west virginia department of environmental protection

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

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

Friday, May 4, 2018
WELL WORK PERMIT
Horizontal 6A / Fracture

HG ENERGY II APPALACHIA, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for MND 1 DHS
47-051-01836-00-00

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 DHS
Farm Name:	CONSOLIDATION COAL COM
U.S. WELL NUMBER:	47-051-01836-00-00
Horizontal 6A	Fracture
Date Issued:	5/4/2018

API Number: 51-01836

PERMIT CONDITIONS

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

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.

2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.

3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.

4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.

5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.

6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.

7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.

8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.

9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.

10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

API Number: 51-01836

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.

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WW-6B
(04/15)

API NO. 47-_____-_____
OPERATOR WELL NO. MND1 DHS
Well Pad Name: MND1

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

494519932	Marshall	Clay	Powhatan Point
Operator ID	County	District	Quadrangle

2) Operator's Well Number: MND1 DHS 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

6) Existing Pad: Yes or No Yes

1/19/18

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: 15713'

11) Proposed Horizontal Leg Length: 9170'

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

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WW-6B
(10/14)

API NO. 47-_____-_____
OPERATOR WELL NO. MND1 DHS
Well Pad Name: MND1

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% ExcessYield=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/sk FP13L + 0.3% bwoc MPA170Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA17020% ExcessLead Yield=1.19Tail Yield=1.94CTS"

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.

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*Note: Attach additional sheets as needed.

WW-6B
(04/15)

API NO. 47-_____-_____
OPERATOR WELL NO. MND1 DHS
Well Pad Name: MND1

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	15713'	15713'	20% excess, lead yield = 1.19, CTS
Tubing							
Liners							

JW 1/19/18

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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HG ENERGY

MND1D
Marcellus Shale Horizontal
Marshall County, WV

		MND1D SHL	494167.7N 1642185.6E
Ground Elevation (RKB)	1175'	MND1D LP	493647.8N 1642573.94E
Azm	145°	MND1D BHL	486135.9N 1647833.8E

WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS
	26"	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
			Conductor already set							
	17.5"	13-3/8" 54.5# J-55 BTC	Fresh Water	538', 801', 898', 947'		AIR	15.6 ppg PNE-1 + 3% bwoc CaCl 40% Excess Yield=1.20 / CTS	Bow Springs (over collars) on first 2 joints then every third joint to 100' from surface	Circulate & condition @ TD w/ Air. RIH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 6% 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
			Surface Casing	0	1100					
			Coal(s)	687'-697'						
	12.25"	9-5/8" 40# J-55 BTC	Big Lime / Big Injun	1908 / 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 CTS	Bow Springs (over collars) on first 12 joints, then every third joint to 100' from surface	Circulate & condition @ TD w/ Air. RIH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 6% bentonite Gel/50# of poly flake, then clear casing w/ Fresh Water prior to pumping cement.	Intermediate casing = 0.395" wall thickness Burst=3950 psi
			Price	2137	2652					
			Intermediate Casing	0	2500					
	8.5" Vertical	5-1/2" 23# P-110 HC CDC HTQ	Speechley	3254	3300	AIR and/or 9.0ppg SOBM	Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170 Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess Lead Yield=1.19 Tail Yield=1.94 CTS	Run 1 spiral centralizer every 5 joints from the top of the curve to surface	Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.361" wall thickness Burst=12640 psi Note:Actual centralizer schedules may be changed due to hole conditions
			Java	4805	4900					
			Pipe Creek	4900	4987					
			Angola	4987	5569					
	8.5" Curve		Rheinstreet	5569	5890	11.5ppg-12.5ppg SOBM		Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curve.		
			Cashaqua	5890	5962					
			Middlesex	5962	5985					
			West River	5985	6046					
			Burkett	6046	6071					
			Tully	6071	6095					
			Hamilton	6095	6130					
	8.5" Lateral		Marcellus	6130	6185	11.5ppg-12.5ppg SOBM				
			TMD / TVD	15712	6175					
			Onondaga	6185						

LP @ 6175' TVD / 6542' MD

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

+/-9170' ft Lateral

TD @ +/-6175' TVD
+/-15712' MD

X=centralizers

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MND1 Well Pad
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.	
Bentonite	Extender	Commonly called gel, it is a clay material used as a cement extender and to control excessive free water.	
Calcium Chloride	Accelerator	A powdered, flaked or pelletized material used to decrease thickening time and increase the rate of strength development	
Cello Flake	Lost Circulation	Graded (3/8 to 3/4 inch) cellophane flakes used as a lost circulation material.	
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.	
Granulated Sugar	Retarder	Used to retard cement returns at surface.	
EC-1		A proprietary product that provides expansive properties and improves bonding at low to moderate temperatures.	
MPA-170	Gas Migration	Multi-purpose polymer additive used to control free fluid, fluid loss, rheology, and gas migration.	
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.	
R-3	Retarder	A low temperature retarder used in a wide range of slurry formulations to extend the slurry thickening time.	
S-5	Surfactant	Used to water wet casing and formation to facilitate cement bonding.	

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

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

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

Ingredient name	%	CAS number
No hazardous ingredient		

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

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

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

Ingredient name	%	CAS number
No hazardous ingredient		

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

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

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.

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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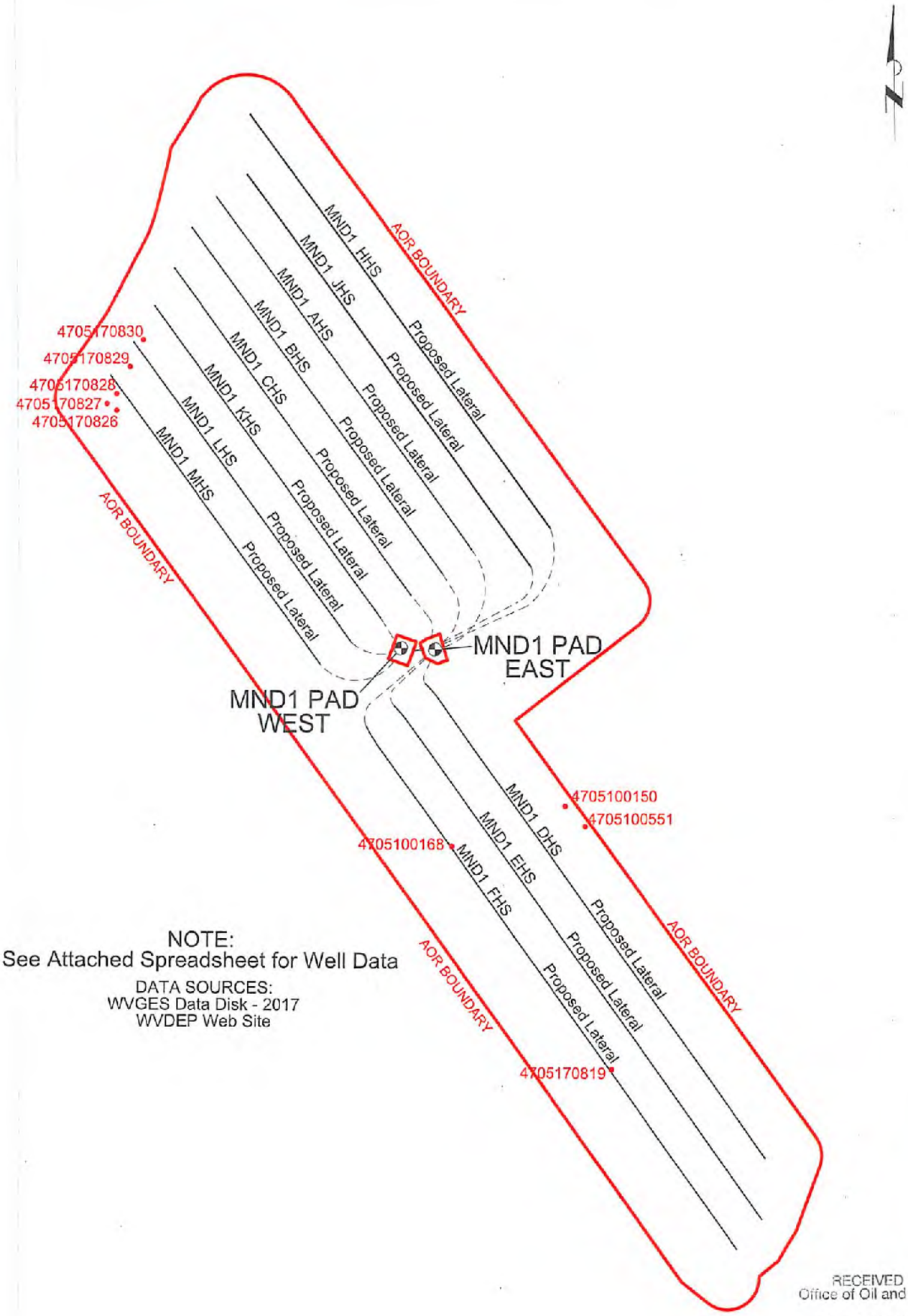

NOTE:
See Attached Spreadsheet for Well Data

DATA SOURCES:
WVGES Data Disk - 2017
WVDEP Web Site

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HG ENERGY LLC

Area of Review for:

MND1 EAST & WEST PADS

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

Clay District, Marshall County, W.Va.

0 2,000
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 DHS

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.

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Company Official Signature Diane White

Company Official (Typed Name) Diane White

Company Official Title Accountant

Subscribed and sworn before me this 26th day of December, 2017

Notary Public

My commission expires 3/24/2020

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

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Form WW-9

Operator's Well No. MND1 DHS

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	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	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: [signature]

Comments:

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Office of Oil and Gas
JAN 22 2018
WV Department of
Environmental Protection

Title: Oil + Gas Inspector Date: 1/19/18

Field Reviewed? (✓) Yes ( ) No

Cuttings Disposal/Site Water

Cuttings –Haul off Company:

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

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

Environmental Coordination Services & Recycling (ECS&R)
3237 US Highway 19
Cochranton, 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 Ridge 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

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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

51-01836

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 Environnemental 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

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

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

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

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

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

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JAN 22 2018
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51-01836

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

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

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

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

SOS D#1 (SWIW #12)
Permit # 34-059-2-4202-00-00
Silcor Oilfield Services, Inc.
2939 Hubbard Road
Youngstown, 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 Marne Rd. NE
Newark, OH 43055
740-763-3966

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4705101836

HG Energy II Appalachia, LLC

Site Safety Plan

MND 1 Well Pad
1100 Kansas Ridge Rd
Moundsville, Marshall County, WV

1/19/18

November 2017: Version 1

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

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JAN 22 2018
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Environmental Protection

HG Energy II Appalachia, LLC.

