



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

Tuesday, March 06, 2018
WELL WORK PERMIT
Horizontal 6A / Drilling Deeper

HG ENERGY II APPALACHIA, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for KST5BHS
47-033-05815-00-00

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: KST5BHS
Farm Name: MCDONALD, JAMES IVAN
U.S. WELL NUMBER: 47-033-05815-00-00
Horizontal 6A / Drilling Deeper
Date Issued: 3/6/2018

Promoting a healthy environment.

03/09/2018

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

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

2) Operator's Well Number: KST5 BHS Well Pad Name: KST5

3) Farm Name/Surface Owner: James Ivan McDonald Public Road Access: State County Road 19/18

4) Elevation, current ground: 1134' Elevation, proposed post-construction: 1134'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus at 6853'/6935' and 51' in thickness. Anticipated pressure at 4314#.

8) Proposed Total Vertical Depth: 6900'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 17,937'

11) Proposed Horizontal Leg Length: 10,403'

12) Approximate Fresh Water Strata Depths: 135'

13) Method to Determine Fresh Water Depths: Offset well data

14) Approximate Saltwater Depths: 1570', 2355'

15) Approximate Coal Seam Depths: 80', 390', 1060', 1440'

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

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

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

Depth: _____

Seam: _____

Owner: _____

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*Sam Ward
OK'd
via phone
email
attached*

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	114' *Conductor Already Set	114'	CTS w/675 sks Class A
Fresh Water	13 3/8"	NEW	J-55	54.5	943' *Surface Casing Already Set	943'	CTS w/766 sks Class A
Coal							
Intermediate	9 5/8"	NEW	J-55	36	2494' *Intermediate Casing Already Set	2494'	CTS w/758 sks Class A
Production	5 1/2"	NEW	P-110	20	17937'	17937'	20% excess, lead yield = 1.19, tail yield 1.94
Tubing							
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	.438	2110		Class A	Yield = 1.22, CTS
Fresh Water	13 3/8"	17 1/2"	.380	2730	1200	Class A	yield = 1.21, CTS
Coal							
Intermediate	9 5/8"	12 1/4"	.352	3520		Class A	Yield = 1.41, CTS
Production	5 1/2"	8 1/2"	.361	12640	10000	Class A	20% excess yield = 1.19, tail yield 1.94
Tubing							
Liners							

PACKERS

Kind:	None			
Sizes:	None			
Depths Set:	None			

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

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

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

The stimulation will be 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): 18.3 acres (this is a built pad, no further disturbance anticipated)

22) Area to be disturbed for well pad only, less access road (acres): 11.5 acres (this is a built pad, no further disturbance anticipated)

23) Describe centralizer placement for each casing string:

Conductor casing - No centralizers will be used with conductor casing.
Freshwater - Bow spring on 1st Jt. Then every 4th Jt. To 100 ft. from surface.
Intermediate - 1 Bow spring on each of the 1st two Jts. then every 4th Jt. inside surface casing.
Production - Run 1 spiral centralizer every 3 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 - "Conductor already set" CTS w/ 675 sbs Class A, 15.0ppg, 1.22 cu-ft/sk, 820 cu-ft
Fresh Water - "Surface Casing already set" CTS w/ 768 sbs Class A, 15.61ppg, 1.21 cu-ft/sk, 827 cu-ft
Intermediate - "Intermediate Casing already set" CTS w/ 750 sbs Class A, 15ppg, 1.41 cu-ft/sk, 1007 cu-ft
Production - Lead: 14.5 ppg POZ/PNE-1 + 0.3% bwoc R3 + 1% bwoc ED1 + 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

25) Proposed borehole conditioning procedures:

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

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*Note: Attach additional sheets as needed.

Adkins, Laura L

From: Ward, Samuel D
Sent: Tuesday, February 13, 2018 12:26 PM
To: Adkins, Laura L
Cc: Diane White
Subject: Re: KST 5 revisions

If it is only changes in the lateral and not surface through intermediate, I have no need to see it.

Sent from my iPhone

On Feb 13, 2018, at 12:23 PM, Adkins, Laura L <Laura.L.Adkins@wv.gov> wrote:

Diane,

Going through the revised documents on the KST 5 pad, I don't see Sam's approvals on the revised casing and so far it just looks like the production casing is all that changed on these. If Sam is okay with changing the production and TD depths without seeing them he can send me an email in response to this. If he wants to see them...Sam, let us know and we can send a copy to you for your approval.

Thanks,

Laura

Laura L. Adkins

Environmental Resource Specialist III
Permit Review
WVDEP Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
304-926-0499 ext. 1495

**KST5 Well Pad
Cement Additives**

See Schematic for strings

Material Name **Material Type** **Material Description**

Premium NE-1 Portland Cement Premium NE-1 is a portland cement with early compressive strength properties.

Ingredient name	%	CAS number
Portland cement	90 - 100	85997-15-1
Calcium oxide	1 - 5	1305-78-8
Magnesium oxide	1 - 5	1309-49-4
Crystalline silica: Quartz (SiO2)	0.1 - 1	14808-60-7

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

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

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

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

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

Ingredient name	%	CAS number
No hazardous ingredient		

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

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

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

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

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

Ingredient name	%	CAS number
No hazardous ingredient		

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.

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

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

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

S-5 Surfactant Used to water wet casing and formation to facilitate cement bonding.

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

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33-05815 Dp



KST5B Marcellus Shale Horizontal Harrison County, WV		KST5B SHL 245738.5N 1724078E		KST5B LP 244642.7N 1723192.3E		KST5B BHL 234778.4N 1726494.3E		CENTRALIZERS		CEMENT		CONDITIONING		COMMENTS					
Ground Elevation (RKE)		1156'		161.493'		1156'		KST5B SHL		KST5B LP		KST5B BHL							
Azim																			
WELLBORE DIAGRAM		HOLE		CASING		GEOLOGY		TOP		BASE		MUD		CEMENT		CENTRALIZERS		COMMENTS	
24"	Conductor 94# J-55	20"	Conductor	0	114	*Conductor already set*	Fresh Water	0	135	943	CTS w/ 675 sks Class A, 15.6ppg, 1.22 cu-ft/sk, 820 cu-ft	N/A	Conductor casing = 0.438" wall thickness Burst=2110 psi						
																Surface Casing *Already Set*	0	943	
17.5"	13-3/8" 54.5# J-55 BTC	13-3/8"	Casing	0	1440	Casing	80, 390, 1060, 1440	0	1474 / 1575 / 1672	1914 / 1965 / 2104	CTS w/ 766 sks Class A, 15.61ppg, 1.21 cu-ft/sk, 827 cu-ft	Bow spring on 1st Jt. Then every 4th Jt. To 100 ft. from surface	Surface casing = 0.380" wall thickness Burst=2730 psi						
																Little Lime / Big Lime / Injun	1474 / 1575 / 1672	1914 / 1965 / 2104	
12.25"	9-5/8" 36# J-55 BTC	9-5/8"	Gantex / 50 Foot / 30 Foot	2119 / 2162 / 2361	2434	Gordon Stray / Gordon / Filth	2416	0	2494	CTS w/ 758 sks Class A, 15ppg, 1.41 cu-ft/sk, 1067 cu-ft	1 Bow spring on each of the 1st two Jts. then every 4th Jt. till inside surface casing	Intermediate casing = 0.352" wall thickness Burst=3520 psi							
																Bayard	2416	2434	
8.5" Vertical	5-1/2" 20# P-110 HC CDC HTQ	5-1/2"	Benson	4376	4410	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.	9.0ppg SOB											
																	Cashaqua	6274	6688
8.5" Curve	5-1/2" 20# P-110 HC CDC HTQ	5-1/2"	Genesee	6944	6796	Tully Limestone	6688	6796	6853	11.5ppg SOB 12.5ppg SOB	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.	Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curve.	Production casing = 0.361" wall thickness Burst=12840 psi Note: Actual centralizer schedules may be changed due to hole conditions						
																Hamilton	6796	6853	
8.5" Lateral	5-1/2" 20# P-110 HC CDC HTQ	5-1/2"	Marcellus	6853	6835	Marcellus	6853	6835	6835	11.5ppg SOB 12.5ppg SOB									
																TMD / TVD	17937	6800	
		Onondaga / Huntersville Chert		6835 / 6967		6967 / - - - -													

LP @ 200' TVD / 7534
6.5" Hole - Cemented Long Siring
5-1/2" 20# P-110 HC CDC HTQ

