>Ellis Fork</u>	

**This Notice Shall Include:**

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

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

Address: 5260 Dupont Road  
Parkersburg, WV 26105  
Facsimile: 304-863-3172

**Oil and Gas Privacy Notice:**

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

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**Riddle 1301 S-4H**

**Page 1 Continued**

**Surface Owners to be Noticed Continued:**

Emary Frymier  
840 Ellis Fork Road  
Coxs Mills, WV 26342 /

Karen Smittle  
12 Turtle Creek Drive  
Morgantown, WV 26104 /

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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

May 18, 2018

Jill M. Newman  
Deputy Commissioner

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

Subject: DOH Permit for the Riddle 1301 Well Pad, Ritchie County  
S-4H Well Site

Dear Mr. Martin,

This well site will be accessed from Permit #06-2018-0340 issued to HG Energy II Appalachia for access to the State Road for a well site located off of WV 47 in Ritchie County.

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,

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

Cc: Diane C. White  
HG Energy II, LLC  
CH, OM, D-3  
File

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**List of Frac Additives by Chemical Name and CAS #****Riddle 1301 Well Pad (S-1H, S-4H, S-5H)**

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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West Virginia Department of  
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Office of Oil & Gas  
601 57th Street SE  
Charleston, WV 25304-2345

DEP Office Use only	
Date Received by Oil & Gas:	5/25/18
Assigned Impoundment ID #:	021-FWA-00005

## Permit Associated Impoundment / Pit Registration

**Instruction:** This form is to be used to register impoundments or waste pits, greater than 5,000 bbls, that are associated with a WVDEP, Office of Oil and Gas, well drilling permit. An **associated impoundment or pit** means it has been designed and included in the well drilling permit application, will follow the reclamation time frame of well work permit, and will be approved in conjunction with the well work permit. An impoundment ID number will be assigned by WVDEP, Office of Oil and Gas, to all impoundments and pits. This impoundment ID number will be sent to the applicant following receipt of this form by WVDEP. Please reference this impoundment ID number with all future correspondence and reference to this impoundment. Conditions as described in W.Va. State Rule §35-4-21 will be followed as it relates to impoundments and pits.

### Section 1 – Operator Information

Operator Name:	HG Energy II Appalachia, LLC		
Operator ID:	494519932		
Address: Street	5260 Dupont Road		
City:	Parkersburg	State:	WV Zip: 26101
Contact Name:	Diane White	Contact Title:	Accountant
Contact Phone:	304-420-1119	Contact Email:	dwhite@hgeneryllc.com

### Section 2 – Engineering / Design Contractor Information

Design will be contracted	<input checked="" type="checkbox"/>	Designed in-house	<input type="checkbox"/>
Company Name:	Penn Environmental & Remediation, Inc.		
Address: Street	111 Ryan Court		
City:	Pittsburgh	State:	PA Zip: 15205
Contact Name:	Matthew E. Pierce	Contact Title:	Senior Project Manager
Contact Phone:	412-722-1222	Contact Email:	mpierce@penn-er.com
Certifying Professional Engineer:	Matthew E. Pierce		
Professional Engineer Registration Number:	20458		

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IMP-1A



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**Section 3 - Impoundment / Pit Information**

