

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

NOV 15 2020

WV Department of
Environmental Protection

API 47-051-01838 County Marshall District Clay
Quad Powhatan Point, WV/OH Pad Name MND1 Field/Pool Name _____
Farm name CCC/Murray Energy Well Number MND1 FHS
Operator (as registered with the OOG) HG Energy II Appalachia, LLC
Address 5260 Dupont Road 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 4411110.413 Easting 519307.925
Landing Point of Curve Northing 4410871.207 Easting 519091.441
Bottom Hole Northing 4408267.951 Easting 520941.577

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)
Synthetic Oil Base Mud, Additives - Lime, Calcium Chloride, Gilsonite, Asphalt, Barite, Emulsifier, Base Oil

Date permit issued 05/04/2018 Date drilling commenced 5/7/2018 Date drilling ceased 9/8/2018
Date completion activities began 10/17/2018 Date completion activities ceased 11/15/2018
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 No
Salt water depth(s) ft Not observed Void(s) encountered (Y/N) depths No
Coal depth(s) ft 620', 692' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) _____

Reviewed

Reviewed by:
Justin A. Hobbs

API 47-051 - 01838 Farm name CCC/Murray Energy Well number MND1 FHS

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	26"	20"	40'	New	LS 117#		Drilled In
Surface	17 1/2"	13 3/8"	1068'	New	J55 54.5#	None	Y
Coal							
Intermediate 1	12 3/8"	9 5/8"	2566"	New	J55 40#	None	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	17505'	New	P-110 23#	NA	Y
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ²)	Cement Top (MD)	WOC (hrs)
Conductor	Drilled In	-	-	-		-	-
Surface	Class A	855	15.6	1.196		Surface	8
Coal							
Intermediate 1	Class A	900	15.4	1.14		Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A	4110	15.3	1.17		Surface	8
Tubing							

Drillers TD (ft) 17,533' Loggers TD (ft) _____
 Deepest formation penetrated Marcellus Plug back to (ft) _____
 Plug back procedure _____

RECEIVED
Office of Oil and Gas
JAN 15 2013

Kick off depth (ft) 5437' MD, 5436' VD

Office of Environmental Protection

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 _____
 Fresh Water - Bow spring centralizers on first joint then every fourth joint to 100 feet from surface
 Coal - Bow spring centralizers on first joint then every fourth joint to 100 feet from surface
 Intermediate - Bow spring centralizers on the first two joints and every fourth joint inside surface casing
 Production - Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curve

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 _____

API 47- 051 - 01838 Farm name CCC/Murray Energy Well number MND1 FHS

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
		TVD	MD
Marcellus	6260'		6880' - 16446'
_____	_____	_____	_____
_____	_____	_____	_____

RECEIVED
Office of Oil and Gas
AN 11/2013
ENVIRONMENTAL PROTECTION

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3026 psi Bottom Hole _____ psi DURATION OF TEST 423 hrs

OPEN FLOW Gas 6389 mcfpd Oil _____ bpd NGL 936 bpd Water 2424 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)
	0		0		
Pittsburg Coal	692	700	692	700	Coal
Big Lime	1730	1820	1730	1820	Limestone
Big Injun	1820	1910	1820	1910	Sandstone
Pocono Big Injun	1910	2150	1910	2150	Sandstone
5th Sand	2150	2165	2150	2165	Sandstone
Rhinestreet	5720	6006	6034	6270	Grey Shale
Cashaqua	6006	6078	6270	6405	Silty Shale
Middlesex	6078	6101	6405	6454	Grey Shale
West River	6101	6170	6454	6612	Grey Shale
Burket	6170	6186	6612	6652	Dark Grey Shale
Tully	6186	6219	6652	6744	Limestone
Hamilton	6219	6260	6744	6880	Shale
Marcellus	6260	6439	6880	16446	Black Shale

Please insert additional pages as applicable.

Drilling Contractor Patterson Drilling
Address 2198 University Drive City Lemont Furnace State PA Zip 15456

Logging Company Schlumberger
Address 100 Gillingham Lane City Sugar Land State TX Zip 77478

Cementing Company C&J Energy Services
Address 3990 Rogerdale City Houston State TX Zip 77042

Stimulating Company Sting Ray
Address 14201 Caliber Drive City Oklahoma City State OK Zip 73134

Please insert additional pages as applicable.

Completed by Diane White Telephone 304-420-1119
Signature Diane White Title _____ Date 6/27/19

