

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 - 01768 County Marshall District Clay
Quad Powhatan Point, WV/OH Pad Name MND1 Field/Pool Name _____
Farm name Murray Energy Corp Well Number MND1BHS
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 4411130.0 Easting 519307.5
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing 4414009.0 Easting 517862.0

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 10/20/2021 Date drilling ceased 2/3/2022
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 - 01768 Farm name Murray Energy Corp Well number MND1BHS

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"	1096'	New	54.5 lbs/ft J-55		Yes, 40 bbl to surface
Coal							
Intermediate 1	12.25"	9.625"	2627'	New	40 lbs/ft J55		Yes, 37 bbl to surface
Intermediate 2							
Intermediate 3							
Production	8.5	5.5	17271'	New	20 lbs/ft P-110 CDC HTG		Yes, 156 bbl to surface
Tubing	4.67	2.375	6936.7	New	4.78 lbs/ft J55		Not cemented
Packer type and depth set							

Comment Details *Conductor set by previous operator, permit date 10/31/2014, conductor set 7/31/2015

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	914	15.6	1.18	975.4	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A	4198	15.6	1.19	4199.14	surface	8
Tubing							

Drillers TD (ft) ¹⁷³⁰⁶ _____ Loggers TD (ft) _____
 Deepest formation penetrated Marcellus _____ Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) ⁵⁸⁰² _____

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 BHS

Stimulation Record

Stage #	Date	Ave pump rate (BPM)	Ave Treatment Press (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Proppant (LBS)	Water (BBLs)
Sleeve/1	4/9/2022	56.0	7918	8265	3919	10510	1,928
2	4/9/2022	97.0	7,831	5,363	3,994	633410	13,928
3	4/10/2022	93.0	7,583	5,333	4,370	642200	11,248
4	4/10/2022	95.0	7,870	5,626	4,525	665360	11,802
5	4/10/2022	92.0	7,402	5,654	4,747	661590	9,693
6	4/11/2022	98.0	7,769	5,062	4,462	650790	10,050
7	4/11/2022	100.0	7,871	4,882	4,658	664220	10,207
8	4/12/2022	91.0	6,902	4,447	4,412	642430	9,622
9	4/12/2022	95.0	7,105	4,846	4,697	644410	10,338
10	4/12/2022	90.0	7,889	4,765	4,320	640080	12,985
11	4/13/2022	93.0	8,013	5,069	N/A	608300	9,770
12	4/14/2022	88.0	8,152	5,301	4,275	494300	9,843
13	4/15/2022	96.0	7,646	5,155	4,880	654400	9,262
14	4/15/2022	101.0	7,825	5,290	4,670	649140	9,557
15	4/16/2022	96.0	8,186	4,766	4,598	660200	9,146
16	4/16/2022	89.0	7,741	5,850	10,114	646560	10,145
17	4/17/2022	88.0	6,935	5,762	4,660	635250	11,996
18A	4/18/2022	19.0	8,405	4,780	4,290	1300	1,888
18B	4/18/2022	100.0	7,628	5,069	4,673	627830	9,871
19	4/19/2022	89.0	7,124	4,537	5,419	645100	10,633
20	4/19/2022	29.0	8,416	5,116	7,936	300	2,143
21	4/21/2022	86.0	7,014	6,560	4,394	624430	9,163
22	4/22/2022	92.0	7,559	5,396	4,329	653260	9,741
23A	4/24/2022	37.0	7,506	4,840	4,953	3360	1,183
23B	4/25/2022	95.0	7,267	5,149	5,593	636760	9,035
24	4/25/2022	85.0	6,913	5,060	4,951	639870	9,406
25	4/26/2022	83.0	6,772	4,770	5,269	636300	8,736
26	4/26/2022	94.0	6,888	4,707	4,863	644790	9,196
27	4/26/2022	98.0	7,094	5,089	4,789	647070	8,845
28	4/27/2022	96.0	7,263	5,003	4,789	645840	9,499
29	4/27/2022	98.0	7,136	5,156	4,942	644160	9,014
30	4/27/2022	97.0	7,211	5,080	4,803	645510	9,326
31	4/28/2022	96.0	7,323	5,258	4,857	645650	9,018
32	4/28/2022	93.0	7,004	5,219	4,902	645470	9,049
33	4/28/2022	99.0	7,197	4,737	4,859	645870	9,696
34	4/28/2022	98.0	7,192	5,004	5,010	643910	9,019
35	4/29/2022	96.0	6,824	4,994	4,771	643170	9,606
36	4/29/2022	100.0	6,481	4,643	4,817	648010	8,629
37	4/30/2022	99.0	7,061	5,517	5,005	645510	9,232
38	4/30/2022	96.0	6,912	5,068	5,112	645080	8,767
39	4/30/2022	98.0	7,158	4,929	5,718	646320	8,169
40	5/1/2022	96.0	7,062	5,157	5,110	645480	8,840
41	5/1/2022	96.0	7,028	5,287	5,034	645440	9,599
42	5/1/2022	99.0	6,724	4,968	4,975	662410	9,015
43	5/1/2022	99.0	6,841	5,053	4,897	645340	9,627
44	5/2/2022	94.0	6,735	5,050	4,944	630150	9,478
45	5/2/2022	99.0	6,167	5,115	4,985	644500	9,457
46	5/2/2022	99.0	6,897	5,113	4,859	645470	9,361
47	5/3/2022	95.0	6,985	5,212	5,096	645800	10,457
48	5/3/2022	98.0	6,704	4,974	5,064	645290	9,572
49	5/4/2022	93.0	6,565	5,249	5,092	645090	9,265
50	5/4/2022	96.0	6,642	5,238	5,146	640860	9,481
51	5/4/2022	98.0	6,656	4,800	4,954	647320	9,236
52	5/4/2022	98.0	6,747	4,847	5,571	646700	9,428
53	5/5/2022	93.0	6,633	5,388	5,388	646540	9,349

