

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

RECEIVED  
Office Of Oil and Gas  
OCT 10 2023

API 47 - 051 - 01834 County Marshall District Clay  
Quad Powhatan Point, WV/OH Pad Name MND1 Field/Pool Name \_\_\_\_\_  
Farm name Murray Energy Corp Well Number MND1KHS  
Operator (as registered with the OOG) HG Energy II Appalachia, LLC  
Address 5260 Dupont Rd. City Parkersburg State WV Zip 26101

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4411121.4 Easting 519304.4  
Landing Point of Curve Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Bottom Hole Northing 4413152.0 Easting 517943.0

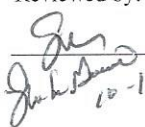
Elevation (ft) 1150 GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
Air/ OBM  
Barite, Lime, CaCL, base oil, Gilsonite, Asphalt, clay, Emulsifier, sulfatone, safevert FLG, safevert WA

Date permit issued 01/18/2019 Date drilling commenced 9/20/2022 Date drilling ceased 1/9/2022  
Date completion activities began 2/25/2022 Date completion activities ceased 5/24/2022  
Verbal plugging (Y/N) \_\_\_\_\_ Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 521' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft Not observed Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 622,694 Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:  
  
10-18-2023

API 47-051 - 01834 Farm name Murray Energy Corp Well number MND1KHS

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	36"	30"	40	New	LS/117#		*previous operator
Surface	18.5"	13.375"	1088	New	54.5 lbs/ft J-55		Yes, 45 bbl to surface
Coal							
Intermediate 1	12.25"	9.625"	2617	New	40 lbs/ft J55		Yes, 40 bbl to surface
Intermediate 2							
Intermediate 3							
Production	8.5	5.5	14242 ✓	New	23 lbs/ft P-110-EC		Yes, 63 bbls to surface
Tubing	4.67	2.375	3985	New	4.7 lbs/ft J55		not cemented
Packer type and depth set							

Comment Details \* Conductor set by previous operator on 8/1/205, original permit date 5/27/2015

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Class A	1132	15.6	1.19	1132.35	Surface	8
Coal							
Intermediate 1	Class A	876	15.6	1.18	04.04	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A	3226	15.6	1.19	3222.5	Surface	8
Tubing							

Drillers TD (ft) <sup>14275</sup> \_\_\_\_\_ Loggers TD (ft) \_\_\_\_\_  
 Deepest formation penetrated Marcellus \_\_\_\_\_ Plug back to (ft) \_\_\_\_\_  
 Plug back procedure \_\_\_\_\_

Kick off depth (ft) <sup>5339</sup> \_\_\_\_\_

Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic

Well cored  Yes  No Conventional Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_

13.375" casing: centralizer run every joint to 20" casing then placed every 3 joints to surface  
 9.625" casing: Centralizers run every other joint to 13.375" casing then placed every 3 joints to surface  
 5.5" casing: Centralizer run every joint to top of curve (KOP) then centralizers placed every 3 joints to surface