5260 Dupont Road

Parkersburg, WV 26101

Well is located on topo map 9.154 feet south of Latitude: 39° 52' 30"

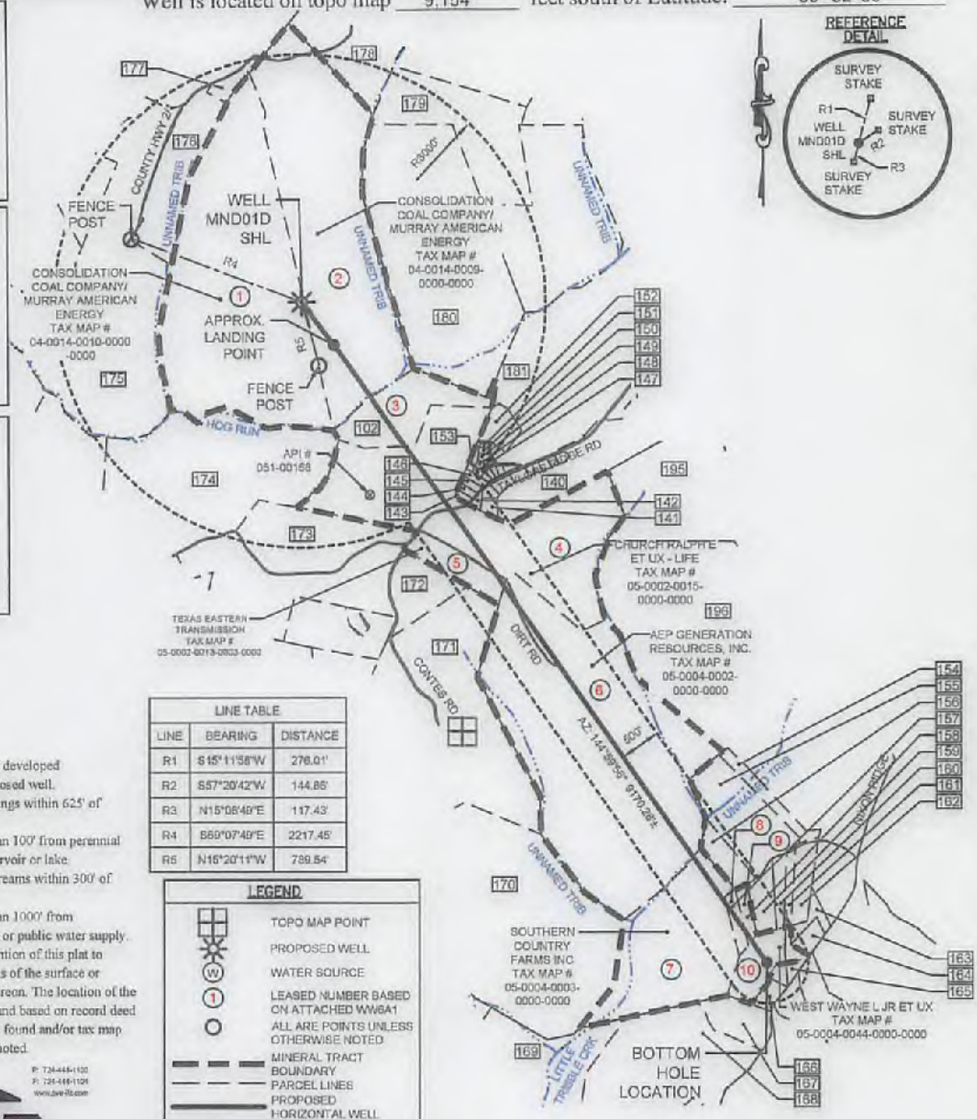
Well is located on topo map 6,812 feet west of Longitude: 80° 45' 00"

SURFACE HOLE LOCATION (SHL)
UTM 17 – NAD83
N: 4411119.072
E: 519310.983
NAD27, WV NORTH
N: 494167.914
E: 1642165.592
LAT/LON DATUM–NAD83
LAT: 39.849872
LON: –80.774263

APPROX. LANDING POINT
UTM 17 – NAD83
N: 4410962.551
E: 519431.917
NAD27, WV NORTH
N: 493647.654
E: 1642573.851
LAT/LON DATUM–NAD83
LAT: 39.848459
LON: –80.772854

BOTTOM HOLE LOCATION
UTM 17 – NAD83
N: 4408700.850
E: 521072.640
NAD27, WV NORTH
N: 486135.813
E: 1647833.859
LAT/LON DATUM–NAD83
LAT: 39.828042
LON: –80.753748

WATER WELLS:
NONE FOUND



LINE TABLE		
LINE	BEARING	DISTANCE
R1	S15°11'58"W	276.01'
R2	S57°20'42"W	144.86'
R3	N15°08'49"E	117.43'
R4	S69°07'49"E	2217.45'
R5	N15°20'11"W	789.54'

LEGEND
- TOPO MAP POINT
- PROPOSED WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WW6A1
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/ WATERWAY
- ROAD
- EXISTING GAS WELL

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.

Waterfront Corporate Park III, Suite 101
2000 Georgetown Drive
Sewickley, PA 15143
P: 724-444-1100
F: 724-444-1105
www.pve-llc.com
PVE ENGINEERING
Civil Engineering | Land Development | Structure Design
Land Planning | Landscape Architecture | Environmental

FILE #: MND 01 DHS

DRAWING #: MND 01 DHS

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.

JAMES MICHAEL VENTURE REGISTERED 18766 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER PLACE SEAL HERE

(+) 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 DHS

API WELL # 47 (STATE) 051 (COUNTY) 01836 (PERMIT) HGA

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: 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)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,175' ± TMD: 15,713'±

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

Bottom hole is located on topo map 14,072 feet south of Latitude: 39° 52' 00"

Well is located on topo map 1,053 feet west of Longitude: 80° 45' 00"

102	CHAPLIN, RALPH & ELLA	TAX MAP NO. 05-0002-0018-0000-0000
140	CHAPLIN, WAYNE R & TINA	TAX MAP NO. 05-0003-0001-0000-0000
141	MILLER ROBERT C. ET. UX.	TAX MAP NO. 05-003A-0006-0000-0000
142	MILLER ROBERT C. ET. UX.	TAX MAP NO. 05-003A-0005-0000-0000
143	CHURCH RALPH E. ET. UX.	TAX MAP NO. 05-003A-0001-0000-0000
144	NORRIS SANDRA E. - LIFE	TAX MAP NO. 05-003A-0002-0000-0000
145	WHITE, STUART, ET UX.	TAX MAP NO. 05-003A-0003-0000-0000
146	WILSON JOHN T. ET. UX.	TAX MAP NO. 05-003A-0004-0000-0000
147	MCILVAIN, WILLIAM R & KIMBERLY	TAX MAP NO. 05-003A-0043-0000-0000
148	DURIG RAYMOND CRAIG	TAX MAP NO. 05-003A-0042-0000-0000
149	EBERT JOE SR. ET. UX.	TAX MAP NO. 05-003A-0040-0000-0000
150	MARTIN SAMUEL J. ET. UX.	TAX MAP NO. 05-003A-0039-0000-0000
151	GARRISON WARD D. & LORI A	TAX MAP NO. 05-003A-0038-0000-0000
152	HEREFORD LAWRENCE R. & ALANDA S.	TAX MAP NO. 05-003A-0056-0000-0000
153	RECREATION AREA FOR TAYLOR MANOR DEVELOPMENT	
154	DILLE STEVEN & ASHLEY	TAX MAP NO. 05-0004-0003-0008-0000
155	SAUNDERS, EUGENE L.	TAX MAP NO. 05-0004-0003-0014-0000
156	SOUTHERN COUNTRY FARMS INC.	TAX MAP NO. 05-0004-0003-0013-0000
157	DOTTY, JAMES H. & MELANIE A.	TAX MAP NO. 05-0004-0034-0000-0000
158	DOTTY, JAMES H. & MELANIE A.	TAX MAP NO. 05-0004-0034-0001-0000
159	SOUTHERN COUNTRY FARMS INC.	TAX MAP NO. 05-0004-0025-0000-0000
160	FRANKLIN LEE WARD	TAX MAP NO. 05-0004-0024-0000-0000
161	UNKNOWN	
162	COLADONATO, STEPHEN	TAX MAP NO. 05-0004-0021-0000-0000
163	MARTIN SHARK ET. UX.	TAX MAP NO. 05-0000-0029-0000-0000
164	MARTIN SHARK ET. UX.	TAX MAP NO. 05-0004-0030-0000-0000
165	ALLMAN, KYLE MICHAEL	TAX MAP NO. 05-0004-0003-0001-0000
166	WEST WAYNE L. JR. ET. UX.	TAX MAP NO. 05-0004-0003-0003-0000
167	WEST WAYNE L. JR. ET. UX.	TAX MAP NO. 05-0004-0013-0001-0000
168	CNX LAND RESOURCES	TAX MAP NO. 05-0013-0000-0000-0000
169	AEP GENERATION RESOURCES INC.	TAX MAP NO. 05-0004-0015-0000-0000
170	AEP GENERATION RESOURCES INC.	TAX MAP NO. 05-0004-0001-0000-0000
171	AEP GENERATION RESOURCES INC.	TAX MAP NO. 05-0002-0013-0005-0000
172	TEXAS EASTERN TRANSMISSION	TAX MAP NO. 05-0002-0013-0000-0000
173	FASOULETOS ANDREW M. ET. AL.	TAX MAP NO. 05-0002-0009-0000-0000
174	GRAY ROBERT WILLIAM - LIFE	TAX MAP NO. 05-0002-0008-0000-0000
175	CONSOLIDATION COAL COMPANY, ET AL.	TAX MAP NO. 04-0014-0011-0000-0000
176	TSCHAPPAT ROBERT E. SR. ET. UX.	TAX MAP NO. 04-0014-0006-0000-0000
177	TSCHAPPAT ROBERT E. JR. ET. UX.	TAX MAP NO. 04-0014-0006-0001-0000
178	RINE WENDELL B. & CAROLYN S.	TAX MAP NO. 04-0014-0007-0000-0000
179	ESTEP EUGENE C. & ELIZABETH A.	TAX MAP NO. 04-0013-0002-0000-0000
180	CONSOLIDATION COAL COMPANY, ET AL.	TAX MAP NO. 04-0014-0008-0000-0000
181	MCCLURE CHARLES L. ET. UX.	TAX MAP NO. 05-0002-0016-0000-0000
195	CHAPLIN RALPH & ELLA	TAX MAP NO. 05-0003-0005-0000-0000
196	HOWE RUSSELL BLAINE ET. UX. - LIFE	TAX MAP NO. 05-0003-0031-0000-0000

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.
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Waterford Corporate Park III, Suite 101
2003 Georgetown Drive
Sewickley, PA 15143
P: 724-444-1500
F: 724-444-1504
PVE ENGINEERING
Civil Engineering | Land Development | Structure Design
Land Planning | Landscape Architecture | Environmental

