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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)

Monday, May 7, 2018  
WELL WORK PERMIT  
Horizontal 6A / Fracture

HG ENERGY II APPALACHIA, LLC  
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for MND 1 FHS  
47-051-01838-00-00

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: MND 1 FHS  
Farm Name: CONSOLIDATION COAL COM  
U.S. WELL NUMBER: 47-051-01838-00-00  
Horizontal 6A Fracture  
Date Issued: 5/7/2018

# 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.

## 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).

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 Marshall Clay Powhatan Point  
Operator ID County District Quadrangle

2) Operator's Well Number: MND1 FHS Well Pad Name: MND1

3) Farm Name/Surface Owner: Murray Energy Corp Public Road Access: County Highway 88/8

4) Elevation, current ground: 1150' Elevation, proposed post-construction: 1150' (pad constructed)

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

Other \_\_\_\_\_

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

Horizontal X \_\_\_\_\_

*JH*  
*1/17/18*

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus 6130' - 6185', 55' Thick, 4204 psi

8) Proposed Total Vertical Depth: 6175'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16857'

11) Proposed Horizontal Leg Length: 10119'

12) Approximate Fresh Water Strata Depths: 538', 801', 898', 947'

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

14) Approximate Saltwater Depths: None

15) Approximate Coal Seam Depths: 687' - 697'

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

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

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(a) If Yes, provide Mine Info: Name: Wells are located in abandoned area of McElroy Mine  
Depth: 692' to seam base  
Seam: Pittsburgh #8  
Owner: Consol Mining Company, LLC

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"	New	J-55	94	40' "Already grouted in"	40'	CTS
Fresh Water	13 3/8"	New	J-55	54.5	1100'	1100'	40% excess yield = 1.20, CTS
Coal							
Intermediate	9 5/8"	New	J-55	40	2500'	2500'	40% excess, CTS
Production	5 1/2"	New	P-110	23	16857'	16857'	20% excess, lead yield = 1.19, CTS
Tubing							
Liners							

*JW*  
1/17/18

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	26"	0.438	2110	1200	Type 1, Class A	CTS
Fresh Water	13 3/8"	17.5"	0.380	2730		Type 1, Class A	40% excess, yield = 1.20, CTS
Coal							
Intermediate	9 5/8"	12 1/4"	0.395	3950		Type 1, Class A	40% excess, CTS
Production	5 1/2"	8 1/2"	0.361	12640	10000	Type 1, Class A	20% excess, lead yield = 1.19, CTS
Tubing							
Liners							

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

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WW-6B  
(10/14)

API NO. 47- 51 - 01838  
OPERATOR WELL NO. MND1 FHS  
Well Pad Name: MND1

*JW*  
*1/17/18*

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

Drill the vertical depth to the Marcellus at an estimated total vertical depth of approximately 6,175 feet. Drill horizontal leg - stimulate and produce the Marcellus Formation. Should we encounter an unanticipated void in the coal, we will install a minimum of 20' of casing below the void but not more than 100' below the void, set a basket and grout to surface.

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

The stimulation will be 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 10,000 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 9.0 (already built)

22) Area to be disturbed for well pad only, less access road (acres): 7.6 (already built)

23) Describe centralizer placement for each casing string:

Conductor - N/A  
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 - Already grouted in  
Surface Casing - "15.6 ppg PNE-1 + 3% bwoc CaCl 40% Excess Yield=1.20 / CTS"  
Intermediate Casing - "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 CTS"  
Production Casing - "Lead: 14.5 ppg POZ-PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/tk FP13L + 0.3% bwoc MPA170Tat: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/tk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA17020% Excess Lead Yield=1.19 Tail Yield=1.94 CTS"

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25) Proposed borehole conditioning procedures:

Conductor - Once at casing setting depth, ensure hole is clean at TD  
Surface Casing - Circulate & condition @ TD w/ Air. RIH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 6% bentonite Gel/50# of poly flake, then clear casing w/ Fresh Water prior to pumping cement.  
Intermediate Casing - Circulate & condition @ TD w/ Air. RIH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 6% bentonite Gel/50# 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.

\*Note: Attach additional sheets as needed.



MND1F  
Marcellus Shale Horizontal  
Marshall County, WV

MND1F SHL 494139.7N 1642175.1E

MND1F LP 492994.23N 1641566.61E

MND1F BHL 484706.08N 1647370.03E

Ground Elevation (RKB)	1175'		145'		MND1F SHL		MND1F LP		MND1F BHL		CENTRALIZERS	CONDITIONING	COMMENTS
	HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT						
Azim	28"	20" 94# J-55	Conductor	0	40	AIR	*Already Grouted In*				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	Fresh Water Surface Casing Coal(s)	538', 601', 888', 847'	1100	AIR	15.9 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, R/H 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
Wellbore Diagram	12.25"	6-5/8" 40# J-55 BTC	Big Lime / Big Injun	1808 / 2024	2024 / 2137	AIR	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, R/H 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
	8.5" Vertical	5-1/2" 23# P-110 HC CDC-HTC	Intermediate Casing	2137	2652	AIR	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 = 0.381" wall thickness Burst=12940 psi Note-Actual centralizer schedules may be changed due to hole conditions
Wellbore Diagram	8.5" Curve	5-1/2" 23# P-110 HC CDC-HTC	Speechley	3254	3300	AIR and/or 9.0ppg SOBEM	Lead: 14.5 ppg POZ: PNE-1 + 0.3% bwoc R3 + 1% bwoc EC:1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170				Run 1 spiral centralizer every 3 joints from the 1st 5.5' long joint to the top of the curve.		
			Java	4805	4900		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						
Wellbore Diagram	8.5" Lateral	5-1/2" 23# P-110 HC CDC-HTC	Pipe Creek	4800	4937								
			Angola	4887	5589								
Wellbore Diagram	8.5" Lateral	5-1/2" 23# P-110 HC CDC-HTC	Rheinbrecht	5669	5890								
			Cashaqua	5890	5932								
Wellbore Diagram	8.5" Lateral	5-1/2" 23# P-110 HC CDC-HTC	Middlesex	5952	5985								
			West River	5985	6046								
Wellbore Diagram	8.5" Lateral	5-1/2" 23# P-110 HC CDC-HTC	Burkett	6046	6071								
			Tully	6071	6095								
Wellbore Diagram	8.5" Lateral	5-1/2" 23# P-110 HC CDC-HTC	Hamilton	6095	6130								
			Marcellus	6130	6185								
Wellbore Diagram	8.5" Lateral	5-1/2" 23# P-110 HC CDC-HTC	TMD / TVD	16856	6175								
			Onondaga	6185									

SI-Q  
Jan 11/18

LP @ 6175' TVD / 6738' MD  
8.5" Hole - Cemented Long String  
5-1/2" 23# P-110 HC CDC-HTC  
-/-10118' ft Lateral  
TD @ +146175' TVD  
+10886' MD  
X-CENTRALIZERS

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MND1 Well Pad (AHS,BHS,CHS,DHS,EHS,FHS,HHS,JHS,KHS,LHS,MHS)