HG Energy II Appalachia, LLC

MND1 FHS - 47-051-01838

Perforation Record

Stage Number	Perforation	Perforated	Perforated	Number of	
Number	Date	from MD ft.	to MD ft.	Perforations	Formations
1	11/19/2018	18,298	18,248	0	Marcellus
2	11/20/2018	18,217	18,198	72	Marcellus
3	11/20/2018	18,043	18,024	72	Marcellus
4	11/21/2018	17,869	17,850	72	Marcellus
5	11/21/2018	17,695	17,676	72	Marcellus
6	11/21/2018	17,521	17,502	72	Marcellus
7	11/21/2018	17,347	17,328	72	Marcellus
8	11/22/2018	17,021	17,154	72	Marcellus
9	11/22/2018	16,847	16,980	72	Marcellus
10	11/23/2018	16,673	16,806	72	Marcellus
11	11/23/2018	16,499	16,632	72	Marcellus
12	11/26/2018	16,325	16,458	72	Marcellus
13	11/27/2018	16,151	16,284	72	Marcellus
14	11/27/2018	15,977	16,110	72	Marcellus
15	11/28/2018	15,803	15,936	72	Marcellus
16	11/28/2018	15,629	15,762	72	Marcellus
17	11/29/2018	15,455	15,588	72	Marcellus
18	11/29/2018	15,281	15,414	72	Marcellus
19	11/29/2018	15,107	15,240	72	Marcellus
20	11/30/2018	14,933	15,066	72	Marcellus
21	11/30/2018	14,759	14,892	72	Marcellus
22	11/30/2018	14,585	14,718	72	Marcellus
23	12/1/2018	14,411	14,544	72	Marcellus
24	12/1/2018	14,237	14,370	72	Marcellus
25	12/1/2018	14,196	14,063	72	Marcellus
26	12/2/2018	14,022	13,889	72	Marcellus
27	12/2/2018	13,848	13,715	72	Marcellus
28	12/2/2018	13,674	13,541	72	Marcellus
29	12/3/2018	13,500	13,367	72	Marcellus
30	12/3/2018	13,326	13,193	72	Marcellus
31	12/3/2018	13,152	13,019	72	Marcellus
32	12/4/2018	12,978	12,845	72	Marcellus
33	12/4/2018	12,804	12,671	72	Marcellus
34	12/4/2018	12,630	12,497	72	Marcellus
35	12/4/2018	12,456	12,323	72	Marcellus
36	12/5/2018	12,282	12,149	72	Marcellus
37	12/5/2018	12,108	11,975	72	Marcellus
38	12/5/2018	11,934	11,801	72	Marcellus
39	12/6/2018	11,760	11,627	72	Marcellus
40	12/6/2018	11,586	11,453	72	Marcellus
41	12/6/2018	11,412	11,279	72	Marcellus
42	12/7/2018	11,238	11,105	72	Marcellus
43	12/7/2018	11,064	10,931	72	Marcellus
44	12/8/2018	10,890	10,757	72	Marcellus
45	12/8/2018	10,716	10,583	72	Marcellus
46	12/8/2018	10,542	10,409	72	Marcellus
47	12/8/2018	10,368	10,235	72	Marcellus
48	12/8/2018	10,194	10,061	72	Marcellus
49	12/9/2018	10,020	9,887	72	Marcellus
50	12/9/2018	9,846	9,713	72	Marcellus
51	12/9/2018	9,672	9,539	72	Marcellus
52	12/10/2018	9,498	9,365	72	Marcellus
53	12/10/2018	9,323	9,183	72	Marcellus
54	12/10/2018	9,141	9,001	72	Marcellus
55	12/11/2018	8,959	8,819	72	Marcellus
56	12/11/2018	8,777	8,637	72	Marcellus
57	12/11/2018	8,595	8,455	72	Marcellus
58	12/12/2018	8,344	8,170	49	Marcellus
59	12/12/2018	8,231	8,091	72	Marcellus

KP

RECEIVED
Office of Oil and Gas
JUL 25 2019
WV Department of
Environmental Protection

HG Energy II Appalachia, LLC
MND1 FHS - 47-051-01838
Stimulation Information Per Stage