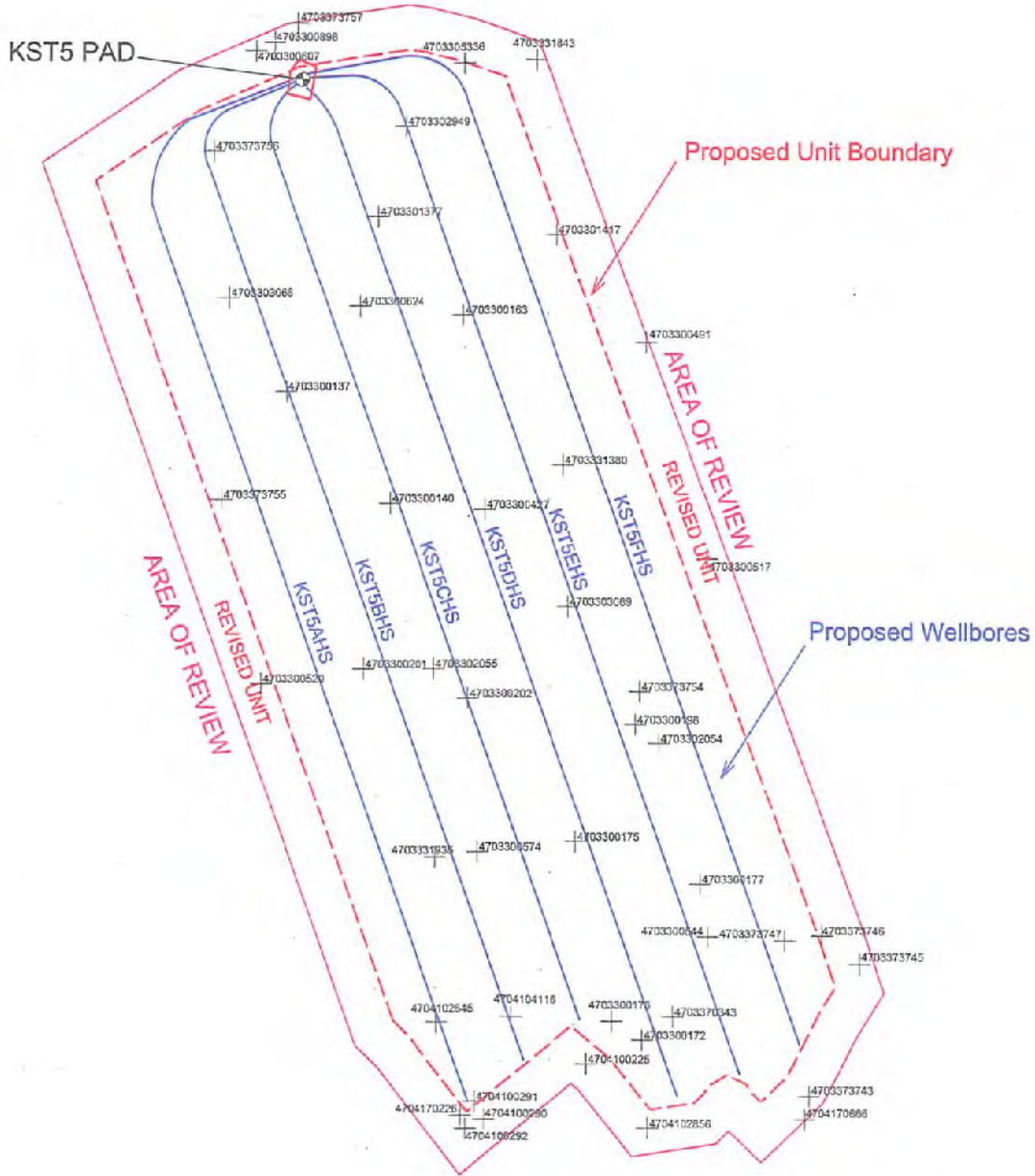
TD @ +/-6900' TVD
+/-47937 MD
+/-10403' R Lateral

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List of Frac Additives by Chemical Name and CAS #**KST5 Well Pad (ASH,BHS,CHS,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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NOTE:
See Attached Spreadsheet for Well Data

Area of Review for:

KST5 PAD

- KST5 AHS Wellbore (47-033-05814)
- KST5 BHS Wellbore (47-033-05815)
- KST5 CHS Wellbore (47-033-05816)
- KST5 DHS Wellbore (47-033-05817)
- KST5 EHS Wellbore (47-033-05818)
- KST5 FHS Wellbore (47-033-05819)

Union District, Harrison County, W.Va.

DATA SOURCE
WVGES Data Set - 2017



03/09/2018

33-0581500

**EXISTING WELLS LOCATED WITHIN THE AREA OF REVIEW FOR:
KSTS PAD AND PROPOSED WELLS AHS, BHS, CHS, DHS, EHS & FHS**

CT	API	COUNTY	FARM	OPERATOR NAME	FORMATION NAME	WELL TYPE	TVD	STATUS	LATITUDE	LONGITUDE
1	4703300137	Harrison	J S Law 2	Dominion Energy Transmission Inc.	Speechley	Gas	3,015	ACTIVE	39.161098	-80.473614
2	4703300140	Harrison	G Minter	Dominion Energy Transmission Inc.	Speechley	Gas	3,056	PLUGGED	39.157614	-80.469515
3	4703300163	Harrison	J S Law 1	Dominion Energy Transmission Inc.	Greenland Gap Fm	Gas	2,878	PLUGGED	39.163420	-80.466534
4	4703300172	Harrison	A W Rhodes	Dominion Energy Transmission Inc.	Hampshire Grp	Storage	1,575	ACTIVE	39.141090	-80.459637
5	4703300173	Harrison	A W Rhodes	Dominion Energy Transmission Inc.	NA	NA	NA	ACTIVE	39.141665	-80.460845
6	4703300175	Harrison	G Minter	Dominion Energy Transmission Inc.	Gantz	Storage	1,720	ACTIVE	39.147180	-80.462245
7	4703300177	Harrison	A W Rhodes	Dominion Energy Transmission Inc.	Gantz	Storage	1,800	ACTIVE	39.145858	-80.457289
8	4703300198	Harrison	W J Law 1	Dominion Energy Transmission Inc.	Thirty-foot	Storage	2,005	ACTIVE	39.150793	-80.459825
9	4703300201	Harrison	G Minter	Dominion Energy Transmission Inc.	Thirty-foot	Storage	2,344	PLUGGED	39.152535	-80.470633
10	4703300202	Harrison	G Minter	Dominion Energy Transmission Inc.	Gordian (undiff)	Storage	2,042	PLUGGED	39.151624	-80.464775
11	4703300427	Harrison	Gulinn Minter	Dominion Energy Transmission Inc.	Benson	Gas	4,520	ACTIVE	39.157400	-80.465748
12	4703300491	Harrison	M G Law	Dominion Energy Transmission Inc.	Benson	Gas	4,261	ACTIVE	39.162549	-80.459256
13	4703300517	Harrison	J S Law	Dominion Energy Transmission Inc.	Benson	Gas	4,400	ACTIVE	39.155873	-80.456916
14	4703300520	Harrison	M J Loughmiller	Dominion Energy Transmission Inc.	Benson	Gas	4,548	ACTIVE	39.152099	-80.474732
15	4703300544	Harrison	Dan Lee Stickle	Dominion Energy Transmission Inc.	Benson	Gas	4,300	ACTIVE	39.144240	-80.456990
16	4703300574	Harrison	Lee Roy & Marjorie Neeley	Dominion Energy Transmission Inc.	Benson	Gas	4,370	ACTIVE	39.146874	-80.465161
17	4703300607	Harrison	J H/R C McDonald	Dominion Energy Transmission Inc.	Greenland Gap Fm	Gas	4,769	ACTIVE	39.171589	-80.474729
18	4703300624	Harrison	Rosemary Allman	Dominion Energy Transmission Inc.	Greenland Gap Fm	Gas	4,515	ACTIVE	39.163710	-80.470633
19	4703300898	Harrison	J H McDonald 1	Jackson Fuel Corporation	Big Injun (Grnbr)	Gas	1,705	ACTIVE	39.171849	-80.473997
20	4703301377	Harrison	J Thrash	Dominion Energy Transmission Inc.	Fifth	Gas	2,215	ACTIVE	39.166468	-80.469897
21	4703301417	Harrison	Paul McDonald	Dominion Energy Transmission Inc.	Alexander	Gas	4,782	ACTIVE	39.165887	-80.462806
22	4703302054	Harrison	W J Law	Dominion Energy Transmission Inc.	Alexander	Gas	4,800	ACTIVE	39.150213	-80.458893
23	4703302055	Harrison	Lee Roy & Marjorie Neeley	Dominion Energy Transmission Inc.	Benson	Gas	4,536	ACTIVE	39.152534	-80.467838
24	4703302949	Harrison	Consolidated Gas Supply	Dominion Energy Transmission Inc.	Greenland Gap Fm	Gas	4,998	ACTIVE	39.169237	-80.468769
25	4703303068	Harrison	Frank McDonald	Dominion Energy Transmission Inc.	Benson	Gas	4,606	ACTIVE	39.164000	-80.475851
26	4703303089	Harrison	David Allman	Dominion Energy Transmission Inc.	Alexander	Gas	4,903	ACTIVE	39.154411	-80.462478
27	4703305336	Harrison	James I McDonald	CNX Gas Company	NA	NA	NA	NOT DRILLED	39.171172	-80.466421
28	4703331360	Harrison	M G Law	Hope Natural Gas Company	Hampshire Grp	Gas	2,253	UNKNOWN	39.158776	-80.462620
29	4703331843	Harrison	W T Law	Consolidated Gas Supply Corp.	NA	NA	NA	UNKNOWN	39.171269	-80.463552
30	4703331935	Harrison	W R Neely	Consolidated Gas Supply Corp.	NA	NA	NA	UNKNOWN	39.146730	-80.467838
31	4703370943	Harrison	Arthur Rhodes 2	Hope Natural Gas Company	NA	NA	NA	UNKNOWN	39.141795	-80.458407
32	4703373743	Harrison	R A Beeghley	Hope Natural Gas Company	NA	NA	NA	UNKNOWN	39.139328	-80.453002
33	4703373745	Harrison	Arthur Rhodes	unknown	NA	NA	NA	UNKNOWN	39.143391	-80.450953
34	4703373746	Harrison	W V Brannon	unknown	NA	NA	NA	UNKNOWN	39.144252	-80.452444
35	4703373747	Harrison	Arthur Rhodes	unknown	NA	NA	NA	UNKNOWN	39.144117	-80.453935
36	4703373754	Harrison	J S Law	unknown	NA	NA	NA	UNKNOWN	39.151809	-80.455638