Cement Additives

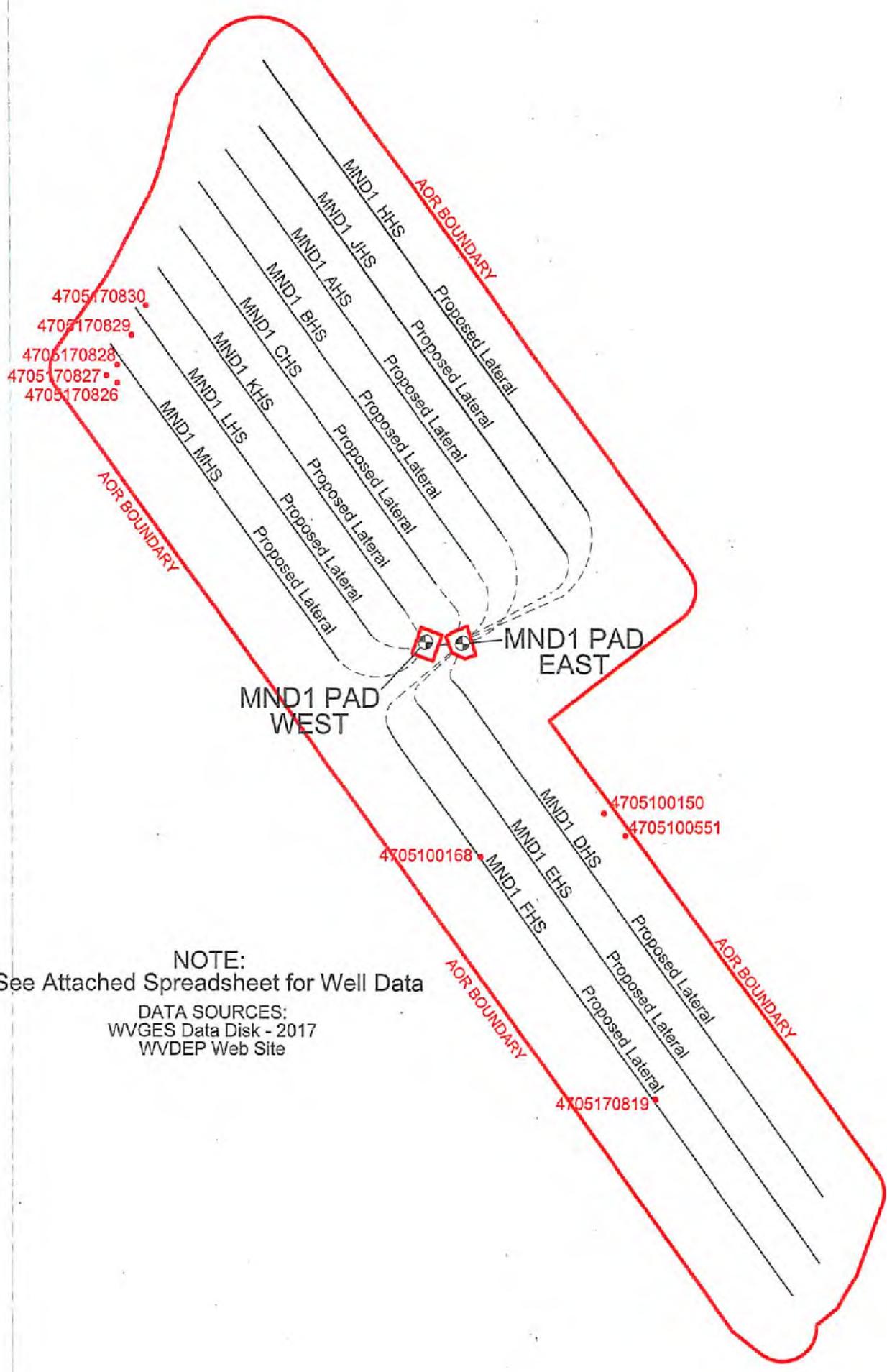
Material Name	Material Type	Material Description	CAS #																		
Premium NE-1	Portland Cement	Premium NE-1 is a portland cement with early compressive strength properties.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Portland cement</td> <td>90 - 100</td> <td>65997-15-1</td> </tr> <tr> <td>Calcium oxide</td> <td>1 - 5</td> <td>1305-78-8</td> </tr> <tr> <td>Magnesium oxide</td> <td>1 - 5</td> <td>1309-48-4</td> </tr> <tr> <td>Crystalline silica: Quartz (SiO2)</td> <td>0.1 - 1</td> <td>14808-60-7</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Portland cement	90 - 100	65997-15-1	Calcium oxide	1 - 5	1305-78-8	Magnesium oxide	1 - 5	1309-48-4	Crystalline silica: Quartz (SiO2)	0.1 - 1	14808-60-7			
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Bentonite	Extender	Commonly called gel, it is a clay material used as a cement extender and to control excessive free water.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>bentonite</td> <td>90 - 100</td> <td>1302-78-9</td> </tr> <tr> <td>Crystalline silica: Quartz (SiO2)</td> <td>5 - 10</td> <td>14808-60-7</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	bentonite	90 - 100	1302-78-9	Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7									
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Calcium Chloride	Accelerator	A powdered, flaked or pelletized material used to decrease thickening time and increase the rate of strength development	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Calcium chloride</td> <td>90 - 100</td> <td>10043-52-4</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Calcium chloride	90 - 100	10043-52-4												
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Cello Flake	Lost Circulation	Graded (3/8 to 3/4 inch) cellophane flakes used as a lost circulation material.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>No hazardous ingredient</td> <td></td> <td></td> </tr> </tbody> </table>	Ingredient name	%	CAS number	No hazardous ingredient														
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FP-13L	Foam Preventer	FP-13L is a clear liquid organic phosphate antifoaming agent used in cementing operations. It is very effective minimizing air entrapment and preventing foaming tendencies of latex systems.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Tributyl phosphate</td> <td>90 - 100</td> <td>126-73-8</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Tributyl phosphate	90 - 100	126-73-8												
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Tributyl phosphate	90 - 100	126-73-8																			
Granulated Sugar	Retarder	Used to retard cement returns at surface. A proprietary product that provides expansive properties and improves bonding at low to moderate temperatures.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Sucrose</td> <td>90 - 100</td> <td>57-50-1</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Sucrose	90 - 100	57-50-1												
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EC-1			<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Calcium magnesium oxide</td> <td>90 - 100</td> <td>37247-91-9</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Calcium magnesium oxide	90 - 100	37247-91-9												
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MPA-170	Gas Migration	Multi-purpose polymer additive used to control free fluid, fluid loss, rheology, and gas migration.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>No hazardous ingredient</td> <td></td> <td></td> </tr> </tbody> </table>	Ingredient name	%	CAS number	No hazardous ingredient														
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Poz (Fly Ash)	Base	A synthetic pozzolan, (primarily Silicon Dioxide). When blended with cement, Pozzolan can be used to create lightweight cement slurries used as either a filler slurry or a sulfate resistant completion cement.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Crystalline silica: Quartz (SiO2)</td> <td>5 - 10</td> <td>14808-60-7</td> </tr> <tr> <td>Calcium oxide</td> <td>1 - 5</td> <td>1305-78-8</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7	Calcium oxide	1 - 5	1305-78-8									
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R-3	Retarder	A low temperature retarder used in a wide range of slurry formulations to extend the slurry thickening time.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Organic acid salt</td> <td>40 - 50</td> <td>Trade secret.</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Organic acid salt	40 - 50	Trade secret.												
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S-5	Surfactant	Used to water wet casing and formation to facilitate cement bonding.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>2-Butoxyethanol</td> <td>20 - 30</td> <td>111-76-2</td> </tr> <tr> <td>Proprietary surfactant</td> <td>10 - 20</td> <td>Trade secret.</td> </tr> <tr> <td>D-Glucopyranose, oligomeric, C10-16-alkyl glycosides</td> <td>5 - 10</td> <td>110615-47-9</td> </tr> <tr> <td>Alkylarylsulfonate amine salt</td> <td>1 - 5</td> <td>Trade secret.</td> </tr> <tr> <td>Polyoxyalkylenes</td> <td>0.1 - 1</td> <td>Trade secret.</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	2-Butoxyethanol	20 - 30	111-76-2	Proprietary surfactant	10 - 20	Trade secret.	D-Glucopyranose, oligomeric, C10-16-alkyl glycosides	5 - 10	110615-47-9	Alkylarylsulfonate amine salt	1 - 5	Trade secret.	Polyoxyalkylenes	0.1 - 1	Trade secret.
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**List of Frac Additives by Chemical Name and CAS #****MND1 Well Pad (ASH,BHS,CHS,DHS,EHS,FHS,HHS,JHS,KHS,LHS,MHS)**

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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**NOTE:**  
 See Attached Spreadsheet for Well Data  
 DATA SOURCES:  
 WVGES Data Disk - 2017  
 WVDEP Web Site



Area of Review for:

**MND1 EAST & WEST PADS**

- |                   |                   |
|-------------------|-------------------|
| MND1 AHS Wellbore | MND1 FHS Wellbore |
| MND1 BHS Wellbore | MND1 HHS Wellbore |
| MND1 CHS Wellbore | MND1 JHS Wellbore |
| MND1 DHS Wellbore | MND1 KHS Wellbore |
| MND1 EHS Wellbore | MND1 LHS Wellbore |
| MND1 MHS Wellbore |                   |

Clay District, Marshall County, W.Va.