LEGEND

- TOPO MAP POINT
- TOPO MAP POINT
- PROPOSED WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WVGA1
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/ WATERWAY
- ROAD
- EXISTING GAS WELL

FILE #: MND 01 DHS

DRAWING #: MND 01 DHS

SCALE: 1"=2000'

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SIGNED:

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

JAMES MICHAEL VENTURE REGISTERED 18766 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER PLACE SEAL HERE

(+) 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 DHS

API WELL # 47 (STATE) 051 (COUNTY) 01836 (PERMIT)

H6A

Well Type: ☐ Oil ☐ Waste Disposal ☒ Production ☐ Deep

☒ Gas ☐ Liquid Injection ☐ Storage ☒ Shallow

WATERSHED: SHORT CREEK-OHIO RIVER ELEVATION: 1150.00'

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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: 15,713'±

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 **

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

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Office of Oil and Gas
JAN 22 2018
WV Department of
Environmental Protection

SH01836

HG Energy II Appalachia, LLC
MND1 DHS Lease Chain

HG Lease Number	MPID	Original Lessor	Original Lessee	Royalty	Book	Page
1) 623175	04-0014-0010-0000-0000	Consolidation Coal Company, et al	CNX Gas Company, LLC	Not less than 1/8	646	493
		CNX Gas Company, LLC	Noble Energy, Inc.		752	66
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		39	1
2) 623177	04-0014-0009-0000-0000	Consolidation Coal Company, et al	CNX Gas Company, LLC	Not less than 1/8	646	493
		CNX Gas Company, LLC	Noble Energy, Inc.		752	66
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		39	1
3) Q092705000	05-0002-0018-0000-0000	James R. Chaplin	NPAR, LLC	Not less than 1/8	718	322
		NPAR, LLC	Chevron U.S.A. Inc.		756	332
		Chevron U.S.A. Inc.	Noble Energy, Inc.		34	502
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		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 I	Not less than 1/8	792	97
		Gastar Exploration USA, Inc.	Antinum Marcellus I, LLC		29	157
		Gastar Exploration Inc. and Antinum Marcellus I, LLC	Noble Energy Inc. and CNX Gas Company, LLC		32	185
		CNX Gas Company, LLC	Noble Energy, Inc.		752	66
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		39	1
5) Q08903550	05-0002-0013-0003-0000	Texas Eastern Transmission, LP	Noble Energy, Inc.	Not less than 1/8	859	510
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		39	1
6) Q08344200	05-0004-0002-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc.	Not less than 1/8	829	157
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		39	1
7) Q07617000	05-0004-0003-0000-0000	Southern Country Farms, Inc.	Noble Energy, Inc.	Not less than 1/8	801	79
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		39	1
8) Q07617000	05-0004-0034-0001-0000	Southern Country Farms, Inc.	Noble Energy, Inc.	Not less than 1/8	801	79
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		39	1
9) Q07617000	05-0004-0034-0000-0000	Southern Country Farms, Inc.	Noble Energy, Inc.	Not less than 1/8	801	79
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		39	1
10) Q07617000	05-0004-0044-0000-0000	Southern Country Farms, Inc.	Noble Energy, Inc.	Not less than 1/8	801	79
		Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC		39	1

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Office of Oil and Gas
JAN 22 2018
WV Department of
Environmental Protection

4705101836

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 57th Street
Charleston, WV 25304

RE: Drilling Under Roads – MND1 DHS
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 or 304-420-1119.

Very truly yours,

Diane White

Diane C. White

Enclosures

RECEIVED
Office of Oil and Gas
JAN 22 2018
WV Department of
Environmental Protection

WW-6AC
(1/12)

4705101836

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 DHS
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:	West Virginia	UTM NAD 83	Easting:	519311.0
County:	Marshall		Northing:	4411119.0
District:	Clay	Public Road Access:		Country Highway 88/8
Quadrangle:	Powhatan Point	Generally used farm name:		Consol
Watershed:	Short Creek - Ohio River (HUC 10)			

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.

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:

*PLEASE CHECK ALL THAT APPLY

		OOG OFFICE USE ONLY
☐ 1. NOTICE OF SEISMIC ACTIVITY or	☒ NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED	☐ RECEIVED/ NOT REQUIRED
☐ 2. NOTICE OF ENTRY FOR PLAT SURVEY or	☒ NO PLAT SURVEY WAS CONDUCTED	☐ RECEIVED
☒ 3. NOTICE OF INTENT TO DRILL or	☐ NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or ☐ WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)	☐ RECEIVED/ NOT REQUIRED
☒ 4. NOTICE OF PLANNED OPERATION		☐ RECEIVED
☒ 5. PUBLIC NOTICE		☐ RECEIVED
☒ 6. NOTICE OF APPLICATION		☐ RECEIVED

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JAN 22 2018
WV Department of
Environmental Protection

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.

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Certification of Notice is hereby given:

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

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

OFFICIAL SEAL
NOTARY SEAL
STATE OF WEST VIRGINIA
NOTARY PUBLIC
CASSIDY A. BOARDMAN
5301 13th Ave Vienna, WV 26105
My Commission Expires July 31, 2022

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 depprivacyofficer@wv.gov.

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Environmental Protection

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WW-6A
(9-13)

API NO. 47-_____-_____
OPERATOR WELL NO. MND1 DHS
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
Name: _____
Address: _____

☐ SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: _____
Address: _____
Name: _____
Address: _____

☐ SURFACE OWNER(s) (Impoundments or Pits)
Name: _____
Address: _____

☑ COAL OWNER OR LESSEE
Name: Same as Surface Owner
Address: _____

☑ COAL OPERATOR
Name: Same as Surface Owner
Address: _____

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

☐ OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

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WV Department of Environmental Protection

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WV Department of
Environmental Protection

API NO. 47-_____-_____
OPERATOR WELL NO. MND1 DHS
Well Pad Name: MND1

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

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

Well Location Restrictions

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

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:

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Office of Oil and Gas
JAN 22 2018
WV Department of
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Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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

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(8-13)

API NO. 47-_____-_____
OPERATOR WELL NO. MND1 DHS
Well Pad Name: MND1

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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API NO. 47-_____-_____
OPERATOR WELL NO. MND1 DHS
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: 304-863-3172

Oil and Gas Privacy Notice:

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

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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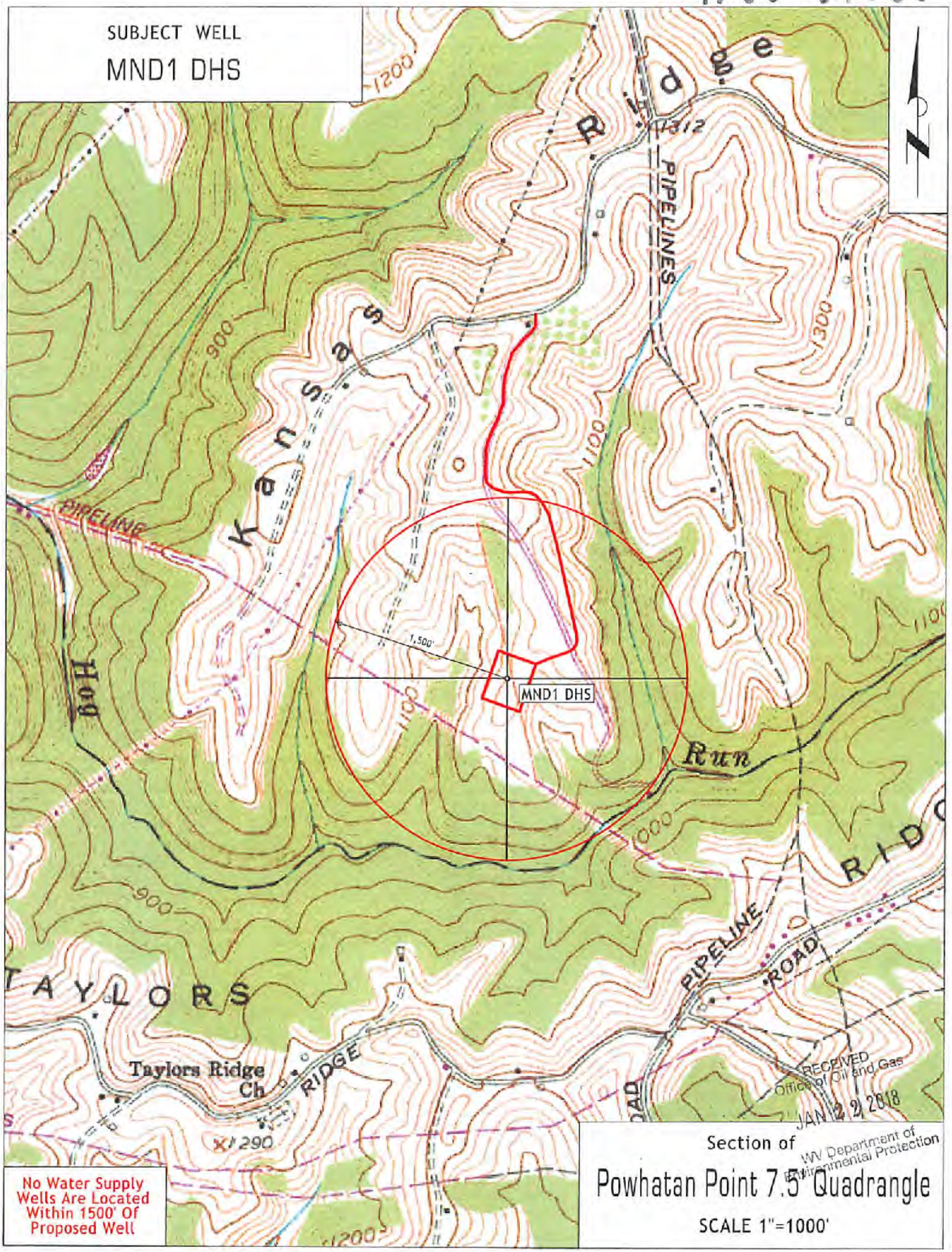
SUBJECT WELL

MND1 DHS



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

Section of

Powhatan Point 7.5' Quadrangle

SCALE 1"=1000'

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WV Department of
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(1/12)

Operator Well No. MND1 DHS

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

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

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.
Date of Notice: 12/28/2017 **Date Permit Application Filed:** 01/11/2018

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

☐ HAND DELIVERY ☒ CERTIFIED MAIL RETURN RECEIPT REQUESTED

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

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

Name: Murray Energy Corporation - Jason Witt
Address: 46226 National Road
Saint Clairsville, OH 43950

Name:
Address:

Notice is hereby given:

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

State: West Virginia
County: Marshall
District: Clay
Quadrangle: Powhatan Point
Watershed: Short Creek - Ohio River (HUC 10)