37	4703373755	Harrison	R C McDonald	----- unknown -----	NA	NA	NA	UNKNOWN	39.157759	-80.476224
38	4703373756	Harrison	R C McDonald	----- unknown -----	NA	NA	NA	UNKNOWN	39.168511	-80.476409
39	4703373757	Harrison	R C McDonald	----- unknown -----	NA	NA	NA	UNKNOWN	39.172430	-80.473055
40	4704100225	Lewis	W E Beeghley	Columbia Natural Resources	Gantz	Gas	1,714	ABANDONED	39.140365	-80.461872
41	4704100290	Lewis	W E Beeghley	Hope Natural Gas Company	NA	NA	NA	PLUGGED	39.138624	-80.465969
42	4704100291	Lewis	Wm Beeghley	Reserve Exploration Co.	NA	NA	NA	PLUGGED	39.139204	-80.466341
43	4704100292	Lewis	George W Neely	Hope Natural Gas Company	Gordon	Storage	2,040	PLUGGED	39.138334	-80.466713
44	4704102645	Lewis	W M Beeghley	Consolidated Gas Supply Corp.	NA	Storage	NA	ACTIVE	39.141670	-80.467831
45	4704102856	Lewis	Sarah E Hinzman	Dominion Energy Transmission Inc.	Greenland Gap Fm	Storage	2,828	ACTIVE	39.138335	-80.459452
46	4704104116	Lewis	James W Miller	Dominion Energy Transmission Inc.	Greenland Gap Fm	Gas	4,493	ACTIVE	39.141815	-80.464852
47	4704170226	Lewis	J M Beeghley	Reserve Exploration Co.	NA	NA	NA	UNKNOWN	39.138769	-80.466900
48	4704170666	Lewis	W H Bond	----- unknown -----	NA	NA	NA	UNKNOWN	39.138602	-80.453190

SOURCE: WVGES DATASET (2017) and WVDEP WEBSITE

WW-9
(4/16)

API Number 47 - 033 - 0581511D
Operator's Well No. KST6 BHS

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) Middle West Fork Creek Quadrangle West Milford WV 7.5'

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

Will a pit be used? Yes No

If so, please describe anticipated pit waste: Closed loop - no utilization of a pit

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 Sheet)
- Reuse (at API Number At next anticipated well)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

*SPW
9/20/2017*

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

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. if water based mud through intermediate string then SODM

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

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? Please see attached sheet

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

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

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

Company Official Signature Diane White

Company Official (Typed Name) Diane White

Company Official Title Accountant

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Environmental Protection

Subscribed and sworn before me this 19th day of September, 2017

Cassidy A. Boardman

Notary Public

My commission expires 7/31/2022



HG Energy II Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 16.3 (pad built, no further disturbance anticipated) Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20 or equal

Fertilizer amount 500 lbs/acre

Mulch Hay or 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.

Plan Approved by: S. L. Dwanette

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

Title: OOB Inspector

Date: 9/29/2017

Field Reviewed? Yes No

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Cuttings Disposal/Site Water

Cuttings - Haul off Company:

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

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

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

Disposal Locations:

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

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

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

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

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

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

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

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

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

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

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33-058150

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

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

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

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

Water Haul off Companies:

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

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

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

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

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

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

Nuverra Environmental Solutions
11942 Veterans Memorial Highway
Masontown, WV 26542

Equipment Transport
1 Tyler Court
Carlisle, PA 17015

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

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

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

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

Disposal Locations:

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

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

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

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

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

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

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33-05815D

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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33-05815D

HG Energy II Appalachia, LLC

Site Safety Plan

KST 5 Well Pad
2 Lick Run Road
Harrison County, WV

August 2017: Version 1

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

SDW
9/20/2017

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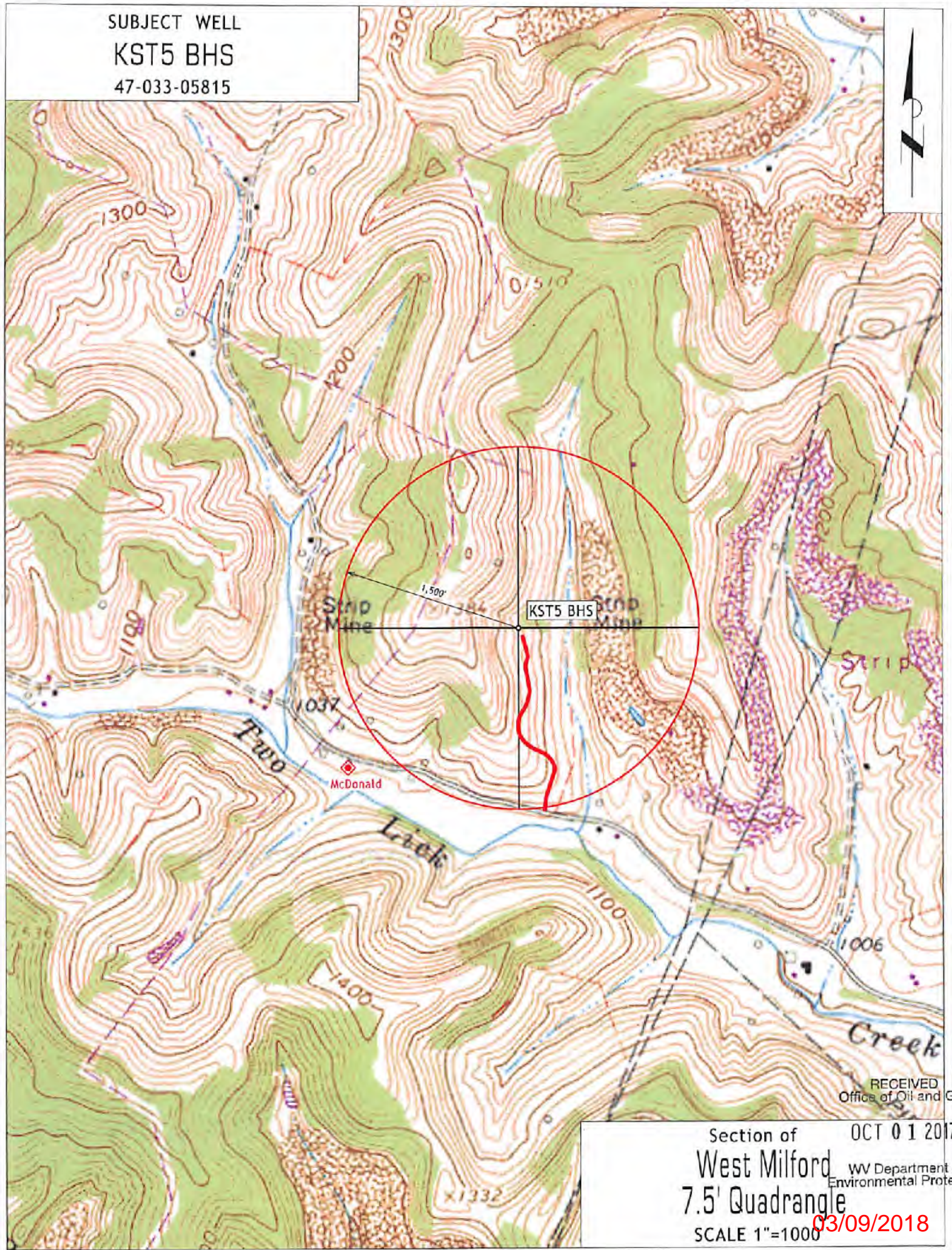
HG Energy II Appalachia, LLC

