

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 - 01839 County Marshall District Clay
Quad Powhatan Point Pad Name MND1 Field/Pool Name _____
Farm name Murray Energy Corp Well Number MND1MHS
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 4411112.8 Easting 519301.3
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4412714.0 Easting 517767.0

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 9/25/2021 Date drilling ceased 12/26/2021
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:

[Signature]
10-18-2023

API 47-051 - 01839

Farm name Murray Energy Corp

Well number MND1MHS

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	94 lbs/ft J55		* Previous Operator
Surface	18.5"	13.375"	1098	New	54.5 lbs/ft J-55		Yes, 74 bbl to surface
Coal							
Intermediate 1	12.25"	9.625"	2602	New	40 lbs/ft J55		Yes, 54 bbl to surface
Intermediate 2							
Intermediate 3							
Production	8.5	5.5	13500	New	20 lbs/ft P-110		Yes, 120 bbls to surface
Tubing	4.67	2.375	6659.2	New	4.7 lbs/ft J55		not cemented
Packer type and depth set							

Comment Details * Previous operator set conductor on 8/2/2015, 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	1178	15.6	1.19	1179.5	Surface	8
Coal							
Intermediate 1	Class A	1113	15.6	1.19	1193.7	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A	2943	15.6	1.19	3232	Surface	8
Tubing							

Drillers TD (ft) ¹³⁵³⁰ _____ Loggers TD (ft) _____
 Deepest formation penetrated Marcellus _____ Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) ⁵⁶⁵⁰ _____

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 MHS

Perforation Record

Stage #	Perforation Date	Perforation from Depth	Perforation to Depth	Number of Perforations	Formation
Sleeve/1	3/4/2022	13445	13415	2	Marcellus
2	3/4/2022	13381	13213	28	Marcellus
3	3/5/2022	13185	13017	28	Marcellus
4	3/5/2022	12989	12821	28	Marcellus
5	3/6/2022	12792	12624	28	Marcellus
6	3/7/2022	12594	12426	28	Marcellus
7	3/7/2022	12396	12228	28	Marcellus
8	3/8/2022	12198	12030	28	Marcellus
9	3/8/2022	12000	11832	28	Marcellus
10	3/8/2022	11802	11634	28	Marcellus
11	3/9/2022	11604	11436	28	Marcellus
12	3/9/2022	11406	11238	28	Marcellus
13	3/9/2022	11208	11040	28	Marcellus
14	3/10/2022	11010	10842	28	Marcellus
15	3/10/2022	10812	10644	28	Marcellus
16	3/10/2022	10614	10446	28	Marcellus
17	3/10/2022	10416	10248	28	Marcellus
18	3/11/2022	10218	10050	28	Marcellus
19	3/11/2022	10020	9852	28	Marcellus
20	3/11/2022	9822	9654	28	Marcellus
21	3/11/2022	9624	9456	28	Marcellus
22A	3/12/2022	9426	9258	28	Marcellus
22B	3/13/2022	9426	9226	56	Marcellus
23	3/13/2022	9200	9046	28	Marcellus
24	3/13/2022	9020	8866	28	Marcellus
25	3/14/2022	8832	8664	28	Marcellus
26	3/14/2022	8634	8466	28	Marcellus
27	3/14/2022	8436	8268	28	Marcellus
28	3/14/2022	8238	8070	28	Marcellus
29	3/15/2022	8040	7872	28	Marcellus
30	3/15/2022	7842	7674	28	Marcellus
31	3/15/2022	7644	7476	28	Marcellus
32	3/16/2022	7446	7278	28	Marcellus
33	3/16/2022	7248	7080	28	Marcellus
34	3/17/2022	7050	6882	28	Marcellus
35	3/17/2022	6852	6684	28	Marcellus