Stage Number	Stimulation Date	Avg Pump Rate (BPM)	Avg Pressure (psi)	Breakdown (psi)	ISIP (psi)	Amount of Proppant (klbs)	Amount of Water (bbbls)	Amount of Acid (gallons)
1				n/a				
2	10/19/2018	88.6	8,496	6,111	4,260	705.1	14,526	2,940
3	10/19/2018	94.0	9,187	5,524	5,197	710.3	14,183	2,058
4	10/20/2018	93.9	9,438	5,647	5,128	704.0	16,518	1,050
5	10/20/2018	92.5	9,153	5,094	5,224	709.3	15,950	1,008
6	10/20/2018	92.6	9,371	6,008	5,365	710.8	14,890	1,050
7	10/21/2018	94.2	9,361	6,268	5,133	710.9	16,476	2,016
8	10/22/2018	96.4	9,252	5,660	5,253	711.8	14,710	1,008
9	10/22/2018	94.2	9,240	5,921	5,347	714.0	14,933	1,050
10	10/23/2018	95.3	9,332	5,639	5,131	638.2	12,833	1,050
11	10/23/2018	100.8	9,102	6,496	4,974	639.4	12,732	1,050
12	10/23/2018	96.6	9,188	5,915	5,031	639.8	12,957	924
13	10/24/2018	94.3	8,907	6,177	4,909	637.8	12,401	1,008
14	10/24/2018	94.4	8,850	6,198	4,990	639.5	12,646	1,008
15	10/24/2018	89.6	8,897	6,223	5,070	644.1	12,860	1,008
16	10/25/2018	100.3	8,680	6,327	4,938	631.5	13,049	1,050
17	10/25/2018	99.4	8,551	5,254	5,040	639.5	12,800	1,008
18	10/25/2018	98.5	8,748	6,247	5,010	645.7	12,486	1,050
19	10/26/2018	98.2	8,947	6,680	5,180	639.0	12,882	1,008
20	10/26/2018	98.5	9,039	6,218	5,180	646.4	12,536	882
21	10/26/2018	98.9	8,671	5,856	5,010	630.2	12,308	1,008
22	10/27/2018	100.1	8,975	6,486	5,248	641.5	13,002	1,008
23	10/27/2018	95.1	8,967	5,730	5,130	541.2	11,882	966
24	10/27/2018	94.2	8,300	6,157	5,040	641.0	12,434	966
25	10/28/2018	100.0	8,871	6,883	4,950	654.1	13,003	1,050
26	10/29/2018	99.5	8,259	5,748	5,240	635.6	13,011	1,050
27	10/29/2018	89.4	8,914	5,203	4,662	400.1	11,312	2,058
28	10/29/2018	95.7	8,447	5,863	5,020	633.3	12,943	1,008
29	10/30/2018	98.9	8,435	5,794	4,952	673.5	14,217	1,008
30	10/30/2018	100.2	8,229	5,567	4,920	640.5	12,950	1,008
31	10/30/2018	50.8	8,104	5,641	5,160	655.3	15,480	1,008
32	10/31/2018	100.9	7,780	6,185	5,263	670.9	13,541	1,008
33	10/31/2018	98.6	8,022	5,686	5,240	635.4	12,722	1,008
34	11/1/2018	98.8	7,988	5,227	5,335	714.0	14,125	924
35	11/1/2018	99.5	7,836	6,005	5,150	649.7	12,962	966
36	11/2/2018	100.0	7,674	5,142	4,980	624.5	13,678	1,008
37	11/2/2018	100.6	4,486	5,653	5,370	635.3	12,816	1,008
38	11/2/2018	98.4	7,722	5,699	5,504	651.3	12,583	1,008
39	11/2/2018	101.1	8,071	5,497	5,310	636.6	12,821	1,008
40	11/2/2018	99.3	8,064	5,704	4,990	639.7	12,674	966
41	11/3/2018	99.1	7,965	5,725	5,110	635.0	12,222	1,008
42	11/3/2018	98.0	7,701	6,080	5,676	646.0	12,767	1,008
43	11/3/2018	101.7	7,927	5,959	5,200	526.9	11,769	1,008
44	11/3/2018	97.8	7,515	5,215	5,020	642.0	12,915	1,008
45	11/4/2018	100.7	7,486	5,443	5,157	639.3	12,326	1,512
46	11/4/2018	100.1	7,597	5,599	5,470	639.1	12,375	1,008
47	11/4/2018	98.8	7,142	5,344	5,085	647.5	11,628	1,050
48	11/4/2018	100.2	7,156	5,402	5,273	638.1	12,682	1,008
49	11/4/2018	100.3	7,595	5,200	5,380	639.6	12,673	1,008
50	11/5/2018	100.2	7,373	5,066	5,180	639.8	12,506	1,008
51	11/5/2018	98.0	7,301	4,885	4,709	702.5	8,030	1,050
52	11/5/2018	98.5	6,953	5,370	5,130	528.8	8,753	1,008
53	11/8/2018	99.3	6,329	5,190	5,500	883.3	9,172	1,050

RECEIVED
Office of Oil and Gas
JUL 25 2019
WV Department of
Environmental Protection

MND1 FHS



(e.g. XX-XXX-XXXXX-0000)

RECEIVED
Office of Oil and Gas

NOV 15 2020

WV Department of
Environmental Protection

Fracture Start Date/Time:	10/19/18 15:10
Fracture End Date/Time:	11/5/18 22:35
State:	West Virginia
County:	Marshall
API Number:	47-051-01838-0000
Operator Number:	HG Energy
Well Name:	MND 1 FHS
Federal Well:	Yes
Tribal Well:	No
Longitude:	39.8499433
Latitude:	-80.7739601
Long/Lat Projection:	NAD27
True Vertical Depth (TVD):	6,450'
Total Clean Fluid Volume* (gal):	28,878,864

Ingredients Section:

Trade Name	Supplier	Purpose	Ingredients	CH
Water	HG Energy	Carrier/Base Fluid	Water	77
Sand (100 Mesh Proppant)	US Silica	Proppant	Silica Substrate	14
Sand (40/70 Proppant)	US Silica	Proppant	Silica Substrate	14
Hydrochloric Acid (28%)	Dover	Acidizing	Hydrochloric Acid (Hydrogen Chloride)	77
			Water	77
HiRate 680	Innospec	Friction Reducer	Petroleum Distillate	64
			Alcohols, C10-C16	68
			Ethoxylated and/or Alcohols, C12-14	68
			Ethoxylated and/or Alcohols, C12-16	68
			Ethoxylated and/or Alcohols, C11-14	78
NEFE-180	Dover	Corrosion Inhibitor/Iron Control	Acetic acid	64
			Methanol	67
			2-Ethylhexanol	10
			Fatty acids, tall oil	61
			Coconut oil acid diethanolamine	68
			Alcohols, C14-15, ethoxylated	68
			2-Propyn-1-ol	10
Biosuite GQ123	Innospec	Biocide	Didecyl dimethyl ammonium chlorides	71
			Ethanol	64
Scalecease 7300	Innospec	Scale Inhibitor	Ammonium chloride	12
LFC-G4	Innospec	Gelling Agent	Distillates (petroleum), hydrotreated light	64
GelBrake 100	Innospec	Breaker	diammonium peroxodisulphate	77
Plexgel 907	Chemplex	Gelling Agent	Distillates (petroleum) hydrotreated light	64
			C-11 to C-14 n-alkanes, mixed	11
			Propylene pentamer	15