5260 Dupont Road

Parkersburg, WV 26101

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SUBJECT WELL
KST5 BHS
47-033-05815



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

03/09/2018

Reclamation Plan For:

KST5 PAD

Wade Dickinson
- Surface

- KST5 AHS (47-033-05814)
- KST5 BHS (47-033-05815)
- KST5 CHS (47-033-05816)
- KST5 DHS (47-033-05817)
- KST5 EHS (47-033-05818)
- KST5 FHS (47-033-05819)

Gabions

Prod. Pad

James McDonald
- Surface

KST5 PAD

350' of 5-8% Grade

300' of 0-5% Grade

1,500' of
Existing Stoned
Access Road

850' of 12-15% Grade

Tank
Grade

David Allman
- Surface

Notes:

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

Two 19/18

Lick Run Road

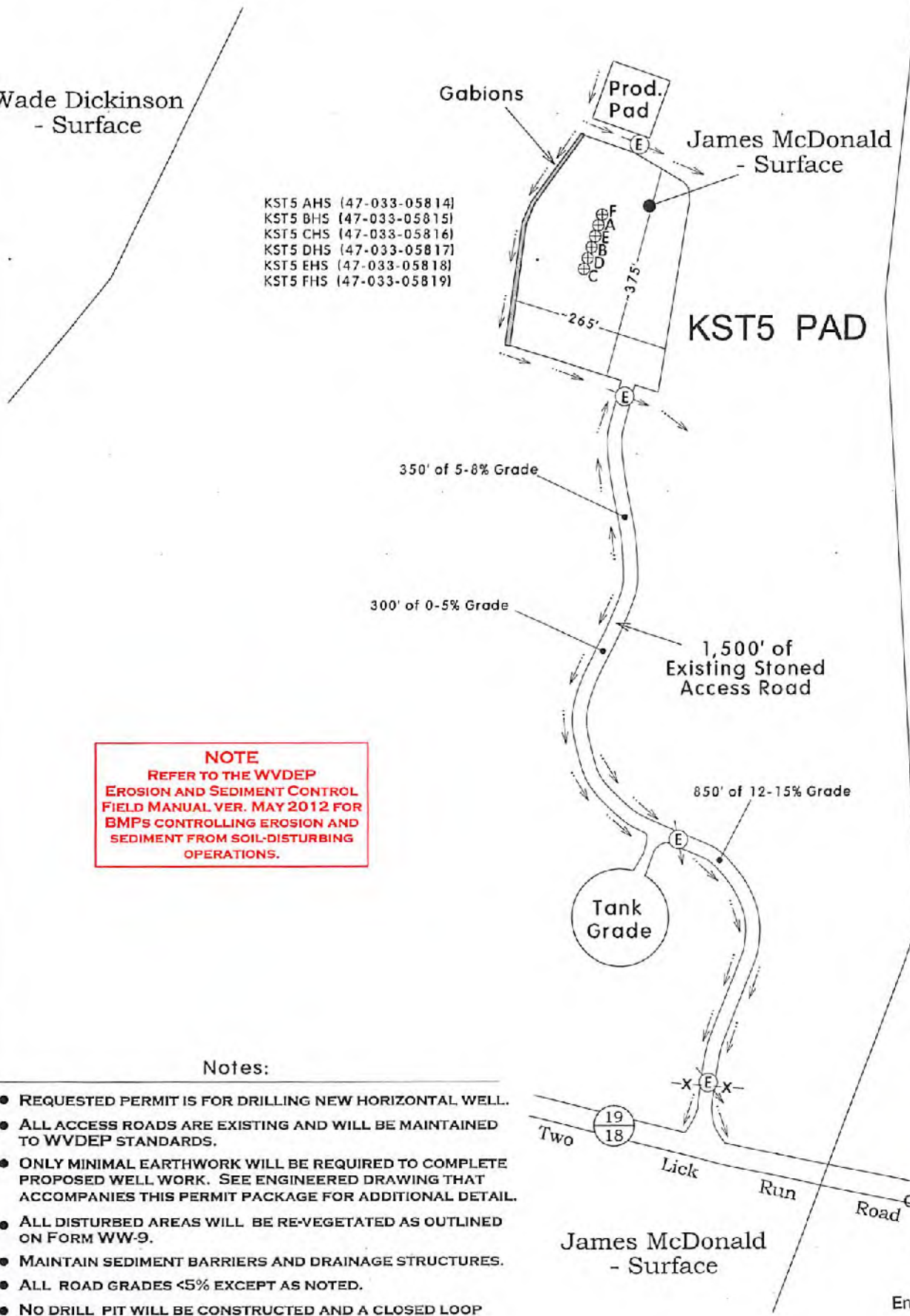
James McDonald
- Surface

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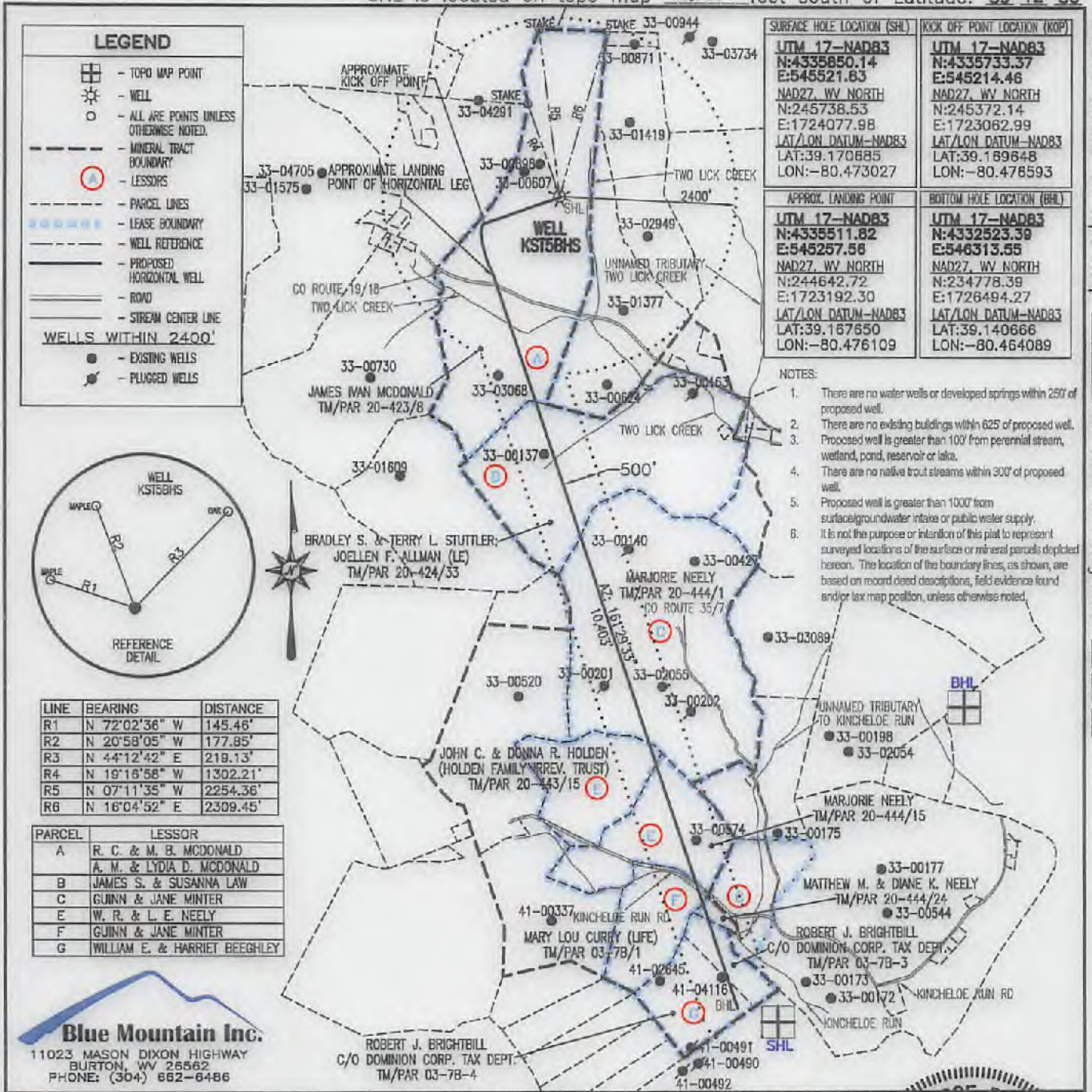
WV Department of
Environmental Protection

