

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

API 47 - 051 - 01953 County Marshall District Franklin  
Quad Powhatan Point 7.5' Pad Name Greer Field/Pool Name \_\_\_\_\_  
Farm name PPG Industries, Inc. Well Number 1W-13HM  
Operator (as registered with the OOG) Tug Hill Operating, LLC  
Address 1320 South University Drive, Suite 500 City Ft. Worth State TX Zip 76107

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4,400,811.13 Easting 514,037.45  
Landing Point of Curve Northing 4,400,488.65 Easting 513,124.18  
Bottom Hole Northing 4,402,277.07 Easting 512,093.31

Elevation (ft) 1,254' 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)  
SOBM; Base oil, osmotic inhibitor, weighting agent, viscosifier, emulsifier, hardness buffer, fluid loss additive, LCM, shale inhibitor, de-foamer, soaping agent, coagulant, flocculant; Specific additives per WSSP and Permit.

Date permit issued 1/23/2017 Date drilling commenced 9/16/2017 Date drilling ceased 10/6/2017  
Date completion activities began 12/12/2017 Date completion activities ceased 2/28/2018  
Verbal plugging (Y/N) n/a Date permission granted n/a Granted by n/a

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 70' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1740' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft Sewickley 785' TVD, Pittsburgh 879' TVD Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

**Reviewed**  
*Jim Wilkins*  
10/23/18

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Reviewed by: \_\_\_\_\_

API 47-051 - 01953 Farm name PPG Industries, Inc. Well number 1W-13HM

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	36	30	120	NEW	94.5#	N/A	YES
Surface	17 1/2	13 3/8	959	NEW	54.5#	N/A	YES
Coal	17 1/2	13 3/8	959	NEW	54.5#	N/A	YES
Intermediate 1	12 1/4	9 5/8	2618	NEW	36#	N/A	YES
Intermediate 2							
Intermediate 3							
Production	8 3/4	5 1/2	14,925	NEW	20#	N/A	YES
Tubing		2 3/8	7339	NEW	4.7#	N/A	
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>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	A		15.6	1.19		0	8
Surface	A	1060	15.6	1.19	1261	0	8
Coal	A	1060	15.6	1.19	1261	0	8
Intermediate 1	A	888	15.6	1.19	1057	0	8
Intermediate 2							
Intermediate 3							
Production	A	2987	14.5	1.17	3495	0	8
Tubing							

Drillers TD (ft) 14,978 Loggers TD (ft) \_\_\_\_\_  
 Deepest formation penetrated Marcellus Plug back to (ft) n/a  
 Plug back procedure n/a

Kick off depth (ft) 6607

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 3 centralizers on surface casing at equal distance.  
Intermediate - 1 centralizer every other joint.  
 Production - one centralizer every other joint in lateral, one centralizer every joint through curve, one centralizer every other joint 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 \_\_\_\_\_

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**Greer 1W-13HM  
Perforation Record**