Additive	Specific Gravity	Additive Quantity	Mass (lbs)	
Water	1.00	28,878,864	240,994,120	gal
Sand (100 Mesh Proppant)	2.65	5,310,620	5,310,620	lb
Sand (40/70 Proppant)	2.65	28,418,442	28,418,442	lb
Hydrochloric Acid (28%)	1.12	28,560	266,933	gal
NEFE-180	0.99	204	1,682	gal
Biosuite GQ123	0.98	6,483	53,015	gal
HiRate 680	1.08	21,178	190,869	gal
Scalecease 7300	1.04	10,600	92,349	gal
LFC-G4	1.06	106	937	gal
GelBrake 100	1.98	26	430	gal
Plexgel 907	1.04	163	1,414	gal
				gal
				gal
				gal
				gal
				gal
				gal
				gal
				gal
			Total Slurry Mass (Lbs)	
			275,330,810	

Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Mass per Component (LBS)	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
2-18-5	100.00%	240,994,120	87.52893%	
08-60-7	100.00%	5,310,620	1.92881%	
08-60-7	100.00%	28,418,442	10.32156%	
2-18-5	36.00%	96,096	0.03490%	
2-18-5	64.00%	170,837	0.06205%	
42-47-8	30.00%	57,261	0.02080%	
02-97-1	4.99%	9,524	0.00346%	
39-50-9	4.99%	9,524	0.00346%	
51-12-2	4.99%	9,524	0.00346%	
30-21-9	4.99%	9,524	0.00346%	
19-7	89.00%	1,497	0.00054%	
56-1	40.00%	673	0.00024%	
7-76-7	10.00%	168	0.00006%	
90-12-3	5.00%	84	0.00003%	
003-42-9	5.00%	84	0.00003%	
51-67-7	5.00%	84	0.00003%	
7-19-7	5.00%	84	0.00003%	
3-51-5	11.50%	6,097	0.00221%	
17-5	2.00%	1,060	0.00039%	
25-02-9	4.99%	4,608	0.00167%	
42-47-8	60.00%	562	0.00020%	
27-54-0	100.00%	430	0.00016%	
42-47-8	70.00%	990	0.00036%	
20-21-4	60.00%	848	0.00031%	
20-87-8	60.00%	848	0.00031%	

AS-DRILLED

SURFACE HOLE LOCATION (SHL)

UTM 17-NAD83(m)
 N: 4411110.413
 E: 519307.925
 NAD27, WV NORTH
 N: 494139.669
 E: 1642175.082
 LAT/LON DATUM-NAD83
 LAT: 39.849794057
 LON: -80.774299006

LANDING POINT

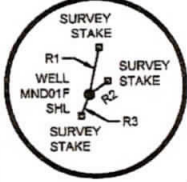
UTM 17-NAD83(m)
 N: 4410871.207
 E: 519091.441
 NAD27, WV NORTH
 N: 493366.6
 E: 1641451.6
 LAT/LON DATUM-NAD83
 LAT: 39.847643718
 LON: -80.776836568

BOTTOM HOLE LOCATION

UTM 17-NAD83(m)
 N: 4408267.951
 E: 520941.577
 NAD27, WV NORTH
 N: 484722.45
 E: 1647380.07
 LAT/LON DATUM-NAD83
 LAT: 39.824144817
 LON: -80.75529341