Type of Structure. Check one of two choices below:		
<input checked="" type="checkbox"/> Freshwater Impoundment	<input type="checkbox"/> Waste Pit	RECEIVED Office of Oil and Gas  MAY 25 2018
Note: Any waste in a pit will make it a waste pit.		
Riddle 1301 Assoc. FWI		
Name of Structure (Company Name):		HG Energy II Appalachia, LLC
County:	Gilmer	District: Dekalb
USGS 7.5' Quad Map Name:	Burnt House	
Farm Name:	Riddle	
Pad Name:	Riddle 1301	
Surface Owner Name:	Fred Riddle	
Physical Description of Location:	Approximately 2.4 miles from the intersection of CR19 (Spruce Run Road) and SR47 (Linn Cox S Mills Road) in Racket, WV	
(Note: Give general location, example: 2 miles south of Smalltown, WV on Rt. 22, left on Buffalo Creek)		
Watershed (nearest perennial):	Ellis Fork	
Distance (Drainage Distance) to nearest perennial stream:	500 feet	
Location Coordinates (NAD83, Decimal Degrees (xx.xxxx, -xx.xxxx))		
Latitude:	39.03458	Longitude (Use negative sign): -80.93361
UTM Coordinates:	1987357.27 (505746.03) E	740911.85 (4320616.07) N
Access Road Coordinates (junction of state highway access)		
Latitude:	39.04374	Longitude (Use negative sign): -80.937537
UTM Coordinates:	1986242.01 E	744246.42 N
Approximate Dimensions		
Length:	313	Width: 113 Height: 18
Note: If irregularly shaped, give approximate dimensions of long axis.		
Total Capacity – Provide all units of measure below:		
Barrels:	69,017	Gallons: 2,898,731 Acre-Feet: 8.896
Capacity with 2' Freeboard – Provide all units of measure below:		
Barrels:	57,341	Gallons: 2,408,338 Acre-Feet: 7.391
Incised volume:		
Barrels:	65,882	Gallons: 2,767,044 Acre-Feet: 8.492
Net impounded volume: (Total volume less incised volume.)		
Barrels:	3,135	Gallons: 131,687 Acre-Feet: 0.404
Anticipated Construction Start Date (estimation, non-binding): 8/25/18		
Note: No construction may begin on Associated impoundment until WVDEP issues the drilling permit. At least 7 calendar days prior to confirmed construction start date, notify the Office of Oil & Gas, and the local Oil and Gas inspector of construction start date. Use form IMP-2, "Notification of Impoundment / Pit Construction."		



**Section 4 - Associated Well Numbers and API Numbers.** List associated well numbers and API number. API numbers may not be assigned at time of registering this impoundment, if so list as pending.

Well Number(s):	API Number(s) – If issued:
Riddle 1301 S-3H	
Riddle 1301 S-4H	

**Section 5 - Required Information Checklist To Register Permit Associated Impoundments or Pits.** Include the following information and plans with application.

- Engineered Construction Plans, certified by WV Registered P.E.
- Erosion and Sediment Control Plan, certified by WV Registered P.E.
- Reclamation Plan, certified by WV Registered P.E.

**Section 6 – Dam Standard Qualifying Evaluation**

- The design of this structure has been evaluated by the applicant to determine it does NOT qualify to be defined as a dam, under W.Va Rule §47-34. If the design of this structure qualifies it to be defined as a dam, all permits regulating dams will be required prior to registering the structure with the Office of Oil and Gas. The dam standard, from the WVDEP, Div. Of Water and Waste, is available for review at: <http://www.dep.wv.gov/WWE/ee/ds/Pages/default.aspx>

**Section 7 –Comments – Provide any additional comments concerning this project**

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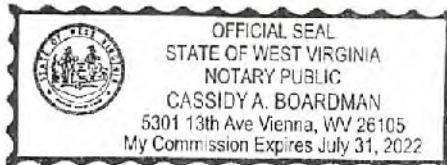
Office of Oil and Gas

### Section 8 - Application Certification

I hereby certify that the information listed above is true and accurate. I understand that this pit/impoundment is to be constructed only in a location appropriate for the storage of water, including wastewater, and will be constructed in accordance with plans designed and certified by a West Virginia registered professional engineer. I further recognize that all required plans have been submitted to the Office of Oil and Gas. I understand that after construction, and prior to any fluid being placed in the pit/impoundment, it shall be inspected by a West Virginia registered professional engineer to ensure compliance with the certified design and construction plan, and that the professional engineer shall certify that this structure was constructed in accordance with design and construction plans. I understand that such certification shall be in writing to the Chief and that no fluids may be placed in the pit/impoundment until the certification has been filed with the chief. I agree that this pit/impoundment shall be constructed, maintained, operated and closed in accordance with all applicable laws and rules, including the requirements of W. Va. Code R § 35-4-2 .