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_





**MND1 KHS**  
**Perforation Record**

Stage #	Perforation Date	Perforation from Depth	Perforation to Depth	Number of Perforations	Formation
Sleeve/1	3/20/2022	14199	14176	2	Marcellus
2	3/20/2022	14141	13973	28	Marcellus
3	3/20/2022	13943	13775	28	Marcellus
4	3/21/2022	13745	13577	28	Marcellus
5	3/21/2022	13547	13379	28	Marcellus
6	3/21/2022	13349	13181	28	Marcellus
7	3/22/2022	13151	12983	28	Marcellus
8	3/25/2022	12953	12785	28	Marcellus
9	3/25/2022	12755	12587	28	Marcellus
10	3/25/2022	12557	12389	28	Marcellus
11	3/26/2022	12359	12191	28	Marcellus
12	3/26/2022	12161	11993	28	Marcellus
13	3/27/2022	11963	11795	28	Marcellus
14	3/27/2022	11765	11597	28	Marcellus
15	3/28/2022	11567	11399	28	Marcellus
16	3/29/2022	11369	11201	28	Marcellus
17	3/29/2022	11171	11003	28	Marcellus
18	3/29/2022	10973	10805	28	Marcellus
19	3/29/2022	10775	10607	28	Marcellus
20	3/30/2022	10577	10409	28	Marcellus
21	3/30/2022	10379	10211	28	Marcellus
22	3/31/2022	10181	10013	28	Marcellus
23	3/31/2022	9983	9815	28	Marcellus
24	3/31/2022	9785	9617	28	Marcellus
25	4/1/2022	9587	9419	28	Marcellus
26	4/1/2022	9389	9221	28	Marcellus
27	4/1/2022	9191	9023	28	Marcellus
28	4/1/2022	8993	8825	28	Marcellus
29	4/2/2022	8795	8627	28	Marcellus
30A	4/2/2022	8597	8429	28	Marcellus
30B	4/2/2022	8597	8389	56	Marcellus
31	4/3/2022	8361	8211	28	Marcellus
32	4/3/2022	8193	8033	28	Marcellus
33	4/3/2022	8003	7835	28	Marcellus
34	4/3/2022	7805	7637	28	Marcellus
35	4/4/2022	7607	7439	28	Marcellus
36	4/4/2022	7409	7241	28	Marcellus
37	4/4/2022	7211	7043	28	Marcellus
38	4/4/2022	7013	6845	28	Marcellus
39	4/5/2022	6815	6647	28	Marcellus

**HG Energy II Appalachia, LLC**

**MND1 KHS**

**Stimulation Record**

Stage #	Date	Ave pump rate (BPM)	Ave Treatment Press (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Proppant (LBS)	Water (BBLs)
Sleeve/1	3/20/2022	16.0	7130	8234	4356	0	1,826
2	3/20/2022	100.0	7,197	5,129	3,845	637000	13,172
3	3/20/2022	100.0	7,817	5,366	4,572	661600	12,335
4	3/21/2022	90.0	7,237	5,294	4,048	661500	11,435
5	3/21/2022	97.0	7,338	5,670	4,191	659140	9,776
6	3/21/2022	97.0	7,529	5,597	4,780	652630	13,999
7	3/22/2022	76.0	6,616	5,679	4,343	553100	10,256
8	3/25/2022	94.0	7,320	5,942	4,634	644000	9,765
9	3/25/2022	90.0	7,141	5,610	4,877	655040	9,509
10	3/25/2022	99.0	7,657	5,418	5,103	651680	9,558
11	3/26/2022	81.0	8,018	5,197	5,194	654390	10,402
12	3/26/2022	96.0	7,993	5,264	4,888	654850	9,492
13	3/27/2022	99.0	7,660	5,147	4,750	654400	9,712
14	3/27/2022	94.0	7,402	4,781	4,984	667150	9,464
15	3/28/2022	91.0	7,379	5,333	5,138	659590	9,371
16	3/29/2022	97.0	7,807	5,289	4,814	613630	9,294
17	3/29/2022	98.0	7,517	4,665	4,656	565020	9,953
18	3/29/2022	99.0	7,335	5,347	4,902	653150	9,471
19	3/29/2022	99.0	7,543	4,970	4,981	654100	9,423
20	3/30/2022	97.0	7,034	4,941	4,692	683570	9,509
21	3/30/2022	100.0	7,328	5,652	4,925	650250	10,128
22	3/31/2022	99.0	7,089	5,098	4,650	651910	10,961
23	3/31/2022	96.0	6,840	4,279	5,328	642830	9,620
24	3/31/2022	100.0	6,579	4,437	4,897	653500	9,491
25	4/1/2022	98.0	7,437	5,174	4,992	644450	9,131
26	4/1/2022	99.0	7,232	4,963	4,622	641290	9,759
27	4/1/2022	100.0	7,117	4,621	5,009	643100	9,480
28	4/1/2022	95.0	6,514	4,044	4,964	640380	9,881
29	4/2/2022	93.0	6,495	5,145	4,584	639920	12,354
30A	4/2/2022	58.0	7,784	5,259	4,501	7990	2,536
30B	4/2/2022	100.0	6,936	5,540	3,853	643850	9,341
31	4/3/2022	97.0	7,101	5,105	5,265	640720	8,943
32	4/3/2022	100.0	7,626	5,095	5,158	640010	9,153
33	4/3/2022	98.0	6,845	5,019	4,417	641660	9,137
34	4/3/2022	100.0	7,085	4,999	4,915	641600	9,264
35	4/4/2022	99.0	6,977	4,945	5,779	630400	9,226
36	4/4/2022	99.0	6,576	4,913	4,543	630060	9,125
37	4/4/2022	101.0	6,750	5,546	4,731	638380	9,423
38	4/4/2022	100.0	6,701	4,408	4,408	632130	9,128
39	4/5/2022	99.0	6,361	4,369	4,861	623020	10,694

