

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

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Office of Oil and Gas

JAN 15 2020

WV Department of  
Environmental Protection

API 47-051-01836 County Marshall District Clay  
Quad Powhatan Point, WV/OH Pad Name MND1 Field/Pool Name \_\_\_\_\_  
Farm name CCC/Murray Energy Well Number MND1 DHS  
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 4411119.021 Easting 519310.999  
Landing Point of Curve Northing 4411034.115 Easting 519355.221  
Bottom Hole Northing 4408705.804 Easting 521071.491

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 8/30/2018 Date drilling ceased 9/17/18  
Date completion activities began 9/24/18 Date completion activities ceased 11/9/18  
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:  
*Joe Wehler*

API 47-051 - 01836 Farm name CCC/Murray Energy Well number MND1 DHS

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'	N	LS 117#		N - Drilled In
Surface	17 1/2"	13 3/8"	1073'		J-55 54#	None	Y
Coal							
Intermediate 1	12 3/8"	9 5/8"	2597'	N	J-55 36#	None	Y
Intermediate 2							
Intermediate 3							
Production	8 1/2"	5 1/2"	16406'	N	P-110 23#	None	Y
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>2</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Drilled In					Drilled In	
Surface	Class A	950	15.6	1.19		Surface	8
Coal							
Intermediate 1	Class A	903	15.4	1.14		Surface	8
Intermediate 2							
Intermediate 3							
Production	Class A	3830	15.3	1.17		Surface	8
Tubing							

Drillers TD (ft) 16446' Loggers TD (ft) 16446'  
 Deepest formation penetrated Marcellus Plug back to (ft) \_\_\_\_\_  
 Plug back procedure \_\_\_\_\_

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Kick off depth (ft) 5400'  
 Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic

W. \_\_\_\_\_  
Environmental Protection

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 - 01836 Farm name CCC/Murray Energy Well number MND1 DHS

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

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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 421 hrs

OPEN FLOW Gas 6123 mcfpd Oil 840 bpd NGL \_\_\_\_\_ bpd Water 1536 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 <sub>2</sub> 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 Stingray  
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 6-25-19