HG Energy II Appalachia, LLC

MND1 BHS

Perforation Record

Stage #	Perforation Date	Perforation from Depth	Perforation to Depth	Number of Perforations	Formation
Sleeve/1	4/9/2022	17220	17195	28	Marcellus
2	4/9/2022	17146	16993	28	Marcellus
3	4/10/2022	16965	16797	28	Marcellus
4	4/10/2022	16769	16601	28	Marcellus
5	4/10/2022	16573	16405	28	Marcellus
6	4/11/2022	16377	16209	28	Marcellus
7	4/11/2022	16181	16013	28	Marcellus
8	4/12/2022	15985	15817	28	Marcellus
9	4/12/2022	15789	15621	28	Marcellus
10	4/12/2022	15593	15425	28	Marcellus
11	4/13/2022	15397	15229	28	Marcellus
12	4/14/2022	15201	15033	28	Marcellus
13	4/15/2022	15005	14837	28	Marcellus
14	4/15/2022	14809	14641	28	Marcellus
15	4/16/2022	14613	14445	28	Marcellus
16	4/16/2022	14417	14249	28	Marcellus
17	4/17/2022	14221	14053	28	Marcellus
18A	4/18/2022	14025	13857	28	Marcellus
18B	4/18/2022	14025	13817	56	Marcellus
19	4/19/2022	13791	13644	28	Marcellus
20	4/19/2022	13618	13465	28	Marcellus
21	4/21/2022	13318	13199	28	Marcellus
22	4/22/2022	13173	13054	28	Marcellus
23A	4/24/2022	13028	12877	28	Marcellus
23B	4/25/2022	13028	12834	56	Marcellus
24	4/25/2022	12806	12659	28	Marcellus
25	4/26/2022	12633	12485	28	Marcellus
26	4/26/2022	12457	12289	28	Marcellus
27	4/26/2022	12262	12094	28	Marcellus
28	4/27/2022	12067	11899	28	Marcellus
29	4/27/2022	11871	11703	28	Marcellus
30	4/27/2022	11675	11507	28	Marcellus
31	4/28/2022	11479	11311	28	Marcellus
32	4/28/2022	11283	11115	28	Marcellus
33	4/28/2022	11087	10919	28	Marcellus
34	4/28/2022	10891	10723	28	Marcellus
35	4/29/2022	10694	10526	28	Marcellus
36	4/29/2022	10496	10328	28	Marcellus
37	4/30/2022	10298	10130	28	Marcellus
38	4/30/2022	10100	9932	28	Marcellus
39	4/30/2022	9902	9734	28	Marcellus
40	5/1/2022	9704	9536	28	Marcellus
41	5/1/2022	9506	9338	28	Marcellus
42	5/1/2022	9308	9140	28	Marcellus
43	5/1/2022	9110	8942	28	Marcellus
44	5/2/2022	8912	8744	28	Marcellus
45	5/2/2022	8714	8546	28	Marcellus
46	5/2/2022	8516	8348	28	Marcellus
47	5/3/2022	8318	8150	28	Marcellus
48	5/3/2022	8120	7952	28	Marcellus
49	5/4/2022	7922	7754	28	Marcellus
50	5/4/2022	7724	7556	28	Marcellus
51	5/4/2022	7526	7358	28	Marcellus
52	5/4/2022	7328	7160	28	Marcellus
53	5/5/2022	7130	6962	28	Marcellus

