

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
WV Department of
Environmental Protection

API 47 - 051 - 01833 County Marshall District Clay
Quad Powhatan Point Pad Name MND1 Field/Pool Name _____
Farm name Murray Energy Corp Well Number MND1LHS
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 4411117.1 Easting 519302.9
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4412872.0 Easting 517858.0

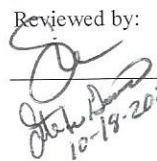
Elevation (ft) 1150 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining 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 9/23/2022 Date drilling ceased 1/4/2022
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:

10-19-2023

API 47-051 - 01833 Farm name Murray Energy Corp Well number MND1LHS

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"	1095	New	54.5 lbs/ft J-55		Yes, 32 bbl to surface
Coal							
Intermediate 1	12.25"	9.625"	2602	New	40 lbs/ft J55		Yes, 40 bbl to surface
Intermediate 2							
Intermediate 3							
Production	8.5	5.5	13364	New	20 lbs/ft P-110		Yes, 50 bbls to surface
Tubing	4.67	2.375	6484.3	New	4.7 lbs/ft J55		not cemented
Packer type and depth set							

Comment Details * Conductor set by previous operator on 7/31/2015, original permit date 5/27/2015

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Class A	1140	15.6	1.19	1141.8	Surface	8
Coal							
Intermediate 1	Class A	910	15.6	1.19	901.16	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A	3035	15.6	1.19	3033.8	Surface	8
Tubing							

Drillers TD (ft) ¹³³⁹⁷ _____ Loggers TD (ft) _____
 Deepest formation penetrated Marcellus _____ Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) ⁵⁷⁰⁵ _____

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 _____

HG Energy II Appalachia, LLC

MND1 LHS

Perforation Record

Stage #	Perf Date	Perforations from Depth	Perforations to Depth	Number of Perforations	Formation
Sleeve/1	3/4/2022	13307	13276	2	Marcellus
2	3/5/2022	13241	13073	28	Marcellus
3	3/5/2022	13043	12875	28	Marcellus
4	3/6/2022	12845	12677	28	Marcellus
5	3/7/2022	12647	12479	28	Marcellus
6	3/7/2022	12449	12281	28	Marcellus
7	3/8/2022	12251	12083	28	Marcellus
8	3/8/2022	12053	11885	28	Marcellus
9	3/8/2022	11855	11687	28	Marcellus
10A	3/9/2022	11657	11489	28	Marcellus
10B	3/9/2022	11657	11466	56	Marcellus
11	3/9/2022	11422	11271	28	Marcellus
11B	3/10/2022	11422	11240	56	Marcellus
12	3/10/2022	11244	11093	28	Marcellus
13	3/10/2022	11063	10895	28	Marcellus
14	3/10/2022	10865	10697	28	Marcellus
15	3/11/2022	10667	10499	28	Marcellus
16	3/11/2022	10469	10301	28	Marcellus
17	3/11/2022	10271	10103	28	Marcellus
18	3/12/2022	10073	9905	28	Marcellus
19	3/12/2022	9875	9707	28	Marcellus
20	3/13/2022	9677	9509	28	Marcellus
21	3/13/2022	9479	9311	28	Marcellus
22	3/13/2022	9281	9113	28	Marcellus
23A	3/13/2022	9082	8914	28	Marcellus
23B	3/14/2022	9082	8882	56	Marcellus
24	3/14/2022	8852	8698	28	Marcellus
25	3/14/2022	8668	8514	28	Marcellus
26	3/14/2022	8482	8314	28	Marcellus
27	3/15/2022	8282	8114	28	Marcellus
28	3/15/2022	8082	7914	28	Marcellus
29	3/16/2022	7882	7714	28	Marcellus
30	3/16/2022	7682	7514	28	Marcellus
31	3/16/2022	7482	7314	28	Marcellus
32	3/17/2022	7282	7114	28	Marcellus
33A	3/17/2022	7082	6914	28	Marcellus
33B	3/17/2022	7082	6882	56	Marcellus
34	3/17/2022	6852	6698	28	Marcellus
35	3/18/2022	6668	6514	28	Marcellus