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SCALE: 1" = 2,000'

12/18/2017

EXISTING WELLS LOCATED WITHIN THE AREA OF REVIEW FOR:

**MND1 EAST & MND1 WEST PADS AND PROPOSED WELLS AHS, BHS, CHS, DHS, EHS, FHS, HHS, JHS, KHS, LHS & MHS**

CT	API	COUNTY	FARM	OPERATOR NAME	FORMATION NAME	WELL TYPE	TVD	STATUS	LATITUDE	LONGITUDE
1	4705100150	Marshall	Guy McDowell 1	Dinsmoore, D. H.	Allegheny Fm	Dry	1,517	P&A	39.845205	-80.764859
2	4705100168	Marshall	D H & Genevieve Mason 2	Tedrow & Moore	Big Injun (Price&eq)	Dry	1,947	ABANDONED	39.843465	-80.771254
3	4705100551	Marshall	Ralph Chaplin 1	Kentucky Central & Co.	UNKNOWN	not available	NA	P&A	39.844335	-80.76373
4	4705170819	Marshall	Wesley Bonar	UNKNOWN	UNKNOWN	not available	NA	UNKNOWN	39.833856	-80.76222
5	4705170826	Marshall	Adaline Hammond	UNKNOWN	UNKNOWN	not available	NA	UNKNOWN	39.862303	-80.790046
6	4705170827	Marshall	Adaline Hammond	UNKNOWN	UNKNOWN	not available	NA	UNKNOWN	39.862593	-80.79061
7	4705170828	Marshall	J Nightler Hrs	UNKNOWN	UNKNOWN	not available	NA	UNKNOWN	39.863029	-80.790046
8	4705170829	Marshall	J Nightler Hrs 2	UNKNOWN	UNKNOWN	not available	NA	UNKNOWN	39.86419	-80.789294
9	4705170830	Marshall	J Nightler Hrs 1	UNKNOWN	UNKNOWN	not available	NA	UNKNOWN	39.865351	-80.788542
10										

SOURCE: WVGES DATASET (2017) and WVDEP WEBSITE

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WW-9  
(4/16)

API Number 47 - \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. MND1 FHS

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name HG Energy II Appalachia, LLC OP Code 494519932

Watershed (HUC 10) Short Creek - Ohio River Quadrangle Powhatan Point

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: \_\_\_\_\_

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 See Attached List )
- Reuse (at API Number At next anticipated well )
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain \_\_\_\_\_)

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

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

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

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

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

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

-Landfill or offsite name/permit number? See attached list

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 Accountant

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Subscribed and sworn before me this 26th day of December, 20 17

Barry J. DeWitt Notary Public

My commission expires 3/29/2020

Commissioner for West Virginia  
Barry J. DeWitt  
126 Wendy Dr.  
Uniontown PA 15401

05/11/2018

HG Energy II Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 9.0 Prevegetation pH \_\_\_\_\_

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20 or equal

Fertilizer amount 500 lbs/acre

Mulch Straw 2 Tons/acre

Seed Mixtures

**Temporary**

**Permanent**

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5

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.

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

Plan Approved by: *Jim Anderson*

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Title: Oil & Gas Inspector

Date: 1/17/18

Field Reviewed?  Yes  No

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## 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  
Cochrannton, PA 16314  
814-425-7773

### Disposal Locations:

Apex Environnemental, 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 Rldge Road  
Hurricane, WV 25526  
304-562-2611

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

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

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

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

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

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

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

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

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

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

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

**Water Haul off Companies:**

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

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

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

Nuverra Environmental Solutions  
 11942 Veterans Memorial Highway  
 Masontown, WV 26542

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

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

**Disposal Locations:**

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

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

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

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

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

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

Equipment Transport  
 1 Tyler Court  
 Carlisle, PA 17015

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

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

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

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

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

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

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

Mozena #1 Well (SWIW # 13)  
Permit # 34-157-2-5511-00-00  
5367 E. State Street  
Newcomerstown, OH 43882  
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, PH 44505

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

OH UIC #1 Bu keye 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

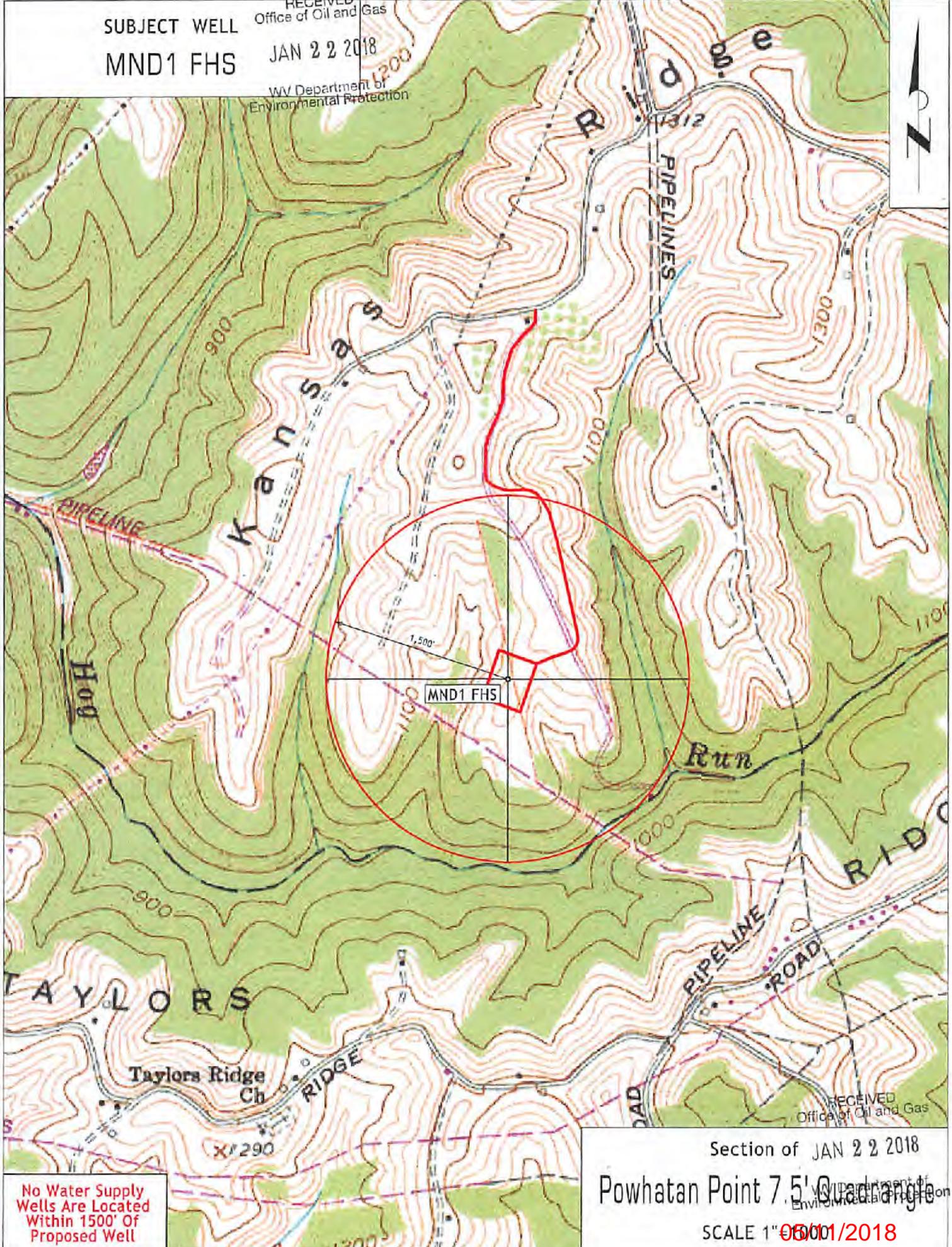
Chapin #7 UIC (SWIW #7)  
Permit # 34-083-2-4137-00-00  
Elkhead Gas & Oil Company  
12163 Mame Rd, NE  
Newark, OH 43055  
740-763-3966

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SUBJECT WELL  
MND1 FHS

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No Water Supply Wells Are Located Within 1500' Of Proposed Well