Name: Diane WhiteTitle: AccountantSignature: Diane WhiteTaken, subscribed and sworn to before me this, 23rd Day of May 20 18Notary Public: Cassidy A. BoardmanMy commission expires: 7/31/2022

Notary Seal:



### Section 9. Submittal Instructions

Submit original paper copy of application to:

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
Impoundment Registration  
601 57<sup>th</sup> Street, SE  
Charleston WV 25304

Email PDF file format of this application and all related engineering Plans to :  
[Depimpoundments@wv.gov](mailto:Depimpoundments@wv.gov)

RECEIVED  
Office of Oil and Gas

MAY 25 2018

WV Department of  
Environmental Protection

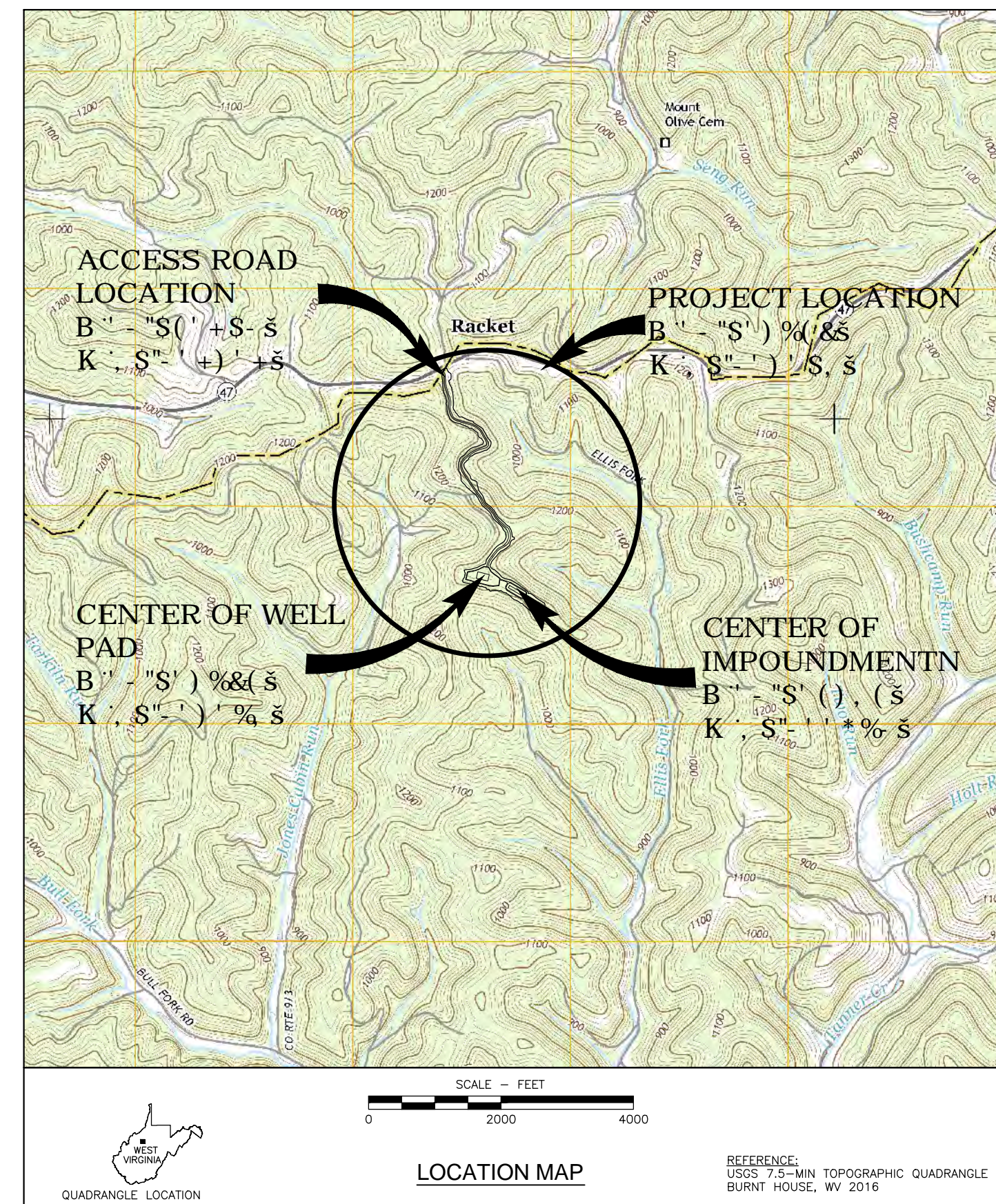
# CONSTRUCTION IMPROVEMENT PLANS WITH EROSION AND SEDIMENT CONTROLS HG WELL PAD 1301