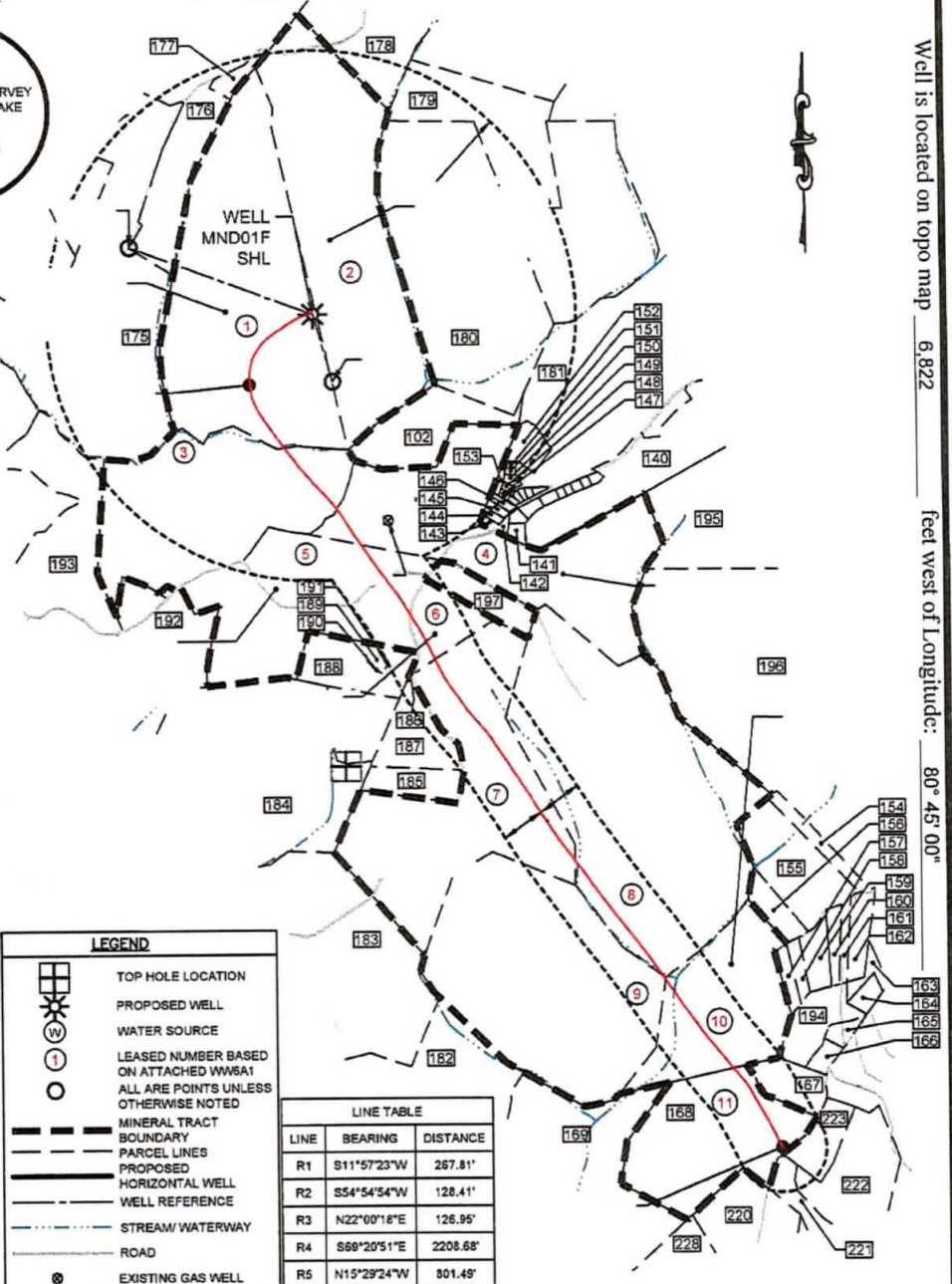
**WATER WELLS:
 NONE FOUND**

**REFERENCE
 DETAIL**



Well is located on topo map 9,181 feet south of Latitude: 39° 52' 30"

Well is located on topo map 6,822 feet west of Longitude: 80° 45' 00"



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, and based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

LEGEND

- TOP HOLE LOCATION
- PROPOSED WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WWSA1 ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/WATERWAY
- ROAD
- EXISTING GAS WELL

LINE TABLE

LINE	BEARING	DISTANCE
R1	S11°57'23"W	267.81'
R2	S54°54'54"W	128.41'
R3	N22°00'18"E	126.95'
R4	S69°20'51"E	2208.68'
R5	N15°29'24"W	301.49'

Wildhorn Corporate Plot 18, Site 101
 2003 Georgetown Drive
 Seaside, PA 15143

P: 724-444-1100
 F: 724-444-1104
 www.jec-nc.com

PVE ENGINEERING

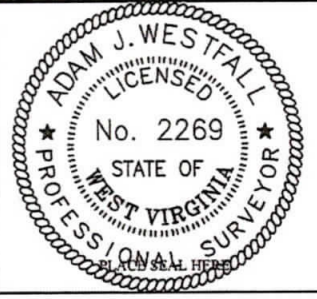
Civil Engineering | Land Development | Structure Design
 Land Planning | Landscape Architecture | Environmental

FILE #: N:\Project Files\161479 - HG Energy\ MND1\Drawings\Survey\MND 01 FHS
 DRAWING #: 161479 MND1 FHS ASDRILL
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT H 138: 638.58'

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.

SIGNED:

R.P.E.: _____ L.L.S.: P.S. NO. 2269



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25304



DATE: MAY 17, 2019
 OPERATOR'S WELL #: MND 01 FHS
 API WELL # 47 051 01838
 STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: SHORT CREEK-OHIO RIVER ELEVATION: 1150.00'
 COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWHATAN POINT, W. VA./OHIO
 SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 126.99
 OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL. ACREAGE: 126.99

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,175' TMD: 17,533' LATERAL: 10,522'
 WELL OPERATOR: HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT: DIANE C. WHITE
 Address: 5260 DUPONT ROAD Address: 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

RECEIVED
Office of Oil and Gas

AN 15 2008

Department of
Environmental Protection

RECEIVED
Office of Oil and Gas

APR 15 2020

WV Dept of
Environmental Protection

AS-DRILLED

Well is located on topo map 9,181 feet south of Latitude: 39° 52' 30"