**HG Energy II Appalachia, LLC**

**MND1 DHS - 47-051-01836**

**Stimulation Information Per Stage**

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Stage Number	Stimulation Date	Avg Pump Rate (BPM)	Avg Pressure (psi)	Breakdown Psi	ISIP (psi)	Amount of Proppant (klbs)	Amount of Water (bbls)	Amount of Acid (gallons)
1	10/6/2018	93.3	8,226	NA	3,980	271	7,429	2,026
2	10/6/2018	89.6	8,158	6,540	4,660	579	15,071	2,125
3	10/6/2018	89.3	8,608	5,779	4,511	662	13,933	2,014
4	10/7/2018	91.2	8,788	6,437	4,920	703	14,373	2,061
5	10/7/2018	92.3	8,748	5,917	4,233	702	14,485	1,525
6	10/8/2018	94.9	8,573	6,166	4,810	707	14,563	1,554
7	10/8/2018	94.8	8,472	6,124	4,918	709	13,603	1,105
8	10/8/2018	95.1	8,610	5,966	4,680	709	13,668	1,071
9	10/9/2018	94.9	8,578	6,004	4,813	704	13,143	1,059
10	10/9/2018	92.5	8,383	5,764	4,626	704	13,207	1,059
11	10/10/2018	101.0	8,673	6,673	4,980	704	13,256	942
12	10/10/2018	96.6	8,234	5,666	5,371	705	12,805	1,028
13	10/10/2018	101.0	8,330	5,654	4,870	705	13,176	994
14	10/11/2018	101.4	8,158	6,121	4,944	703	13,094	970
15	10/11/2018	97.2	8,781	5,476	4,372	534	11,045	1,000
16	10/11/2018	94.5	8,510	5,102	5,460	698	12,254	1,028
17	10/12/2018	101.0	8,288	6,067	5,070	624	11,500	970
18	10/12/2018	99.8	8,495	5,531	5,141	620	11,501	1,026
19	10/12/2018	97.6	8,247	5,621	4,911	620	11,462	1,018
20	10/13/2018	101.0	8,627	6,221	4,860	616	11,301	921
21	10/13/2018	100.4	8,636	6,190	5,160	619	11,431	857
22	10/13/2018	84.3	9,800	5,749	4,817	67	3,478	1,051
23	10/13/2018	92.9	8,332	5,733	4,950	621	11,410	1,028
24	10/14/2018	95.0	9,132	6,412	4,370	619	11,186	1,119
25	10/14/2018	94.1	9,068	6,746	4,049	627	10,899	1,002
26	10/14/2018	91.6	9,304	5,679	4,620	469	10,495	1,010
27	10/14/2018	101.0	8,302	6,350	4,960	626	11,474	1,036
28	10/15/2018	100.0	8,253	6,263	5,060	617	11,448	988
29	10/15/2018	97.3	8,173	6,442	4,990	620	11,487	1,014
30	10/15/2018	96.0	8,333	6,167	4,850	620	11,501	992
31	10/15/2018	40.0	10,724	6,571	5,140	119	6,323	2,022
32	10/17/2018	100.0	9,129	6,539	6,642	155	10,242	2,028
33	10/21/2018	97.0	8,808	6,261	3,940	620	11,489	1,012
34	10/26/2018	98.2	8,514	6,431	5,201	601	11,671	1,495
35	10/27/2018	100.3	8,030	6,270	5,261	640	12,333	998
36	10/27/2018	100.9	8,006	6,278	5,350	595	11,183	998
37	10/28/2018	100.4	7,875	6,124	4,781	556	10,798	1,085
38	10/28/2018	97.9	8,712	6,072	5,380	189	8,159	1,000
39	10/28/2018	99.7	7,677	5,568	5,338	547	10,837	1,081
40	10/29/2018	97.1	7,984	5,448	5,140	582	11,683	1,152
41	10/29/2018	99.9	7,594	5,869	4,796	632	11,805	1,010
42	10/30/2018	101.0	7,288	4,959	4,551	631	11,609	992
43	10/30/2018	100.2	7,449	4,629	4,940	640	11,440	976
44	10/30/2018	100.2	7,104	6,218	5,631	636	11,641	988
45	10/31/2018	99.5	6,983	5,988	5,293	637	11,637	1,014
46	10/31/2018	100.0	7,056	5,389	5,075	673	11,924	970
47	10/31/2018	101.2	6,878	5,341	4,576	715	12,088	935
48	11/1/2018	100.7	7,310	6,019	4,840	709	12,180	976

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**HG Energy II Appalachia, LLC**