UTM NAD 83 Easting: 519311.0
Northing: 4411119.0
Public Road Access: County Highway 88/8
Generally used farm name: Consol

This Notice Shall Include:

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

Notice is hereby given by:

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

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

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JAN 22 2018
WV Department
Environmental Prot

Oil and Gas Privacy Notice:

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

WW-6A5
(1/12)

4705101836
Operator Well No. MND1 DHS

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 RETURN RECEIPT REQUESTED ☐ HAND DELIVERY

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

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

Name: Murray Energy Corporation - Jason Witt
Address: 46226 National Road
Saint Clairsville, OH 43950

Name:
Address:

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

State: West Virginia
County: Marshall
District: Clay
Quadrangle: Powhatan Point
Watershed: Short Creek - Ohio River (HUC 10)

UTM NAD 83 Easting: 519311.0
Northing: 4411119.0
Public Road Access: County Highway 88/8
Generally used farm name: Consol

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

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

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

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

RECEIVED
Office of Oil and Gas
JAN 22 2018
WV Department of Environmental Protection

4705101836

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 57th 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

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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Office of Oil and Gas
JAN 22 2018
WV Department of
Environmental Protection

4705 101836

List of Frac Additives by Chemical Name and CAS

MND1 Well Pad (DHS,EHS,FHS)

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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JAN 22 2018
WV Department of
Environmental Protection

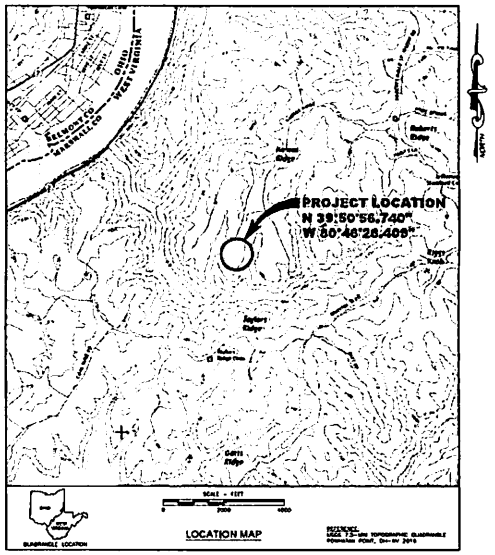
CONSTRUCTION IMPROVEMENT PLANS FOR

MND1 WELL SITE AST

APPROVED
WVDEP OOG
Modification
5/4/2018

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

MARSHALL COUNTY
WEST VIRGINIA



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

CONSTRUCTION SEQUENCE

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

PREPARED FOR
HG ENERGY, 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

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

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

THIS DRAWING & COPYRIGHTS, THE DRAWING IS A TRADE SECRET AND SHALL SUBMITTED TO THE REGULATORY AGENCIES, AND ARE THE SOLE PROPERTY OF PENN ENVIRONMENTAL & REMEDIATION, INC. AND MAY NOT BE REPRODUCED IN ANY FORM WITHOUT WRITTEN PERMISSION. THIS DRAWING MAY BE REPRODUCED ON REQUEST OF THE COMPANY

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

REGISTERED PROFESSIONAL ENGINEER 20468 STATE OF WEST VIRGINIA

TITLE SHEET
MND1 AST

MARSHALL COUNTY, WEST VIRGINIA

PREPARED FOR
HG ENERGY
PARKERSBURG, WEST VIRGINIA

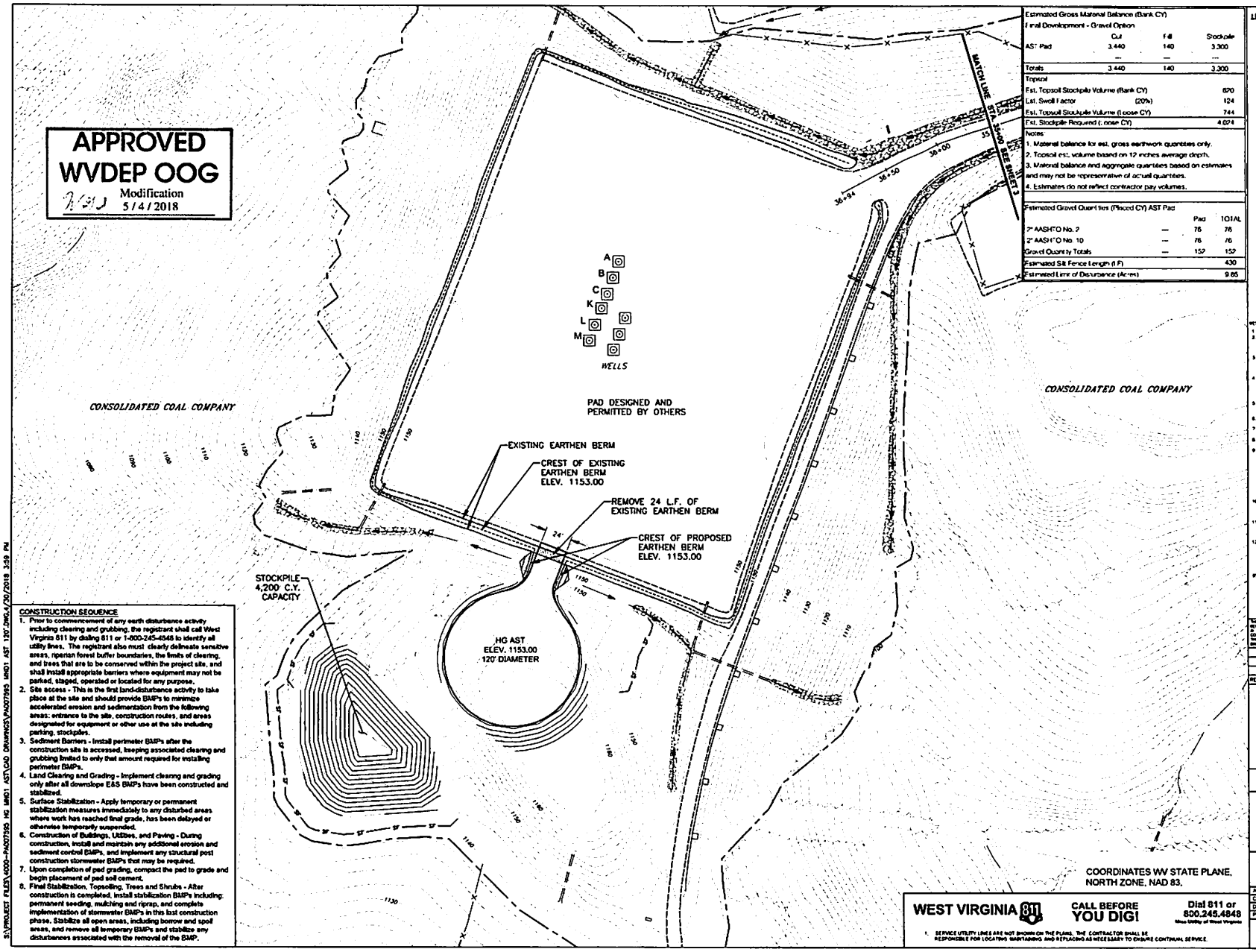
APPROVED	MEF 04/30/2018
CHECKED	MEF 04/30/2018
DRAWN	DJA 03/12/2018
PROJECT No.	4000-PA007595

DRAWING NUMBER
PA007595-001
SHEET 1

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

S:\PROJECT FILES\4000-PA007595 HG MND1 AST\CAD DRAWINGS\PA007595 TITLE SHEET.DWG,4/30/2018 3:56 PM

APPROVED
WVDEP OOG
Modification
5/4/2018



Estimated Gross Material Balance (Bank CY)			
Final Development - Gravel Option			
	Cut	Fill	Stockpile
AST Pad	3,440	140	3,300
—	—	—	—
Totals	3,440	140	3,300
Topsoil			
Est. Topsoil Stockpile Volume (Bank CY)			620
Est. Swell Factor		(20%)	124
Est. Topsoil Stockpile Volume (Loose CY)			744
Est. Stockpile Required (Loose CY)			4,074

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

Estimated Gravel Quantities (Placed CY) AST Pad			
		Pad	TOTAL
2" AASHTO No. 2	—	76	76
2" AASHTO No. 10	—	76	76
Gravel Quantity Totals	—	152	152
Estimated Silt Fence Length (LF)			430
Estimated Limit of Disturbance (Acres)			9.85