HG Energy II Appalachia, LLC

MND1 LHS

Stimulation Record

Stage #	Date	Ave pump rate (BPM)	Ave Treatment Press (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Proppant (LBS)	Water (BBLs)
Sleeve/1	3/4/2022	33.0	8362	NA	4544	0	1,838
2	3/5/2022	96.0	7,877	5,249	3,042	661100	15,799
3	3/5/2022	92.0	7,140	5,308	4,846	497000	12,564
4	3/6/2022	99.0	7,694	5,494	4,220	662500	12,608
5	3/7/2022	94.0	7,701	5,963	4,292	684380	11,943
6	3/7/2022	100.0	7,965	5,507	4,747	693800	10,442
7	3/8/2022	97.0	7,834	5,347	5,012	683300	9,657
8	3/8/2022	106.0	7,715	5,986	4,767	665250	9,040
9	3/8/2022	97.0	7,717	5,449	4,995	668770	9,379
10A	3/9/2022	26.0	7,869	5,523	4,238	9900	645
10B	3/9/2022	94.0	7,736	5,523	3,977	565980	9,944
11	3/9/2022	68.0	9,167	5,540	9,167	10700	2,783
11B	3/10/2022	99.0	7,155	5,816	4,377	576730	9,527
12	3/10/2022	101.0	7,396	4,378	4,852	652190	9,586
13	3/10/2022	97.0	7,149	5,265	4,750	648490	9,108
14	3/10/2022	104.0	7,212	5,377	4,890	653100	8,847
15	3/11/2022	100.0	6,854	5,496	5,044	648200	10,717
16	3/11/2022	104.0	7,228	5,645	4,780	659060	9,016
17	3/11/2022	103.0	7,202	5,331	4,874	649300	8,816
18	3/12/2022	94.0	7,012	5,369	4,152	652170	9,168
19	3/12/2022	100.0	6,793	4,893	4,323	650450	9,006
20	3/13/2022	102.0	7,171	5,227	4,855	650500	8,866
21	3/13/2022	103.0	7,343	5,300	5,525	642000	9,337
22	3/13/2022	103.0	7,325	5,090	4,509	650670	9,155
23A	3/13/2022	32.0	7,255	5,164	4,705	0	1,400
23B	3/14/2022	103.0	7,125	4,780	4,905	660300	10,464
24	3/14/2022	104.0	7,267	4,773	5,004	659300	8,925
25	3/14/2022	98.0	7,286	5,081	4,977	650520	9,164
26	3/14/2022	92.0	7,233	5,430	4,835	454580	8,735
27	3/15/2022	102.0	6,638	5,697	4,886	655200	11,157
28	3/15/2022	101.0	6,898	5,200	5,056	652420	9,594
29	3/16/2022	101.0	6,976	5,460	4,836	653200	10,140
30	3/16/2022	102.0	7,286	5,097	4,838	652230	10,303
31	3/16/2022	100.0	7,275	5,340	5,285	658130	9,960
32	3/17/2022	93.0	7,173	5,289	4,799	649800	10,363
33A	3/17/2022	12.0	7,364	5,352	4,420	0	1,315
33B	3/17/2022	101.0	6,774	5,345	4,325	656360	9,520
34	3/17/2022	100.0	7,449	5,650	4,794	638570	9,432
35	3/18/2022	95.0	6,959	5,890	4,928	655040	10,520

HG Energy II Appalachia, LLC
MND1 LHS
Geological Record

Elevation - 1177 Formation	Tops		MD	Base TVD
	MD	TVD		
Pittsburgh Coal	694	694		699
Surface casing set	1134		drill	1095
Greenbrier Big Lime	1731	1731		1758
Loyalhanna Big Injun	1821	1821		1861
Pocono Big Injun (Price Format	1906	1906		2059
5th sand/Weir	2160	2158		2174
Intermdiate casing set	2642		drill	2602
Speechley	3259	3256		3349
Java	4801	4785		4910
Angola	4995	4976	5571' air to	5221
Rhinestreet	5734	5708		6055
Cashaqua	6055	6006		6135
Middlesex	6135	6072		6165
West River	6165	6094		6262
Burket	6262	6160		6292
Tully	6292	6171		6351
Hamilton	6351	6208		6438
Marcellus shale	6438	6243		13397

AS DRILLED PLAT

6,891' to Top Hole

39° 52' 30"

WELL: MND1 LHS Coordinates

WV SPC North (NAD 27)

SURFACE LOCATION
N - 494,161.8
E - 1,642,158.8

LANDING POINT
N - 494,312
E - 1,641,507

BOTTOM HOLE
N - 500,001
E - 1,637,515

UTM NAD 83 (mtr)

SURFACE LOCATION
N - 4,411,117.1
E - 519,302.9

BOTTOM HOLE
N - 4,412,872
E - 517,858

LAT/LONG (NAD 83)