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BHL is located on topo map 9,470 feet south of Latitude: 39°10'00"
 SHL is located on topo map 13,713 feet south of Latitude: 39°12'30"

BHL is located on topo map 1,633 feet west of Longitude: 80°27'30"
 SHL is located on topo map 4,166 feet west of Longitude: 80°27'30"



FILE #: KST5BHS
 DRAWING #: KST5BHS
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

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

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

GEORGE D. SIX
 LICENSED
 No. 2000
 STATE OF WEST VIRGINIA
 PROFESSIONAL SURVEYOR

PLACE SEAL HERE

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

DATE: JANUARY 03, 2018
 OPERATOR'S WELL #: KST5BHS
 API WELL #: 47 33 05815 DD
 STATE COUNTY PERMIT

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

WATERSHED: MIDDLE WEST FORK CREEK ELEVATION: 1,134±
 COUNTY/DISTRICT: HARRISON / UNION QUADRANGLE: WEST MILFORD, WV 7.5'
 SURFACE OWNER: JAMES IVAN McDONALD ACREAGE: 176.000±
 OIL & GAS ROYALTY OWNER: R. C. McDONALD & M. B. McDONALD; A. M. McDONALD & LYDIA D. McDONALD ACREAGE: 1328.95±

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,900± TMD: 17,937±
 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

03/09/2018

LEGACY LEASE NUMBER	TAX MAP	LEASE NUMBER	GRANTOR/LESSOR	GRANTEE/LESSEE	ROYALTY	DEED BOOK	PAGE
FK026553	17-20-0423-0008-0000, 17-20-0423-0007-0000	Q1100462000	R C McDONALD, M.B. McDONALD; A.M. McDONALD AND LYDIA McDONALDET AL	HOPE NATURAL GAS COMPANY	NOT LESS THAN 1/8	297	94
			HOPE NATURAL GAS COMPANY	CONSOLIDATED GAS SUPPLY CORPORATION	MERGER/NAME CHANGE	903	179
			CONSOLIDATED GAS SUPPLY CORPORATION	CONSOLIDATED GAS SUPPLY CORPORATION	ASSIGNMENT	1136	250
			CONSOLIDATED GAS TRANSMISSION CORPORATION	CNG GAS TRANSMISSION CORPORATION	MERGER/NAME CHANGE	51	795
			CNG GAS TRANSMISSION CORPORATION	DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE	58	362
			DOMINION TRANSMISSION, INC	CNX GAS COMPANY, LLC	FARMOUT AGREEMENT	1522	33
			CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	LIMITED PARTIAL ASSIGNMENT	1543	1235
			CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	ASSIGNMENT	1584	942
			NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	TBD	TBD
			JAMES S. LAW AND SUSANNA LAW	RESERVE GAS COMPANY	NOT LESS THAN 1/8	234	201
FK052937	17-20-0424-0033-0000, 17-20-0424-0033-0001, 17-20-0424-0033-0002, 17-20-0424-0033-0003, 17-20-0424-0033-0004, 17-20-0424-0033-0005, 17-20-0424-0033-0006, 17-20-0424-0033-0007	Q1100433000	HOPE NATURAL GAS COMPANY	HOPE NATURAL GAS COMPANY	MERGER/NAME CHANGE	903	179
			CONSOLIDATED GAS SUPPLY CORPORATION	CONSOLIDATED GAS SUPPLY CORPORATION	ASSIGNMENT	1136	250
			CONSOLIDATED GAS TRANSMISSION CORPORATION	CNG GAS TRANSMISSION CORPORATION	MERGER/NAME CHANGE	51	795
			CNG GAS TRANSMISSION CORPORATION	DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE	58	362
			DOMINION TRANSMISSION, INC	CNX GAS COMPANY, LLC	FARMOUT AGREEMENT	1522	33
			CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	LIMITED PARTIAL ASSIGNMENT OF FARMOUT	1543	1235
			CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	ASSIGNMENT	1584	942
			NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	TBD	TBD
			GUINN MINTER AND JANE MINTER	RESERVE GAS COMPANY	NOT LESS THAN 1/8	174	203
			EDWARD G. SMITH AND JESSIE B. SMITH	RESERVE GAS COMPANY	FEE CONVEYANCE	77	264
FK052752	17-20-0443-0015-0000, 17-20-0444-0018-0001, 17-20-0444-0018-0000, 17-20-0444-0018-0000, 17-20-0444-0016-0000, 17-20-0444-0017-0000, 21-03-0078-0001-0000	Q1100381000	HOPE NATURAL GAS COMPANY	HOPE NATURAL GAS COMPANY	FEE CONVEYANCE	508	573
			CONSOLIDATED GAS SUPPLY CORPORATION	CONSOLIDATED GAS SUPPLY CORPORATION	MERGER/NAME CHANGE	903	179
			CONSOLIDATED GAS TRANSMISSION CORPORATION	CNG GAS TRANSMISSION CORPORATION	ASSIGNMENT	1136	250
			CNG GAS TRANSMISSION CORPORATION	DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE	51	795
			DOMINION TRANSMISSION, INC	CNX GAS COMPANY, LLC	FARMOUT AGREEMENT	58	362
			CNX GAS COMPANY, LLC	CNX GAS COMPANY, LLC	AMENDMENT TO FARMOUT AGREEMENT	1524	491
			CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	LIMITED PARTIAL ASSIGNMENT OF FARMOUT	1543	1235
			NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	1584	942
			W.R. NEELY AND L.E. NEELY	RESERVE GAS COMPANY	NOT LESS THAN 1/8	174	205
			EDWARD G. SMITH AND JESSIE B. SMITH	RESERVE GAS COMPANY	FEE CONVEYANCE	77	264
FK052898	17-20-0443-0015-0000, 17-20-0444-0015-0000	Q1100381000	HOPE NATURAL GAS COMPANY	HOPE NATURAL GAS COMPANY	FEE CONVEYANCE	508	573
			CONSOLIDATED GAS SUPPLY CORPORATION	CONSOLIDATED GAS SUPPLY CORPORATION	MERGER/NAME CHANGE	903	179
			CONSOLIDATED GAS TRANSMISSION CORPORATION	CNG GAS TRANSMISSION CORPORATION	ASSIGNMENT	1136	250
			CNG GAS TRANSMISSION CORPORATION	DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE	51	795
			DOMINION TRANSMISSION, INC	CNX GAS COMPANY, LLC	FARMOUT AGREEMENT	58	362
			CNX GAS COMPANY, LLC	CNX GAS COMPANY, LLC	AMENDMENT TO FARMOUT AGREEMENT	1524	491
			CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	LIMITED PARTIAL ASSIGNMENT OF FARMOUT	1543	1235
			NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	1584	942
			WILLIAM E. BEGHLEY AND HARRIET BEGHLEY	RESERVE GAS COMPANY	NOT LESS THAN 1/8	68	302
			FK053258	21-03-0078-0003-0000, 21-03-0078-0004-0000	Q1100574000	HOPE NATURAL GAS COMPANY	HOPE NATURAL GAS COMPANY
CONSOLIDATED GAS SUPPLY CORPORATION	CONSOLIDATED GAS SUPPLY CORPORATION	MERGER/NAME CHANGE				294	89
CONSOLIDATED GAS TRANSMISSION CORPORATION	CNG GAS TRANSMISSION CORPORATION	ASSIGNMENT				425	127
CNG GAS TRANSMISSION CORPORATION	DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE				51	795
DOMINION TRANSMISSION, INC	CNSOL ENERGY HOLDINGS LLC	ASSIGNMENT				651	318
DOMINION TRANSMISSION, INC	CNX GAS COMPANY, LLC	FARMOUT AGREEMENT				684	154
CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	LIMITED PARTIAL ASSIGNMENT OF FARMOUT				684	154
NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT				722	170
GUINN MINTER AND JANE MINTER	RESERVE GAS COMPANY	NOT LESS THAN 1/8				174	203
FK052896 FK108080	17-20-0444-0001-0000, 17-20-0444-0002-0000, 21-03-0078-0001-0000, 17-20-0444-0023-0000, 17-20-0444-0024-0000, 17-20-0444-0025-0000	Q1101020000				HOPE NATURAL GAS COMPANY	HOPE NATURAL GAS COMPANY
			CONSOLIDATED GAS SUPPLY CORPORATION	CONSOLIDATED GAS SUPPLY CORPORATION	MERGER/NAME CHANGE	903	179
			CONSOLIDATED GAS TRANSMISSION CORPORATION	CNG GAS TRANSMISSION CORPORATION	ASSIGNMENT	1136	250
			CNG GAS TRANSMISSION CORPORATION	DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE	51	795
			DOMINION TRANSMISSION, INC	DOMINION TRANSMISSION, INC	FARMOUT AGREEMENT	58	362
			CNX GAS COMPANY, LLC	CNX GAS COMPANY, LLC	LIMITED PARTIAL ASSIGNMENT OF FARMOUT	1522	33
			CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	LIMITED PARTIAL ASSIGNMENT OF FARMOUT	1543	1235
			NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	1584	942
			NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	TBD	TBD
			NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	TBD	TBD