LEGEND

- SF — SILT 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

WEST VIRGINIA GENERAL NOTES

1. REFERENCE THIS SHEET WITH THE CONSTRUCTION NOTES AND DETAILS.
2. CONTRACTOR SHALL CONTACT WEST VIRGINIA UTILITIES PROTECTION SERVICES (811) A MINIMUM OF 3 DAYS PRIOR TO EXCAVATION WORK. UTILITIES MUST BE IDENTIFIED AND OTHER RESOURCES OR PROVIDED BY CONTRACTOR PRIOR TO BEGINNING WORK AT THE SITE.
3. SITE SHALL BE CONSTRUCTED IN ACCORDANCE WITH WELL DRILLING PERMIT. CONTRACTOR RESPONSIBLE TO OBTAIN ALL OTHER ANCILLARY PERMITS/APPROVALS REQUIRED TO CONSTRUCT SITE INCLUDING BUT NOT LIMITED TO FEDERAL, STATE, AND LOCAL REQUIREMENTS.
4. NO GEOTECHNICAL OR SLOPE STABILITY ANALYSIS WAS PERFORMED FOR THIS SITE. CONTRACTOR IS RESPONSIBLE TO CONSTRUCT PROPER TOE AND BENCHING BENCHES BASED ON FIELD CONDITIONS TO PROVIDE SUBGRADE FOR FILL PLACEMENT ON STEEP SLOPES. PENN E&R IS NOT RESPONSIBLE FOR SLIPS, SLIDES, OR EARTH MOVEMENT RESULTING FROM CONSTRUCTION.
5. ESTABLISH EROSION AND SEDIMENTATION CONTROL BMPS PRIOR TO EARTHWORK. SITE CONSTRUCTION SHALL FOLLOW WEST VIRGINIA EROSION AND SEDIMENT CONTROL FIELD CONSTRUCTION MANUAL.
6. CLEAR AND GRUB WORK AREA. REMOVE AND STOCKPILE AVAILABLE TOPSOIL FROM LIMIT OF DISTURBANCE TO A LOCATION DETERMINED BY HG ENERGY, LLC.
7. NO EMBANKMENT FILL SHALL BE PLACED ON FROZEN MATERIAL. FILL MATERIAL SHALL BE FREE OF ORGANICS, LARGE ROCKS, FROZEN SOIL OR OTHER OBJECTIONABLE MATERIAL.
8. CUT/FILL SLOPES SHALL BE CONSTRUCTED TO A MAXIMUM SLOPE OF 2H:1V UNLESS NOTED OTHERWISE.
9. FILL MATERIALS SHALL BE PLACED IN LIFTS OR LAYERS OVER THE LENGTH OF THE FILL. THE MATERIAL OF THE ADD SHALL BE AS THIN AS THE SUITABLE MATERIAL EXCAVATED MATERIAL WILL PERMIT, TYPICALLY, 6-12 INCHES THICK. THE SIZE OF ROCK LIFTS SHALL NOT EXCEED 30 INCHES. THE ROCK SHALL NOT BE GREATER IN ANY DIMENSION THAN 36 INCHES. COMPACTION SHALL BE OBTAINED BY COMPACTION EQUIPMENT SHEEP'S FOOT OR PAD ROLLER, DEPENDING ON MATERIAL. WITH COMPACTION TO YIELD NON-MOVEMENT OF THE EMBANKMENT MATERIAL. COMPACTION EFFORT SHALL NOT EXCEED OPTIMUM MOISTURE LIMITS. EACH LIFT SHALL BE COMPACTED TO A STANDARD PROCTOR DENSITY OF 97 (ASTM D698) BEFORE BEGINNING THE NEXT LIFT. DE-TESTING SHALL BE PERFORMED AT A RATE OF 3 TESTS/ACRE/LIFT.
10. CONTRACTOR SHALL COORDINATE MATERIAL MANAGEMENT (EXCESS CUT/FILL, TOPSOIL STOCKPILE, CRUSH SOURCES) WITH HG ENERGY, LLC PRIOR TO MOBILIZATION. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER EROSION AND SEDIMENT CONTROLS BOTH ON SITE AND OFF SITE.
11. ALL SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS ARE STABILIZED AND THE VEGETATIVE GROUND COVER HAS ACHIEVED A UNIFORM THIN GROWTH. ANY AREAS NOT ACHIEVING A THIN VEGETATIVE COVER SHALL BE RESEEDED AND MULCHED WITHIN 24 HOURS OF DETECTION.
12. SECONDARY CONTAINMENT SHALL BE PROVIDED DURING DRILLING PROCESS. A LINER AND HAY SYSTEM WITH BERM SHALL BE INSTALLED PRIOR TO DRILLING AND THERE WHERE SECONDARY CONTAINMENT SHALL BE DISPOSED OFFSITE IN ACCORDANCE WITH SW REGULATIONS.

REFERENCE:

1. TOPOGRAPHY PROVIDED BY BLUE MOUNTAIN INC. 03/11/13.
2. PENN E&R, INC. IS CERTIFYING THE ABOVE-GROUND STORAGE TANK (AST) PAD AND THE STOCKPILE ONLY. ALL OTHER AREAS WITHIN THE LOD WAS DESIGNED AND CERTIFIED BY BLUE MOUNTAIN INC.

THIS DRAWING IS COPYRIGHTED. THE DRAWING IS A TRADE SECRET AND MUST REMAIN THE PROPERTY OF THE RECEIVER FOR HIS PERSONAL USE. REPRODUCTION OF THIS DRAWING WITHOUT THE WRITTEN CONSENT OF PENN ENVIRONMENTAL & REMEDIATION, INC. IS PROHIBITED. THIS DRAWING IS TO BE KEPT IN A SECURE FASHION AND NOT DISCLOSED TO THIRD PARTIES. THIS DRAWING MUST NOT BE MADE ACCESSIBLE TO SUCH PARTIES. ANY ALLEGED USE OF THE RECEIVED OR THOSE PARTIES FOR WHICH HE IS RESPONSIBLE CAN CONSTITUTE A CAUSE FOR LEGAL ACTION. THIS DRAWING MUST BE RETURNED ON REQUEST OF THE COMPANY.

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

REGISTERED PROFESSIONAL ENGINEER 20458 STATE OF WEST VIRGINIA

SCALE - FEET
0 40 80 120

SITE LAYOUT

MND1 AST

MARSHALL COUNTY, WEST VIRGINIA

PREPARED FOR
HG ENERGY
PARKERSBURG, WEST VIRGINIA

COORDINATES WV STATE PLANE, NORTH ZONE, NAD 83.

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

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APPROVED	MEP 04/30/2018	
CHECKED	MFR 04/30/2018	
DRAWN	CJA 03/12/2018	
PROJECT No.	4000-PA007595	
DRAWING NUMBER	PA007595-001 SHEET 2	

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

CONSTRUCTION SEQUENCE

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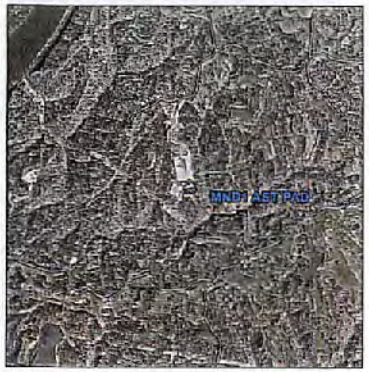
S:\PROJECT FILES\4000-PA007595 HG MND1 AST\CAD DRAWINGS\PA007595 MND1 AST 120' DWG\4/30/2018 3:59 PM



LOCATION MAP
NOT TO SCALE

HG ENERGY II APPALACHIA LLC
5260 DUPONT ROAD
PARKERSBURG, WV 26101
(304) 420-1100 MAIN OFFICE
(304) 863-3172 FAX

LOCATION MAP
POWHATAN POINT 7.5M USGS QUADRANGLE
SCALE: 1"=2000'

MNDI WELL SITE W/ AST PAD

WELL SITE LOCATION

NAD 83 - LAT: N 39°50'59.392"; LONG: W 80°46'27.225"
NAD 27 - LAT: N 39°50'59.120"; LONG: W 80°46'27.907"

ENTRANCE LOCATION

NAD 83 - LAT: N 39°51'02.247"; LONG: W 80°46'19.979"
NAD 27 - LAT: 39°51'01.974"; LONG: W 80°46'20.661"

POWHATAN POINT QUADRANGLE
MARSHALL COUNTY, WEST VIRGINIA
DATE: NOVEMBER 28, 2017

SHEET INDEX	
DRAWING NUMBER	DRAWING NAME
1	COVER SHEET
2-3	GENERAL NOTES
4	OVERALL SITE PLAN
5	OVERALL SITE PLAN W/ ORTHO
6	CONSTRUCTION DETAILS
7	MATERIAL QUANTITIES

Blue Mountain Inc.
Engineers and Land Surveyors
Woman Owned Small Business
11023 Mason Dixon Hwy.
Burton, WV 26562-9656
(304) 662-6486

RECEIVED
Office of Oil and Gas
JAN 22 2018
WV Department of
Environmental Protection

7/19/18

NOTE: DRAWING WAS CREATED ON 22X34 PAPER. 11X17 DRAWINGS ARE HALF SCALE. REFER TO SCALE BAR FOR PROPER SCALING.

Blue Mountain Inc.
Engineers and Land Surveyors
Woman Owned Small Business
11023 Mason Dixon Hwy.
Burton, WV 26562-9656
(304) 662-6486

HG ENERGY II APPALACHIA LLC
5260 DUPONT ROAD
PARKERSBURG, WV 26101
(304) 420-1100 MAIN OFFICE
(304) 863-3172 FAX

MNDI WELL PAD W/ AST PAD
COVER SHEET

REVISIONS

DATE	TYPE

DRAWN BY: TJH
CHECKED BY:
DATE: 11/28/17
SCALE: AS SHOWN
JOB NO.:
DRAWING NAME:

SHEET NO. 1

General Notes

1. This design was performed without a geotechnical investigation; Therefore, Blue Mountain Inc. shall assume no responsibility for any unforeseen site conditions during or after construction, including any potential slope or embankment failures due to a surcharge load of other causes.
2. The contractor shall be solely responsible for complying with all Federal, State and Local safety requirements including the occupational safety and health act of 1970. The contractor shall always exercise precaution for the protection of persons including employees and property. It shall also be the sole responsibility of the contractor to initiate, maintain and supervise all safety requirements, precautions and programs in connection with the work, including the requirements for confined spaces per CFR 1910.146.
3. The contractor shall restrict construction activity to the areas shown on the plans unless otherwise authorized by HG Energy.
4. The contractor shall carefully preserve benchmarks, property corners, reference points, stakes and other survey reference monuments or markers. In cases of willful or careless destruction, the contractor shall be responsible for restorations. Resetting of markers shall be performed by an professional surveyor as approved by HG Energy.
5. All structures, landscaping, signs if any or other appurtenances disturbed or damaged during construction shall be replaced or repaired to the satisfaction of HG Energy. The cost of this work shall be the responsibility of the contractor.
6. All trees within the construction area will be preserved except the trees that are to be removed as shown in the plans.
7. Contractor shall maintain adequate clearance from all electric lines, if any, in accordance with the national electrical safety code.
8. All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S plan. A copy of the approved drawings (stamped, signed and dated by the reviewing agency) must be available at the project site at all times. The reviewing agency shall be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submittal of those changes for review and approval at its discretion.
9. Areas to be filled are to be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots and other objectionable material.
10. The contractor shall minimize all clearing and disturbance to the environment to the maximum extent possible. Clearing, grubbing, and topsoil stripping shall be limited to those areas described in each stage of the construction sequence.
11. Perimeter sediment barriers shall be implemented as the first step of grading within seven (7) days from the start of clearing and grubbing, and shall continue to function until the slope development area is restabilized.
12. All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated. Seeded areas within 50 feet of a surface water, or as otherwise shown on the plan drawings, shall be blanketed according to the standards of this plan.
13. Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within 1 year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within 1 year shall be stabilized in accordance with the permanent stabilization specifications.
14. No solid (other than sediment) or liquid waste, including building materials, shall be discharged in storm water runoff. All non-sediment pollutants must be disposed of in accordance with the Department's Solid Waste Management Regulations. Rubbish, trash, garbage, litter, or other such materials shall be disposed into sealed containers. Materials shall be prevented from leaving the site through the action of wind or storm water discharge into drainage ditches or waters of the state.
15. If the action of vehicles traveling over the stabilized construction exit does not sufficiently remove most of the dirt and mud, then the tires must be washed before vehicles enter a public road. Tracking or spilling mud, dirt or debris upon streets or drives is prohibited. Any such occurrence shall be cleaned up immediately by the contractor at no additional cost to HG Energy. If the contractor fails to remove said mud, dirt, debris, or spillage, any fines levied against HG Energy by local and state regulators will be charged to contractor.
16. Dust control using approved materials must be performed at all times. The use of motor oils and other petroleum based or toxic liquids for dust suppression is prohibited. Onsite and off-site stockpile and borrow areas shall be protected from erosion and sedimentation by the use of best management practices. These areas must be shown in the site map and permitted in accordance with general permit requirements. At a minimum compost filter socks are to be placed at perimeter of stockpile area to prevent soil from leaving the stockpile area. All materials spilled, dropped, washed, or tracked onto the roadways or into the storm sewers must be removed immediately.
17. All construction shall be stabilized at the end of each day; this includes backfilling of trenches for utility construction and placement of gravel or asphalt for road construction. The last layer of soil, including top soil should be compacted to 85% - 85% of the maximum standard proctor density, in areas that will receive vegetation. This is particularly important in cut slope and embankment areas. The contractor shall maintain traffic on local county roads to the public at all times during construction. All traffic lanes shall be open to traffic at all times. The contractor shall use caution & proper traffic control devices (i.e drums, signs, flaggers, etc) when working in the vicinity of the project site.
18. The contractor shall add additional controls if conditions warrant.
19. The contractor shall be solely responsible for ensuring safety of monitoring and pedestrian traffic during performance of the work.
20. There shall be no discharge from the well pad sumps during drilling operations. Sumps are to be removed and berms are to be breached during reclamation of the site.