SURFACE LOCATION
39.849854°
80.774358°

BOTTOM HOLE
39.865700°
80.791196°

11,614' to Bottom Hole

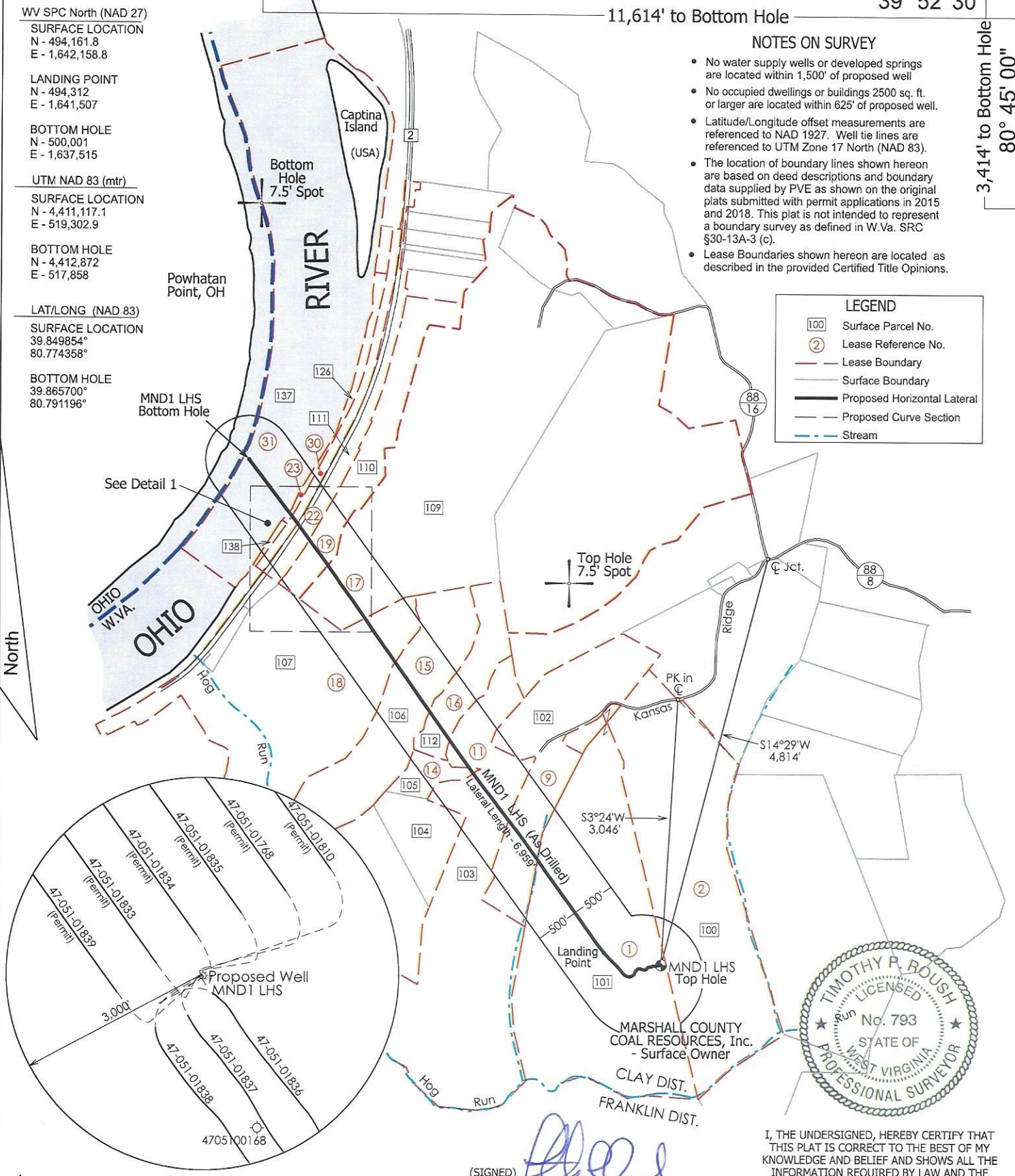
NOTES ON SURVEY

- 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) *Timothy P. Roush*
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.