Section of JAN 22 2018  
Powhatan Point 7.5' Quadrangle  
SCALE 1" = 600'  
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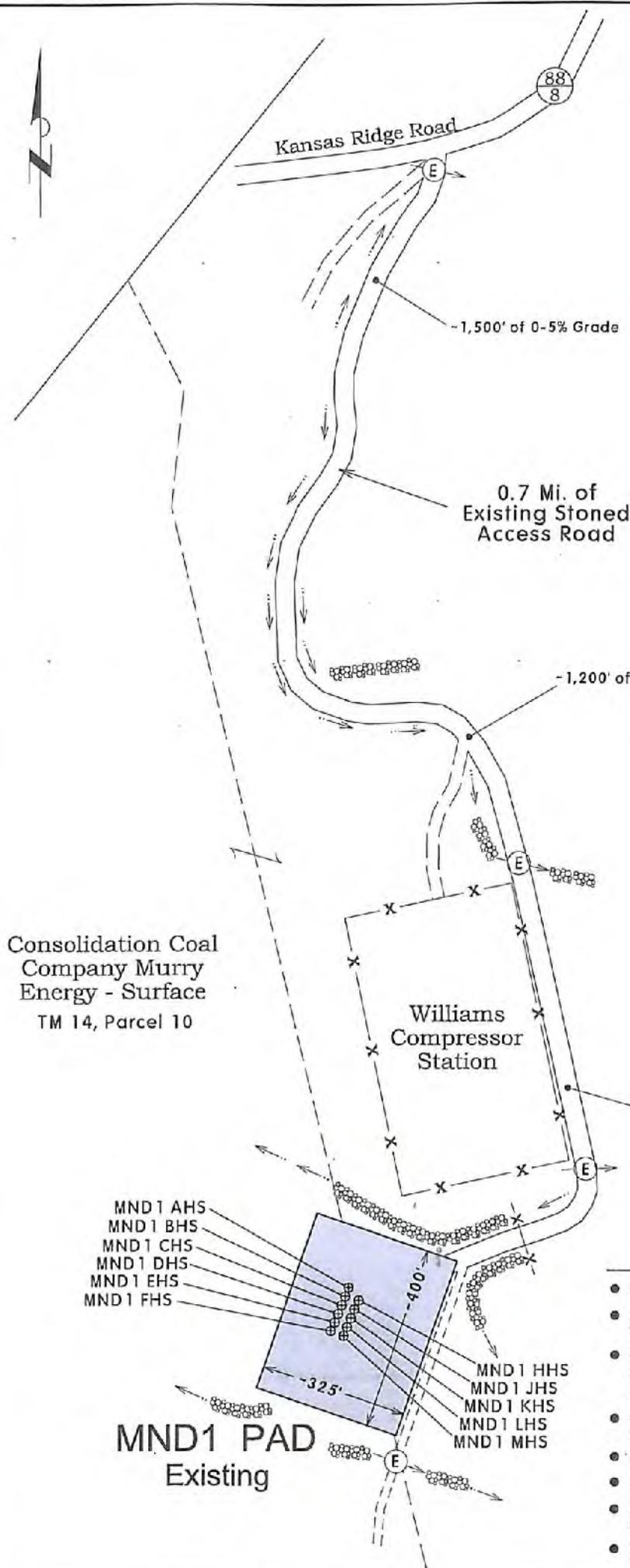
51-01838

# Reclamation Plan For:

## MND1 PAD

**NOTE**  
The wells shown were permitted by Noble Energy in 2015 but were not completed. Access road and location were constructed for those wells.

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



Consolidation Coal Company  
Murry Energy - Surface  
TM 14, Parcel 9

Consolidation Coal Company Murry Energy - Surface  
TM 14, Parcel 10

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### Notes:

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

05/11/2018

**SURFACE HOLE LOCATION (SHL)**  
 UTM 17 - NAD83  
 N: 4411110.407  
 E: 519307.925  
 NAD27, WV NORTH  
 N: 494139.648  
 E: 1642175.083  
 LAT/LON DATUM-NAD83  
 LAT: 39.849794  
 LON: -80.774299

**APPROX. LANDING POINT**  
 UTM 17 - NAD83  
 N: 4410758.345  
 E: 519128.387  
 NAD27, WV NORTH  
 N: 492994.214  
 E: 1641566.553  
 LAT/LON DATUM-NAD83  
 LAT: 39.845626  
 LON: -80.776408

**BOTTOM HOLE LOCATION**  
 UTM 17 - NAD83  
 N: 4408562.857  
 E: 520938.631  
 NAD27, WV NORTH  
 N: 484705.898  
 E: 1647370.123  
 LAT/LON DATUM-NAD83  
 LAT: 39.824099  
 LON: -80.755328

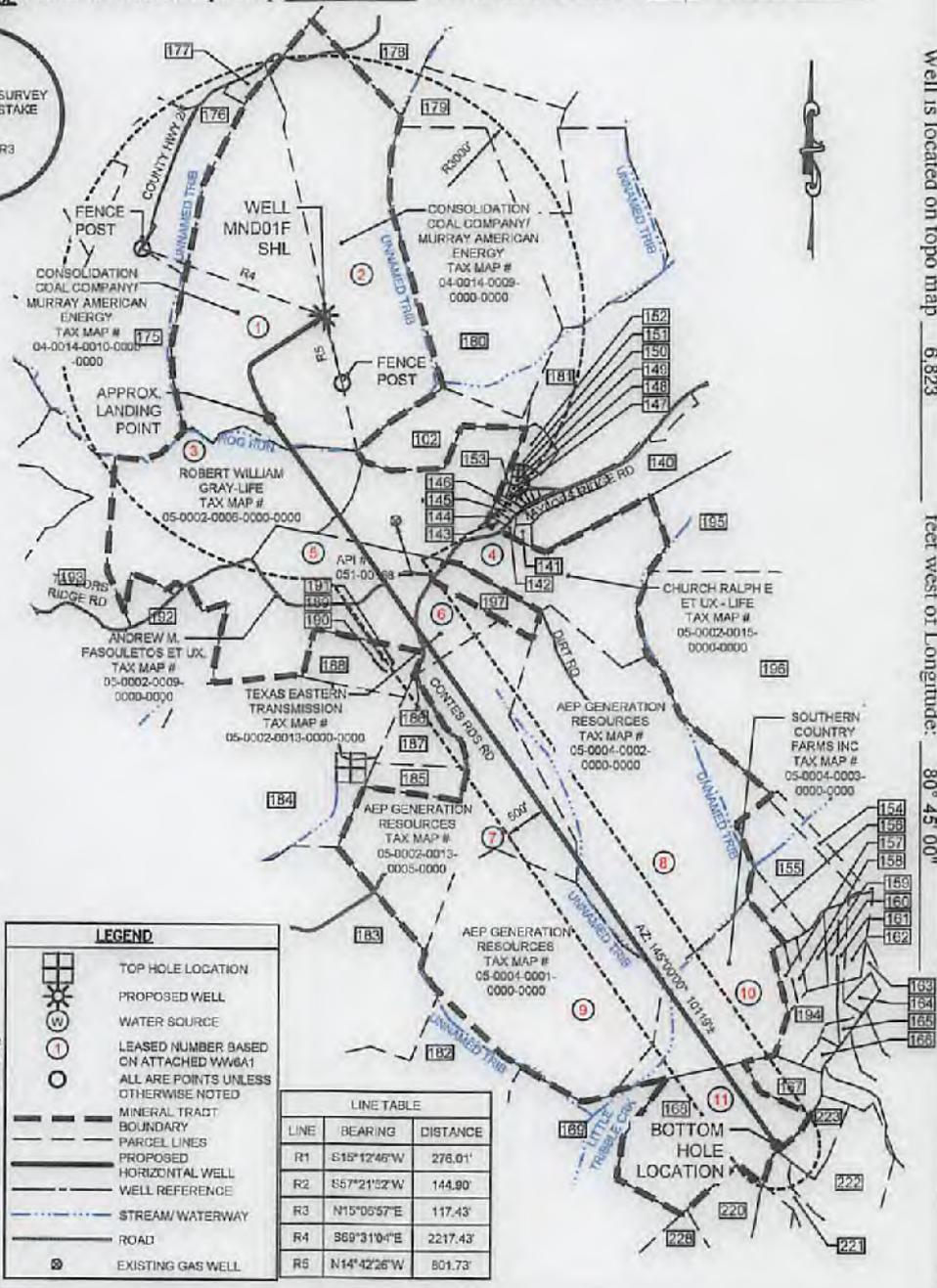
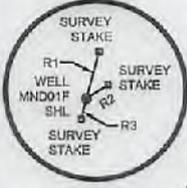
**WATER WELLS:**  
 NONE FOUND