General Utility Notes

1. At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, Miss Utility shall be notified by dialing 811 for the location of existing underground utilities.
2. The identity and locations of existing underground utilities in the construction area have been shown on the plans as accurately as provided by the owner of the underground utility. Blue Mountain Inc. & HG Energy assumes no responsibility for the accuracy of depths, and locations of underground facilities shown on the approved construction drawings. If damage is caused, the contractor shall be responsible for repair of the same and for any resulting contingent damage.
3. Location, support, protection and restoration of all existing utilities and appurtenances, whether shown or not shown on the approved construction drawings, shall be the responsibility of the contractor.
4. When unknown or incorrectly located underground utilities are encountered during construction, the contractor shall immediately notify HG Energy.
5. When making excavations, the contractor shall do the following:

A. Maintain reasonable clearance between any underground facility and the cutting edge or point of powered equipment.

B. Protect and preserve the markings of approximate locations of underground utility facilities until those markings are no longer required for proper and safe excavations.

C. When approaching underground utility facilities while excavating with powered equipment, require an individual other than the equipment operator, to look for any sign of underground utility facility.

D. Conduct the excavation in the vicinity of the underground utility facility in a careful and prudent manner, excavating by hand, if necessary, to determine the precise location of the facility and to prevent damage.

E. As soon as any damage is discovered, including gouges, dents, or breaks to coatings, cable sheathes, and cathodic protection anodes or wiring, report the type and location of the damage to the utility and permit the utility a reasonable amount of time to make necessary repairs.

F. Immediately report to the utility and, if necessary, to the appropriate law enforcement agencies and fire departments, and damage to an underground utility facility that results in escaping flammable, corrosive, explosive, or toxic liquids or gas, and take reasonable appropriate actions needed to protect persons or property and to minimize safety hazards until those agencies and departments and the utility arrive at the scene.

6. Contractor shall comply with all provisions of the national electric safety code, especially when working near live electric lines.

Construction Sequence

1. Field-mark limits of disturbance and environmentally sensitive areas (including steep slopes, riparian buffers, wetlands, springs, and floodways).
2. Construct rock construction entrance.
3. Install BMP's associated with the project.
4. Clear and grub entire site.
5. Construct mountable berms.
6. Ensure all existing sumps and valves are in working order if not repair/replace.
7. Once final grading is complete and the site has reached a minimum vegetation of 70%, and upon DEP inspection, Site E&S controls may be removed.

Grading & Compaction Notes

1. It is the responsibility of the contractor to perform test pits (in the presence of HG Energy) to locate suitable material prior to initiating mass grading.
2. Clearing, grubbing, stripping of organic surface soils and the removal of unsuitable/unstable soils and existing uncontrolled fill shall be performed in all structural areas.
3. After stripping has been completed, the resulting subgrade should be proof rolled with a fully loaded tandem axle dump truck prior to structural fill placement. Subgrade soils identified as being unsuitable or unstable, including unstable colluvial soils, shall be undercut to a stable soil stratum and backfilled with controlled, compacted soil fill or rock fill, where indicated on the Plans. All unsuitable soil containing excessive organics or debris shall be wasted.
4. Provide drainage measures for springs or perched water that are encountered during construction. The treatment, which will be determined in the field depending on the conditions, may include placement of drain tile, mattress drains, interceptor trenches, and/or sumps to collect the water. All water shall be outletted by gravity outside of the limits of the pad slopes.
5. The excavation contractor shall be solely responsible for evaluating the excavation effort required for the highly weathered to competent rock strata and to size material that complies with *WVDOH Construction Manual 2002, Section 207.7 Rock Embankment*, and has a maximum particle size and lift thickness of 6 inches. Provide on-site crushing and blending as necessary to meet acceptable gradations for excavated rock. Where embankment soil fill or native soils are located against rock fill, create a suitable rock fill gradation to prevent soil migration by blending the rock fill with soil or choking the rockfill with imported aggregate.
6. On-site soils meeting USCS designations of CL, ML, or more granular with a maximum particle size of six inches shall be used as soil fill. If available, rock or soil fill consisting of on-site granular soils meeting the USCS classification of SC, SM, GC, and GM or more granular should be utilized in the toe benches. Unsuitable materials with unacceptable fractions of organics or debris are not permitted for use as fill. If coal or carbonaceous material is encountered during excavation, immediately contact the client and engineer.
7. Place all fill on a stable, nearly level subgrade. Compaction equipment shall consist of large (20 ton minimum) vibratory, self-propelled sheepsfoot rollers for cohesive soils and smooth-drum rollers for granular soils. Smooth-drum rollers are not permitted for the initial compaction of cohesive soils.
8. Compact structural fill to the following minimum specifications:

- Soil fill below the upper two feet of pad subgrade – maximum twelve inch loose lifts compacted to 95% of max dry density and within three percentage points of the optimum moisture content as determined by ASTM D-698. (Nothing frozen)

- Soil fill within the upper two feet of pad subgrade – maximum twelve inch loose lifts compacted to 98% of max dry density and within two percentage points of the optimum moisture content as determined by ASTM D-698. (Nothing frozen)

- Rock fill – maximum 36 inch loose lifts compacted to non-movement under compaction equipment.

It is not recommended to use soil fill that is more than three percentage points above the optimum moisture content or soils that classify as fat clay (CH) or elastic silt (MH). If the client decides to use these soils the following measures shall be provided to enhance stability:

- Compaction shall be controlled by determining the maximum achievable compaction from a control strip.

- These soils shall not be placed in embankment slopes, within the upper three feet of the pad surface, or under areas of the pad that will support rig loads.

- Ensure the maximum recommended lift thickness is maintained to allow for maximum achievable compaction.

- Dry soils by mixing with drier soil and/or rock.

- Sequence construction to allow for some moisture reduction by natural drying or aerating.

- Static compaction methods may be specified to reduce instability.

- Provide mass grading observation and testing to make sure that the contractor is controlling material placement and compaction in the most effective manner.

- Reclamation Soil fill – maximum 24" loose lifts compacted to 90% of Standard Proctor Density as determined by ASTM D-698.

9. Fill slopes constructed in a manner to ensure adequate compaction to the edge of the fill, which may require constructing the slope wider than necessary and then cutting back to the required grade. Upon completion of the final grading, the slopes shall be tracked down with tracked equipment prior to placing topsoil.
10. Toe benches are required for each fill slope in accordance with the Benching and Transition Detail. Different bench dimensions and configurations may be necessary as dictated by subsurface conditions, such as wet or unstable colluvial soils, high plasticity clays, or clay seams located within the bedrock. These occurrences may be revealed during grading, or during test pit excavation performed during toe bench construction. The Contractor is responsible for proof rolling and performing test pits in the toe benches to assess the presence of these materials. Drainage measures shall be provided as indicated in the Benching and Transition Detail. Additional drainage measures shall be installed as directed by HG Energy. Bench drains shall connect to drainage mains, which are outletted via gravity laterals where indicated. Excavations for toe benches and bonding benches in coal and/or carbonaceous shale may encounter perched groundwater. Plans to control, drain and treat if necessary are recommended.
11. Construct bonding benches to the crest of embankment where slopes are placed over existing slopes 5H:1V or steeper. Bonding benches shall be in accordance with the Benching and Transition Detail.
12. The sides of temporary excavations shall be adequately sloped or shored/braced to provide stable sides and safe working conditions for operators, laborers and engineering inspectors to proof roll the subgrade and perform test pits. All applicable Occupational Safety and Health Administration (OSHA) safety standards shall be followed by the contractor.
13. Proof roll the final pad/road surface with a loaded triaxle dump truck to identify any areas of unstable soils. Unstable soils shall be removed by over-excavation and replacement with controlled compacted soil or rock fill. Provide a cut/fill transition zone and place subsurface drains at the transition zone where needed.
14. The subgrade shall be sealed on a daily basis to minimize disturbance and moisture intrusion.
15. Earthwork operations shall be observed and tested on a full-time basis by a soils technician under the supervision of a geotechnical engineer. The observation and testing shall include observation of stability of toe and bonding benches, including presence of unstable colluvial soils; installation of drainage measures, lift thickness of material, compactive effort, type and moisture of soil, gradation of the rockfill and, moisture and density of compaction. All compactive effort shall be verified by in-place density testing on each lift at a maximum 100-foot grid pattern.

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MNDI WELL PAD W/ AST PAD
GENERAL NOTES (1 OF 2)

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DATE	TYPE

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SHEET NO. 2

General Erosion And Sediment Control Methods / Procedures

1. Erosion and sediment control facilities shall be constructed, stabilized, and functional before any site disturbance begins within the tributary areas of those facilities.
2. In all cases, the smallest practical area of stable land surface will be disturbed.
3. At no time will sediment laden runoff be allowed to leave the site and enter State waters without first passing through a sediment filtering device. Should site conditions, construction procedures, etc. alter the approved plan to the point where sediment and sediment laden runoff is not being controlled and filtered before it leaves the site, additional erosion control facilities are to be implemented.
4. Although the staging of earthmoving activities has been described within certain areas, the work may occur over the entire project area simultaneously. Measures shall be implemented as necessary to continue the integrity of the erosion and sedimentation control plan.
5. Earth disturbance activities, including movement of construction vehicles, shall be avoided / minimized below the location of the perimeter erosion control facilities. Should earth disturbance occur below the perimeter erosion control facilities, permanent stabilization shall be immediately applied to those disturbed areas.
6. Waste and excess materials shall be stockpiled or disposed of in a lawful manner on site or at an approved facility.
7. All offsite borrow areas, waste disposal areas, and/or storage areas shall have an approved erosion and sediment pollution control plan prior to the start of any earthmoving activities in these offsite areas.
8. Topsoil and excess material stockpiles shall be seeded and mulched if they are to remain for more than 4 days. Stockpiles are to be placed in a location where they will not interfere with construction activities and are not to be located within the flow path of a natural or constructed waterway. Stockpile areas are to have side slopes of 2H:1V or flatter.
9. Permanent stabilization is required as soon as a disturbed area is brought to grade or final earth moving has been completed. Where it is not possible to permanently stabilize a disturbed area immediately after the final earthmoving has been completed or where the activity ceases for more than 4 days, temporary stabilization measures shall be implemented promptly.
10. Areas which are to be topsoiled shall be scarified to a minimum depth of 3 to 5 inches - 6 to 12 inches on compacted soils - prior to placement of topsoil. Areas to be vegetated shall have a minimum 4 inches of topsoil in place prior to seeding and mulching. Fill outslopes shall have a minimum of 2 inches of topsoil.
11. Any erosion and sedimentation control facility required or necessary to protect areas from erosion during the stabilization period shall be maintained until permanent stabilization of the contributing drainage area is completed. Upon completion of permanent stabilization, all unnecessary or unstable control measures and facilities shall be removed. The disturbed areas created by this activity shall be brought to final grade and the soils shall be immediately stabilized.
12. Schedule construction so that grading operations can begin and end as quickly as possible.
13. Clearly mark areas that are not to be disturbed by flags, signs, etc.