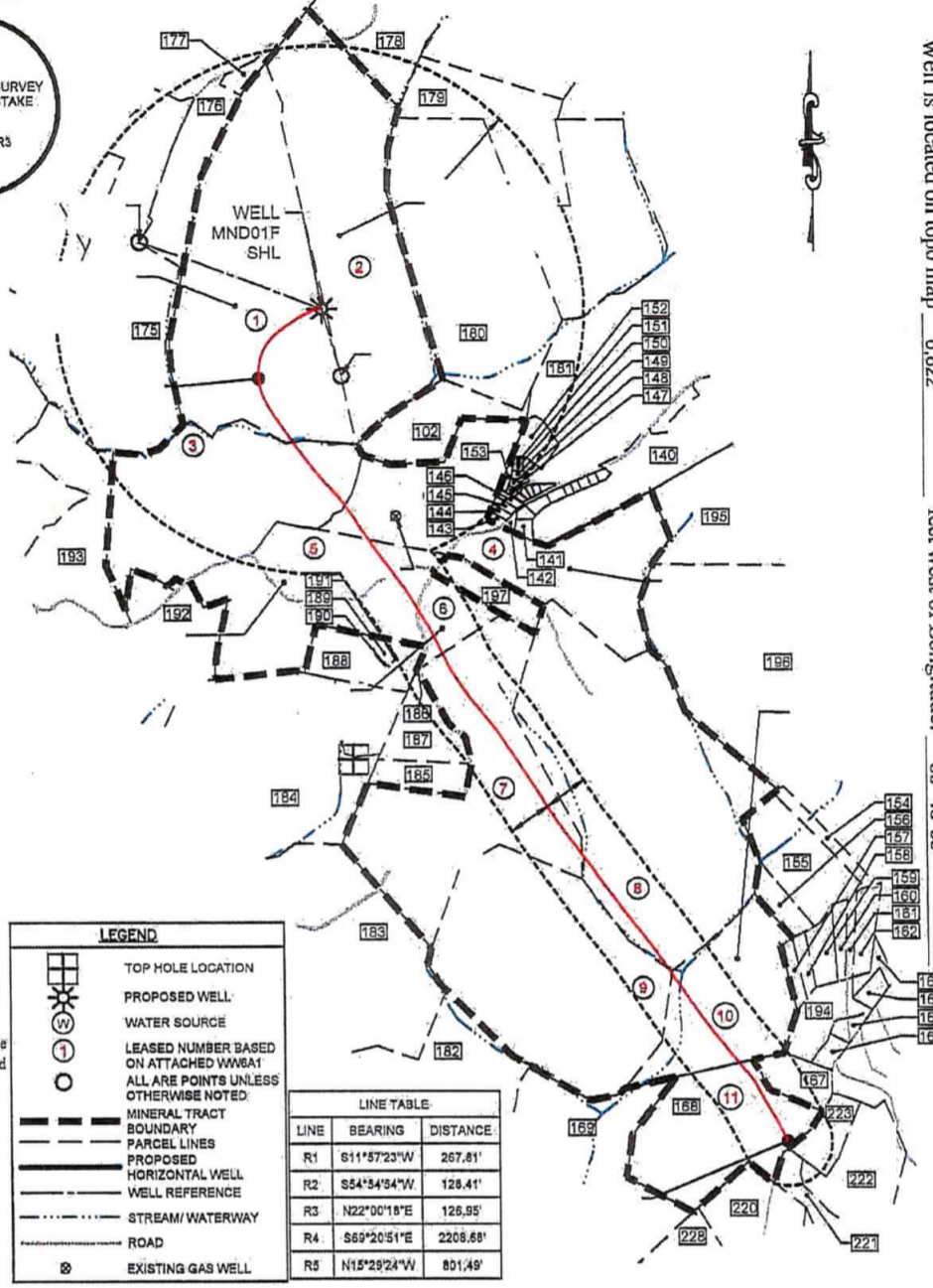
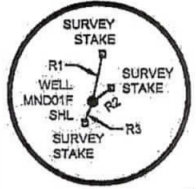
Well is located on topo map 6,822 feet west of Longitude: 80° 45' 00"

SURFACE HOLE LOCATION (SHL)
 UTM 17-NAD83(m)
 N: 4411110.413
 E: 519307.925
 NAD27, WV NORTH
 N: 494139.669
 E: 1642175.082
 LAT/LON DATUM-NAD83
 LAT: 39.849794057
 LON: -80.774299006

LANDING POINT
 UTM 17-NAD83(m)
 N: 4410871.207
 E: 519091.441
 NAD27, WV NORTH
 N: 493366.6
 E: 1641451.6
 LAT/LON DATUM-NAD83
 LAT: 39.847643718
 LON: -80.776836568

BOTTOM HOLE LOCATION
 UTM 17-NAD83(m)
 N: 4408267.951
 E: 520941.577
 NAD27, WV NORTH
 N: 484722.45
 E: 1647380.07
 LAT/LON DATUM-NAD83
 LAT: 39.824144817
 LON: -80.75529341

WATER WELLS:
 NONE FOUND



- 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, and based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

LEGEND

- TOP HOLE LOCATION
- PROPOSED WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WARRANTY ALL ARE POINTS UNLESS OTHERWISE NOTED.
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/WATERWAY
- ROAD
- EXISTING GAS WELL

LINE TABLE

LINE	BEARING	DISTANCE
R1	S11°57'23"W	267.81'
R2	S54°54'54"W	126.41'
R3	N22°00'18"E	126.95'
R4	S69°20'51"E	2208.68'
R5	N15°29'24"W	801.49'

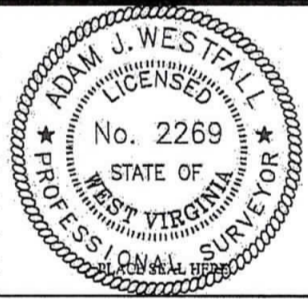


FILE #: N:\Project Files\161479 - HG Energy\ MND1\Drawings\Survey\MND 01 FHS
 DRAWING #: 161479 MND1 FHS ASDRILL
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE U.S.G.S. MONUMENT OF ELEVATION: H 138: 638.58'

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.