**NOTES:**

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

Well is located on topo map 9,183 feet south of Latitude: 39° 52' 30"

Well is located on topo map 6,823 feet west of Longitude: 80° 45' 00"



Waterford Corporate Park II, Suite 101 P. 724-446-1100  
 2000 Remembrance Drive F. 724-446-1104  
 Sewersville, PA 15882

Civil Engineering | Land Development | Structural Design  
 Land Planning | Landscape Architecture | Environmental

FILE #: MND 01 FHS  
 DRAWING #: MND 01 FHS  
 SCALE: 1"=2000'  
 MINIMUM DEGREE OF ACCURACY: 1/2500  
 PROVEN SOURCE U.S.G.S. MONUMENT  
 OF ELEVATION: H 138: 638.58'

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

SIGNED: [Signature]  
 R.P.E.: 18766 L.L.S.: P.S. NO. \_\_\_\_\_



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



DATE: FEBRUARY 12, 2015 - REV JANUARY 05, 2018  
 OPERATOR'S WELL #: MND 01 FHS  
 API WELL # 47 051 01838 H6A  
 STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow  
 WATERSHED: SHORT CREEK-OHIO RIVER ELEVATION: 1150.00'  
 COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWATAN POINT, W. VA./OHIO  
 SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 128.99  
 OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL. ACREAGE: 126.99

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,175' ± TMD: 16,857' ±  
 WELL OPERATOR: HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT: DIANE C. WHITE  
 Address: 5260 DUPONT ROAD Address: 5260 DUPONT ROAD  
 City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

05/11/2018

Bottom hole is located on topo map 12,472 feet south of Latitude: 39° 51' 30"

Bottom hole is located on topo map 1,497 feet west of Longitude: 80° 45' 00"

140	CHAPLIN, RALPH & ELLA	TAX MAP NO. 05-0002-0018-0000-0000
141	CHAPLIN, WAYNE & TINA	TAX MAP NO. 05-0003-0001-0000-0000
142	MILLER ROBERT C. ET. UX.	TAX MAP NO. 05-003A-0006-0000-0000
143	MILLER ROBERT C. ET. UX.	TAX MAP NO. 05-003A-0006-0000-0000
144	CHURCH RALPH E. ET. UX.	TAX MAP NO. 05-003A-0001-0000-0000
145	NORRIS SANDRA E. - LIFE	TAX MAP NO. 05-003A-0002-0000-0000
146	WHITE STUART, ET. UX.	TAX MAP NO. 05-003A-0003-0000-0000
147	WILSON JOHN T. ET. UX.	TAX MAP NO. 05-003A-0004-0000-0000
148	MCILVAIN, WILLIAM R & KIMBERLY	TAX MAP NO. 05-003A-0043-0000-0000
149	DURIG RAYMOND CRAIG	TAX MAP NO. 05-003A-0042-0000-0000
150	EBERT JOE SR. ET. UX.	TAX MAP NO. 05-003A-0040-0000-0000
151	MARTIN SAMUEL J. ET. UX.	TAX MAP NO. 05-003A-0039-0000-0000
152	GARRISON WARD D. & LORRI A	TAX MAP NO. 05-003A-0038-0000-0000
153	HEREFORD LAWRENCE R. & ALANDA S.	TAX MAP NO. 05-003A-0056-0000-0000
154	RECREATION AREA FOR TAYLOR MANOR DEVELOPMENT	
155	DILLE STEVEN & ASHLEY	TAX MAP NO. 05-0004-0003-0008-0000
156	SAUNDERS, EUGENE L.	TAX MAP NO. 05-0004-0003-0014-0000
157	SOUTHERN COUNTRY FARMS INC.	TAX MAP NO. 05-0004-0003-0013-0000
158	DOTY JAMES H. & MELANIE A.	TAX MAP NO. 05-0004-0004-0000-0000
159	DOTY JAMES H. & MELANIE A.	TAX MAP NO. 05-0004-0004-0001-0000
160	SOUTHERN COUNTRY FARMS INC.	TAX MAP NO. 05-0004-0025-0000-0000
161	FRANKLIN LEE WARD	TAX MAP NO. 05-0004-0024-0000-0000
162	UNKNOWN	
163	COLADONATO, STEPHEN	TAX MAP NO. 05-0004-0021-0000-0000
164	MARTIN SHARK ET. UX.	TAX MAP NO. 05-0004-0029-0000-0000
165	MARTIN SHARK ET. UX.	TAX MAP NO. 05-0004-0030-0000-0000
166	ALLMAN KYLE MICHAEL	TAX MAP NO. 05-0004-0003-0001-0000
167	WEST, WAYNE L. JR. ET. UX.	TAX MAP NO. 05-0004-0003-0003-0000
168	WEST WAYNE L. JR. ET. UX.	TAX MAP NO. 05-0004-0013-0001-0000
169	CNX LAND RESOURCES INC.	TAX MAP NO. 05-0004-0013-0000-0000
170	AEP GENERATION RESOURCES, INC.	TAX MAP NO. 05-0004-0015-0000-0000
171	CONSOLIDATION COAL COMPANY, ET AL	TAX MAP NO. 04-0014-0011-0000-0000
172	TSCHAPPAT ROBERT E. SR. ET. UX.	TAX MAP NO. 04-0014-0006-0000-0000
173	TSCHAPPAT ROBERT E. JR. ET. UX.	TAX MAP NO. 04-0014-0006-0001-0000
174	RINE WENDELL B. & CAROLYN S.	TAX MAP NO. 04-0014-0007-0000-0000
175	ESTEP EUGENE C. & ELIZABETH A.	TAX MAP NO. 04-0013-0002-0000-0000
176	CONSOLIDATION COAL COMPANY, ET AL	TAX MAP NO. 04-0014-0008-0000-0000
177	MCCLURE CHARLES L. ET. UX.	TAX MAP NO. 05-0002-0018-0000-0000
178	AEP GENERATION RESOURCES, INC.	TAX MAP NO. 05-0005-0012-0000-0000
179	AEP GENERATION RESOURCES, INC.	TAX MAP NO. 05-0005-0011-0000-0000
180	CONSOLIDATION COAL COMPANY, ET AL	TAX MAP NO. 05-0002-0012-0000-0000
181	HARTLEY PEGGY S.	TAX MAP NO. 05-0002-0013-0004-0000
182	POTTS JAMES D. ET. UX.	TAX MAP NO. 05-0002-0013-0006-0000
183	POTTS JAMES D. ET. UX.	TAX MAP NO. 05-0002-0013-0002-0000
184	POTTS JAMES D. ET. UX.	TAX MAP NO. 05-0002-0010-0000-0000
185	JASENEC RUDY ET. UX.	TAX MAP NO. 05-0002-0010-0002-0000
186	JASENEC RUDY ET. UX.	TAX MAP NO. 05-0002-0010-0001-0000
187	JASENEC RUDY ET. UX.	TAX MAP NO. 05-0002-0010-0003-0000
188	BARNHART THOMAS K. ET. UX.	TAX MAP NO. 05-0002-0008-0000-0000
189	CONSOLIDATION COAL COMPANY, ET AL	TAX MAP NO. 05-0002-0006-0000-0000
190	WEST WAYNE L. JR. ET. UX.	TAX MAP NO. 05-0004-0044-0000-0000
191	CHAPLIN RALPH & ELLA	TAX MAP NO. 05-0003-0005-0000-0000
192	HOWE RUSSELL BLAINE ET. UX. - LIFE	TAX MAP NO. 05-0003-0031-0000-0000
193	ANDERSON RHONDA MARIE	TAX MAP NO. 05-0004-0014-0001-0000
194	CNX LAND RESOURCES INC.	TAX MAP NO. 05-0004-0010-0000-0000
195	CNX LAND RESOURCES INC.	TAX MAP NO. 05-0004-0011-0001-0000
196	CNX LAND RESOURCES INC.	TAX MAP NO. 05-0004-0012-0000-0000
197	HOLSTINE BERNARD W. & ROXANN L	TAX MAP NO. 05-0004-0014-0000-0000

**LEGEND**

- BOTTOM HOLE LOCATION
- TOP HOLE LOCATION
- PROPOSED WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WWB#1
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/WATERWAY
- ROAD
- EXISTING GAS WELL