General Maintenance / Contractor Responsibilities

1. The maintenance for the project shall be in accordance with the approved erosion and sedimentation control plan. The contractor shall be responsible for the continuous maintenance of all erosion and sediment measures and devices for the duration of the project and until which time the area is stabilized with a minimum uniform 70% perennial vegetative cover.
2. All facilities shall be inspected and repaired, if necessary, after each measurable rainfall event and a period not to exceed one week. All preventative maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching, and anchoring of the mulch shall be performed immediately. Sediment collected from the erosion control structures shall be placed upstream of those controls and immediately stabilized with seed and an anchored mulch or hauled off site to a disposal area with an approved erosion and sediment pollution control plan.
3. At no time will sediment laden runoff be allowed to leave the site and enter State waters without first passing through a sediment filtering device. If erosion control facilities fail to perform as expected, alternative facilities or modifications of those facilities installed will be required.
4. All permanently seeded areas that become eroded shall have the topsoil replaced, the erosion control matting replaced (if applicable), the grass resown and mulch reapplied and anchored. If erosion persists, the area shall be either lined with sod or stabilized with rock riprap.
5. A copy of the approved erosion and sediment control plan shall be kept available for inspection on the construction site at all times throughout the term of the project.
6. The intent of this plan / narrative is to indicate general means of compliance with the requirements of the rules and regulations of The West Virginia Department of Environmental Protection. It shall be the responsibility of the contractor to implement these methods, plus additional methods, as may be necessary because of conditions created by localized site conditions and/or construction procedures in order to assure compliance with applicable law. It will further be the responsibility of the contractor to maintain all erosion and sediment control facilities so that they perform as required by applicable law.
7. Fines and related costs resulting from the contractor's failure to provide adequate protection against soil erosion and for any violations of the rules and regulations promulgated thereunder shall be borne by the contractor.

Temporary Control Measures and Facilities

1. General - see plans and details for proposed locations and construction details for BMPs.
2. Temporary vegetation - a vegetative cover, annual or perennial, but typically rapid growing annual grasses, small grains or legumes. Used to provide erosion protection to a disturbed area until active earthmoving resumes or permanent protection is provided.
3. Compost filter socks - Compost filter socks shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment.
4. Rock filter - Rock filters may be used to control runoff within constructed channels at the downstream end of the channel during construction until the protective lining is installed or during a temporary disturbance within the channel. They may also be used below construction work within an existing stream channel while flow is being diverted past the work area. In such cases, the filter should be located between the work area and the discharge from the bypass system. Rock filters may not be used instead of an adequate protective lining in sediment basin emergency spillways. This can reduce the effective discharge capacity of the spillway and, in so doing, increase the possibility of embankment failure.
5. Rock construction entrance - Shall be installed prior to exiting the site to avoid excessive tracking of mud onto a highway. Access to the site should be limited to the stabilized entrance(s).
6. Compost Sock Sediment Traps - Shall be constructed in the location shown on the erosion and sediment control plan in accordance with the erosion and sediment control plan details. Consideration should be given to how the location of any proposed trap will be accessed. If a proposed location is not easily accessible, special attention should be given to any access roads roads that will need to be constructed.

Erosion & Sediment Control Structure Maintenance Procedures

Rock Construction Entrance

The entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately. Wheels on all vehicles shall be cleaned to remove sediment prior to entrance onto public rights-of-way. If washing is required, it shall be done on an area stabilized with stone and which drains into approved sediment trapping device. If the street is washed precautions must be taken to prevent muddy water from running into waterways or storm sewers.

Compost Filter Sock

Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired according to manufacturer's specifications or replaced with an equivalent E&S control measure within 24 hours of inspection. Accumulated sediment shall be removed when it reaches half the aboveground height of the sock and disposed in the manner described elsewhere in the plan. Polypropylene socks shall be replaced according to manufacturer's recommendations. Upon stabilization of the area tributary to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed. In the latter case, the mesh shall be cut open and the mulch spread as a soil supplement.

Compost Sock Sediment Trap

All sediment traps shall be inspected at least weekly and after each runoff event. Access for sediment removal and other required maintenance activities shall be provided. Dispose of materials removed from the trap in the manner described in the E&S plan. Check embankments, spillways, and outlets for erosion, piping and settlement. Clogged or damaged spillways and/or embankments shall be immediately restored to the design specifications.

Erosion Control Blanket

Blanketed areas shall be inspected weekly and after each runoff event until perennial vegetation is established to a minimum uniform 70% coverage throughout the blanketed area. Damaged or displaced blankets shall be restored or replaced within 4 calendar days.

Riprap Apron

All aprons shall be inspected at least weekly and after each runoff event. Displaced riprap within the apron shall be replaced immediately.

Permanent Control Measures and Facilities

1. Vegetative cover - The permanent seeding rates are listed on the standard construction detail sheet #6
2. Provide liming rates as recommended by the soil test result. Fertilizer shall be applied per details in Detail Sheet 6. Work soil supplements into soil or apply with hydroseeding. Mulch area with straw or hay mulch at 3 tons per acre. Inspect seeded areas after each measurable event. Eroded areas shall have topsoil replaced, seed resown and mulch reapplied and anchored. If erosion persists, the area will be either lined with sod or stabilized with rock riprap.
3. Mulch or straw or hay - Mulch shall be applied over seeded areas no later than 48 hours after seeding. Spread mulch uniformly, in a continuous blanket at a minimum rate of 3 tons per acre. Mulch may be spread by hand or with an acceptable mechanical blower. Machines which cut mulch into short pieces will not be permitted. Mulch shall be anchored by use of crimping, netting, asphaltic or a nonasphaltic emulsion mulch binder immediately following mulch spreading. If any asphaltic or nonasphaltic emulsion mulch binder is used, the number of passes over the mulch as needed to secure it firmly shall not exceed three passes with maximum applied binder not exceeding 10 gallons per 1,000 Sq. Ft.
4. Erosion control blankets - Erosion control blankets should be used on all slopes that are 3H:1V or steeper and where potential exists for sediment pollution to receiving surface waters. Cut slopes in competent bedrock and rock fill slopes need not be blanketed. Erosion control blankets should be used for all seeded areas within 50 feet of a surface water - 100 feet of a special protection water - regardless of slope.
5. Insloped Roadway - Cut and fill slopes shall be stabilized immediately upon completion or roadway grading. These areas shall be blanketed where ever they are located within 50 feet of a surface water. A top dressing composed of hard, durable stone shall be provided for soils having low strengths. Roadside ditches shall be provided with adequate protective lining where ever runoff can not sheet flow away from the roadway. Adequately sized culverts or other suitable cross drains shall be provided at all seeps, springs, and drainage courses. Ditch relief culverts or turnouts shall be provided at the intervals indicated on the plan drawings. Riprap outlet protection has been sized according to anticipated discharge velocity.
6. Roadside ditches - Sizing and spacing of ditch relief culverts should be according to plan drawings. Rock filters are not required where roadway surface is stabilized, ditches are provided with protective liners, and int banks are stabilized. Suitable outlet protection should be provided at each culvert outfall.
7. Riprap Apron - Riprap aprons may be used to prevent scour at pipe or channel outfalls where anticipated discharge velocities do not exceed 17.0 feet per second, there is sufficient room to construct the apron, and where the aprons can be installed on a level grade. In cases where discharge velocities exceed 17.0 feet per second, a suitable means of velocity reduction (e.g. drop structure) should be used prior to discharging significant flows onto riprap apron.

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MNDI WELL PAD W/ AST PAD
GENERAL NOTES (2 OF 2)

REVISIONS	
DATE	TYPE

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SHEET NO. 5

LEGEND

- PROPERTY BOUNDARY
- FENCE LINE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- PROPOSED COMPOST FILTER SOCK
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED DITCH LINE
- EXISTING TREE LINE
- TILE DRAIN
- CUT
- FILL
- PROPOSED 2' BERM
- EXISTING ELECTRIC
- DITCH
- RIP RAP
- SILT FENCE
- SILT SOCK
- DESIGN LOD
- UTILITY POLE
- MISCELLANEOUS POLE OR SIGN
- POST

AREA		
DESCRIPTION	QUANTITY	UNITS
CLEARING AND GRUBBING		
TREE CLEARING	0.69	ACRES
MOWING	0.54	ACRES
IMPROVED GRAVEL AREA	1.34	ACRES
LIMITS OF DISTURBANCE		
Total	2.02	ACRES

0 25 50 100 Feet

SCALE: 1" = 50'

NOTE: DRAWING WAS CREATED ON 22X34 PAPER. 11X17 DRAWINGS ARE HALF SCALE. REFER TO SCALE BAR FOR PROPER SCALING.

