

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

APR 26 2023

API 47 - 051 - 02403 County Marshall District Franklin
Quad Powhatan Point Pad Name MND11 Field/Pool Name Moundville
Farm name HG Energy II Appalachia, LLC Well Number MND11 N-1H
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 4407484.8 Easting 520289.6
Landing Point of Curve Northing 4407408.8 Easting 520466.2
Bottom Hole Northing 4409420.8 Easting 518989.6

Elevation (ft) 1234 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

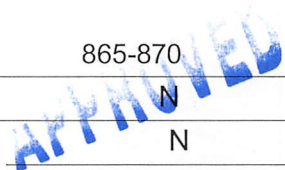
Barite, Lime, CaCL, base oil, Gilsonite, Asphalt, clay, Emulsifier, sulfatone, safevert FLG, safevert WA

Date permit issued 9/13/2021 Date drilling commenced 7/13/2022 Date drilling ceased 9/16/2022
Date completion activities began 10/12/2022 Date completion activities ceased 12/21/2022
Verbal plugging (Y/N) 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 25' Open mine(s) (Y/N) depths 865-870
Salt water depth(s) ft Not observed Void(s) encountered (Y/N) depths N
Coal depth(s) ft 865,921 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) Y

Reviewed by
[Signature]
09/15/2023



API 47-051 - 02403 Farm name HG Energy II Appalachia, LLC Well number MND11 N-1H

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	Drilled in	20"	40'	New	94 lbs/ft J-55		Yes
Surface	18.5"	13.375"	1151	New	54.5 lbs/ft J-55		Yes, 58 bbl to surface
Coal							
Intermediate 1	12.25"	9.625"	3158	New	40 lbs/ft J55		Yes, 33 bbl to surface
Intermediate 2							
Intermediate 3							
Production	8.5	5.5	15074	New	20 lbs/ft P-110		Yes, 90 bbl to surface
Tubing	4.67	2.375	6957	New	4.7 lbs/ft J55		not cemented
Packer type and depth set							

Comment Details 5 bbls of Class A cement circulated to surface for conductor

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	Drilled in					Surface	8
Surface	Class A	1183	15.6	1.18	1396	Surface	8
Coal							
Intermediate 1	Class A	1021	15.6	1.24	1266	Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A	457,3221	16.0/16.0	1.23/1.13	562/3639.7	Surface	8
Tubing							

Drillers TD (ft) 15104 Loggers TD (ft) _____
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) 5911 _____

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
 Office of Oil and Gas

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

13.375" casing: centralizer run on first 2 joints then placed every 3 joints to 100' from surface
 9.625" casing: Centralizers run every joint for first 12 joints then placed every 3 joints to 100' from surface
 5.5" casing: Centralizer run every 3 joints from the 1st long joint to the top of the curve (KOP) Centralizer run every 5 joints from the top of curve (KOP) 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 _____

APR 26 2023

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09/15/2023

API 47- 051 - 02403 Farm name HG Energy II Appalachia, LLC Well number MND11 N-1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
			See Attached		

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
			See Attached					

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Please insert additional pages as applicable.