Stage	Date Perforated	Bottom Perf (ft)	Top Perf (ft)	Number of Perfs	Formation
1	12/15/2017	14,863	14,814	2	Marcellus
2	12/16/2017	14,647	14,501	48	Marcellus
3	12/16/2017	14,472	14,326	48	Marcellus
4	12/18/2017	14,297	14,151	48	Marcellus
5	12/19/2017	14,122	13,976	48	Marcellus
6	12/28/2017	13,947	13,801	48	Marcellus
7	12/29/2017	13,772	13,626	48	Marcellus
8	12/30/2017	13,597	13,451	48	Marcellus
9	12/31/2017	13,422	13,276	48	Marcellus
10	1/3/2018	13,247	13,101	48	Marcellus
11	1/5/2018	13,072	12,926	48	Marcellus
12	1/6/2018	12,897	12,751	48	Marcellus
13	1/10/2018	12,722	12,576	48	Marcellus
14	1/11/2018	12,547	12,401	48	Marcellus
15	1/11/2018	12,372	12,226	48	Marcellus
16	1/14/2018	12,197	12,051	48	Marcellus
17	1/17/2018	12,022	11,876	48	Marcellus
18	1/19/2018	11,847	11,701	48	Marcellus
19	1/21/2018	11,672	11,526	48	Marcellus
20	1/26/2018	11,497	11,351	48	Marcellus
21	1/27/2018	11,322	11,176	48	Marcellus
22	1/30/2018	11,147	11,001	48	Marcellus
23	2/1/2018	10,972	10,826	48	Marcellus
24	2/3/2018	10,797	10,651	48	Marcellus
25	2/4/2018	10,622	10,476	48	Marcellus
26	2/6/2018	10,447	10,301	48	Marcellus
27	2/8/2018	10,272	10,126	48	Marcellus
28	2/10/2018	10,097	9,951	48	Marcellus
29	2/11/2018	9,922	9,776	48	Marcellus
30	2/13/2018	9,747	9,601	48	Marcellus
31	2/15/2018	9,572	9,426	48	Marcellus
32	2/16/2018	9,397	9,251	48	Marcellus
33	2/16/2018	9,222	9,076	48	Marcellus
34	2/17/2018	9,047	8,901	48	Marcellus
35	2/17/2018	8,872	8,726	48	Marcellus
36	2/19/2018	8,697	8,551	48	Marcellus
37	2/21/2018	8522	8376	48	Marcellus
38	2/23/2018	8347	8201	48	Marcellus
39	2/24/2018	8172	8026	48	Marcellus
40	2/25/2018	7997	7851	48	Marcellus

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Stimulation Summary  
Greer 1W-13HM

Stage	Avg. Pump Rate (BPM)	Avg. Treating Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Proppant Total (lbs)	Water Total (bbbls)	N2 Volume (scf)
1	89.4	8,171	5,561	2,620	336,042	7,679	0
2	84.3	8,192	5,474	2,480	350,027	9,387	0
3	90.1	8,462	5,288	3,206	345,230	7,926	0
4	89.0	8,264	5,579	3,515	451,003	8,895	0
5	89.6	8,540	5,276	3,177	452,284	8,829	0
6	89.8	8,172	6,449	3,524	450,948	9,222	0
7	85.9	8,116	5,776	3,568	451,547	8,698	0
8	83.3	7,998	5,464	3,672	450,612	8,801	0
9	84.3	8,048	5,594	4,416	451,021	8,592	0
10	87.5	8,121	5,481	3,891	450,634	8,730	0
11	87.4	8,064	5,451	3,615	449,588	8,831	0
12	83.6	7,956	5,627	3,856	452,328	10,535	0
13	82.8	8,061	5,680	4,203	449,739	8,638	0
14	85.7	8,279	5,776	3,837	449,178	8,791	0
15	86.9	8,221	6,004	3,791	449,222	8,623	0
16	88.8	8,019	5,559	3,755	450,716	8,906	0
17	88.0	7,852	5,577	3,948	452,121	8,613	0
18	83.8	7,665	5,869	4,012	450,872	8,563	0
19	78.1	7,757	5,930	3,699	449,070	12,598	0
20	85.6	7,582	5,224	4,128	450,240	8,789	0
21	83.7	8,023	5,772	3,247	449,292	10,024	0
22	84.8	7,584	5,543	3,752	449,933	8,693	0
23	87.2	7,687	6,177	3,651	451,525	8,601	0
24	86.0	7,996	6,188	3,591	449,166	8,666	0
25	83.2	7,753	5,853	3,678	450,092	8,607	0
26	86.2	7,537	5,540	3,460	449,494	8,654	0
27	89.2	7,805	5,754	5,077	426,703	10,388	0
28	89.0	7,748	5,824	3,473	449,716	9,010	0
29	86.0	7,645	6,610	3,742	447,856	8,583	0
30	85.7	7,552	6,534	4,267	437,565	8,425	0
31	88.3	7,488	5,684	3,710	438,736	8,187	0
32	88.7	7,320	5,726	4,300	449,015	8,382	0
33	89.2	7,413	5,666	3,816	449,825	8,575	0
34	89.7	7,291	5,566	6,763	449,782	8,421	0
35	86.8	6,928	5,388	3,973	450,370	8,476	0
36	88.3	6,778	5,212	4,060	449,923	8,364	0
37	89.7	7,060	6,179	3,882	450,192	8,504	0