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 LHS**
API WELL NO. **47 - 051 - 01833**
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 **6,200' TVD**
13,397' 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 LHS Coordinates

AS DRILLED PLAT

WV SPC North (NAD 27)

SURFACE LOCATION
N - 494,161.8
E - 1,642,158.8

LANDING POINT
N - 494,312
E - 1,641,507

BOTTOM HOLE
N - 500,001
E - 1,637,515

UTM NAD 83 (mtr)

SURFACE LOCATION
N - 4,411,117.1
E - 519,302.9

BOTTOM HOLE
N - 4,412,872
E - 517,858

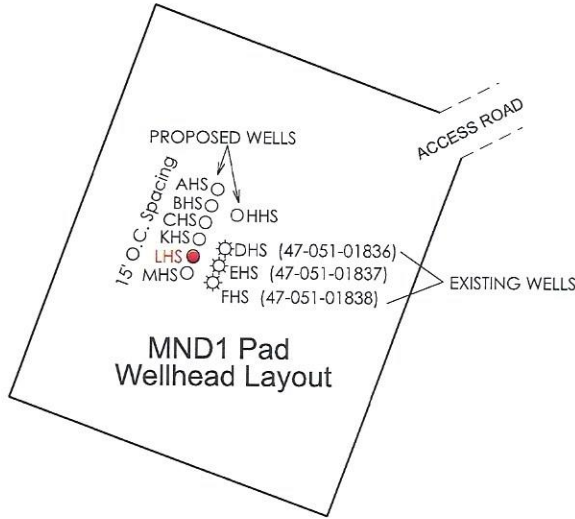
LAT/LONG (NAD 83)

SURFACE LOCATION
39.849854°
80.774358°

BOTTOM HOLE
39.865700°
80.791196°

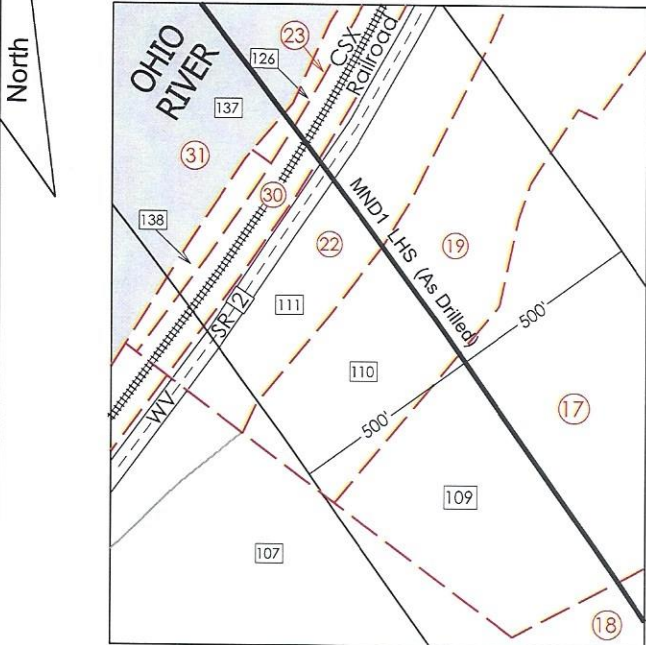
LEASE TABLE

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
14	HG ENERGY II APPALACHIA, LLC	TMP 04-14-14
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
18	HG ENERGY II APPALACHIA, LLC	TMP 04-14-02
19	NYLA J. BELL	TMP 04-07-15
22	NYLA J. BELL	TMP 04-07-16
23	JIM ARRITT et al.	TMP 04-07-15.9
30	CSX TRANSPORTATION, INC.	NA
31	WV DIVISION OF NATURAL RESOURCES	OHIO RIVER



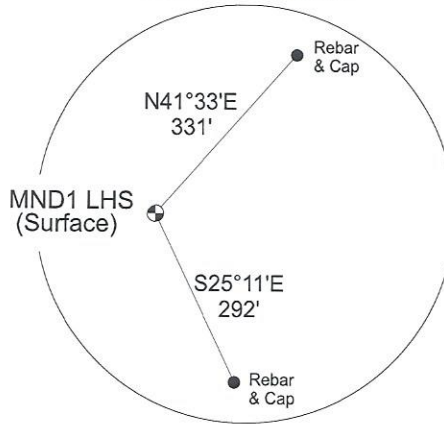
SURFACE PARCEL TABLE

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
104	Marshall County Coal Resources, Inc.	TMP 04-14-13
105	Marshall County Coal Resources, Inc.	TMP 04-14-14
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
126	Jim Arritt et al.	TMP 04-07-15.09
137	WV Division of Natural Resources	-
138	Sandy Davis	TMP 04-07-15.04



DETAIL 1
Scale: 1"=500'

WELL REFERENCES



⊕ - 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 LHS
API WELL NO. 47 - 051 - 01833
State County Permit

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

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 CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE 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 6,200' TVD
13,397' 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