HG Energy II Appalachia, LLC
MND11 N-1H

Stage #	Date	Ave pump rate (BPM)	Avg Treatment Press (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Proppant (LBS)	Water (BBLs)
Sleeve/1	11/4/2022	77.0	7389	7125	3464	81200	3,506
2	11/5/2022	97.0	7,330	5,528	3,885	635000	13,632
3	11/5/2022	97.0	7,347	5,588	4,218	644200	12,824
4	11/5/2022	100.0	7,724	5,670	4,352	663300	11,502
5	11/6/2022	100.0	7,799	5,627	4,485	661000	10,101
6	11/6/2022	94.0	7,037	5,463	5,654	660000	11,269
7	11/6/2022	91.0	7,519	5,289	4,284	660000	10,638
8	11/6/2022	99.0	7,724	5,423	4,680	660000	9,282
9	11/7/2022	91.0	7,884	5,505	5,062	660000	10,158
10A	11/7/2022	61.0	8,131	5,304	4,823	3000	2,807
10B	11/7/2022	89.0	7,413	5,295	4,069	630000	9,925
11	11/7/2022	94.0	7,603	5,324	4,783	625000	9,158
12	11/8/2022	100.0	7,404	5,068	4,919	625000	9,521
13	11/8/2022	106.0	7,509	4,816	4,614	630000	9,990
14	11/8/2022	103.0	7,447	5,382	4,542	630000	10,538
15	11/9/2022	106.0	7,284	5,202	5,191	625000	9,299
16	11/9/2022	101.0	7,452	5,463	5,037	625000	9,599
17	11/9/2022	105.0	7,433	5,491	4,931	625000	9,384
18	11/10/2022	105.0	7,459	5,292	4,958	625000	9,423
19	11/10/2022	103.0	7,546	4,931	5,597	625000	9,339
20	11/10/2022	102.0	7,493	5,144	5,049	625000	9,549
21	11/10/2022	100.0	7,642	5,500	5,013	625000	9,288
22	11/11/2022	105.0	7,603	5,457	5,340	625000	9,205
23	11/11/2022	97.0	7,404	5,013	4,683	625000	9,525
24	11/11/2022	97.0	7,277	5,010	5,132	625000	10,959
25	11/11/2022	99.0	7,346	5,384	4,802	625000	10,960
26	11/11/2022	102.0	7,557	5,163	4,545	625000	9,029
27	11/11/2022	98.0	7,554	5,323	4,859	625000	9,702
28a	11/12/2022	27.0	8,273	5,334	4,596	500	2,412
28b	11/12/2022	103.0	7,560	5,127	5,116	625000	9,343
29	11/12/2022	109.0	7,390	5,659	5,271	625000	9,289
30	11/13/2022	96.0	7,071	5,041	4,963	625000	11,260
31	11/13/2022	107.0	7,270	5,476	5,002	625000	9,262
32	11/13/2022	106.0	7,249	5,152	5,405	625000	9,452
33	11/13/2022	105.0	7,342	5,434	4,976	625000	9,129
34	11/13/2022	105.0	7,475	5,343	4,873	625000	8,880
35	11/14/2022	108.0	7,208	5,167	5,079	620000	9,495
36	11/14/2022	109.0	7,171	5,446	4,888	620000	9,819
37	11/14/2022	106.0	7,018	4,905	6,073	620000	9,113
38	11/14/2022	104.0	7,080	5,449	4,857	620000	9,391
39	11/15/2022	98.0	6,998	5,039	5,036	620000	9,334
40	11/15/2022	104.0	7,291	5,276	4,905	630000	9,014
41	11/15/2022	101.0	6,829	5,199	4,970	620000	10,408
42	11/15/2022	98.0	7,370	6,120	4,932	620000	9,512

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HG Energy II Appalachia, LLC
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Stimulation Record

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HG Energy II Appalachia, LLC
MND11 N-1H
Geological Information

Actual tops MND-11 N-1H						
Ground Elevation W	1261					
Patterson 577 27'						
water shows	25'					
	Top			Base		
	MD	TVD		MD	TVD	
Pittsburgh Coal	865	865		870	870	
Coal	921	921		926	926	
Big lime	1954	1954		2048	2042	
Big Injun	2048	2042		2120	2112	
Pocono Big Injun	2134	2125		2256	2241	
5th Sand	2409	2388		2452	2428	
bera	2617	2586		2663	2629	
gordon	2879	2833		2898	2852	
50'	2985	2935		3023	2970	
speechley	3620	3533		3690	3599	
Benson	5143	4961		5151	4969	
Alexander	5551	5347		5571	5366	
Air TD	5783					
Rhinestreet	6100	5945		6428	6246	
Cashaqua	6428	6246		6528	6320	
Middlesex	6528	6320		6578	6345	
West River	6578	6345		6670	6403	
Burket	6670	6403		6704	6419	
Tully	6704	6419		6795	6458	
Hamilton	6795	6458		6907	6500	
Marcellus	6907	6500		15104	6403	

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API 47- 051 - 02403 Farm name HG Energy II Appalachia, LLC Well number MND11 N-1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6403-6500</u> TVD	<u>6907-15104</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd
 GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
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	0		0		
			See Attached		

Please insert additional pages as applicable.