HG Energy II Appalachia, LLC
MND1 MHS
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	8256	0	4962	0	1,150
2	3/4/2022	95.0	7,836	5,700	3,570	602500	14,414
3	3/5/2022	98.0	7,869	4,977	3,604	662900	13,263
4	3/5/2022	95.0	7,875	5,335	4,643	546500	10,938
5	3/6/2022	95.0	7,395	5,644	4,764	668670	12,204
6	3/7/2022	92.0	7,273	5,684	4,383	605090	13,518
7	3/7/2022	100.0	7,793	5,579	4,439	684330	10,116
8	3/8/2022	98.0	8,117	5,363	4,670	677500	10,095
9	3/8/2022	96.0	7,516	4,943	4,219	661960	9,686
10	3/8/2022	98.0	7,896	5,052	4,666	706500	9,556
11	3/9/2022	97.0	7,290	5,600	4,876	529500	8,303
12	3/9/2022	100.0	7,694	4,917	4,896	653340	9,532
13	3/9/2022	100.0	7,501	5,631	4,605	651680	9,408
14	3/10/2022	101.0	7,219	5,426	4,826	650000	8,580
15	3/10/2022	99.0	7,991	5,195	4,626	652600	8,780
16	3/10/2022	100.0	7,199	5,245	5,166	653460	8,865
17	3/10/2022	101.0	7,306	5,164	4,808	651680	9,077
18	3/11/2022	91.0	7,818	5,280	4,923	649300	12,619
19	3/11/2022	104.0	7,255	5,113	4,972	648800	8,388
20	3/11/2022	100.0	7,537	5,168	4,932	649250	9,465
21	3/11/2022	96.0	7,418	5,242	4,955	646400	9,142
22A	3/12/2022	32.0	7,512	5,089	4,649	0	1,896
22B	3/13/2022	103.0	7,212	5,172	5,066	650340	10,206
23	3/13/2022	102.0	7,307	5,296	4,980	651980	9,283
24	3/13/2022	104.0	7,204	5,124	4,906	652500	8,852
25	3/14/2022	105.0	7,149	4,925	4,905	653200	9,247
26	3/14/2022	101.0	6,999	4,806	4,642	643200	9,952
27	3/14/2022	103.0	7,373	4,835	4,949	649630	8,784
28	3/14/2022	101.0	7,508	5,240	4,929	605100	10,319
29	3/15/2022	104.0	6,962	4,979	5,163	652000	9,027
30	3/15/2022	101.0	6,142	5,174	4,674	651700	10,874
31	3/15/2022	98.0	7,220	5,391	5,561	551400	9,408
32	3/16/2022	99.0	7,454	5,105	5,099	668540	11,322
33	3/16/2022	97.0	6,575	4,716	5,099	647820	12,144
34	3/17/2022	102.0	7,179	5,962	4,816	645820	9,737
35	3/17/2022	101.0	7,294	5,716	5,262	654210	9,622

HG Energy II Appalachia, LLC

MND1 MHS

Geology Record

Elevation - 1177 Formation	MD	Tops		MD	Base TVD
		TVD			
Pittsburgh Coal	694	694		699	699
Surface casing set	1138			1098	
Greenbrier Big Lime	1731	1731		1758	1758
Loyalhanna Big Injun	1810	1810		1861	1861
Pocono Big Injun (Price Format	1906	1906		2061	2058
5th sand/Weir	2160	2158		2174	2172
Intermdiate casing set	2642			2602	
Speechley	3248	3245			3302
Java	4882	4782		4997	4892
Angola	5070	4959		5309	5189
Rhinestreet	5844	5701		6188	6000
Cashaqua	6188	6000		6284	6071
Middlesex	6284	6071		6314	6093
West River	6314	6093		6423	6158
Burket	6423	6158		6456	6175
Tully	6456	6175		6518	6205
Hamilton	6518	6205		6609	6239
Marcellus shale	6609	6239		13530	6201

AS DRILLED PLAT

6,896' to Top Hole

39° 52' 30"

223" to Bottom Hole
(Referenced to 80°47'30")

3,932' to Bottom Hole
80° 45' 00"

9,200' to Top Hole

WELL: MND1 MHS Coordinates

WV SPC North (NAD 27)

SURFACE LOCATION
N - 494,147.8
E - 1,642,153.6

LANDING POINT
N - 493,719
E - 1,641,013

BOTTOM HOLE
N - 499,487
E - 1,637,206

UTM NAD 83 (mtr)

SURFACE LOCATION
N - 4,411,112.8
E - 519,301.3

BOTTOM HOLE
N - 4,412,714
E - 517,767

LAT/LONG (NAD 83)