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

Wellford Corporate Park II, Suite 101  
2007 Georgetown Drive  
Sewidley, PA 15143

P. 724-446-1100  
F. 724-446-1104  
www.pve.com



Civil Engineering | Land Development | Structure Design  
Land Planning | Landscape Architecture | Environmental

FILE #: MND 01 FHS

DRAWING #: MND 01 FHS

SCALE: 1"=2000'

MINIMUM DEGREE OF ACCURACY: 1/2500

PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT H 138: 638.58'

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

SIGNED:

R.P.E.: 18766 L.L.S.: P.S. NO. \_\_\_\_\_



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



DATE: FEBRUARY 12, 2015 - REV JANUARY 05, 2018

OPERATOR'S WELL #: MND 01 FHS

API WELL # 47 051 01838 HCA

STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep

Gas  Liquid Injection  Storage  Shallow

WATERSHED: SHORT CREEK-CHIO RIVER ELEVATION: 1150.00'

COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWHATAN POINT, W. VA/OHIO

SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 126.99

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL ACREAGE: 126.99

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE

PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON

CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY)

05/11/2018

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 8,175' ± TMD: 16,857' ±

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

Address: 5260 DUPONT ROAD Address: 5260 DUPONT ROAD

City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

WW-6A1  
(3/13)

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

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

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

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

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

**\*\* See Attached Lease Chains \*\***

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JAN 22 2018  
WV Department of  
Environmental Protection

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

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

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

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

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

**HG Energy II Appalachia, LLC**  
**MND1 FHS Lease Chain**

HG Lease Number	M/D	Original Lessor	Original Lessee	Royalty	Book	Page
1) 623175	04-0014-0010-0000-0000	Consolidation Coal Company, et al CNX Gas Company, LLC  Noble Energy, Inc.	CNX Gas Company, LLC Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	646	493
				1/8	752	66
					39	1
2) 623177	04-0014-0009-0000-0000	Consolidation Coal Company, et al CNX Gas Company, LLC  Noble Energy, Inc.	CNX Gas Company, LLC Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	646	493
				1/8	752	66
					39	1
3) Q092705000	05-0002-0006-0000-0000	Robert W. Gray, Jr., et al Chevron U.S.A. Inc.  Noble Energy, Inc.	Chevron U.S.A. Inc. Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	772	9
				1/8	34	502
					39	1
4) Q089474000	05-0002-0015-0000-0000	Ralph E. Church and wife, Nancy A. Church, Ralph E. Church II, Patricia Barnhart and Peggy Sue Sebulsky, f/k/a Peggy Sue Hartley Gastar Exploration USA, Inc.  Gastar Exploration Inc. and Antinum Marcellus I, LLC CNX Gas Company, LLC  Noble Energy, Inc.	Gastar Exploration, USA I Antinum Marcellus I, LLC  Noble Energy Inc. and CNX Gas Company, LLC Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	792	97
				1/8	29	157
					32	185
					752	66
					39	1
5) Q076662001 Q076662002 Q076662003	05-0002-0009-0000-0000	Andrew M. Fasouletos, et ux  Michael Andrew Fasouletos  Tena Marie Sticklin  All the above leases from NOBLE ENERGY INC	Noble Energy, Inc.  Noble Energy, Inc.  Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	802	283
				1/8	802	280
				Not less than	802	277
				1/8	39	1
6) Q08903550	05-0002-0013-0000-0000	Texas Eastern Transmission, LP  Noble Energy, Inc.	Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	859	510
				1/8	39	1
7) Q08344200	05-0002-0013-0005-0000	AEP Generation Resources Inc. and Kentucky Power Company  Noble Energy, Inc.	Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	829	157
				1/8	39	1
8) Q08344200	05-0004-0002-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company  Noble Energy, Inc.	Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	829	157
				1/8	39	1
9) Q08344200	05-0004-0001-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company  Noble Energy, Inc.	Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	829	157
				1/8	39	1
10) Q07617000	05-0004-0003-0000-0000	Southern Country Farms, Inc.  Noble Energy, Inc.	Noble Energy, Inc. HG ENERGY II APPALACHIA, LLC	Not less than	801	79
				1/8	39	1
11) NA	05-0004-0013-0000-0000	MCCLINTOCK DALE ET UX  CHEVRON USA INC	CHEVRON USA INC HG ENERGY II APPALACHIA, LLC	Not less than	773	615
				1/8	TBD	TBD

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

January 15, 2017

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

RE: Drilling Under Roads – MND1 FHS  
Clay District, Marshall 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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05/11/2018

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

Date of Notice Certification: 01/15/2018

API No. 47- \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. MND1 FHS  
Well Pad Name: MND1

**Notice has been given:**

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

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>519307.9</u>
County: <u>Marshall</u>		Northing: <u>4411110.4</u>
District: <u>Clay</u>	Public Road Access: <u>Country Highway 88/8</u>	
Quadrangle: <u>Powhatan Point</u>	Generally used farm name: <u>Consol</u>	
Watershed: <u>Short Creek - Ohio River (HUC 10)</u>		

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

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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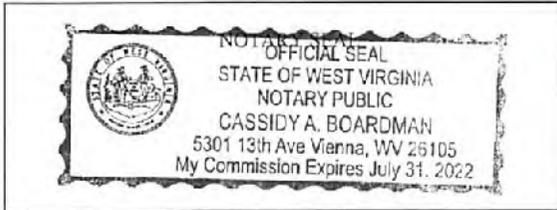
**Required Attachments:**

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

**Certification of Notice is hereby given:**

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

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



Subscribed and sworn before me this 15th day of January, 2018.

Cassidy A. Boardman Notary Public

My Commission Expires 7/31/2022

**Oil and Gas Privacy Notice:**

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

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Environmental Protection

WW-6A  
(9-13)

API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. MND1 FHS  
Well Pad Name: MND1

**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:** 12/28/2017 **Date Permit Application Filed:** 1/11/2018

Notice of:

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

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

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

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

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

SURFACE OWNER(s)  
 Name: Murray Energy Corporation  
 Address: 46226 National Road  
St. Clairsville, Oh 43950

COAL OWNER OR LESSEE  
 Name: Same as Surface Owner  
 Address: \_\_\_\_\_

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

COAL OPERATOR  
 Name: Same as Surface Owner  
 Address: \_\_\_\_\_

SURFACE OWNER(s) (Road and/or Other Disturbance)  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)  
 Name: No water sources within 1500'  
 Address: \_\_\_\_\_

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

SURFACE OWNER(s) (Impoundments or Pits)  
 Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

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

\*Please attach additional forms if necessary

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JAN 22 2018

WV Department of  
Environmental ProtectionAPI NO. 47- 51 - 01838  
OPERATOR WELL NO. MND1 FHS  
Well Pad Name: MND1WW-6A  
(8-13)**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

05/11/2018

WW-6A  
(8-13)

API NO. 47- 51 - 01838  
OPERATOR WELL NO. MND1 FHS  
Well Pad Name: MND1

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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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.**

05/11/2018

**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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WW-6A  
(8-13)

API NO. 47- 51 - 01838  
OPERATOR WELL NO. MND1 FHS  
Well Pad Name: MND1

**Notice is hereby given by:**

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

Address: 5260 Dupont Road  
Parkersburg, WV 26101  
Facsimile: 304-883-3172

**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).

**Commissioner for West Virginia  
Barry J. DeWitt  
126 Wendy Dr.  
Uniontown PA 15401**

Subscribed and sworn before me this 28th day of December, 2017.