Drilling Contractor Patterson-UTI
 Address 67090 Executive Drive City St. Clairsville State OH Zip 43950

Logging Company Renegade Wireline Services
 Address 191 Earnhardt Rd. City Hunker State PA Zip 15639

Cementing Company Schlumberger
 Address 300 Schlumberger Dr. City Sugar Land State TX Zip 77488

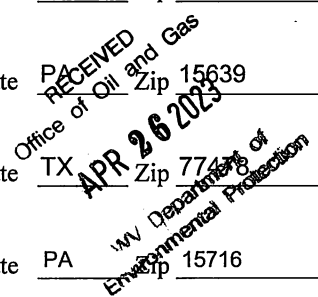
Stimulating Company Nextier
 Address 8300 Route 119 North City Black Lick State PA Zip 15716

Please insert additional pages as applicable.

Completed by Diane White Telephone 304-420-1119
 Signature Diane White Title Sr Staff Regulatory Agent Date 2/21/2023

Submission of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

09/15/2023



AS DRILLED PLAT

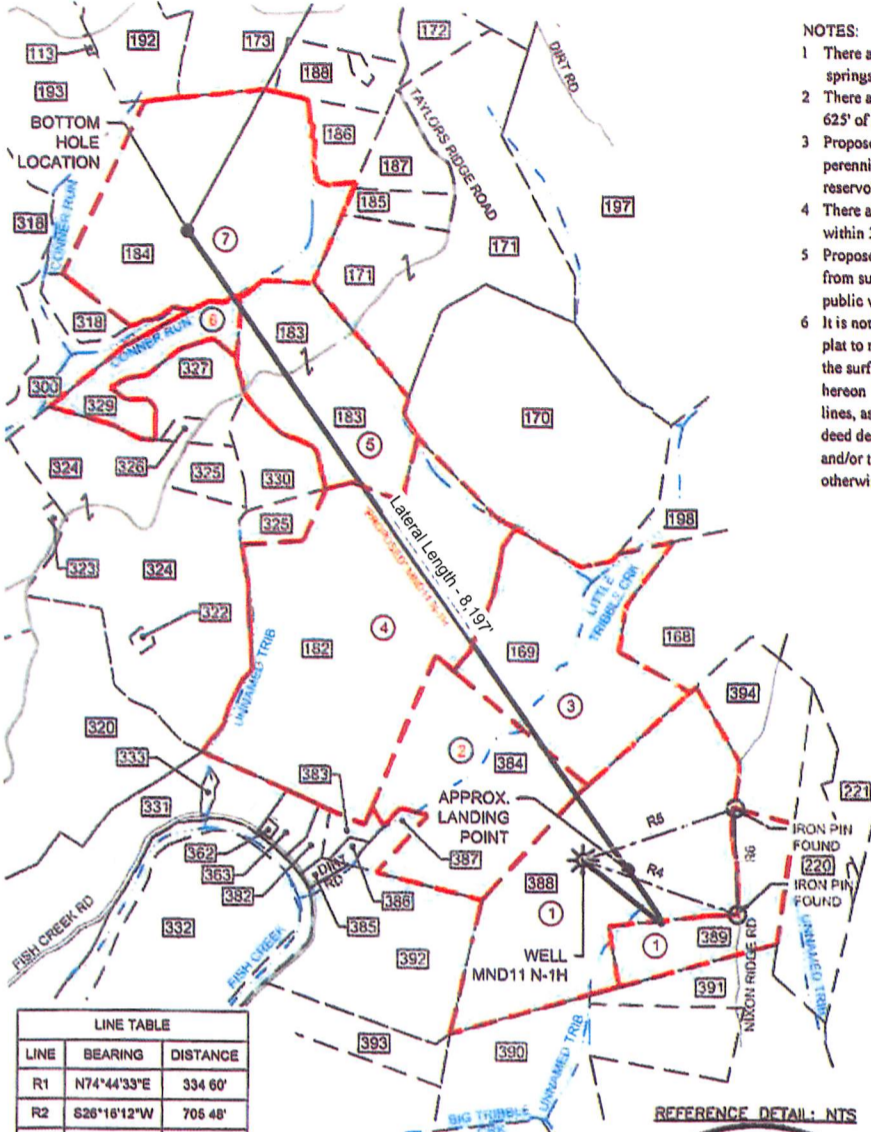
7,934' to Bottom Hole

3,686' to Top Hole

39° 50' 00"