HG Energy II Appalachia, LLC
MND1 BHS
Geology Information

Elevation - 1177 Formation	<u>Tops</u>				<u>Base</u>	
	MD	TVD			MD	TVD
Pittsburgh Coal	694	694			699	699
Surface casing set	1132		drill		1096	
Greenbrier Big Lime	1731	1731			1758	1758
Loyalhanna Big Injun	1821	1821			1861	1861
Pocono Big Injun (Price Form	1906	1906			2062	2061
5th sand/Weir	2163	2162			2181	2179
Intermediate casing set	2656		drill		2627	
Speechley	3277	3263			3320	3303
Java	5010	4784			5126	4885
Angola	5206	4955			5479	5194
Rhinestreet	6066	5711			6436	6017
Cashaqua	6436	6017			6531	6083
Middlesex	6531	6083			6566	6107
West River	6566	6107			6674	6171
Burket	6674	6171			6705	6188
Tully	6705	6188			6778	6222
Hamilton	6778	6222			6887	6262
Marcellus shale	6887	6262			17306	6188

AS DRILLED PLAT

6,875' to Top Hole

WELL: MND1 BHS Coordinates

11,590' to Bottom Hole

39° 52' 30"

WV SPC North (NAD 27)

SURFACE LOCATION
N - 494,203.9
E - 1,642,174.7

LANDING POINT
N - 495,218
E - 1,643,576

BOTTOM HOLE
N - 503,731
E - 1,637,590

UTM NAD 83 (mtr)

SURFACE LOCATION
N - 4,411,130.0
E - 519,307.5

BOTTOM HOLE
N - 4,414,009
E - 517,862

LAT/LONG (NAD 83)

SURFACE LOCATION
39.849970°
80.774304°

BOTTOM HOLE
39.875943°
80.791118°

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.