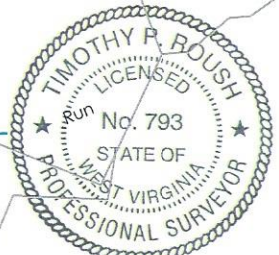
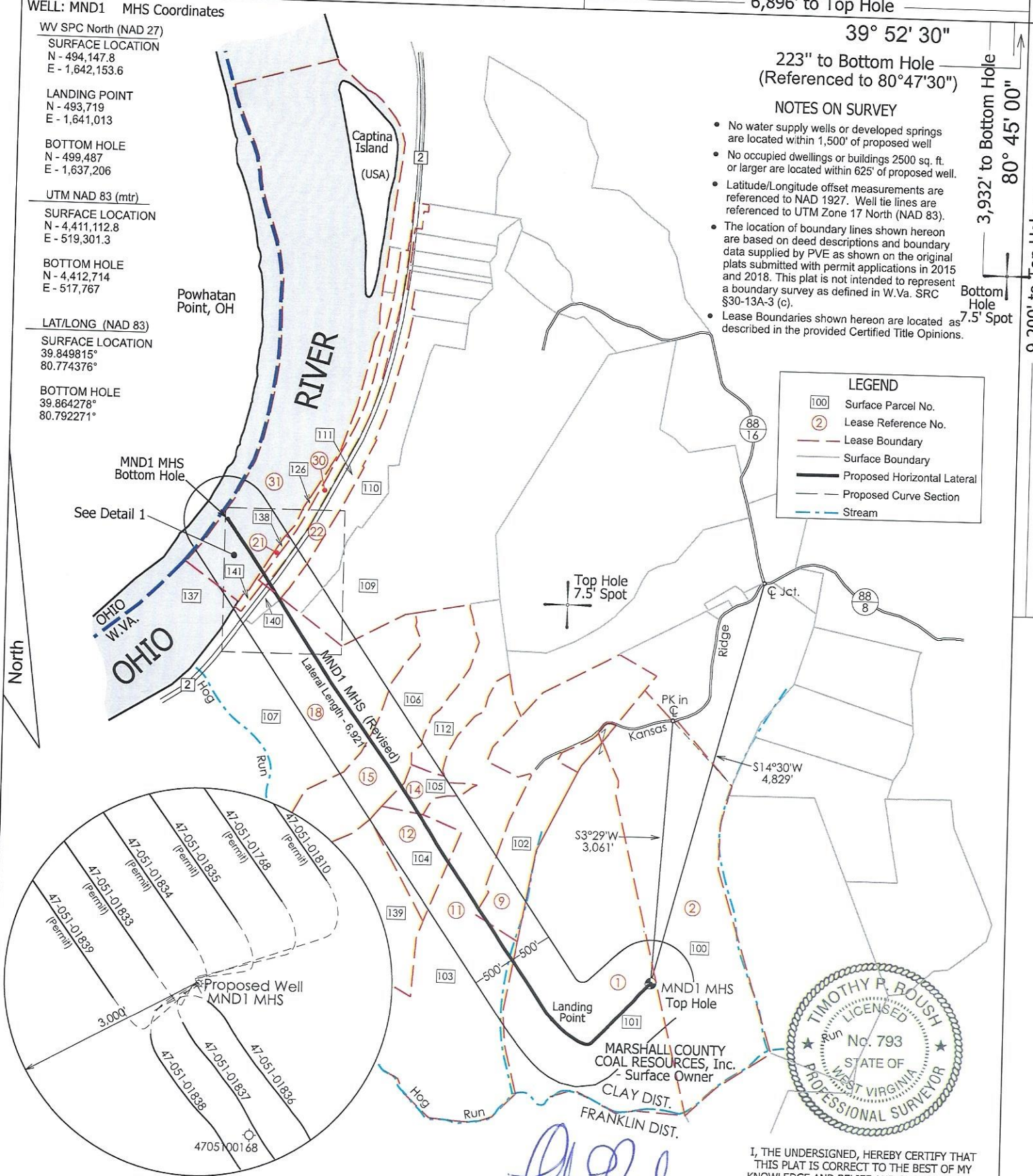
SURFACE LOCATION
39.849815°
80.774376°

BOTTOM HOLE
39.864278°
80.792271°

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



(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 MHS
API WELL NO. 47 - 051 - 01839
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 6,201' TVD
13,530' 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

AS DRILLED PLAT

WELL: MND1 MHS Coordinates

WV SPC North (NAD 27)