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Stimulation Summary  
Greer 1W-13HM

38	88.2	6,672	5,037	4,102	449,596	8,331	0
39	82.9	7,187	5,803	3,998	429,449	9,348	0
40	89.2	6,600	5,645	3,718	450,545	8,590	0

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**Greer 1W-13HM  
Lithology/Formation Information**

<b>FORMATION</b>	<b>TOP TVD</b>	<b>BASE TVD</b>	<b>TOP MD</b>	<b>BASE MD</b>	<b>DESCRIBE ROCKY TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H2S ETC)</b>
Maxton	1857	1929	1868	1944	Sandstone
Big Lime	1929	2038	1944	2060	Limestone
Big Injun	2038	2346	2060	2385	Sandstone
Weir	2346	2536	2385	2584	Sandstone
Berea	2536	2854	2584	2923	Sandstone
Gordon	2854	2956	2923	3038	Sandstone
Fifty Foot	2956	3529	3038	3754	Sandstone
Speechley	3529	4865	3754	5486	Sandstone
Benson	4865	5234	5486	5949	Sandstone
Alexander	5234	5854	5949	6747	Siltstone
Rhinestreet	5854	6216	6747	7314	Black shale
Middlesex	6216	6302	7314	7531	Black shale
Geneseo/Burkett	6302	6330	7531	7624	Black shale
Tully	6330	6345	7624	7686	Limestone
Hamilton	6345	6352	7686	7717	Grey shale
Marcellus	6352	-	7717	-	Black shale

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/14/2017
Job End Date:	3/6/2018
State:	West Virginia
County:	Marshall
API Number:	47-051-01953-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Greer 1W-13HM
Latitude:	39.75100280
Longitude:	-80.83612865
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,421
Total Base Water Volume (gal):	15,474,702
Total Base Non Water Volume:	0



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## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	87.66483	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.28969	

SAND-COMMON WHITE-100 MESH, BULK	Halliburton	Proppant					
				Listed Below			
FR-76	Halliburton	Friction Reducer					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
HYDROCHLORI C ACID	Halliburton	Solvent					
				Listed Below			
SP BREAKER	Halliburton	Breaker					
				Listed Below			
Scalechek LP-50	Halliburton	Scale Inhibitor					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
Scalechek LP-70	Halliburton	Scale Inhibitor					
				Listed Below			

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SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant						RECEIVED Office of Oil and Gas SEP 10 2018 WV Department of Environmental Protection
				Listed Below				
SAND-PREMIUM WHITE-30/50, BULK	Halliburton	Proppant						
				Listed Below				
WG-36 GELLING AGENT	Halliburton	Gelling Agent						
				Listed Below				

Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.

			Crystalline silica, quartz	14808-60-7	100.00000	11.98388	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.03481	
			Inorganic salt	Proprietary	30.00000	0.03481	
			Acrylamide acrylate copolymer	Proprietary	30.00000	0.03481	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Hydrochloric acid	7647-01-0	15.00000	0.02748	
			Glutaraldehyde	111-30-8	30.00000	0.00764	
			Methanol	67-56-1	60.00000	0.00521	
			Phosphonate of a Diamine, Sodium Salt	Proprietary	30.00000	0.00480	
			Guar gum	9000-30-0	100.00000	0.00470	
			Ethylene Glycol	107-21-1	60.00000	0.00324	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00127	
			Sodium chloride	7647-14-5	5.00000	0.00080	

			Neutralized Polyacrylic Emulsion	Proprietary	10.00000	0.00054	
			Ethanol	64-17-5	1.00000	0.00025	
			Ethoxylated alcohols	Proprietary	30.00000	0.00019	
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00000	0.00019	
			Fatty acids, tall oil	Proprietary	30.00000	0.00019	
			Sodium persulfate	7775-27-1	100.00000	0.00017	
			Olefins	Proprietary	5.00000	0.00008	
			Propargyl alcohol	107-19-7	10.00000	0.00006	
			Phosphoric acid	7664-38-2	0.10000	0.00003	
			Formaldehyde	50-00-0	0.09000	0.00001	
			Sodium sulfate	7757-82-6	0.10000	0.00000	