**HG Energy II Appalachia, LLC**  
**MND1 KHS**  
**Geological Information**

<b>Elevation -1177 Formation</b>	<b>MD</b>	<b>Tops TVD</b>		<b>MD</b>	<b>Base TVD</b>
Pittsburgh Coal	694	694		699	699
Surface casing set	1128		drill	1088	
Greenbrier Big Lime	1731	1731		1758	1758
Loyalhanna Big Injun	1821	1821		1861	1861
Pocono Big Injun (Price Format	1906	1906		2058	2058
5th sand/Weir	2158	2158		2172	2172
Intermdiate casing set	2657		drill	2617	
Speechley	3259	3256		3393	3389
Java	4798	4785		4915	4901
Angola	5003	4976	5320' air T	5233	5216
Rhinestreet	5748	5713		6106	6014
Cashaqua	6106	6014		6188	6073
Middlesex	6188	6073		6228	6097
West River	6228	6097		6351	6169
Burket	6351	6169		6383	6185
Tully	6383	6185		6455	6217
Hamilton	6455	6217		6567	6255
Marcellus shale	6567	6255		14275	6211

6,886' to Top Hole

39° 52' 30"

11,334' to Bottom Hole

80° 45' 00"  
2,498' to Bottom Hole

9,172' to Top Hole

WELL: MND1 KHS Coordinates

WV SPC North (NAD 27)

SURFACE LOCATION  
N - 494,175.9  
E - 1,642,164.1

LANDING POINT  
N - 494,593  
E - 1,642,204

BOTTOM HOLE  
N - 500,914  
E - 1,637,808

UTM NAD 83 (mtr)

SURFACE LOCATION  
N - 4,411,121.4  
E - 519,304.4

BOTTOM HOLE  
N - 4,413,152  
E - 517,943

LAT/LONG (NAD 83)