**MND1 DHS - 47-051-01836**

**Perforation Record**

Stage Number	Perforation	Perforated	Perforated	Number of	
Number	Date	from MD ft.	to MD ft.	Perforations	Formations
1	10/6/2018	16,287	16237	NA	
2	10/6/2018	16,205	16,030	48	
3	10/6/2018	16,006	15,831	48	
4	10/7/2018	15,807	15,632	48	
5	10/7/2018	15,608	15,433	48	
6	10/8/2018	15,409	15,234	48	
7	10/8/2018	15,210	15,035	48	
8	10/8/2018	15,011	14,836	48	
9	10/9/2018	14,812	14,637	48	
10	10/9/2018	14,613	14,438	48	
11	10/10/2018	14,414	14,239	48	
12	10/10/2018	14,215	14,040	48	
13	10/10/2018	14,016	13,841	48	
14	10/11/2018	13,817	13,642	48	
15	10/11/2018	13,618	13,443	48	
16	10/11/2018	13,419	13,244	48	
17	10/12/2018	13,220	13,045	48	
18	10/12/2018	13,021	12,846	48	
19	10/12/2018	12,822	12,647	48	
20	10/13/2018	12,623	12,448	48	
21	10/13/2018	12,424	12,249	48	
22	10/13/2018	12,225	12,050	48	
23	10/13/2018	12,026	11,851	48	
24	10/14/2018	11,827	11,652	48	
25	10/14/2018	11,628	11,453	48	
26	10/14/2018	11,429	11,254	48	
27	10/14/2018	11,230	11,055	48	
28	10/15/2018	11,031	10,856	48	
29	10/15/2018	10,832	10,657	48	
30	10/15/2018	10,633	10,458	48	
31	10/15/2018	10,434	10,259	48	
32	10/17/2018	10,235	10,060	48	
33	10/21/2018	10,036	9,861	48	
34	10/26/2018	9,837	9,662	48	
35	10/27/2018	9,638	9,463	48	
36	10/27/2018	9,439	9,264	48	
37	10/28/2018	9,240	9,065	48	
38	10/28/2018	9,041	8,866	48	
39	10/28/2018	8,842	8,667	48	
40	10/29/2018	8,643	8,468	48	
41	10/29/2018	8,444	8,269	48	
42	10/30/2018	8,245	8,070	48	
43	10/30/2018	8,046	7,871	48	
44	10/30/2018	7,847	7,672	48	
45	10/31/2018	7,648	7,473	48	
46	10/31/2018	7,449	7,274	48	
47	10/31/2018	7,250	7,075	48	
48	11/1/2018	7,051	6,901	48	

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

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 Environmental Protection

Fracture Start Date/Time:	10/6/18 5:30
Fracture End Date/Time:	11/2/18 1:00
State:	West Virginia
County:	Marshall
API Number:	47-051-01836-0000
Operator Number:	HG Energy
Well Name:	MND 1 DHS
Federal Well:	Yes
Tribal Well:	No
Longitude:	39.8497958
Latitude:	-80.7744525
Long/Lat Projection:	NAD27
True Vertical Depth (TVD):	6,437'
Total Clean Fluid Volume* (gal):	24,011,694

**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	148
Sand (40/70 Proppant)	US Silica	Proppant	Silica Substrate	148
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





AS-DRILLED

Well is located on topo map 9,153 feet south of Latitude: 39° 52' 30"

**SURFACE HOLE LOCATION (SHL)**

UTM 17-NAD83(m)  
 N: 4,411,119.021  
 E: 519,310.999  
 NAD27, WV NORTH  
 N: 494,167.746  
 E: 1,642,185.640  
 LAT/LON DATUM-NAD83  
 LAT: 39.849871541  
 LON: -80.774262821

**LANDING POINT LOCATION**

UTM 17-NAD83(m)  
 N: 4,411,034.115  
 E: 519,355.221  
 NAD27, WV NORTH  
 N: 493,886.7  
 E: 1,642,326.1  
 LAT/LON DATUM-NAD83  
 LAT: 39.849105536  
 LON: -80.773748399

**BOTTOM HOLE LOCATION**

UTM 17-NAD83(m)  
 N: 4,408,705.804  
 E: 521,071.491  
 NAD27, WV NORTH  
 N: 486,152.13  
 E: 1,647,830.36  
 LAT/LON DATUM-NAD83  
 LAT: 39.828086657  
 LON: -80.753761267