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

\*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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FILE NUMBER **8837**

DRAWING NUMBER **8837ADG1W13HM.dwg**

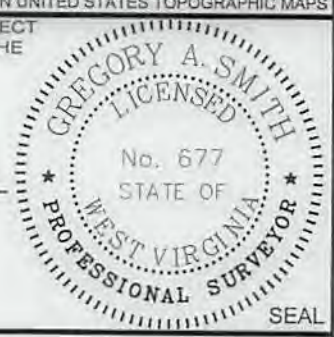
SCALE **1" = 1200'**

MINIMUM DEGREE OF ACCURACY **1/2500**

PROVEN SOURCE OF ELEVATION **SUBMETER MAPPING  
GRADE GPS**

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.S. 677  
*Gregory A. Smith*



WVDEP  
OFFICE OF OIL & GAS  
601 57TH STREET, SE  
CHARLESTON, WV 25304

DATE: July 17, 2018

OPERATORS WELL NO. GREER 1W-13HM(AS-DRILLED)

API WELL NO. 47-051-01953

STATE COUNTY PERMIT STATE COUNTY PERMIT

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

LOCATION ELEVATION 1254' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER (UNDEFINED)

DISTRICT FRANKLIN COUNTY MARSHALL

QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER SEE ATTACHED PG 2 THROUGH 3

SURFACE OWNER PPG INDUSTRIES, INC. ACREAGE 42.18

OIL & GAS ROYALTY OWNER PPG INDUSTRIES, INC., ET AL LEASE ACREAGE 767.78

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION

PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE (SPECIFY) \_\_\_\_\_

PLUG & ABANDON  CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD: 6,335' TMD: 14,978'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER  
CT CORPORATION SYSTEM

ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500  
FORT WORTH, TX 76107 ADDRESS 5400 D BIG TYLER ROAD  
CHARLESTON, WV 25313

WELL OPERATOR TUG HILL OPERATING, LLC  
 DESIGNATED AGENT DIANNA STAMPER  
 CT CORPORATION SYSTEM  
 Address 1320 SOUTH UNIVERSITY DRIVE, SUITE 500  
FORT WORTH, TX 76107

WELL IDENTIFICATION NUMBER 1W-13HM (01953)

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL

(IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION

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CLEAN OUT & REPLUG  PLUG & ABANDON

PERMIT

SURFACE OWNER PPG INDUSTRIES, INC. ACREAGE 42.18

OIL & GAS ROYALTY OWNER PPG INDUSTRIES, INC. ET AL LEASE ACREAGE 767.78

COUNTY NAME MARSHALL COUNTY MARSHALL LEASE NUMBER SEE ATTACHED PG 2 THROUGH 3

QUADRANGLE POWHATAN POINT 7.5' DISTRICT FRANKLIN

LOCATION ELEVATION 1254' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER (UNDEFINDED)

PERMIT

DATE: JULY 17, 2018

OPERATORS WELL NO. GREER 1W-13HM(A2-DRILLED)