SIGNED:

R.P.E.: _____ L.L.S.: P.S. NO. 2269



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25304

Well Type: Oil Waste Disposal Production Deep Gas Liquid Injection Storage Shallow

WATERSHED: SHORT CREEK-OHIO RIVER ELEVATION: 1150.00'
 COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWHATAN POINT, W. VA./OHIO
 SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 126.99
 OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL. ACREAGE: 126.99

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) _____

TARGET FORMATION: MARCELLUS
 WELL OPERATOR: HG ENERGY II APPALACHIA, LLC
 Address: 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101

DATE: MAY 17, 2019
 OPERATOR'S WELL #: MND 01 FHS
 API WELL # 47 051 01838
 STATE COUNTY PERMIT

ESTIMATED DEPTH: TVD: 6,175' TMD: 17,533' LATERAL: 10,522'
 DESIGNATED AGENT: DIANE C. WHITE
 Address: 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101



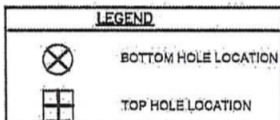
Bottom hole is located on topo map 12.454 feet south of Latitude: 39° 51' 30"

Bottom hole is located on topo map 1.487 feet west of Longitude: 80° 45' 00"

102	CHAPLIN, RALPH & ELLA	TAX MAP NO. 05-0002-0018-0000-0000
140	CHAPLIN, WAYNE & TINA	TAX MAP NO. 05-0003-0001-0000-0000
141	MILLER ROBERT C. ET. UX.	TAX MAP NO. 05-0034-0008-0000-0000
142	MILLER ROBERT C. ET. UX.	TAX MAP NO. 05-0034-0005-0000-0000
143	CHURCH RALPH E. ET. UX.	TAX MAP NO. 05-0034-0001-0000-0000
144	NORRIS SANDRA E. - LIFE	TAX MAP NO. 05-0034-0002-0000-0000
145	WHITE STUART, ET. UX.	TAX MAP NO. 05-0034-0003-0000-0000
146	WILSON JOHN T. ET. UX.	TAX MAP NO. 05-0034-0004-0000-0000
147	MCILVAIN, WILLIAM R & KIMBERLY	TAX MAP NO. 05-0034-0043-0000-0000
148	DURIG RAYMOND CRAIG	TAX MAP NO. 05-0034-0042-0000-0000
149	EBERT JOE SR. ET. UX.	TAX MAP NO. 05-0034-0040-0000-0000
150	MARTIN SAMUEL J. ET. UX.	TAX MAP NO. 05-0034-0039-0000-0000
151	GARRISON WARD D. & LORI A	TAX MAP NO. 05-0034-0038-0000-0000
152	HEREFORD LAWRENCE R. & ALAN D S.	TAX MAP NO. 05-0034-0056-0000-0000
153	RECREATION AREA FOR TAYLOR MANOR DEVELOPMENT	
154	DILLE STEVEN & ASHLEY	TAX MAP NO. 05-0004-0003-0008-0000
155	SAUNDERS, EUGENE L.	TAX MAP NO. 05-0004-0003-0014-0000
156	SOUTHERN COUNTRY FARMS INC.	TAX MAP NO. 05-0004-0003-0013-0000
157	DOTY JAMES H. & MELANIE A.	TAX MAP NO. 05-0004-0004-0000-0000
158	DOTY JAMES H. & MELANIE A.	TAX MAP NO. 05-0004-0004-0001-0000
159	SOUTHERN COUNTRY FARMS INC.	TAX MAP NO. 05-0004-0025-0000-0000
160	FRANKLIN LEE WARD	TAX MAP NO. 05-0004-0024-0000-0000
161	UNKNOWN	
162	COLADONATO, STEPHEN	TAX MAP NO. 05-0004-0021-0000-0000
163	MARTIN SHARK ET. UX.	TAX MAP NO. 05-0004-0029-0000-0000
164	MARTIN SHARK ET. UX.	TAX MAP NO. 05-0004-0030-0000-0000
165	ALLMAN KYLE MICHAEL	TAX MAP NO. 05-0004-0003-0001-0000
166	WEST, WAYNE L JR ET. UX.	TAX MAP NO. 05-0004-0003-0003-0000
167	WEST WAYNE L JR. ET. UX.	TAX MAP NO. 05-0004-0013-0001-0000
168	CNX LAND RESOURCES INC.	TAX MAP NO. 05-0004-0015-0000-0000
169	AEP GENERATION RESOURCES, INC.	TAX MAP NO. 05-0004-0015-0000-0000
175	CONSOLIDATION COAL COMPANY, ET AL.	TAX MAP NO. 04-0014-0011-0000-0000