*Barry J. DeWitt* Notary Public

My Commission Expires 3/29/2020

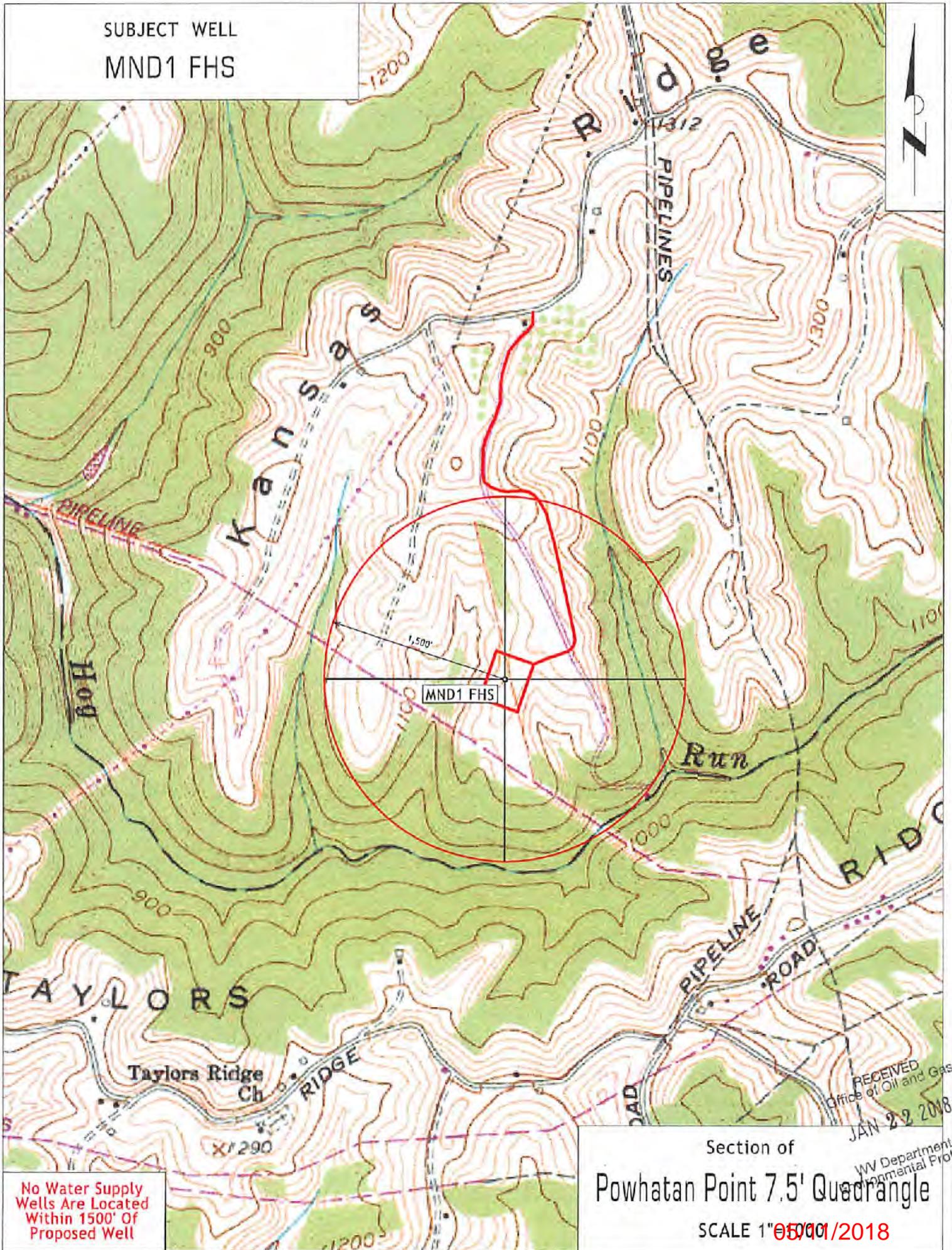
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JAN 22 2018

WV Department of  
Environmental Protection

05/11/2018

SUBJECT WELL  
MND1 FHS



No Water Supply Wells Are Located Within 1500' Of Proposed Well

Section of  
Powhatan Point 7.5' Quadrangle  
SCALE 1" = 5000'  
05/01/2018



WW-6A5  
(1/12)

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

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

**Date of Notice:** 12/27/2017      **Date Permit Application Filed:** 01/11/2018

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

CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      DELIVERY

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

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

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

Name: <u>Murray Energy Corporation - Jason Witt</u>	Name: _____
Address: <u>46226 National Road</u>	Address: _____
<u>Saint Clairsville, OH 43950</u>	_____

**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>519307.9</u>
County: <u>Marshall</u>	Northing: <u>4411110.4</u>
District: <u>Clay</u>	Public Road Access: <u>County Highway 88/8</u>
Quadrangle: <u>Powhatan Point</u>	Generally used farm name: <u>Consol</u>
Watershed: <u>Short Creek - Ohio River (HUC 10)</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: <u>HG Energy II Appalachia, LLC</u>	Address: <u>5260 Dupont Road</u>
Telephone: <u>304-420-1119</u>	<u>Parkersburg, WV 26105</u>
Email: <u>dwhite@hgenergyllc.com</u>	Facsimile: <u>304-883-3172</u>

**Oil and Gas Privacy Notice:**

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

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JAN 22 2018  
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Environmental Protection

05/11/2018



## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

## Division of Highways

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

Jim Justice  
Governor

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

October 26, 2017

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 MND-1 Well Pad, Marshall County

Dear Mr. Martin,

The West Virginia Division of Highways has transferred Permit #06-2014-0611 for the subject site to HG Energy, LLC. for access to the State Road for the well sites located off of Marshall County Route 88/8bg SLS.

The operator has signed an 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 Oil & Gas Coordinator

Cc: Diane White  
H G Energy, LLC  
CH, OM, D-6  
File

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**List of Frac Additives by Chemical Name and CAS #****MND1 Well Pad (ASH,BHS,CHS,DHS,EHS,FHS,HHS,JHS,KHS,LHS,MHS)**

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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# CONSTRUCTION IMPROVEMENT PLANS FOR MND1 WELL SITE AST



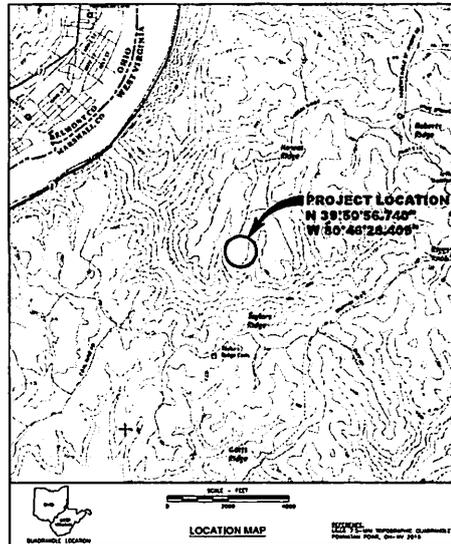
MARSHALL COUNTY  
WEST VIRGINIA

EXISTING API NUMBERS

- 47-051-01768
- 47-051-01810
- 47-051-01833
- 47-051-01834
- 47-051-01835
- 47-051-01836
- 47-051-01837
- 47-051-01838
- 47-051-01839

CONSTRUCTION SEQUENCE

1. Prior to commencement of any earth disturbance activity including clearing and grubbing, the registrant shall call West Virginia 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, 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

SHT. NO.	SHEET TITLE
1	TITLE SHEET
2-4	SITE LAYOUT PLANS
5	GENERAL NOTES
6	DETAILS AST PAD
7	SITE RESTORATION PLAN

THE REGISTRANT IS RESPONSIBLE FOR MAINTAINING A RECORD OF ALL CHANGES TO THIS PLAN AND FOR NOTIFYING THE STATE OF WEST VIRGINIA OF ANY SUCH CHANGES. THE REGISTRANT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AFFECTED AGENCIES AND AGENCIES OF THE STATE OF WEST VIRGINIA. THE REGISTRANT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AFFECTED AGENCIES AND AGENCIES OF THE STATE OF WEST VIRGINIA. THE REGISTRANT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AFFECTED AGENCIES AND AGENCIES OF THE STATE OF WEST VIRGINIA.