SURFACE LOCATION  
39.849893°  
80.774340°

BOTTOM HOLE  
39.868218°  
80.790199°

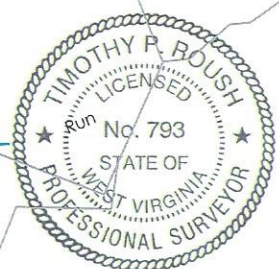
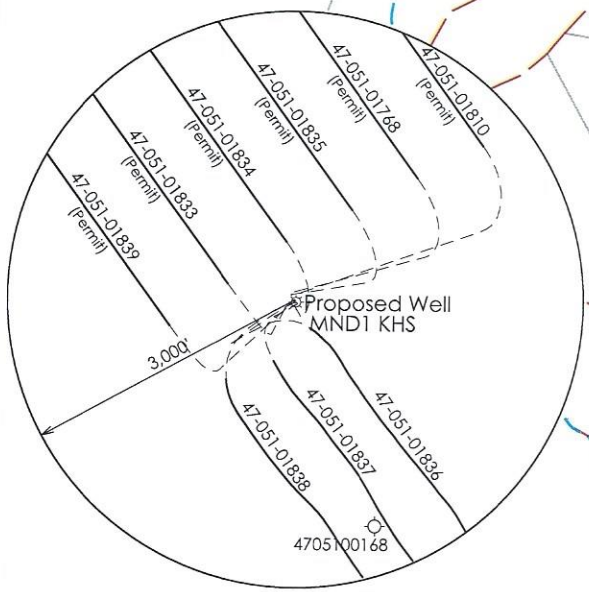
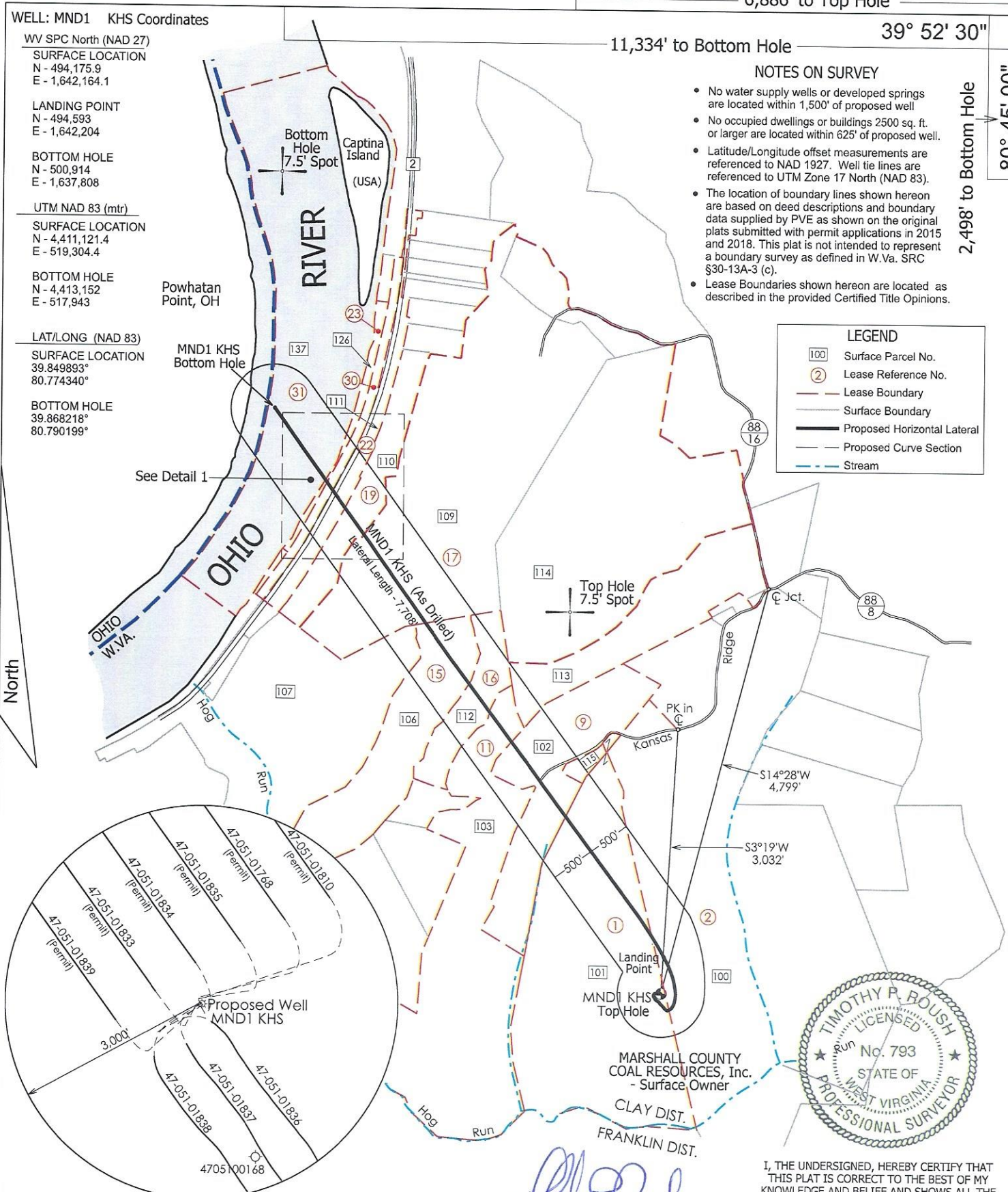
NOTES ON SURVEY