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WV Department of Environmental Protection

03/09/2018

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 Sheets****

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OCT 01 2017

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

WV Department of
Environmental Protection

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

33-05815 D



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

September 21, 2017

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

RE: Drilling Under Roads – KST5 BHS
Union District, Harrison County
West Virginia

Dear Ms. Adkins:

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

Should you have any questions or desire further information, please contact me at dwhite@hgenergyllc.com or 304-420-1119.

Very truly yours,

Diane White

Diane C. White

Enclosures

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Office of Oil and Gas

OCT 01 2017

WV Department of
Environmental Protection

03/09/2018

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

Date of Notice Certification: 09/21/2017

API No. 47-033 - 05815D
Operator's Well No. KST5 BHS
Well Pad Name: KST5

Notice has been given:

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

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>545521.8</u>
County: <u>Harrison</u>		Northing: <u>4335850.1</u>
District: <u>Union</u>	Public Road Access: <u>CR 19/18</u>	
Quadrangle: <u>West Milford WV 7.5'</u>	Generally used farm name: <u>James Ivan McDonald</u>	
Watershed: <u>Middle West Fork Creek</u>		

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

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

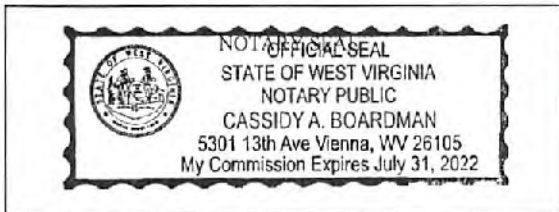
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

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Certification of Notice is hereby given:

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

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



Subscribed and sworn before me this 21st day of September 2017.

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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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: 09/19/2017 **Date Permit Application Filed:** 09/21/2017

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.

Notice is hereby provided to:

SURFACE OWNER(s) */*
 Name: James I. McDonald
 Address: 7416 Good Hope Pike
Lost Creek, WV 26385

Name: _____
 Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: Same as Above
 Address: _____

Name: _____
 Address: _____

SURFACE OWNER(s) (Impoundments/Pits)
 Name: _____
 Address: _____

COAL OWNER OR LESSEE
 Name: NA
 Address: _____

COAL OPERATOR
 Name: NA
 Address: _____

WATER PURVEYOR(s)
 Name: NA
 Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
 Name: Dominion Transmission Inc. - Ronald Walden
 Address: 445 West Main Street
Clarksburg, WV 26301

*Please attach additional forms if necessary

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WW-6A
(5-12)

OCT 01 2017

API NO. 47-033-05815D

OPERATOR WELL NO. KST5 BHS

Well Pad Name: KST5

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.

WV Department of
Environmental Protection**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 also 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.

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.

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.

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.

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 wellpad 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

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factors, if necessary.

Written Comment:

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

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

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

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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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.

WW-6A
(5-12)

API NO. 47-033-05815
OPERATOR WELL NO. KST5 BHS
Well Pad Name: KST5

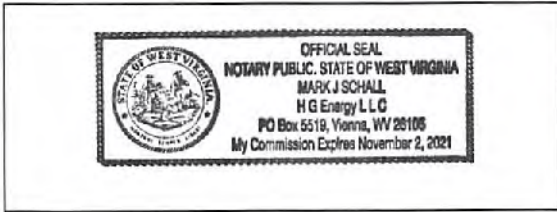
Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the 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.

Notice is hereby given by:

Well Operator: HG Energy II Appalachia, LLC Address: 5260 Dupont Road
Telephone: 304-420-1119 Parkersburg, WV 26101
Email: dwhite@hgenergyllc.com Facsimile: 304-863-9127

Oil and Gas Privacy Notice:

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



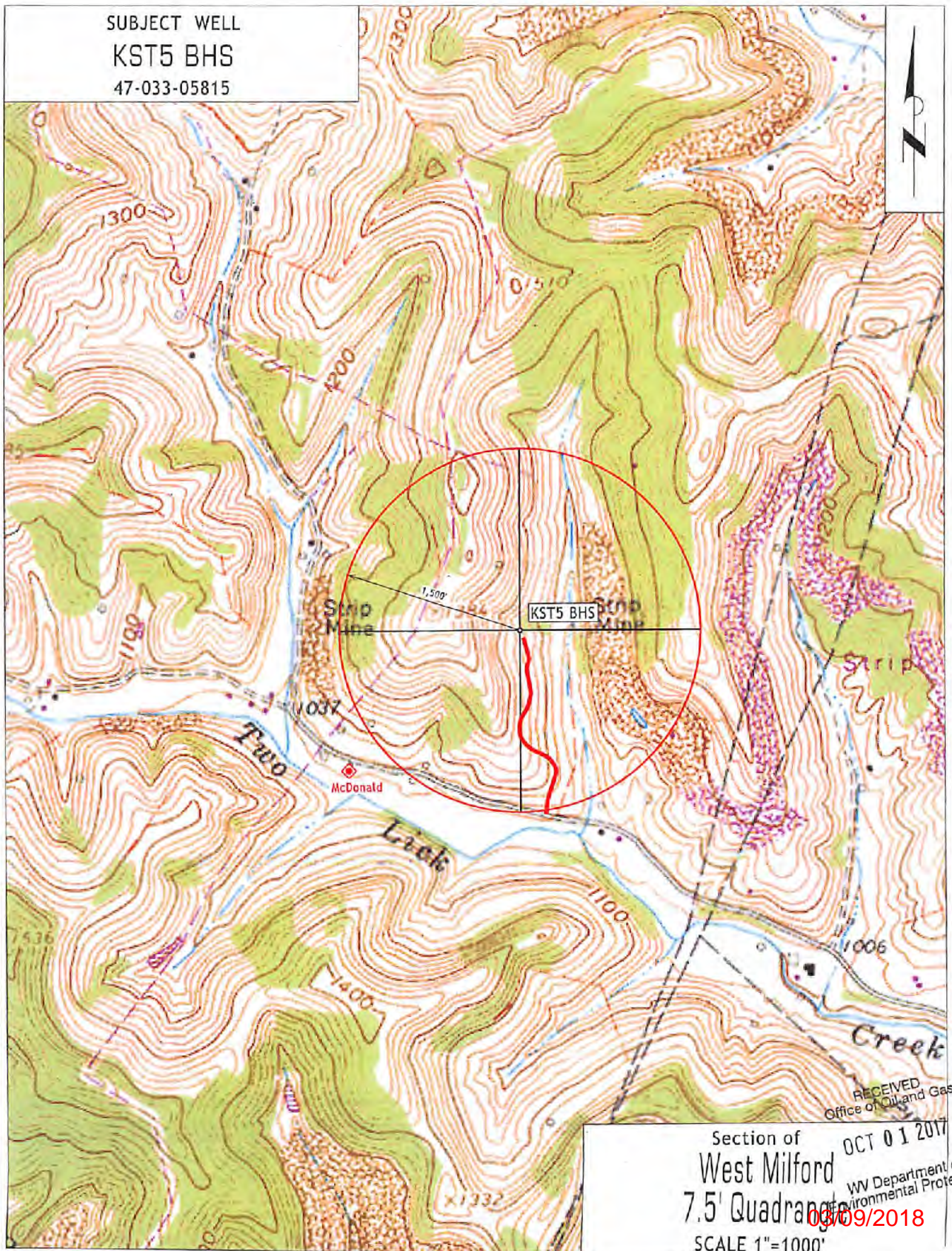
Subscribed and sworn before me this 26 day of 9, 2017.
Mark J. Schall Notary Public
My Commission Expires 11/2/2021

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33-05815D

SUBJECT WELL
KST5 BHS
47-033-05815



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

WV Department of
Environmental Protection
09/2018

33-05815D

HG Energy, LLC
Certified Mail Receipt
KST5 BHS
WW-6A4W Notice of Intent to Drill Waiver

- See Attached Waiver -

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WV Department of
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33-05815D

WW-6A4W
(1/12)

Operator Well No. KST5A,B,C,D,E,F,(HS)

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

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.