80° 45' 00"

5,938' to Top Hole



NOTES:

- 1 There are no water wells or developed springs within 250' of proposed well
- 2 There are no existing buildings within 625' of proposed well
- 3 Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake
- 4 There are no native trout streams within 300' of proposed well
- 5 Proposed well is greater than 1000' from surface/groundwater intake or public water supply
- 6 It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted

LEGEND	
	PROPOSED WELL
	WATER SOURCE
	REFERENCE NUMBER FOR SURFACE PARCEL OWNERSHIP
	REFERENCE NUMBER FOR MINERAL OWNERSHIP
	ALL ARE POINTS UNLESS OTHERWISE NOTED
	MINERAL TRACT BOUNDARY
	PARCEL LINES
	PROPOSED WELL
	HORIZONTAL WELL
	WELL REFERENCE
	STREAM/WATERWAY
	ROAD
	BUFFER LINE
	EXISTING GAS WELL

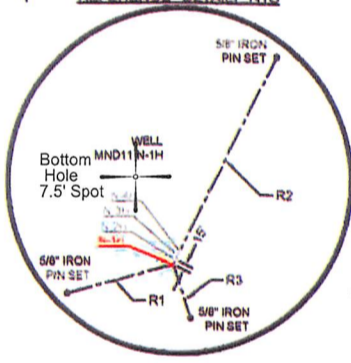
Surface 7.5' Spot

LINE TABLE		
LINE	BEARING	DISTANCE
R1	N74°44'33"E	334.60'
R2	S26°16'12"W	705.48'
R3	N18°23'50"W	171.38'
R4	N71°04'38"W	1600.11'
R5	S70°59'17"W	1666.65'
R6	N01°38'10"W	1094.04'

AS DRILLED COORDINATES	
UTM 17 NAD83 (USSF)	
Surface - N	14,460,222.96
E	1,706,983.33
Landing - N	14,459,974
Point E	1,707,563
Bottom - N	14,466,575
Hole E	1,702,718
UTM 17 NAD83 (m.)	
Surface - N	4,407,484.8
E	520,289.6
Landing - N	4,407,408.8
Point E	520,466.2
Bottom - N	4,409,420.8
Hole E	518,989.6
Lat/Lon NAD83	
Surface - N	39.817404
E	80.762937
Landing - N	39.816416
Point E	80.760875
Bottom - N	39.834578
Hole E	80.778070

GRID NORTH COORDINATE SYSTEM OF 1983 NORTH ZONE

REFERENCE DETAIL: NTS



NOTES ON PLAT

- The purpose of this plat is to show coordinates for the subject well as drilled.
- The drawing shown hereon is from the original drilling permit application plat dated 6/12/19 prepared by Adam J. Westfall, W.Va. PS #2269.
- As drilled Landing Point, Bottom Hole Location and lateral length are calculated from gyro measurements taken while drilling the well.
- Latitude/Longitude offset measurements are referenced to NAD 1927.

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(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.

FILE NO. _____
SCALE: 1" = 2,000'
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: November 9, 2022
WELL NAME: MND11 N-1H
API WELL NO.: 47 - 051 - 02403
State County Permit

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

09/15/2023

LOCATION: ELEVATION 1,234' WATERSHED Big Tribble Creek
DISTRICT: Franklin COUNTY: Marshall QUADRANGLE: Powhatan Point 7.5'
SURFACE OWNER: HG Energy II, Appalachia ACREAGE: 126.6 Ac.
OIL & GAS ROYALTY OWNER: Charles W. Miller et al. LEASE ACREAGE: 190.4 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) Show As Drilled Coordinates and Lateral Length
PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION Marcellus Shale ESTIMATED DEPTH 6,403' TVD
15,104' 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