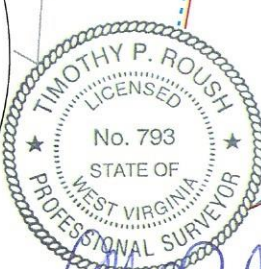
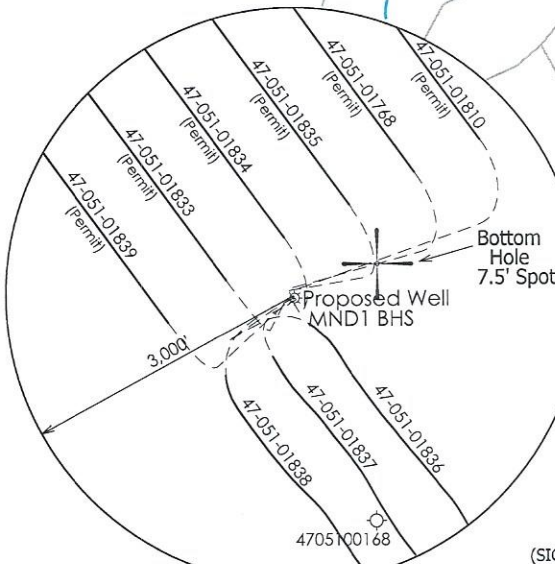
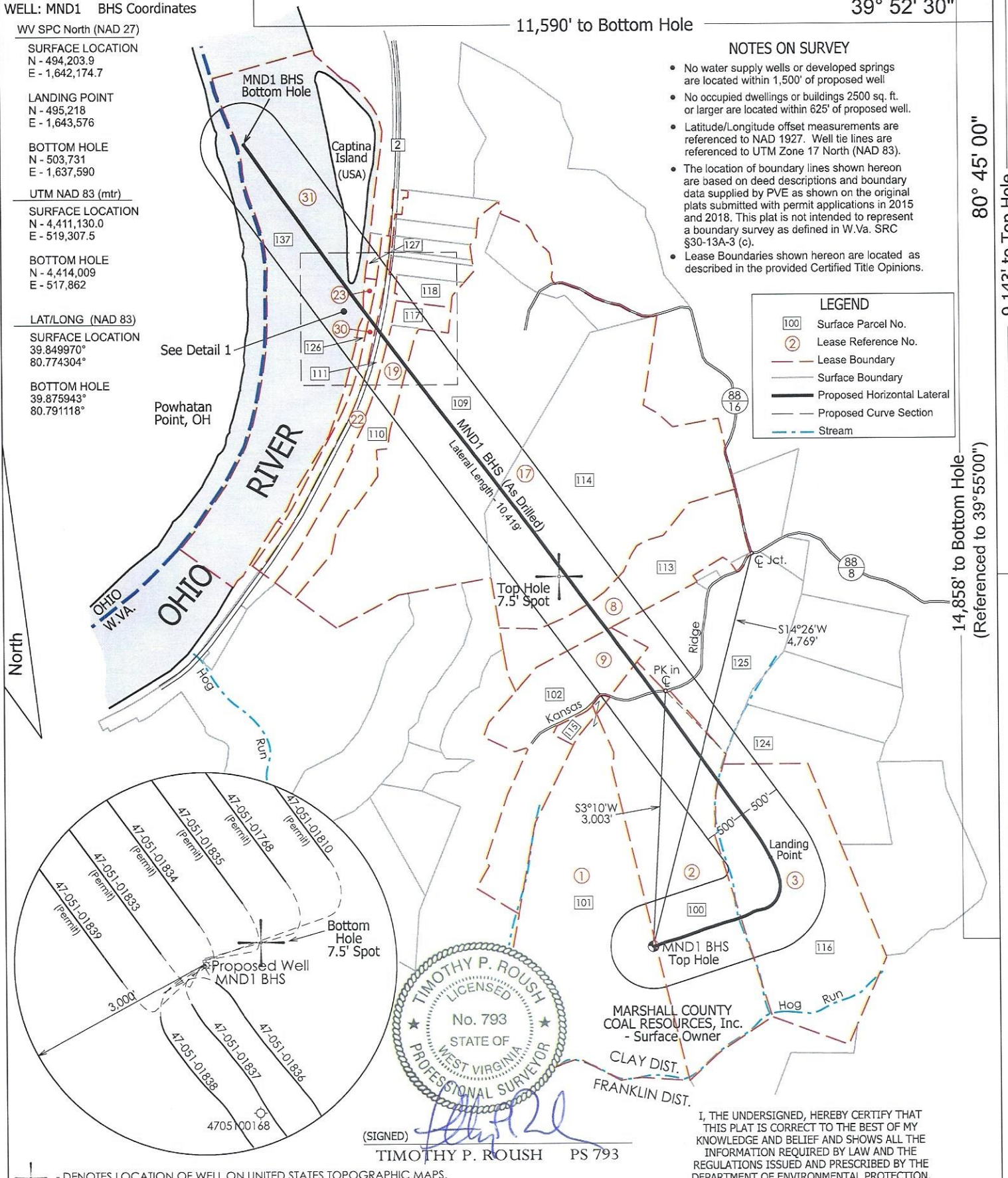
LEGEND

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

North

80° 45' 00"

14,858' to Bottom Hole
(Referenced to 39°55'00")



(SIGNED) *Timothy P. Roush*
TIMOTHY P. ROUSH PS 793

MARSHALL COUNTY
COAL RESOURCES, Inc.
- Surface Owner

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 BHS
API WELL NO.: 47 - 051 - 01768
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 6,188' TVD
17,306' 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
PAGE 1 OF 2

WELL: MND1 BHS Coordinates

AS DRILLED PLAT

WV SPC North (NAD 27)

SURFACE LOCATION
N - 494,203.9
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UTM NAD 83 (mtr)