Surface Owner Waiver:

I, JAMES I. McDONALD, hereby state that I have read the notice provisions listed above and hereby waive the notice requirements under West Virginia Code § 22-6A-16(b) for the tract of land as follows:

State: West Virginia UTM NAD 83 Easting: _____
County: Harrison Northing: _____
District: Union-Outside Public Road Access: _____
Quadrangle: _____ Generally used farm name: _____
Watershed: _____

Name: JAMES I. McDONALD
Address: 7416 GOOD HOPE PIKE
LOST CREEK, WV 26385

Signature: *James I. McDonald*
Date: 8-28-17

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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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: 08/30/2017 **Date Permit Application Filed:** 09/11/2017

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

- CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

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

Notice is hereby provided to the SURFACE OWNER(s)

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

Name: James McDonald
Address: 7416 Good Hope Road
Lost Creek, WV 26385

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:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>545521.8</u>
County:	<u>Harrison</u>		Northing:	<u>4335850.1</u>
District:	<u>Union</u>	Public Road Access:	<u>Two Lick Run (CR19/18)</u>	
Quadrangle:	<u>West Milford, WV 7.5'</u>	Generally used farm name:	<u>R. C. McDonald</u>	
Watershed:	<u>Middle West Fork Creek</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by W. Va. Code § 22-6A-10(b) to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 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: 5280 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.



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

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

Earl Ray Tomblin
 Governor

Paul A. Mattox, Jr., P. E.
 Secretary of Transportation/
 Commissioner of Highways

September 20, 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 KST5HS Well Pad, Harrison County

Dear Mr. Martin,

This well site will be accessed from Permit #04-2014-0458 reissued to HG Energy, LLC for access to the State Road for a well site located off of Harrison County 19/18 SLS.

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

Very Truly Yours,

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

Cc: Matt McGuire
 HG Energy, LLC
 CH, OM, D-4
 File

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List of Frac Additives by Chemical Name and CAS #KST5 Well Pad (ASH,BHS,CHS,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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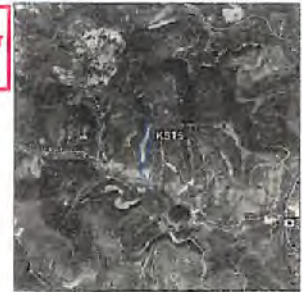


AP# 3305814
 AP# 3305815
 AP# 3305816
 AP# 3305817
 AP# 3305818
 AP# 3305819



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

**WV DEP O&G
 ACCEPTED AS-BUILT**
Kal 12/12/2017



LOCATION MAP
 NOT TO SCALE
 12/12/2017

KST5HS WELL SITE

PAD CENTER LOCATION

NAD 83 - LAT: N 39° 10' 14.53", LONG: W 80° 28' 22.27"
 NAD 27 - LAT: N 39° 10' 14.20", LONG: W 80° 28' 22.94"
 UTM NAD 83 ZONE 17 - N: 4335852.248; E: 545536.849

ENTRANCE LOCATION

NAD 83 - LAT: N 39° 09' 59.05", LONG: W 80° 28' 20.09"
 NAD 27 - LAT: N 39° 09' 58.72", LONG: W 80° 28' 21.57"
 UTM NAD 83 ZONE 17 - N: 4335375.359; E: 545591.936

UNION DISTRICT,

HARRISON COUNTY, WEST VIRGINIA

DATE: JULY 11, 2014

Electronic Version of These Plans May Be Viewed at: [Q/OIL GAS/SAY FILES/REVIEWS](#)

GENERAL INFORMATION

OWNER:
 B. H. McDONALD
 MAP/FARCEL: 20-423-6
 AL PROPERTY AREA: 176.00 +/- ACRES
 AS ROYALTY OWNER:
 B. H. McDONALD, R. H. McDONALD & LINDA McDONALD
 MAP/FARCEL: 20-423-6
 AL PROPERTY AREA: 176.00 +/- ACRES
 LOCATION:
 KST5HS SITE IS LOCATED NORTH OF TWO LICK ROAD
 APPROXIMATELY 1,500 FEET EAST OF THE INTERSECTION OF COUNTY
 RT 28/2 & COUNTY ROUTE 19/18.

PERMITS

1. COMPANY WILL OBTAIN AN ENCROACHMENT PERMIT (FORM PPM-09)
 FROM WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF
 HIGHWAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

UTILITIES

UTILITY OF WEST VIRGINIA WAS NOTIFIED FOR THE LOCATING OF
 SERVICE PRIOR TO THIS PROJECT DESIGN (TICKET NO. 1604502897). IN
 THE EVENT UTILITY WILL BE CONTACTED PRIOR TO THE START OF THE
 PROJECT.

PLANNING

BOUNDARY LISTS OF DISTURBANCE FOR THIS PROJECT ARE NOT LOCATED
 AND ZONE PER THE FLOOD INSURANCE RATE MAP (FIRM) NUMBER
 17024D.

DRAWING WAS CREATED ON 22x34 PAPER. (1)X(7) DRAWINGS
 AT HALF SCALE. REFER TO SCALE BAR FOR PROPER SCALING.

NUMBER	DRAWING NAME
	COVER SHEET
	GENERAL NOTES
	GENERAL NOTES
	1/2" SCALE BOUNDARY OVERVIEW
	EXISTING CONDITIONS
	OVERALL SITE PLAN
	OVERALL SITE PLAN WITH BOUNDARY
	DETAILS

DRAWING NUMBER	DRAWING NAME
02	ROAD & PAD PROFILES
03	RECLAMATION PLAN (1 OF 4)
04	RECLAMATION PLAN (2 OF 4)
05	RECLAMATION PLAN (3 OF 4)
06	RECLAMATION PLAN (4 OF 4)
07	CONSTRUCTION DETAILS
08	CONSTRUCTION DETAILS

Blue Mountain Inc.
 Engineers and Land Surveyors
 11023 Mason Dixon Hwy.
 Burton, WV 26032-9656
 (304) 682-6486



ENVIRONMENTAL NOTES

A WETLAND DELINEATION WAS PERFORMED ON DECEMBER 17-19, 2013 BY BLUE MOUNTAIN INC. TO REVIEW THE SITE FOR WETLANDS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION. THE JANUARY 10, 2014 REPORT FOR KST5HS, WHICH WAS PREPARED BY BLUE MOUNTAIN INC. SUMMARIZES THE RESULTS OF THE FIELD DELINEATION. THE REPORT DOES NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF THE LANDWARD LIMITS OF WETLANDS AND WETLANDS WHICH MAY BE REGULATED BY THE USAGE OF WYDEP. IT IS STRONGLY RECOMMENDED THAT THE APPROPRIATE AGENCIES BE CONSULTED IN AN EFFORT TO OBTAIN CLARIFICATION OF THE DELINEATION DESCRIBED BY THE REPORT PRIOR TO ENGAGING CONSTRUCTION ON THE PROPERTY DESCRIBED HEREIN. THE DEVELOPER SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLANDS AND STREAM CROSSINGS.