**WATER WELLS:  
 NONE FOUND**

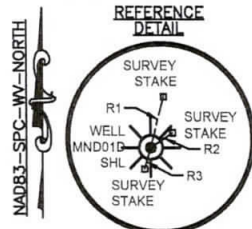
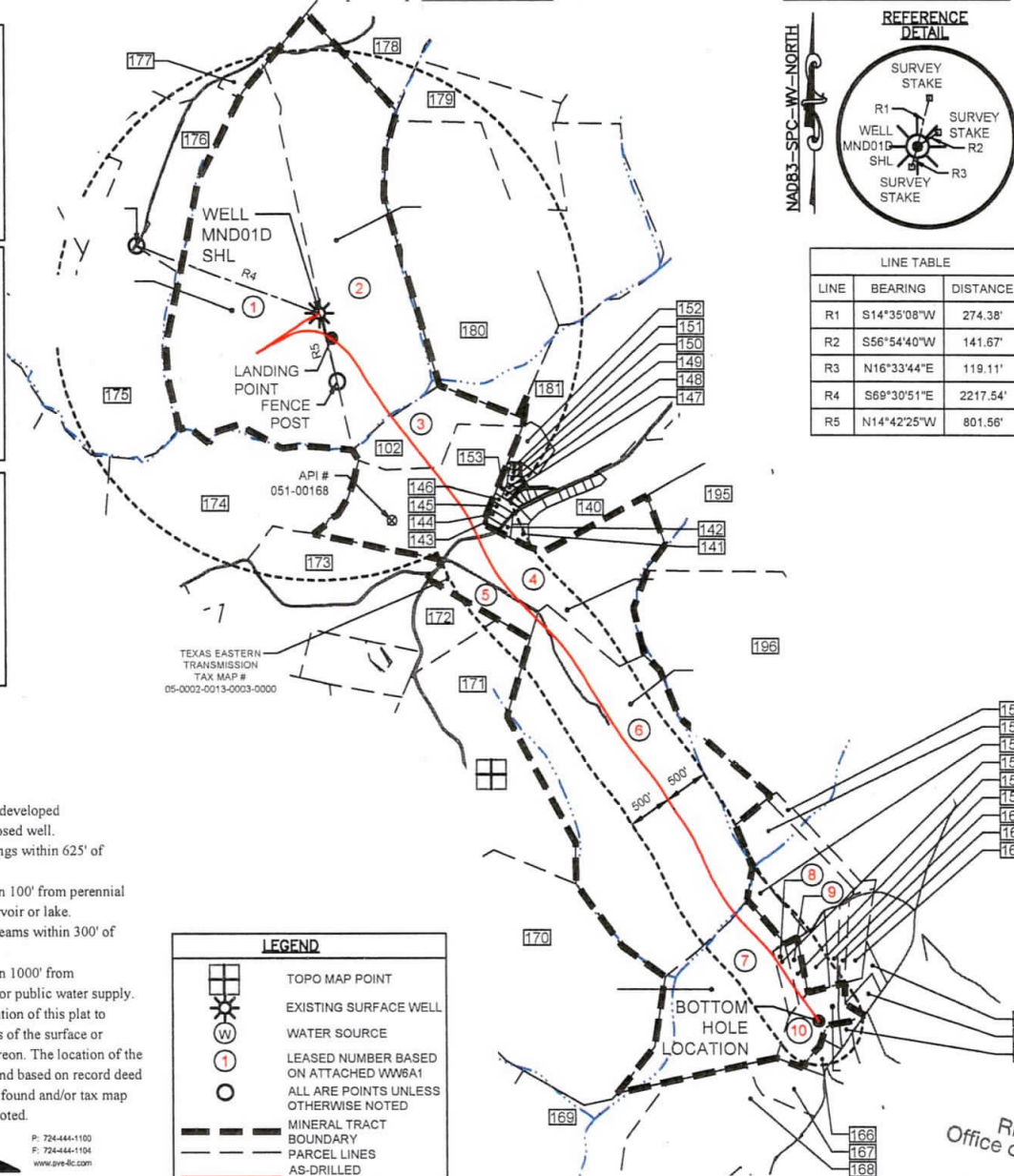
**NOTES:**

- 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.