176	TSCHAPPAT ROBERT E. SR. ET. UX.	TAX MAP NO. 04-0014-0006-0000-0000
177	TSCHAPPAT ROBERT E. JR. ET. UX.	TAX MAP NO. 04-0014-0006-0001-0000
178	RINE WENDELL B. & CAROLYN S.	TAX MAP NO. 04-0014-0007-0000-0000
179	ESTEP EUGENE C. & ELIZABETH A.	TAX MAP NO. 04-0013-0002-0000-0000
180	CONSOLIDATION COAL COMPANY, ET AL.	TAX MAP NO. 04-0014-0008-0000-0000
181	MCCLURE CHARLES L. ET. UX.	TAX MAP NO. 05-0002-0016-0000-0000
182	AEP GENERATION RESOURCES, INC.	TAX MAP NO. 05-0005-0012-0000-0000
183	AEP GENERATION RESOURCES, INC.	TAX MAP NO. 05-0005-0011-0000-0000
184	CONSOLIDATION COAL COMPANY, ET AL.	TAX MAP NO. 05-0002-0012-0000-0000
185	HARTLEY PEGGY S.	TAX MAP NO. 05-0002-0013-0004-0000
186	POTTS JAMES D. ET. UX.	TAX MAP NO. 05-0002-0013-0006-0000
187	POTTS JAMES D. ET. UX.	TAX MAP NO. 05-0002-0013-0002-0000
188	POTTS JAMES D. ET. UX.	TAX MAP NO. 05-0002-0010-0000-0000
189	JASENEC RUDY ET. UX.	TAX MAP NO. 05-0002-0010-0002-0000
190	JASENEC RUDY ET. UX.	TAX MAP NO. 05-0002-0010-0001-0000
191	JASENEC RUDY ET. UX.	TAX MAP NO. 05-0002-0010-0003-0000
192	BARNHART THOMAS K. ET. UX.	TAX MAP NO. 05-0002-0008-0000-0000
193	CONSOLIDATION COAL COMPANY, ET AL.	TAX MAP NO. 05-0002-0005-0000-0000
194	WEST WAYNE L. JR. ET. UX.	TAX MAP NO. 05-0004-0044-0000-0000
195	CHAPLIN RALPH & ELLA	TAX MAP NO. 05-0003-0005-0000-0000
196	HOWE RUSSELL BLAINE ET. UX. - LIFE	TAX MAP NO. 05-0003-0031-0000-0000
220	ANDERSON RHONDA MARIE	TAX MAP NO. 05-0004-0014-0001-0000
221	CNX LAND RESOURCES INC.	TAX MAP NO. 05-0004-0010-0000-0000
222	CNX LAND RESOURCES INC.	TAX MAP NO. 05-0004-0011-0001-0000
223	CNX LAND RESOURCES INC.	TAX MAP NO. 05-0004-0012-0000-0000
228	HOLSTINE BERNARD W. & ROXANN L.	TAX MAP NO. 05-0004-0014-0000-0000

- 1 CONSOLIDATION COAL COMPANY, ET AL.
- 2 CONSOLIDATION COAL COMPANY, ET AL.
- 3 ROBERT WILLIAM GRAY-LIFE
- 4 RALPH E CHURCH ET UX - LIFE
- 5 ANDREW M. FASOULETOS ET UX.
- 6 TEXAS EASTERN TRANSMISSION
- 7 AEP GENERATION RESOURCES, INC.
- 8 AEP GENERATION RESOURCES, INC.
- 9 AEP GENERATION RESOURCES, INC.
- 10 SOUTHERN COUNTRY FARMS INC.
- 11 CNX LAND RESOURCES INC.



- NOTES:
- There are no water wells or developed springs within 250' of proposed well.
 - There are no existing buildings within 625' of proposed well.
 - Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
 - There are no native trout streams within 300' of proposed well.
 - Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
 - 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, and based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

SURFACE HOLE LOCATION (SHA)

UTM 17-NAD83(m)
 N: 4411110.413
 E: 519307.925
 NAD27, WV NORTH
 N: 494139.669
 E: 1642175.082
 LAT/LON DATUM-NAD83
 LAT: 39.849794057
 LON: -80.774299006

LANDING POINT

UTM 17-NAD83(m)
 N: 4410871.207
 E: 519091.441
 NAD27, WV NORTH
 N: 493366.6
 E: 1641451.6
 LAT/LON DATUM-NAD83
 LAT: 39.847643718
 LON: -80.776836568

BOTTOM HOLE LOCATION

UTM 17-NAD83(m)
 N: 4408267.951
 E: 520941.577
 NAD27, WV NORTH
 N: 484722.45
 E: 1647380.07
 LAT/LON DATUM-NAD83
 LAT: 39.824144817
 LON: -80.75529341

Westmont Corporate Park III, Suite 101
 2833 Gearytown Drive,
 Spotswood, PA 15143

P: 724-444-1100
 F: 724-444-1104
 www.pve.com



Civil Engineering | Land Development | Structure Design
 Land Planning | Landscape Architecture | Environmental

FILE #: N:\Project Files\161479 - HG Energy\
MND1\Drawings\Survey\MND 01 FHS
 DRAWING #: 161479 MND1 FHS ASDRILL
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE U.S.G.S. MONUMENT
 OF ELEVATION: H 138: 638.58'

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.

SIGNED: [Signature]
 R.P.E.: _____ L.L.S.: P.S. NO. 2269



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304



DATE: MAY 17, 2019
 OPERATOR'S WELL #: MND 01 FHS
 API WELL # 47 051 01838
 STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED: SHORT CREEK-OHIO RIVER ELEVATION: 1150.00'
 COUNTY/DISTRICT: MARSHALL / CLAY QUADRANGLE: POWHTAN POINT, W. VA./OHIO
 SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 126.99
 OIL & GAS ROYALTY OWNER: CNX GAS COMPANY, LLC, ET AL. ACREAGE: 126.99

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,175' TMD: 17,533' LATERAL: 10,522'
 WELL OPERATOR: HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT: DIANE C. WHITE
 Address: 5260 DUPONT ROAD Address: 5260 DUPONT ROAD
 City: PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101