GEOTECHNICAL NOTES

A SUBSURFACE INVESTIGATION OF THE PROPOSED SITE WAS PERFORMED BY THE FIELD BY RETTEW ASSOCIATES, INC. ON FEBRUARY 24-28, 2014. THE REPORTS PREPARED BY RETTEW ASSOCIATES, INC. DATED MARCH 17, 2014, REFLECTS THE RESULTS OF THE SUBSURFACE INVESTIGATION. PLEASE REFER TO THE SUBSURFACE INVESTIGATION REPORT FOR ADDITIONAL INFORMATION AS NEEDED.

RESTRICTIONS

- THERE ARE NO NATURALLY PRODUCING TROUT STREAMS WITHIN 300' OF THE PAD & LOD.
- THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN PROOF OF THE PAD AND LOD.
- THERE ARE NO EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250' OF THE WELLS BEING DRILLED.
- THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 625' OF THE CENTER OF THE PAD.
- THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2,500 SQUARE FEET WITHIN 625' OF THE CENTER OF THE PAD.

CERTIFICATION

I DO HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF THAT THE DESIGN AND CONSTRUCTION PLAN AND THE RECLAMATION PLAN AND POST CONSTRUCTION BMP'S ARE TRUE AND CORRECT, REFLECT ACtual FIELD CONDITIONS AND ARE IN ACCORDANCE WITH THE WEST VIRGINIA CODE AND THE DEPARTMENT'S RULES AND REGULATIONS. I AM AWARE THAT THERE ARE PENALTIES FOR PROVIDING FALSE INFORMATION.



HG ENERGY II APPALACHIA, LLC
 Parkersburg, WV 26101



REVISIONS

NO.	DATE	DESCRIPTION

RECEIVED
 Office of Oil and Gas
 OCT 01 2017
 WV Department of Environmental Protection

WVDEP OOG
ACCEPTED AS-BUILT
10/31/2017

Blue Mountain Inc.
Engineers and Land Surveyors
6001 W. STATE ST.
CLAYTON, WV 25958
(304) 762-1400
www.bluemountaininc.com

PROJECT: REFINANCE/RE-
LEASING CONTRACT RENEWAL
HARRISBURG, WV 26031

KSTS SITE
AS-BUILT

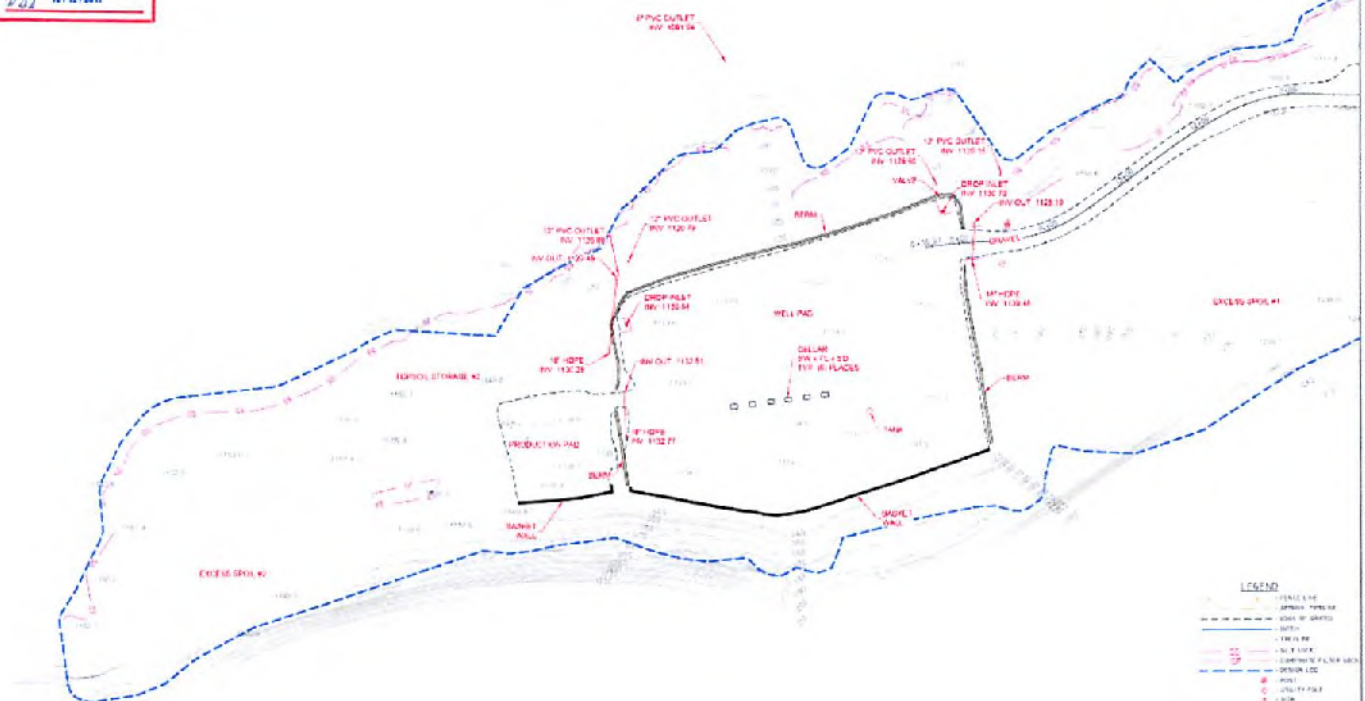
H ENERGY

REV: 01/16/17
REV: 02/01/17
REV: 03/01/17
REV: 04/01/17
REV: 05/01/17
REV: 06/01/17
REV: 07/01/17
REV: 08/01/17
REV: 09/01/17
REV: 10/01/17
REV: 11/01/17
REV: 12/01/17
REV: 01/01/18
REV: 02/01/18

SCALE: 1"=100'

DATE: 03/09/2018

SHEET: 1 OF 5



LEGEND

- 12\"/>

SCALE: 1"=100'

N

0 50 100
FOOT

SCALE: 1"=100'

NOTE: DRAWING WAS CREATED ON 02/28/16 FROM LAST DRAWING
AND MUST BE SEEN REFER TO SCALE BAR FOR PROPER SIZING



WVDEP 000
ACCEPTED AS-BUILT
02/11/2017

Blue Mountain Inc.
Engineers and Drafting Services
1200 Mountain Park Drive
Martinsburg, WV 26151-2939
Tel: 304.281.1234
Fax: 304.281.1235

HST ENERGY SERVICES LLC
3330 MARION AVENUE
MARTINSBURG, WV 26151

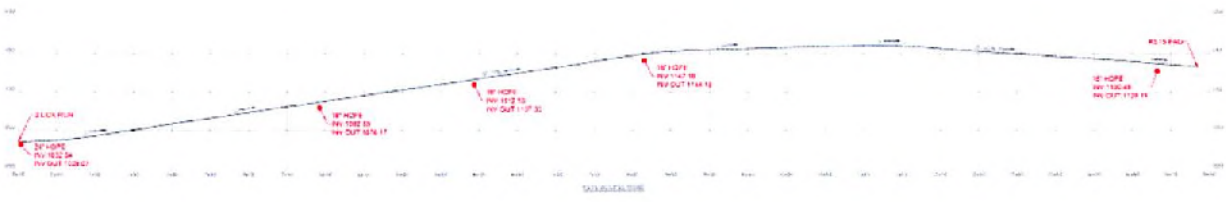


REVISIONS	
NO.	DESCRIPTION

LEGEND	
—	FENCE LINE
---	UTILITY LINE
---	LINE OF ASSESS
---	TANK #1
---	TANK #2
---	CONDUIT / UTILITY
---	CONCRETE / CURB DITCH
---	CONCRETE / COLLECTION DITCH
---	CONCRETE / WASTE DITCH
---	CONCRETE / E-WASTE
---	CONCRETE / SUMP
---	CONCRETE / WALL

NOTE: DRAWING WAS CREATED ON 2/23/17. TANK #1 NOT DRAWING
SEE PLAN SCALE. REFER TO SCALE BAR FOR PROPER SIZINGS

WVDEP O&G
ACCEPTED AS-BUILT
VSD 10/12/2017



NOTE: DRAWING WAS CREATED ON 27/3/16. RAMP UNIT DIMENSIONS AND HOLE SIZE MUST BE CHECKED FOR PROPER SIZING.



HE ENERGY SERVICES INC.
1510 BARTON ROAD
HARTSFORD, WV 25811
KST5 SITE
AS-BUILT



REVISIONS

NO.	DATE	DESCRIPTION

PROJECT

NO.	
DATE	
DESCRIPTION	
BY	
CHECKED	
DATE	
SCALE	
PROJECT NO.	
DATE	
BY	
CHECKED	
DATE	
SCALE	
PROJECT NO.	

SHEET 5 OF 5