API WELL NO. 47-051-01953

STATE WEST VIRGINIA COUNTY MARSHALL

PERMIT

WVDEP  
 OFFICE OF OIL & GAS  
 601 8TH STREET, SE  
 CHARLESTON, WV 25304



*Gregory A. Smith*



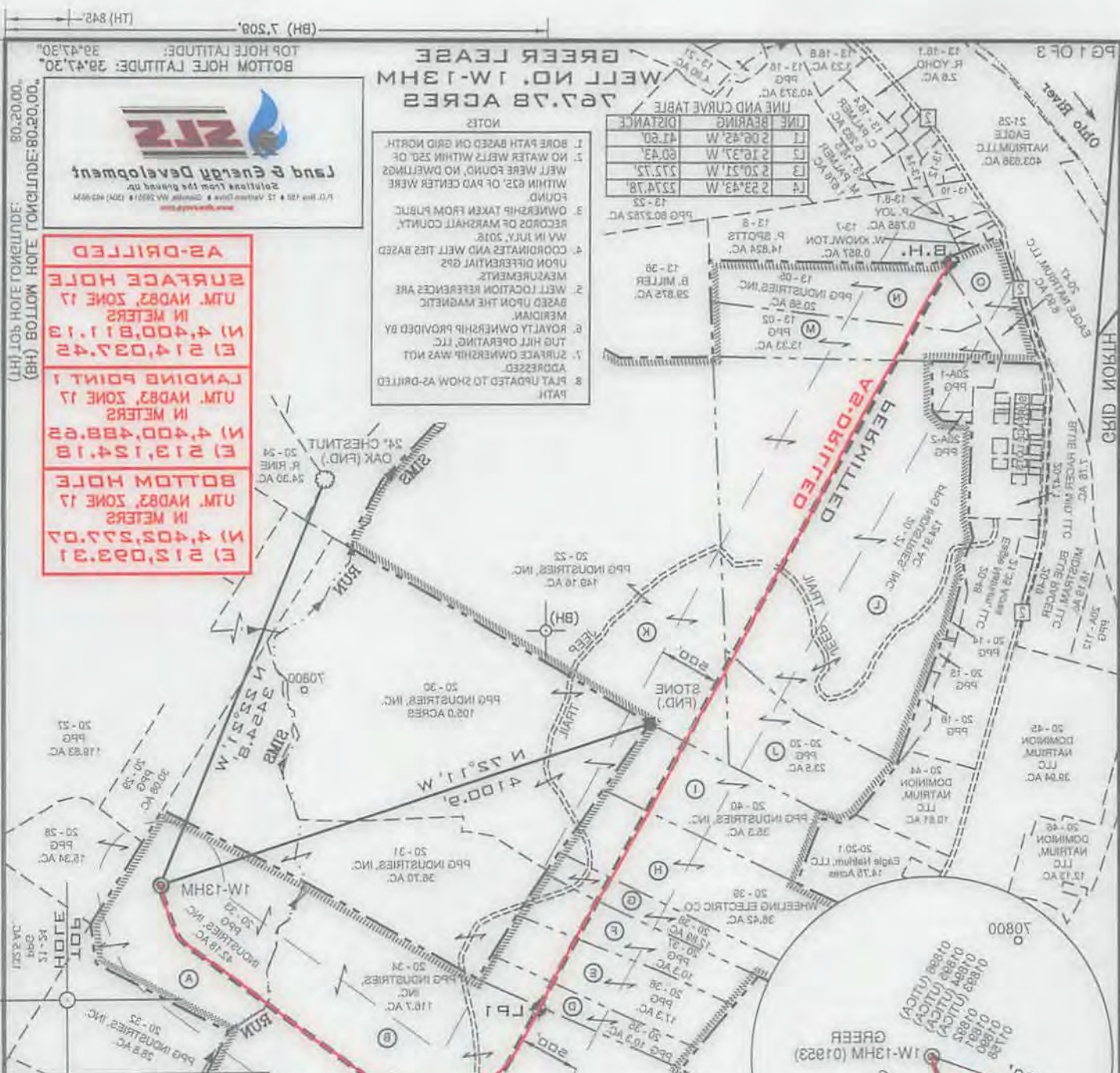
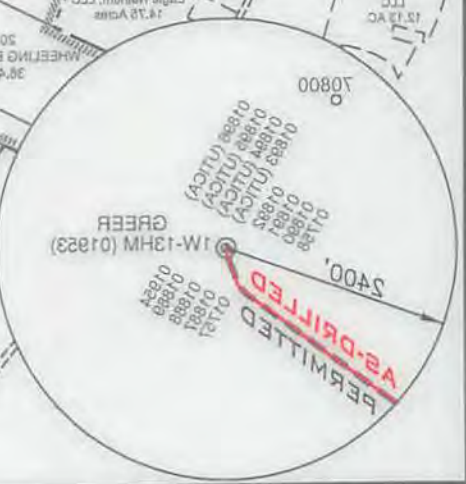
GRADE GPS
SUBMETER MAPPING
PROVEN SOURCE
OF ACCURACY
1/2500
MINIMUM DEGREE
OF ACCURACY
1" = 1200'
SCALE
DRAWING NUMBER <u>8837ADG1W13HM.dwg</u>
FILE NUMBER <u>8837</u>