## DeKALB DISTRICT GILMER COUNTY WEST VIRGINIA

### CONSTRUCTION SEQUENCE

1. Prior to commencement of any earth disturbance activity including clearing and grubbing, the registrant shall call West Virginia 811 by dialing 811 or 1-800-245-4848 to identify all utility lines. The registrant also must clearly delineate sensitive areas, riparian forest buffer boundaries, the limits of clearing, and trees that are to be conserved within the project site, and shall install appropriate barriers where equipment may not be parked, staged, operated or located for any purpose.
2. Site access - This is the first land-disturbance activity to take place at the site and should provide BMPs to minimize accelerated erosion and sedimentation from the following areas: entrance to the site, construction routes, and areas designated for equipment or other use at the site including parking, stockpiles.
3. Sediment Barriers - Install perimeter BMPs after the construction site is accessed, keeping associated clearing and grubbing limited to only that amount required for installing perimeter BMPs.
4. Land Clearing and Grading - Implement clearing and grading only after all downslope E&S BMPs have been constructed and stabilized.
5. Surface Stabilization - Apply temporary or permanent stabilization measures immediately to any disturbed areas where work has reached final grade, has been delayed or otherwise temporarily suspended.
6. Construction of Buildings, Utilities, and Paving - During construction, install and maintain any additional erosion and sediment control BMPs, and implement any structural post construction stormwater BMPs that may be required.
7. Upon completion of pad grading, compact the pad to grade and begin placement of pad soil cement.
8. Final Stabilization, Topsoiling, Trees and Shrubs - After construction is completed, install stabilization BMPs including: permanent seeding, mulching and riprap, and complete implementation of stormwater BMPs in this last construction phase. Stabilize all open areas, including borrow and spoil areas, and remove all temporary BMPs and stabilize any disturbances associated with the removal of the BMP.



PREPARED FOR  
**HG ENERGY II APPALACHIA, LLC**

5260 DUPONT ROAD  
PARKERSBURG, WEST VIRGINIA 26101  
(304) 420-1100

PREPARED BY  
**PENN ENVIRONMENTAL & REMEDIATION, INC.**

111 RYAN COURT  
PITTSBURGH, PA 15205  
(412) 722-1222

Estimated Gross Material Balance (CY)			
Final Development - Gravel Option			
	Cut	Fill	Stockpile
Pad	12,620	7,880	4,740
Road	7,280	19,890	-12,610
Impoundment	24,630	2,020	22,610
Totals	44,530	29,790	14,740

Soil Adjustment for Aggregate Import:  
Pad 1,290  
Total Site Balance: 16,030  
Stripped Topsoil (Limit of Disturbance) 7,462  
Est. Swell Factor (20%) 1,492  
Est. Topsoil Stockpile Volume (Loose CY) 8,954  
Minimum Total Stockpile Capacity Required (C.Y.) 24,984

Notes:  
1. Material balance for est. gross earthwork quantities only.  
2. Topsoil est. volume based on 12 inches average depth.  
3. Material balance and aggregate quantities based on estimates and may not be representative of actual quantities.  
4. Estimates do not reflect contractor pay volumes.

Estimated Gravel Quantities (Placed CY)			
	Access Road	Pad	TOTAL
Gravel Quantities			
8" Soil Cement	2,055	2,280	4,335
3" Crusher Run	--	850	850
Top Coat Chip & Seal (Placed SY)	9,210 s.y.	--	
Estimated Compost Filter Sock Length (LF)	4,442	2,423	6,865
Estimated Access Road Limit of Disturbance (Acres)			8.720
Estimated Well Pad Limit of Disturbance (Acres)			3.833
Estimated Impoundment & Stockpile Limit of Disturbance (Acres)			3.323
Estimated Total Limit of Disturbance (Acres)			15.876

SHT. NO.	SHEET TITLE
1	TITLE SHEET
2-5	SITE LAYOUT PLANS
6	PAD & IMPOUNDMENT SECTIONS
7-9	ACCESS ROAD SECTIONS
10-11	GENERAL NOTES
12-15	DETAILS
16	RESTORATION PLAN
17	PROPERTY MAP