Waterfront Corporate Park III, Suite 101  
 2000 Georgetown Drive  
 Sewickley, PA 15143  
 P: 724-444-1100  
 F: 724-444-1104  
 www.pve-llc.com



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



LINE	BEARING	DISTANCE
R1	S14°35'08"W	274.38'
R2	S56°54'40"W	141.67'
R3	N16°33'44"E	119.11'
R4	S69°30'51"E	2217.54'
R5	N14°42'25"W	801.56'

LEGEND	
	TOPO MAP POINT
	EXISTING SURFACE WELL
	WATER SOURCE
	LEASED NUMBER BASED ON ATTACHED WW6A1 ALL ARE POINTS UNLESS OTHERWISE NOTED
	MINERAL TRACT
	BOUNDARY
	PARCEL LINES
	AS-DRILLED
	HORIZONTAL WELL
	WELL REFERENCE
	STREAM/ WATERWAY
	ROAD
	EXISTING GAS WELL

Well is located on topo map 6-812 feet west of Longitude: 80° 45' 00"

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FILE #: N:\Project Files\161479 - HG Energy  
 \MND1\Drawings\Survey\  
 DRAWING #: 161479 MND01 DHS AS-DRILL  
 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 15, 2019  
 OPERATOR'S WELL #: MND 01 DHS  
 API WELL # 47 051 01836  
 STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow  
 WATERSHED: SHORT CREEK-OHIO RIVER ELEVATION: 1,150.00'  
 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: 16,446 LATERAL: 9,537  
 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

AS-DRILLED

Bottom hole is located on topo map 14,053 feet south of Latitude: 39° 52' 00"

**SURFACE HOLE LOCATION (SHL)**

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LAT/LON DATUM-NAD83  
LAT: 39.849871541  
LON: -80.774262821

**LANDING POINT LOCATION**

UTM 17-NAD83(m)  
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E: 519,355.221  
NAD27\_WV NORTH  
N: 493,886.7  
E: 1,642,326.1  
LAT/LON DATUM-NAD83  
LAT: 39.849105536  
LON: -80.773748399

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NAD27\_WV NORTH  
N: 486,152.13  
E: 1,647,830.36  
LAT/LON DATUM-NAD83  
LAT: 39.828086657  
LON: -80.753761267

102	CHAPLIN, RALPH & ELLA	TAX MAP NO. 05-0002-0018-0000-0000
140	CHAPLIN, WAYNE R & TINA	TAX MAP NO. 05-0003-0001-0000-0000
141	MILLER ROBERT C. ET. UX.	TAX MAP NO. 05-003A-0006-0000-0000
142	MILLER ROBERT C. ET. UX.	TAX MAP NO. 05-003A-0005-0000-0000
143	CHURCH RALPH E. ET. UX.	TAX MAP NO. 05-003A-0001-0000-0000
144	NORRIS SANDRA E. - LIFE	TAX MAP NO. 05-003A-0002-0000-0000
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156	SOUTHERN COUNTRY FARMS INC.	TAX MAP NO. 05-0004-0003-0013-0000
157	DOTTY, JAMES H. & MELANIE A.	TAX MAP NO. 05-0004-0034-0000-0000
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Well is located on topo map 1,060 feet west of Longitude: 80° 45' 00"

**NOTES:**

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- There are no existing buildings within 625' of proposed well.
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2000 Georgetown Drive  
Sewickley, PA 15143  
P: 724-444-1100  
F: 724-444-1104  
www.pve-llc.com



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Land Planning | Landscape Architecture | Environmental

**LEGEND**

- ⊗ TOPO MAP POINT
- ⊕ TOPO MAP POINT
- ⊗ EXISTING SURFACE WELL
- W WATER SOURCE
- ① LEASED NUMBER BASED ON ATTACHED WW6A1
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- AS-DRILLED
- HORIZONTAL WELL
- WELL REFERENCE
- STREAM WATERWAY



FILE #: N:\Project Files\161479 - HG Energy  
\MND1\Drawings\Survey\

DRAWING #: 161479 MND01 DHS AS-DRILL

SCALE: 1"=2000'