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

LEASING # TAG (SEE PG 2)	(A)
HARD LEASE LINE	---
SURFACE TRACTS	---
INTERIOR MINERAL TRACTS	---
LEASED TRACTS	---

LEGEND



LINE	BEARING	DISTANCE
L1	S 08°42' W	41.50
L2	S 16°37' W	60.43
L3	S 20°21' W	37.75
L4	S 23°43' W	32.78

- NOTES
- BORE PATH BASED ON GRID NORTH.
  - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND. NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
  - OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN JULY, 2018.
  - COORDINATES AND WELL TIES BASED UPON ORIENTAL GAS MEASUREMENT.
  - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
  - ROYALTY OWNERSHIP PROVIDED BY TUG HILL OPERATING, LLC.
  - SURFACE OWNERSHIP WAS NOT ADDRESSED.
  - PLAN UPDATED TO SHOW AS-DRILLED PATH.

**AS-DRILLED SURFACE HOLE**

UTM. NAD83, ZONE 17  
 IN METERS  
 (N) 4,400,811.13  
 (E) 214,037.42

**BOTTOM HOLE**

UTM. NAD83, ZONE 17  
 IN METERS  
 (N) 4,400,488.65  
 (E) 213,124.18



TOP HOLE LATITUDE: 39°47'30"  
 BOTTOM HOLE LATITUDE: 39°47'30"

(BH) 7.208' (HT) 8.827'

(HB) 80.20, 00.00, 00.00  
 (HT) 80.20, 00.00, 00.00

(HB) 0.63, 1.51 (HT)

PG 1 OF 3  
 OHIO RIVER  
 GRID NORTH

**GREER WELL NO. 1W-13HM  
WELL PLAT LEASE INFORMATION**

LEASE NO.	TAG	PARCEL	OIL & GAS ROYALTY OWNER	BOOK	PAGE
10*14300	A	5-20-33	PPG INDUSTRIES, INC.	725	123
10*14312	A	5-20-33	JAMIE LU BENSON	790	531
10*14313	A	5-20-33	TERRI JEAN GODDARD	790	585
10*14314	A	5-20-33	RALPH BLACHLY	790	529
10*14315	A	5-20-33	MARGARET ROSS	790	527
10*14316	A	5-20-33	ANDREW GERST	791	645
10*14317	A	5-20-33	HAROLD BLACHLY	791	643
10*14318	A	5-20-33	MARTHA BLACHLY-CROSS	792	112
10*14319	A	5-20-33	JACK J. PFALZGRAF	792	118
10*14320	A	5-20-33	SANDRA CHEYNEY	792	91
10*14321	A	5-20-33	HERBERT BLACHLY	792	102
10*14322	A	5-20-33	LOIS KAY MORFORD	792	110
10*14327	A	5-20-33	ROBERT D. OKEY	792	646
10*14328	A	5-20-33	RAE ELLEN STUART	796	38
10*14329	A	5-20-33	TONDA ROTHENBUHLER	796	40
10*14331	A	5-20-33	CHRISTINA JEAN RIOUX	796	70
10*14332	A	5-20-33	MICHAEL EDWARD BARTH	796	68
10*14333	A	5-20-33	DEAN ROTHENBUHLER	796	42
10*14355	A	5-20-33	DEWAYNE STARKEY	815	228
10*14356	A	5-20-33	FREDRIC RICHTER & BETTY RICHTER	822	270
10*14362	A	5-20-33	CAROLYN STARKEY	827	226
10*14368	A	5-20-33	JOSEPH LONG	836	106
10*14371	A	5-20-33	THOMAS F LONG AND JENNIFER LONG	842	398
10*14372	A	5-20-33	UNITED CHURCH HOMES INC	846	408
10*14377	A	5-20-33	JOSEPH A LONG	849	519
10*14387	A	5-20-33	JOHN F LONG AND PAM LONG	849	542
10*14388	A	5-20-33	IMMANUEL CHURCH OF THE UNITED CHURCH OF CHRIST OF SALEM TOWNSHIP, MONROE COUNTY, OHIO	849	513
10*14398	A	5-20-33	JAN KAFFENBERGER	860	434
10*14399	A	5-20-33	RITA ANN DOEBERT AND RONALD DOLBERT	860	437
10*14400	A	5-20-33	COLEEN SLAGLE AND FRANKLIN SLAGLE JR	860	440
10*14401	A	5-20-33	IMELDA J SCURLOCK	860	443
10*14402	A	5-20-33	CAROL F WILSON AND RICHARD WILSON	860	446
10*14403	A	5-20-33	SUE WHITE	862	429
10*14404	A	5-20-33	DON FORGRAVES	862	426
10*14405	A	5-20-33	JOHN WHITE	862	423
10*14406	A	5-20-33	WILLIAM V BUCKNOR	862	421
10*14407	A	5-20-33	LESLIE F BUCKNOR	862	419
10*14408	A	5-20-33	LORNA M LONG MORGAN	864	323
10*14409	A	5-20-33	JAMES C LONG AND PATTI LONG	864	326
10*14410	A	5-20-33	HENRY T LONG	867	385
10*14411	A	5-20-33	THOMAS WHITE, ESQ., SPECIAL COMMISSIONER	870	34