- No water supply wells or developed springs are located within 1,500' of proposed well
- No occupied dwellings or buildings 2500 sq. ft. or larger are located within 625' of proposed well.
- Latitude/Longitude offset measurements are referenced to NAD 1927. Well tie lines are referenced to UTM Zone 17 North (NAD 83).
- The location of boundary lines shown hereon are based on deed descriptions and boundary data supplied by PVE as shown on the original plats submitted with permit applications in 2015 and 2018. This plat is not intended to represent a boundary survey as defined in W.Va. SRC §30-13A-3 (c).
- Lease Boundaries shown hereon are located as described in the provided Certified Title Opinions.

LEGEND

- 100 Surface Parcel No.
- ② Lease Reference No.
- - - Lease Boundary
- Surface Boundary
- Proposed Horizontal Lateral
- - - Proposed Curve Section
- - - Stream

North



(SIGNED) *[Signature]*  
TIMOTHY P. ROUSH PS 793

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.

— DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

FILE NO. \_\_\_\_\_  
SCALE: 1" = 1,500'  
MINIMUM DEGREE OF ACCURACY: Sub-Meter  
PROVEN SOURCE OF ELEVATION: DGPS Survey



WEST VIRGINIA  
Department of Environmental Protection  
Office of Oil and Gas  
601 57th Street  
Charleston, West Virginia 25301

DATE March 3, 2023  
WELL NAME MND1 KHS  
API WELL NO. 47 - 051 - 01834  
State County Permit

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ (IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X

LOCATION: ELEVATION 1,150' WATERSHED Hog Run - Ohio River  
DISTRICT: Clay COUNTY: Marshall QUADRANGLE: Powhatan Point 7.5'  
SURFACE OWNER: Marshall County Coal Resources, Inc. ACREAGE: 128.32 Ac.  
OIL & GAS ROYALTY OWNER: HG Energy II Appalachia, LLC LEASE ACREAGE: 128.32 Ac. LEASE NO. \_\_\_\_\_  
PROPOSED WORK: DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_  
PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As Drilled Plat  
PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_ TARGET FORMATION Marcellus Shale ESTIMATED DEPTH 6,211' TVD  
14,275' TMD

WELL OPERATOR: HG Energy II Appalachia, LLC  
ADDRESS: 5260 DuPont Road Parkersburg, WV 26101

DESIGNATED AGENT: Diane White  
ADDRESS: 5260 DuPont Road Parkersburg, WV 26101



WELL: MND1 KHS Coordinates

AS DRILLED PLAT

WV SPC North (NAD 27)