	LATITUDE	LONGITUDE
ACCESS ROAD ENTRANCE	N 39.043709	W 80.937537

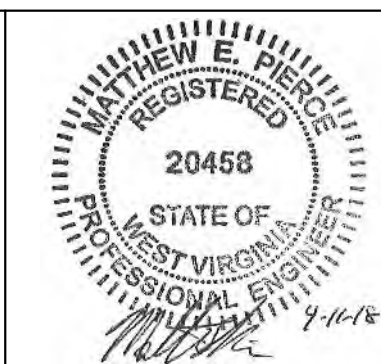
WELL #	LATITUDE	LONGITUDE
3H	N 39.035172	W 80.935381
4H	N 39.035158	W 80.935314
5H	N 39.035147	W 80.935244

RECORD OWNER	RECORD LOT #	RECORD AREA OF LOT	AREA WITHIN LOD
JOY E. GRAGG	02-2-2	75.88 AC.	6.335 AC.
BRIAN, PAUL & ERIC BOSTIC	02-2-28	98.46 AC.	0.825 AC.
FRED P. RIDDLE	02-2-16	8.40 AC.	0.418 AC.
FRED P. RIDDLE	02-2-15	91.60 AC.	0.649 AC.
FRED P. RIDDLE	02-2-27	11.50 AC.	5.818 AC.
EMARY W. & JESSICA R. FRYMIER	02-6-5	127.125 AC.	1.831 AC.
TOTAL LIMIT OF DISTURBANCE			15.876 AC.

08/31/2018

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REVISION	DATE	DESCRIPTION
3	06/22/2018	MOUNTABLE BERM REVISIONS PER DEP COMMENTS
2	06/14/2018	REVISIONS PER DEP COMMENTS
1	05/04/2018	REVISE PROPERTY LINES & OWNERS



TITLE SHEET  
HG WELL PAD 1301  
DeKALB DISTRICT  
GILMER COUNTY, WEST VIRGINIA

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

APPROVED	MEP 04/11/2018
CHECKED	MEP 04/05/2018
DRAWN	MFR 04/04/2018
PROJECT No.	4000-PA007575

DRAWING NUMBER  
PA007575-001  
SHEET 1



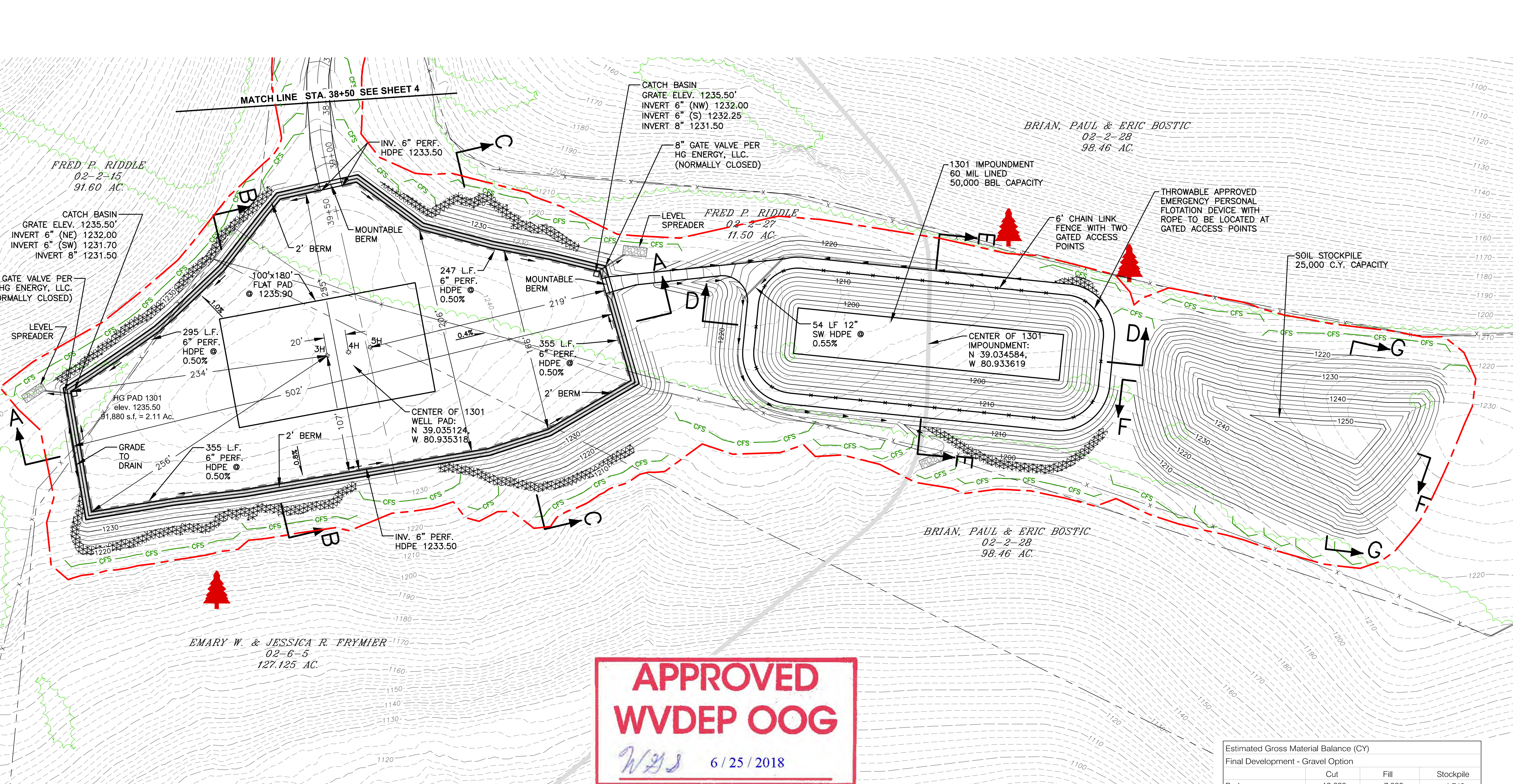
CALL BEFORE  
YOU DIG!