WELL OPERATOR TUG HILL OPERATING, LLC  
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500  
FORT WORTH, TX 76107

DESIGNATED AGENT DIANNA STAMPER  
CT CORPORATION SYSTEM  
ADDRESS 5400 D BIG TYLER ROAD  
CHARLESTON, WV 25313

WELL PLAT LEASE INFORMATION  
GREER WELL NO. 1-W-13HM

LEASE NO.	TAG	PARCEL	OIL & GAS ROYALTY OWNER	BOOK	PAGE
10*14411	A	2-50-33	THOMAS WHITE, ESQ., SPECIAL COMMISSIONER	870	34
10*14410	A	2-50-33	HENRY T LONG	867	382
10*14409	A	2-50-33	JAMES C LONG AND PATTI LONG	864	356
10*14408	A	2-50-33	LORNA M LONG MORGAN	864	353
10*14407	A	2-50-33	LESLIE F BUCKNOR	865	419
10*14406	A	2-50-33	WILLIAM V BUCKNOR	865	451
10*14405	A	2-50-33	JOHN WHITE	865	453
10*14404	A	2-50-33	DON FORGRAVES	865	456
10*14403	A	2-50-33	SUE WHITE	865	459
10*14402	A	2-50-33	CAROL F WILSON AND RICHARD WILSON	860	446
10*14401	A	2-50-33	LIMELDA J SCURLOCK	860	443
10*14400	A	2-50-33	COLLEN SLAGLE AND FRANKLIN SLAGLE JR	860	440
10*14399	A	2-50-33	RITA ANN DOBERT AND RONALD DOBERT	860	437
10*14398	A	2-50-33	IAN KAFFENBERGER	860	434
10*14388	A	2-50-33	OHIO CHRIST OF SALEM TOWNSHIP, MONROE COUNTY IMMANUEL CHURCH OF THE UNITED CHURCH OF	849	213
10*14387	A	2-50-33	JOHN F LONG AND PAM LONG	849	245
10*14377	A	2-50-33	JOSEPH A LONG	849	219
10*14375	A	2-50-33	UNITED CHURCH HOMES INC	846	408
10*14371	A	2-50-33	THOMAS F LONG AND JENNIFER LONG	845	398
10*14368	A	2-50-33	JOSEPH LONG	836	106
10*14365	A	2-50-33	CAROLYN STARKEY	857	556
10*14356	A	2-50-33	FREDRIC RICHTER & BETTY RICHTER	855	570
10*14355	A	2-50-33	DEWAYNE STARKEY	815	558
10*14333	A	2-50-33	DEAN ROTHEBUHLER	796	45
10*14332	A	2-50-33	MICHAEL EDWARD BARTH	796	68
10*14331	A	2-50-33	CHRISTINA JEAN RIOUX	796	70
10*14329	A	2-50-33	TONDA ROTHEBUHLER	796	40
10*14328	A	2-50-33	RAE ELLEN STUART	796	38
10*14327	A	2-50-33	ROBERT D. OKEY	795	646
10*14325	A	2-50-33	LOIS KAY MORFORD	795	170
10*14321	A	2-50-33	HERBERT BLACHLY	795	105
10*14320	A	2-50-33	SANDRA CHEYNEY	795	91
10*14319	A	2-50-33	JACK J. PFALZGRAF	795	118
10*14318	A	2-50-33	MARTHA BLACHLY-CROSS	795	115
10*14317	A	2-50-33	HAROLD BLACHLY	791	643
10*14316	A	2-50-33	ANDREW GERST	791	642
10*14315	A	2-50-33	MARGARET ROSS	790	557
10*14314	A	2-50-33	RALPH BLACHLY	790	559
10*14313	A	2-50-33	TERRI JEAN GODDARD	790	282
10*14312	A	2-50-33	JAMIE LU BENSON	790	231
10*14300	A	2-50-33	PPG INDUSTRIES, INC.	752	153