REVISION	DATE	DESCRIPTION
1	04/30/2018	ADD AST PAD & STOCKPILE



TITLE SHEET  
MND1 AST  
MARSHALL COUNTY, WEST VIRGINIA  
PREPARED FOR  
**HG ENERGY**  
PARKERSBURG, WEST VIRGINIA

APPROVED SEP 04/30/2018  
CHECKED MFR 04/30/2018  
DESIGNED DMR 03/12/2018  
PROJECT No. 0002-10001-001  
DRAWING NUMBER  
PA007595-001  
SHEET 1

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



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

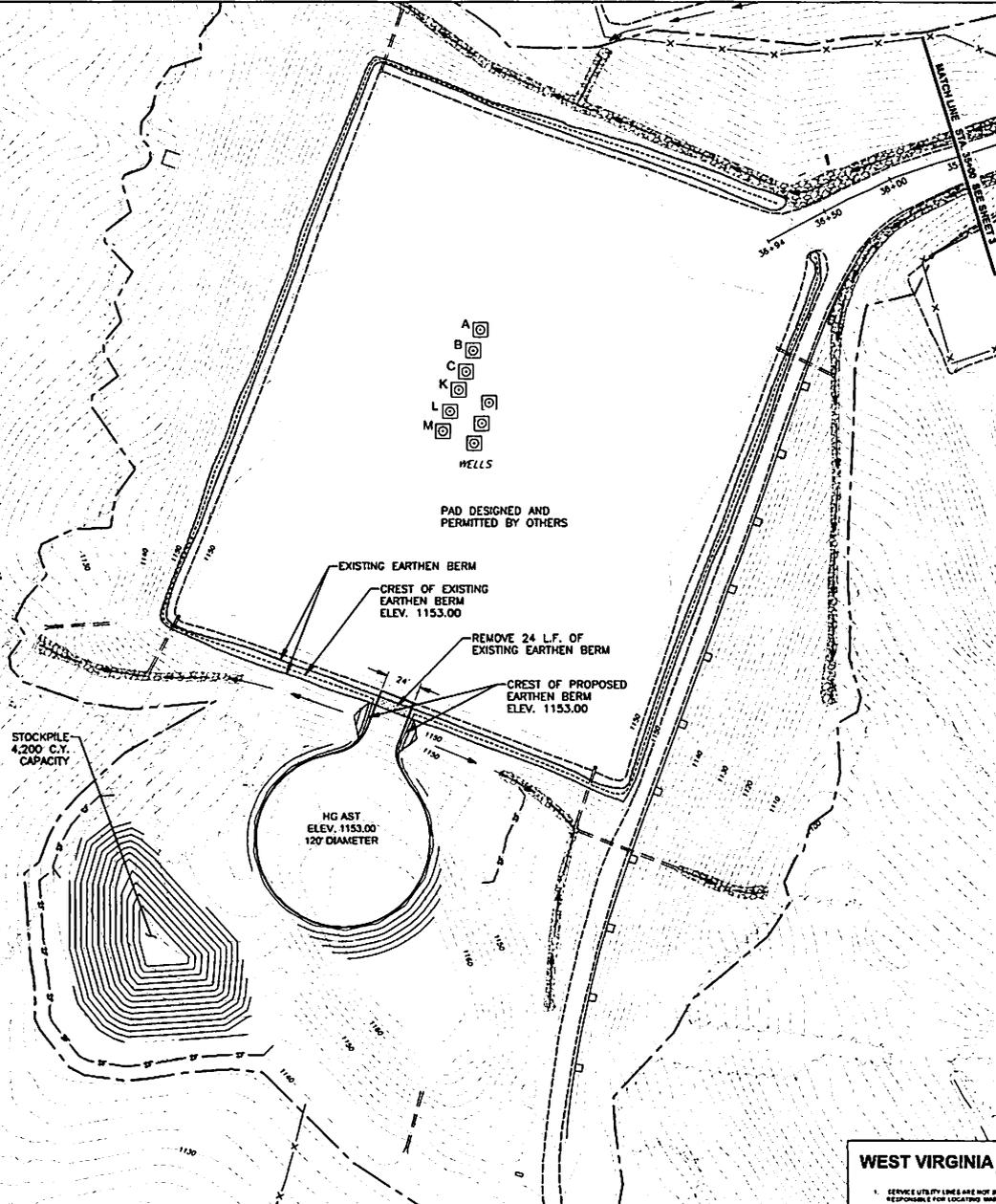
S:\PROJECT FILES\000-PA007595 HG MND1 AST\CAD DRAWINGS\PA007595 TITLE SHEET.DWG, 04/30/2018 3:58 PM

**APPROVED**  
**WVDEP OOG**  
 Modification  
 5/4/2018

A  
 B  
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 F  
 G  
 H  
 I  
 J  
 K  
 L  
 M  
 WELLS

CONSOLIDATED COAL COMPANY

PAD DESIGNED AND PERMITTED BY OTHERS



Estimated Gross Material Balance (Bank CY)			
Final Development - Gravel Option			
AST Pad	Cu	F#8	Stockpile
3,440	140	3,300	3,300
Totals			
3,440	140	3,300	3,300
Topsoil			
Est. Topsoil Stockpile Volume (Bank CY)			
Est. Swell Factor (20%)			
Est. Topsoil Stockpile Volume (Loose CY)			
Est. Stockpile Required (Loose CY)			
4,024			
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 (Final CY) AST Pad			
	Pad	TOTAL	
7 ASHTO No. 7	75	75	
2 ASHTO No. 10	75	75	
Gravel Quantity Totals	150	150	
Estimated S&B Fence Length (LF)			
430			
Estimated Limit of Disturbance (Acres)			
9.85			

**LEGEND**

— SF	S&B FENCE
- - - -	APPROXIMATE LIMITS OF DISTURBANCE
—	EDGE OF PAD
- - - -	APPROXIMATE PROPERTY LINE
G	EXISTING GAS LINE
—	EXISTING OVERHEAD ELECTRIC LINES
⊙	EXISTING POWER POLES
X	EXISTING FENCE
□	EXISTING GUARDRAIL
—	EXISTING INDEX CONTOUR
- - - -	EXISTING INTERMEDIATE CONTOUR
- - - -	PROPOSED FINAL GRADE INDEX CONTOUR
- - - -	PROPOSED FINAL GRADE INTERMEDIATE CONTOUR

- CONSTRUCTION SEQUENCE**
1. Prior to commencement of any earth disturbance activity including clearing and grubbing, the registrant shall call West Virginia 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 topsoil, 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.

- KEY NOTES**
1. REFERENCE THIS SHEET WITH THE CONSTRUCTION NOTES AND DETAILS.
  2. CONSTRUCTION SHALL COMPLY WITH MINIMUM WELLS PROTECTION SHEETS (211) & (212) OF THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, WHICH ARE IN EFFECT AND SHALL BE MAINTAINED THROUGHOUT THE PROJECT.
  3. ALL WELLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH WELLS INSTALLATION REQUIREMENTS TO BE OBTAINED FROM THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES. WELLS SHALL BE CONSTRUCTED TO BE AT LEAST 10 FEET FROM ANY EXISTING OR PROPOSED CONSTRUCTION.
  4. ALL CONSTRUCTION SHALL BE CONFINED WITHIN THE LIMITS OF THE DISTURBANCE AREA. ALL CONSTRUCTION SHALL BE CONFINED WITHIN THE LIMITS OF THE DISTURBANCE AREA. ALL CONSTRUCTION SHALL BE CONFINED WITHIN THE LIMITS OF THE DISTURBANCE AREA.
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  12. ALL CONSTRUCTION SHALL BE CONFINED WITHIN THE LIMITS OF THE DISTURBANCE AREA. ALL CONSTRUCTION SHALL BE CONFINED WITHIN THE LIMITS OF THE DISTURBANCE AREA.

- REFERENCE:**
1. TOPOGRAPHY PROVIDED BY BLUE MOUNTAIN, INC. 05/11/15.
  2. PENN E&R, INC. IS CERTIFYING THE ABOVE-GRADE STORAGE TANK (AST) PAD AND THE STOCKPILE ONLY. ALL OTHER AREAS WITHIN THE LIMITS OF DISTURBANCE ARE NOT CERTIFIED BY BLUE MOUNTAIN, INC.

THE REGISTRANT AND CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES. THE REGISTRANT AND CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES.

1	04/30/2018	ADD AST PAD & STOCKPILE
REVISION	DATE	DESCRIPTION

SCALE - FEET  
 0 40 80 120

**SITE LAYOUT**  
 MND1 AST  
 MARSHALL COUNTY, WEST VIRGINIA

PREPARED FOR  
 HG ENERGY  
 PARKERSBURG, WEST VIRGINIA

**WEST VIRGINIA** **CALL BEFORE YOU DIG!** Dial 811 or 800.245.4848

APPROVED SEP 24/2018  
 CHECKED WPA 04/25/2018  
 DRAWN DPA 03/12/2018  
 PROJECT NO. KCCO-PAD07595  
 DRAWING NUMBER PA007595-001  
 SHEET 2

111 BRAN COURT, PETERSBURG, VA 23205  
 412-722-1222

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