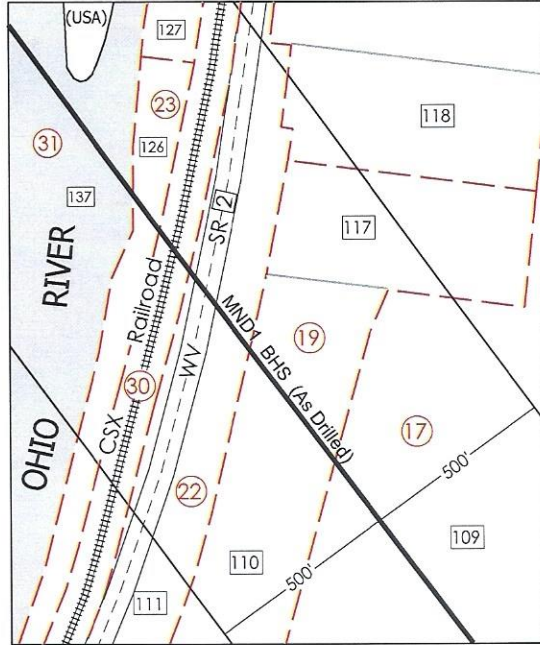
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LAT/LONG (NAD 83)

SURFACE LOCATION
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80.774304°

BOTTOM HOLE
39.875943°
80.791118°



DETAIL 1
Scale: 1"=500'

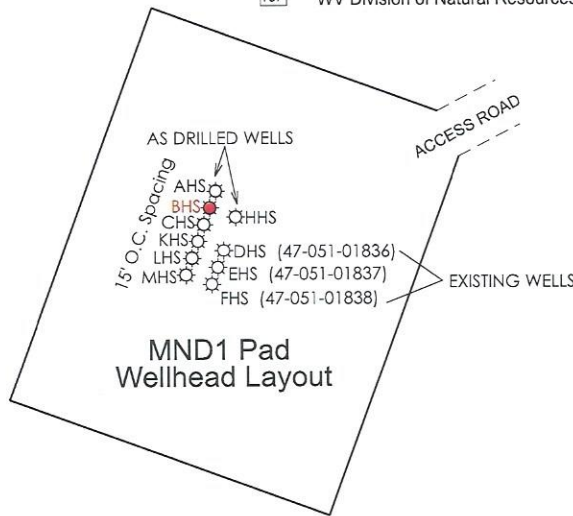
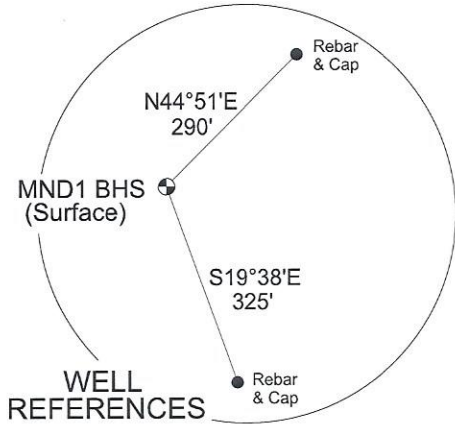
LEASE TABLE

1	HG ENERGY II APPALACHIA, LLC	TMP 04-14-10
2	HG ENERGY II APPALACHIA, LLC	TMP 04-14-09
3	HG ENERGY II APPALACHIA, LLC	TMP 04-14-08
8	MOUNTAINEER NATURAL GAS CO.	TMP 04-07-18
9	ROBERT E. TSCHAPPAT SR. et ux.	TMP 04-14-06
17	PAUL J. & JULIE D. MAIDENS	TMP 04-07-14; 07-17
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
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
113	Carmella Faye & Michael Rose	TMP 04-07-18
114	Paul J. & Julie D. Maidens	TMP 04-07-17
115	Robert E. Tschappat Jr. et ux.	TMP 04-14-06.1
116	Marshall County Coal Resources, Inc.	TMP 04-14-08
117	W.Va. Department of Highways	TMP 04-07-15.3
118	W.Va. Department of Highways	TMP 04-07-15.2
124	Eugene C. & Elizabeth A. Estep	TMP 04-13-02
125	Wendell B. & Carolyn S. Rine	TMP 04-14-07
126	Jim Arritt et al.	TMP 04-07-15.09
127	Black Gold Group	TMP 04-07-15.06
137	WV Division of Natural Resources	-

North



- DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

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SCALE: 1" = 1,500'
MINIMUM DEGREE OF ACCURACY: Sub-Meter
PROVEN SOURCE OF ELEVATION: DGPS Survey



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

DATE March 3, 2023
WELL NAME MND1 BHS
API WELL NO. 47 - 051 - 01768
State County Permit

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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 6,208' TVD
17,306' 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