Dial 811 or  
800.245.4848  
Miss Utility of West Virginia

1. SERVICE UTILITY LINES ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, MAINTAINING, AND REPLACING AS NECESSARY TO ENSURE CONTINUAL SERVICE.



S:\PROJECT FILES\4000-PA007575 PAD 1301 DEP REVISIONS.DWG,6/22/2018 11:59 AM



**LEGEND**

- ROCK CHECK DAM
- RIPRAP APRON
- ACCESS ROAD/PAD CHANNEL
- CFS COMPOST FILTER SOCK 8" UNLESS OTHERWISE NOTED
- 3CFS STACKED COMPOST FILTER SOCK 8"
- APPROXIMATE LIMITS OF DISTURBANCE
- APPROXIMATE PROPERTY LINE
- EXISTING FENCE 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
- POTENTIAL ROOST TREE
- SECTION (SEE SHEET 6)
- TOE BENCH (SEE DETAIL)

- WEST VIRGINIA GENERAL NOTES:**
- REFERENCE THIS SHEET WITH THE CONSTRUCTION NOTES AND DETAILS.
  - CONTRACTOR SHALL CONTACT WEST VIRGINIA UTILITIES PROTECTION SERVICES (811) A MINIMUM OF 3 DAYS PRIOR TO EXCAVATION WORK. UTILITIES MUST BE IDENTIFIED AND EITHER RELOCATED OR PROTECTED BY CONTRACTOR PRIOR TO BEGINNING WORK AT THE SITE.
  - SITE SHALL BE CONSTRUCTED IN ACCORDANCE WITH WELL DRILLING PERMIT. CONTRACTOR RESPONSIBLE TO OBTAIN ALL OTHER ANNUAL PERMITS/APPROVALS REQUIRED TO CONSTRUCT SITE INCLUDING BUT NOT LIMITED TO FEDERAL, STATE, AND LOCAL REQUIREMENTS.
  - NO GEOTECHNICAL OR SLOPE STABILITY ANALYSIS WAS PERFORMED FOR THIS SITE. CONTRACTOR IS RESPONSIBLE TO CONSTRUCT PROPER TOE AND BONDING MEASURES BASED ON FIELD CONDITIONS TO PREPARE SURFACES FOR FILL PLACEMENT ON STEEP SLOPES. PENN E&R IS NOT RESPONSIBLE FOR SLIPS, SLIDES, OR EARTH MOVEMENT RESULTING FROM CONSTRUCTION.
  - ESTABLISH EROSION AND SEDIMENTATION CONTROL BMPs PRIOR TO EARTHWORK. SITE CONSTRUCTION SHALL FOLLOW WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD MANUAL DATED MAY 2012.
  - CLEAR AND GRUB WORK AREA, REMOVE AND STOCKPILE AVAILABLE TOPSOIL FROM LIMIT OF DISTURBANCE TO A LOCATION DESIGNATED BY HG ENERGY II APPALACHIA, LLC.
  - NO EMBANKMENT FILL SHALL BE PLACED ON FROZEN MATERIAL. FILL MATERIAL SHALL BE FREE OF ORGANICS, LARGE ROCKS, FROZEN SOIL OR OTHER OBJECTIONABLE MATERIAL.