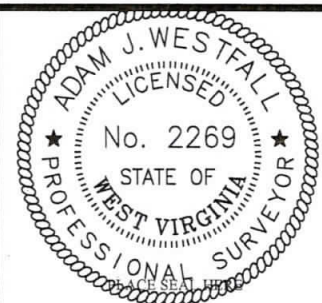
MINIMUM DEGREE OF ACCURACY: 1/2500

PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT  
H 138: 638.58'

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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 15, 2019

OPERATOR'S WELL #: MND 01 DHS

API WELL #	<u>47</u>	<u>051</u>	<u>01836</u>
	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: 16,446 LATERAL: 9,537

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

**AS-DRILLED**

Well is located on topo map 9,153 feet south of Latitude: 39° 52' 30"

**SURFACE HOLE LOCATION (SHL)**

UTM 17-NAD83(m)  
 N: 4,411,119.021  
 E: 519,310.989  
 NAD27, WV NORTH  
 N: 494,167.746  
 E: 1,642,185.640  
 LAT/LON DATUM-NAD83  
 LAT: 39.849871541  
 LON: -80.774262621

**LANDING POINT LOCATION**

UTM 17-NAD83(m)  
 N: 4,411,034.115  
 E: 519,355.221  
 NAD27, WV NORTH  
 N: 493,866.7  
 E: 1,642,326.1  
 LAT/LON DATUM-NAD83  
 LAT: 39.849105536  
 LON: -80.773748399

**BOTTOM HOLE LOCATION**

UTM 17-NAD83(m)  
 N: 4,408,705.804  
 E: 521,071.491  
 NAD27, WV NORTH  
 N: 486,152.13  
 E: 1,647,830.36  
 LAT/LON DATUM-NAD83  
 LAT: 39.828086657  
 LON: -80.753761267

**WATER WELLS:  
 NONE FOUND**

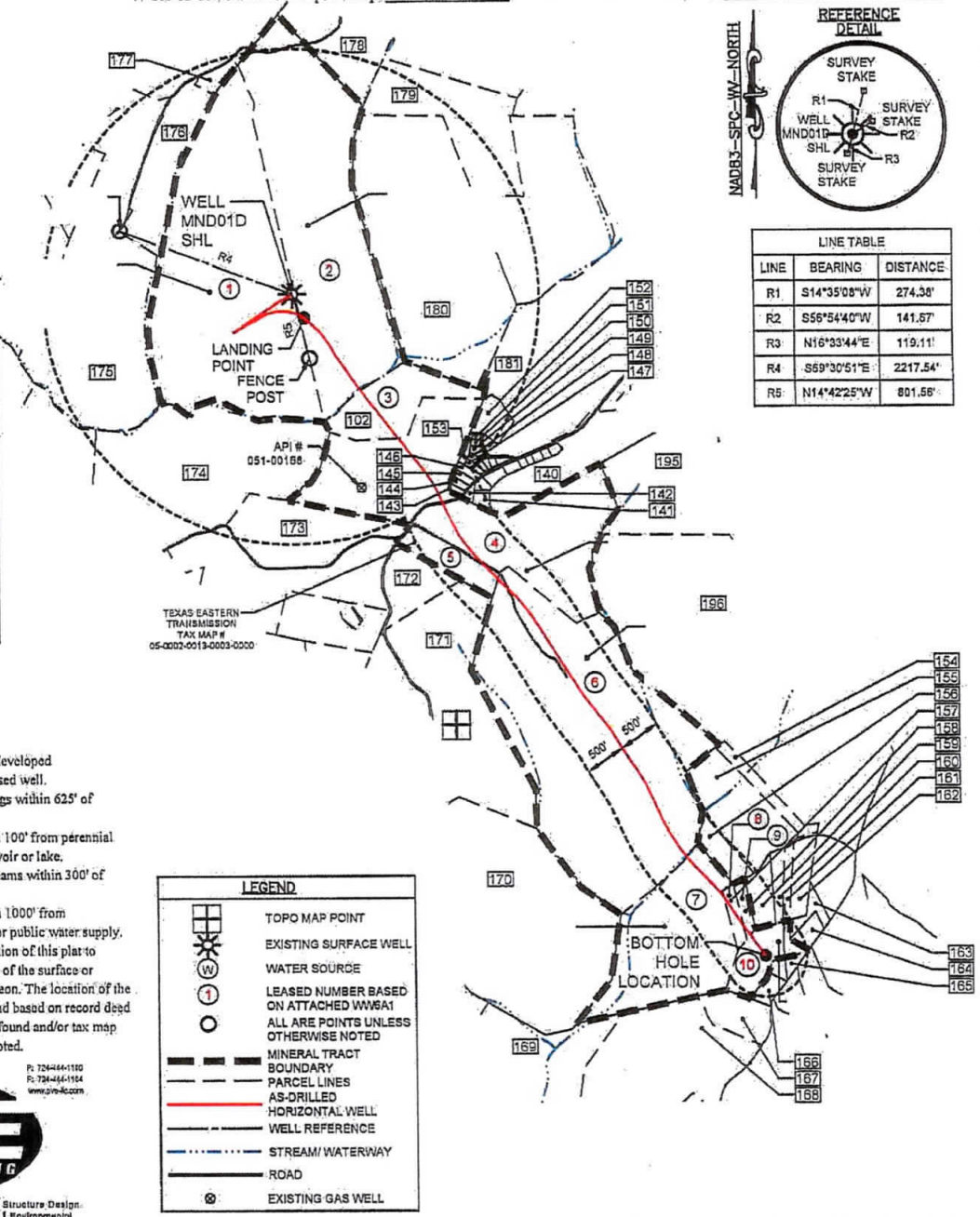
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  2. There are no existing buildings within 625' of proposed well.
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Waterford Corporate Park III, Suite 101  
 2200 Douglas Drive  
 Sewickley, PA 15143