CHART OF WELL SPOTS AND SITE LOCATION

POINT	API #	NAD27 WV NORTH LATITUDE	NAD27 WV NORTH LONGITUDE	NAD83 WV NORTH LATITUDE	NAD83 WV NORTH LONGITUDE	UTM NAD83-17 (METERS) NORTHING	UTM NAD83-17 (METERS) EASTING
WELL#5	47-051-02616	39°30'39.36"	80°44'28.80"	39°30'44.653"	80°44'27.448"	4369324.292	519589.968
WELL#6	47-051-02624	39°30'39.677"	80°44'23.483"	39°30'39.996"	80°44'27.443"	4369329.998	519587.671
WELL#7	47-051-02633	39°30'39.642"	80°44'23.242"	39°30'39.961"	80°44'27.669"	4369325.648	519605.930
WELL#8	47-051-02636	39°30'39.342"	80°44'23.566"	39°30'39.663"	80°44'27.681"	4369321.579	519606.397
WELL#9	47-051-02638	39°30'39.286"	80°44'23.377"	39°30'39.605"	80°44'27.449"	4369317.375	519602.861
WELL#10	47-051-02639	39°30'39.343"	80°44'23.236"	39°30'39.374"	80°44'27.716"	4369317.210	519610.576
WELL#11	47-051-02654	39°30'39.814"	80°44'22.498"	39°30'39.882"	80°44'27.287"	4369312.864	519584.878
WELL#12	47-051-02655	39°30'39.669"	80°44'22.416"	39°30'39.677"	80°44'27.284"	4369312.777	519583.936
WELL#13	47-051-02654	39°30'39.163"	80°44'23.609"	39°30'39.178"	80°44'27.348"	4369308.825	519618.598
WELL#14	47-051-02653	39°30'39.024"	80°44'24.095"	39°30'39.344"	80°44'27.147"	4369306.788	519599.618
WELL#15	47-051-02629	39°30'38.065"	80°44'23.898"	39°30'38.356"	80°44'27.173"	4369301.644	519597.821
ENTRANCE		39°30'0.934"	80°44'29.646"	39°30'32.334"	80°44'18.914"	4368387.964	519583.866
PAD CENTER		39°30'39.188"	80°44'27.197"	39°30'39.502"	80°44'27.275"	4369312.517	519585.681

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MNDI WELL PAD W/ AST PAD
OVERALL SITE PLAN

REVISIONS

DATE	TYPE

DRAWN BY: BJW
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SHEET NO. 4

AREA		
DESCRIPTION	QUANTITY	UNITS
CLEARING AND GRUBBING		
TREE CLEARING	9.80	ACRES
MOWING	0.34	ACRES
IMPROVED GRAVEL AREA	1.38	ACRES
LIMITS OF DISTURBANCE		
AREA	2.22	ACRES

CHART OF WELL SPOTS AND SITE LOCATION

POINT	API #	NAD27 WV NORTH LATITUDE	NAD27 WV NORTH LONGITUDE	NAD83 WV NORTH LATITUDE	NAD83 WV NORTH LONGITUDE	UTM-NAD83-17 (METERS) NORTHING	UTM-NAD83-17 (METERS) EASTING
MNDHS	47-051-01835	39°50'54.76"	80°48'18.192"	39°50'50.055"	80°48'20.616"	4413530.262	519309.500
MNDHS	47-051-01836	39°50'54.621"	80°48'28.173"	39°50'54.895"	80°48'27.933"	4413529.084	519307.531
MNDHS	47-051-01837	39°50'54.512"	80°48'28.207"	39°50'54.795"	80°48'27.967"	4413528.483	519306.935
MNDHS	47-051-01838	39°50'54.262"	80°48'28.380"	39°50'54.545"	80°48'27.826"	4413527.279	519306.340
MNDHS	47-051-01839	39°50'54.233"	80°48'28.337"	39°50'54.676"	80°48'27.889"	4413527.815	519307.490
MNDHS	47-051-01840	39°50'54.065"	80°48'28.180"	39°50'54.336"	80°48'27.734"	4413526.170	519308.334
MNDHS	47-051-01841	39°50'53.844"	80°48'27.948"	39°50'53.823"	80°48'27.507"	4413523.443	519311.075
MNDHS	47-051-01842	39°50'53.840"	80°48'27.953"	39°50'53.877"	80°48'27.580"	4413523.307	519312.334
MNDHS	47-051-01843	39°50'53.743"	80°48'28.015"	39°50'53.534"	80°48'27.364"	4413522.025	519310.898
MNDHS	47-051-01844	39°50'53.104"	80°48'28.045"	39°50'53.348"	80°48'27.207"	4413515.718	519309.581
MNDHS	47-051-01845	39°50'53.014"	80°48'28.038"	39°50'53.253"	80°48'27.178"	4413514.815	519309.005
PATRAVER		39°50'50.316"	80°48'18.860"	39°50'50.[illegible]"	80°48'19.978"	4413512.[illegible]	519445.868
PAD CENTER		39°50'54.000"	80°48'27.900"	39°50'53.[illegible]"	80°48'27.225"	4413[illegible].143	519303.[illegible]

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MNDI WELL PAD W/ AST PAD
OVERALL SITE PLAN W/ORTHO

REVISIONS

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DATE: 10/26/17
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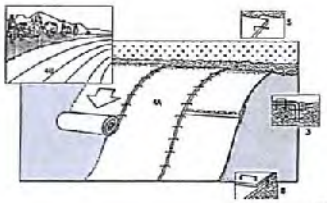
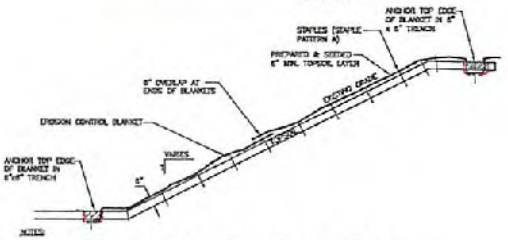
SHEET NO. 5

RECOMMENDED PERMANENT SEED MIXTURES COOL AND WARM SEASONS			
MIXTURE NUMBER	SEASON	SPECIES	SEEDING RATE LB/AC
1	COOL	TALL FESCUE, OR FINE FESCUE, PLUS REDTOP, OR PERENNIAL RYEGRASS, PLUS BIRDSFOOT TREFOIL	40 45 4 19 8
2	COOL	BIRDSFOOT TREFOIL, PLUS TALL FESCUE	8 40
3	COOL	ORCHARDGRASS, OR SMOOTH BROMEGRASS, PLUS BIRDSFOOT TREFOIL	25 35 8
4	WARM	FLATPEA, PLUS TALL FESCUE, OR PERENNIAL RYEGRASS	27 25 25
5	WARM	DEERTONGUE, PLUS BIRDSFOOT TREFOIL	20 8
6	WARM	SWITCHGRASS, OR BIG BLUESTEM, PLUS BIRDSFOOT TREFOIL	15 15 8
SITE CONDITION		SEED MIXTURE (SELECT ONE)	
CUT SLOPES AND FILLS (NOT MOWED) WELL-DRAINED VARIABLE-DRAINAGE		2A OR 6 2	
CUT SLOPES AND FILLS (MOWED)		1	
CUT SLOPES AND FILLS (GRAZED/HAY)		1Z OR 3	
GULLIES AND ERODED AREAS		2 OR 6	
EROSION CONTROL BMP'S CHANNELS, DRAINAGE DITCHES, SED TRAPS, ETC.		1 OR 2	
RIGHT-OF-WAY WELL-DRAINED VARIABLE DRAINED WELL DRAINED AREAS FOR GRAZING/HAY		6 OR 8 2 2 OR 3	



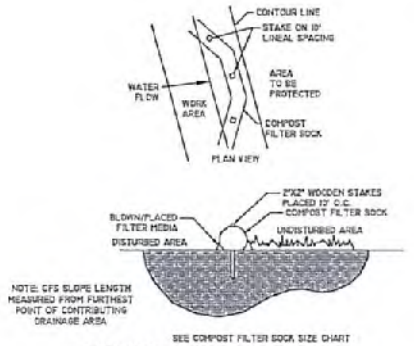


NOTES:

1. SPREAD A MINIMUM OF 6" OF TOPSOIL ONTO SLOPES BEFORE INSTALLATION OF SLOPE MATTING.
2. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER AND SEED.
3. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
4. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
5. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-3" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM POSITION, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET. FOLLOW MANUFACTURERS RECOMMENDATIONS.
6. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.
7. IF SOIL CONDITIONS ARE LOOSE, STAKED OR STAPLED, LENGTHS GREATER THAN 6" MAY BE NECESSARY TO SECURE THE BLANKET PROPERLY.
8. EROSION CONTROL BLANKETS SHALL BE INSTALLED ON ALL 3:1 OR STEEPER SLOPES WITH A MINIMUM OF 6 INCHES OF TOPSOIL.

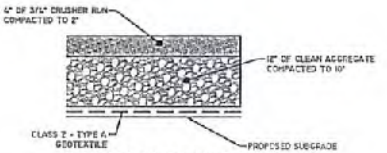
EROSION CONTROL BLANKET

NOT TO SCALE



COMPOST FILTER SOCK DETAIL

NOT TO SCALE



PAD AGGREGATE

NOT TO SCALE

NOTE: DRAWING WAS CREATED ON 22X34 PAPER. 11X17 DRAWINGS ARE HALF SCALE. REFER TO SCALE BAR FOR PROPER SCALING.

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Office of Oil and Gas
JAN 22 2018
WV Department of
Environmental Protection

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Weirton, WV 26062
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HG ENERGY II APPALACHIA, LLC
5260 DUPONT ROAD
PARKERSBURG, WV 26101
(304) 420-1150 MAIN OFFICE
(304) 863-3172 FAX

MND WELL PAD W/ AST PAD
CONSTRUCTION DETAILS

REVISIONS

DATE	TYPE

DRAWN BY: TJH
CHECKED BY:
DATE: 8/24/17
SCALE: AS SHOWN
JOB NO.:
DRAWING NAME:

SHEET NO. 6

QUANTITY SUMMARY		
DESCRIPTION	UNITS	QUANTITY
1.) CLEARING AND GRUBBING		
1A.) TREE CLEARING	ACRES	0.00
1B.) MOWING	ACRES	0.84
1C.) IMPROVED GRAVEL AREA	ACRES	1.38
2.) COMPOST FILTER SOCK		
2B.) 12"	LF	306
2C.) 18"	LF	--
2D.) 24"	LF	--
2E.) STACKED	LF	--
3.) AGGREGATE SURFACING (PROPOSED PAD EXTENSION)		
3A.) PADS - 0"-6" AGGREGATE (12")	TONS	1,854
3B.) PADS - $\frac{3}{4}$" CRUSHER RUN (4")	TONS	585
4.) SLOPE MATTING		
4A.) SLOPE MATTING	SY	1,507
4B.) HYDRO-SEEDING (DURING GROWING SEASON ONLY)	AC	0.04
5.) SEED & MULCH		
5A.) SEED & MULCH	AC	0.84
6.) EXCAVATION		
6A.) CUT-PAD (NO SWELL)	CY	2,000

NOTE: DRAWING WAS CREATED ON 22X34 PAPER. 11X17 DRAWINGS ARE HALF SCALE. REFER TO SCALE BAR FOR PROPER SCALING.

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JAN 22 2018
WV Department of
Environmental Protection

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MNDI WELL PAD W/ AST PAD
MATERIAL QUANTITES

REVISIONS

DATE	TYPE

DRAWN BY: T.JR
CHECKED BY:
DATE: 11/29/17
SCALE: AS SHOWN
JOB NO.:
DRAWING NAME:

SHEET NO. 7