  - CUT/FILL SLOPES SHALL BE CONSTRUCTED TO A MAXIMUM SLOPE OF 2H:1V UNLESS NOTED OTHERWISE.
  - FILL MATERIAL SHALL BE PLACED IN LIFTS OR LAYERS OVER THE LENGTH OF THE FILL. LIFT THICKNESS OF THE SOIL SHALL BE AS THIN AS THE SUITABLE RANDOM EXCAVATED MATERIAL WILL PERMIT, TYPICALLY, 6-12 INCHES THICK. THE SIZE OF ROCK LIFTS SHALL NOT EXCEED 36 INCHES. THE ROCK SHALL NOT BE GREATER IN ANY DIMENSION THAN 36 INCHES. COMPACTION SHALL BE OBTAINED BY COMPACTION EQUIPMENT, SHEEP'S FOOT OR PAD ROLLER, DEPENDING ON MATERIAL, WITH COMPACTION TO VISIBLE NON-MOVEMENT OF THE EMBANKMENT MATERIAL. COMPACTION EFFORT SHALL NOT EXCEED OPTIMUM MOISTURE LIMITS. EACH LIFT SHALL BE COMPACTED TO A STANDARD PROCTOR DENSITY OF AT LEAST 95% BEFORE BEGINNING THE NEXT LIFT. QC TESTING SHALL BE PERFORMED AT A RATE OF 2 TESTS/ACRE/LIFT.
  - CONTRACTOR SHALL CONSTRUCT ACCESS ROAD IN ACCORDANCE WITH DETAILS PROVIDED. ADDITIONAL COVER MATERIAL PLACEMENT REQUIRED IN AREA OF UTILITY LINES.
  - CONTRACTOR SHALL COORDINATE MATERIAL MANAGEMENT (EXCESS CUT/FILL, TOPSOIL STOCKPILES, GRAVEL SOURCING) WITH HG ENERGY, LLC PRIOR TO MOBILIZATION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER EROSION AND SEDIMENT CONTROLS, BOTH ON SITE AND OFF SITE.
  - ALL SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS ARE STABILIZED AND THE VEGETATIVE GROUND COVER HAS ACHIEVED A UNIFORM 70% GROWTH. ANY AREAS NOT ACHIEVING A 70% VEGETATIVE COVER SHALL BE RESEEDED AND MULCHED WITHIN 24 HOURS OF DETECTION.
  - SECONDARY CONTAINMENT SHALL BE PROVIDED DURING DRILLING PROCESS. A LINER AND MAT SYSTEM WITH BERM SHALL BE INSTALLED PRIOR TO DRILLING AND WATER INSIDE SECONDARY CONTAINMENT SHALL BE DISPOSED OFFSITE IN ACCORDANCE WITH WV REGULATIONS.
- REFERENCE:**
- TOPOGRAPHY OBTAINED FROM BLUE MOUNTAIN AERIAL MAPPING ON 10/19/2017. DATE OF PHOTOGRAPHY 03/18/2016.
  - WETLANDS AND STREAMS ARE SHOWN BASED ON FIELD LOCATIONS DELINEATED BY AJAY ENVIRONMENTAL CONSULTING ON 02/26/2018, AND LOCATED USING GPS FIELD LOCATION METHODS THAT IS POST-PROCESSED TO SUB-METER ACCURACY (TYPICAL).
  - PROPERTY INFORMATION PROVIDED BY HG ENERGY II APPALACHIA, LLC