SURFACE LOCATION  
N - 494,175.9  
E - 1,642,164.1

LANDING POINT  
N - 494,593  
E - 1,642,204

BOTTOM HOLE  
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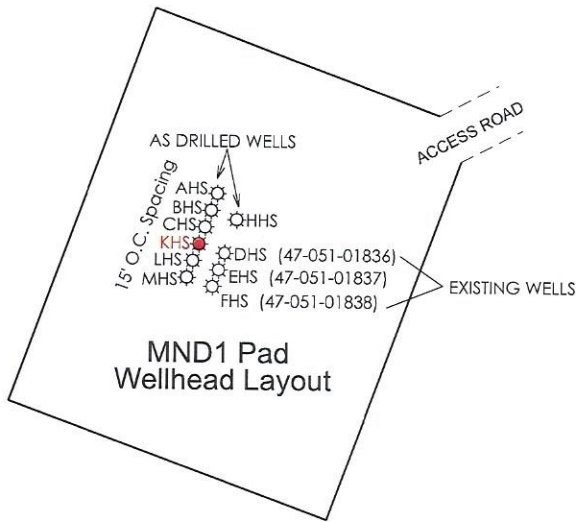
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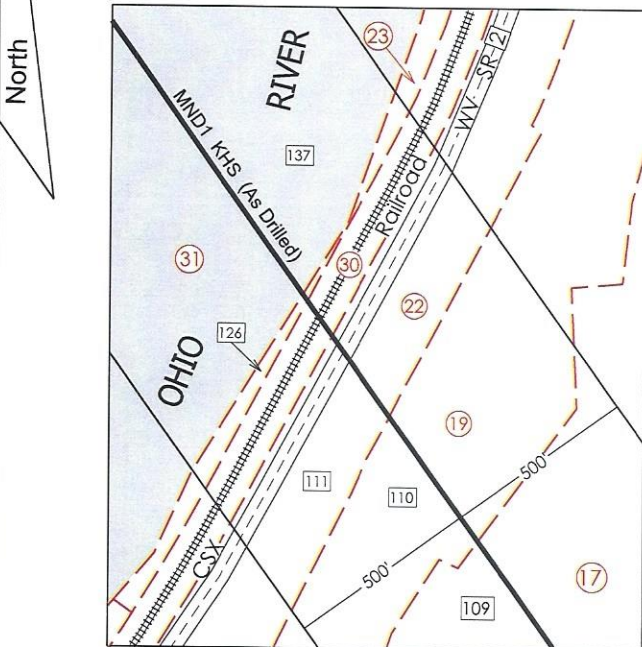


LEASE TABLE

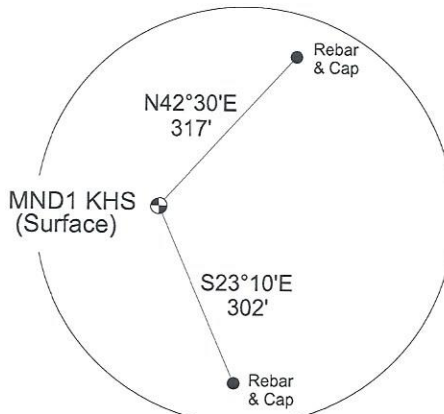
①	HG ENERGY II APPALACHIA, LLC	TMP 04-14-10
②	HG ENERGY II APPALACHIA, LLC	TMP 04-14-09
⑨	ROBERT E. TSCHAPPAT SR. et ux.	TMP 04-14-06
⑪	HG ENERGY II APPALACHIA, LLC	TMP 04-14-11
⑮	HG ENERGY II APPALACHIA, LLC	TMP 04-14-03
⑯	HG ENERGY II APPALACHIA, LLC	TMP 04-14-04
⑰	PAUL J. & JULIE D. MAIDENS	TMP 04-07-14, 07-17
⑲	NYLA J. BELL	TMP 04-07-15
⑳	NYLA J. BELL	TMP 04-07-16
㉓	JIM ARRITT et al.	TMP 04-07-15.9
⑳	CSX TRANSPORTATION, INC.	NA
㉑	WV DIVISION OF NATURAL RESOURCES	OHIO RIVER

SURFACE PARCEL TABLE

100	Marshall County Coal Resources, Inc.	TMP 04-14-09
101	Marshall County Coal Resources, Inc.	TMP 04-14-10
102	Robert E. Tschappat Sr. et ux.	TMP 04-14-06
103	Marshall County Coal Resources, Inc.	TMP 04-14-11
106	Marshall County Coal Resources, Inc.	TMP 04-14-03
107	Marshall County Coal Resources, Inc.	TMP 04-14-02
109	Paul J. & Julie D. Maidens	TMP 04-07-14
110	W.Va. Department of Highways	TMP 04-07-15
111	State Road Commission	TMP 04-07-16
112	Edison A. Barlow et ux.	TMP 04-14-04
113	Carmella Faye & Michael Rose	TMP 04-07-18
114	Paul J. & Julie D. Maidens	TMP 04-07-17
126	Jim Arritt et al.	TMP 04-07-15.09
137	WV Division of Natural Resources	-



DETAIL 1  
Scale: 1"=500'



WELL REFERENCES

⊕ - DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

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Department of Environmental Protection  
Office of Oil and Gas  
601 57th Street  
Charleston, West Virginia 25301

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State County Permit

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