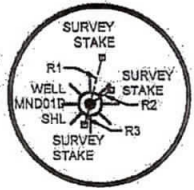
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 Land Planning | Landscape Architecture | Environmental



**REFERENCE DETAIL**



LINE	BEARING	DISTANCE
R1	S14°35'08"W	274.38'
R2	S56°54'40"W	141.67'
R3	N16°03'44"E	119.11'
R4	S69°30'51"E	2217.54'
R5	N14°42'25"W	801.56'

Well is located on topo map 9,153 feet west of Longitude: 80° 45' 00"

**LEGEND**

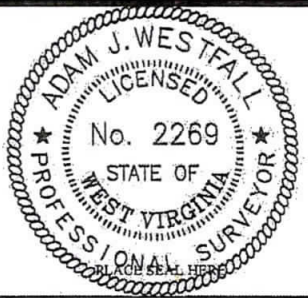
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- PARCEL LINES
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- HORIZONTAL WELL
- WELL REFERENCE
- STREAM/WATERWAY
- ROAD
- EXISTING GAS WELL

FILE #: N:\Project Files\161479 - HG Energy  
\MND1\Drawings\Survey\  
 DRAWING #: 161479 MND01 DHS AS-DRILL  
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DATE: MAY 15, 2019  
 OPERATOR'S WELL #: MND 01 DHS  
 API WELL # 47 051 01836  
 STATE: \_\_\_\_\_ COUNTY: \_\_\_\_\_ PERMIT: \_\_\_\_\_

ADAM J. WESTFALL  
 LICENSED  
 No. 2269  
 STATE OF WEST VIRGINIA  
 PROFESSIONAL SURVEYOR

AS-DRILLED

Bottom hole is located on topo map 14.053 feet south of Latitude: 39° 52' 00"

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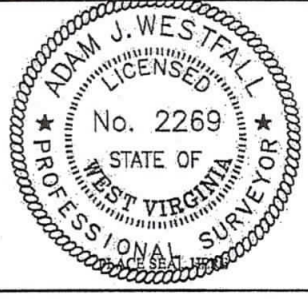
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