**APPROVED  
WVDEP OOG**

WJS 6/25/2018

08/31/2018

**Estimated Gross Material Balance (CY)**

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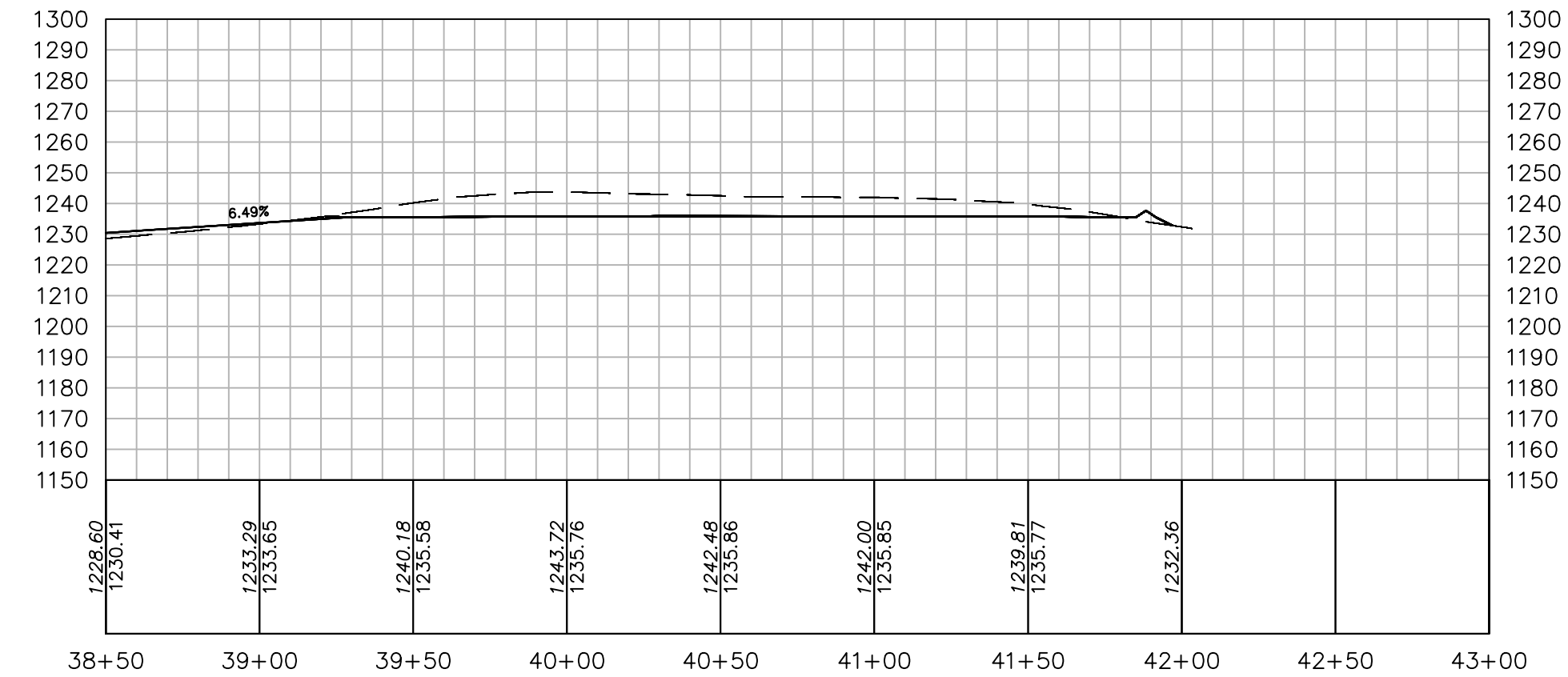
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WELL #	LAT.	LONG.
3H	N 39°02'06.62"	W 80°56'07.37"
4H	N 39°02'06.57"	W 80°56'07.13"
5H	N 39°02'06.53"	W 80°56'06.88"



**Professional Engineer Seal:** Matthew E. Hergul, Registered Professional Engineer, State of West Virginia, No. 20458, Exp. 9-11-18.

**Scale:** 1" = 50'

**Site Layout:** HG WELL PAD 1301, DeKALB DISTRICT, GILMER COUNTY, WEST VIRGINIA

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

APPROVED MEP 04/11/2018  
CHECKED MEP 04/05/2018  
DRAWN MFR 04/04/2018  
PROJECT No. 4000-PA007575

DRAWING NUMBER:  
PA007575-001  
SHEET 5

**Penn E&R**  
Environmental & Remediation, Inc.  
111 RYAN COURT, PITTSBURGH, PA 15205;  
412-722-1222