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N - 494,147.8
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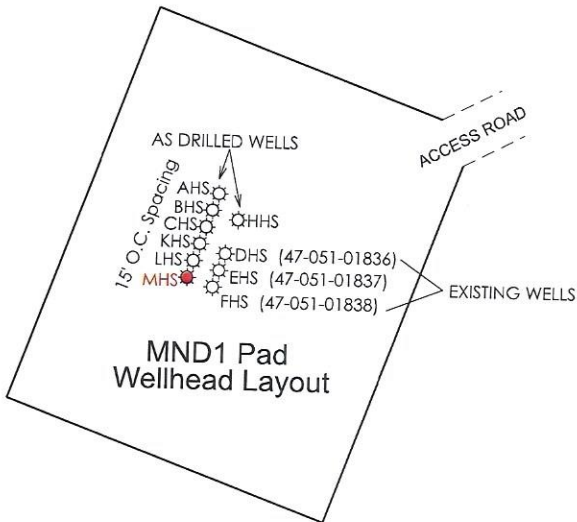
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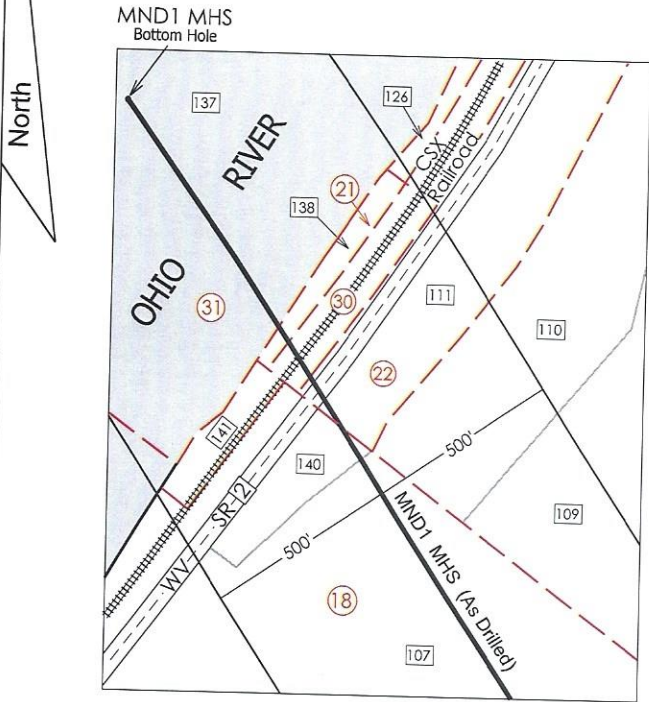


LEASE TABLE

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
12	HG ENERGY II APPALACHIA, LLC	TMP 04-14-13
14	HG ENERGY II APPALACHIA, LLC	TMP 04-14-14
15	HG ENERGY II APPALACHIA, LLC	TMP 04-14-03
18	HG ENERGY II APPALACHIA, LLC	TMP 04-14-02
21	MILLARD BONNETTE, JR.	TMP 04-07-15.04
22	NYLA J. BELL	TMP 04-07-16
30	CSX TRANSPORTATION, INC.	NA
31	WV DIVISION OF NATURAL RESOURCES	OHIO RIVER

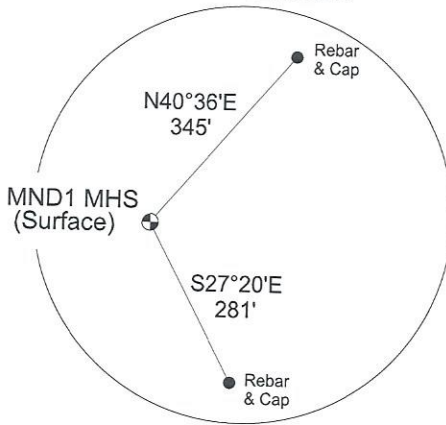
SURFACE PARCEL TABLE

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
139	Marshall County Coal Resources, Inc.	TMP 04-14-12
140	State Road Commission	TMP 04-14-01
141	J.P. Stewart Hrs.	TMP 04-14-15



DETAIL 1
Scale: 1"=500'

WELL REFERENCES



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

FILE NO. _____
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ADDRESS: 5260 DuPont Road
Parkersburg, WV 26101

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