WELL OPERATOR TUG HILL OPERATING, LLC  
 1350 SOUTH UNIVERSITY DRIVE, SUITE 200  
 FORT WORTH, TX 76107  
 ADDRESS  
 DESIGNATED AGENT DIANA STAMPER  
 CT CORPORATION SYSTEM  
 CHARLESTON, WV 25313  
 ADDRESS 5400 D BIG TYLER ROAD



**GREER WELL NO. 1W-13HM  
WELL PLAT LEASE INFORMATION**

LEASE NO.	TAG	PARCEL	OIL & GAS ROYALTY OWNER	BOOK	PAGE
10*14412	A	5-20-33	THE VILLAGE NETWORK, F/K/A BOYS VILLAGE OF SMITHVILLE, OHIO	872	203
10*14413	A	5-20-33	JUANITA SANDIFER	872	206
10*14416	A	5-20-33	KATHERINE ANN WILLIAMS COTHRAN	879	1
10*14419	A	5-20-33	CROSSROAD CHILD AND FAMILY SERVICES INC	887	105
10*15734	A	5-20-33	GENEVIEVE L LONG	904	13
10*15760	A	5-20-33	DEIRDRE L WINGER AND DANIEL W WINGER	903	645
10*15761	A	5-20-33	CAMERON CEMETERY ASSOCIATION INC	903	642
10*15762	A	5-20-33	DAWN PETROVICH	904	4
10*15763	A	5-20-33	BONNIE J SELDERS	904	34
10*15764	A	5-20-33	JAMES E BUCKNOR	904	28
10*15765	A	5-20-33	JOHN A BUCKNOR AND RHONDA BUCKNOR	904	16
10*15766	A	5-20-33	JOHN J POZENEL	904	7
10*16220	A	5-20-33	WILLIAM LONG	792	95
10*16230	A	5-20-33	JAMES BRIAN YOHO	900	134
10*16355	A	5-20-33	JAMES P LONG AND LINDA L LONG	904	10
10*16356	A	5-20-33	DARYL S BUCKNOR AND JOYCE T BUCKNOR	904	31
10*16357	A	5-20-33	DEANNA M CAMPBELL	904	1
10*16358	A	5-20-33	ANNE MARIE KRAMER AND CHRISTOPHER E CUEVAS	903	648
10*16454	A	5-20-33	CHURCH OF CHRIST OF CAMERON OHIO	900	128
10*14300	B	5-20-34	PPG INDUSTRIES, INC.	725	123
10*14300	B	5-20-34	PPG INDUSTRIES, INC.	725	123
10*14300	C	5-21-3	PPG INDUSTRIES, INC.	725	123
10*14300	C	5-21-3	PPG INDUSTRIES, INC.	725	123
10*14300	D	5-20-35	PPG INDUSTRIES, INC.	725	123
10*14300	E	5-20-36	PPG INDUSTRIES, INC.	725	123
10*14300	F	5-20-37	PPG INDUSTRIES, INC.	725	123
10*14703	G	5-20-38	WHEELING POWER COMPANY AKA WHEELING ELECTRIC COMPANY	786	383
10*14703	H	5-20-39	WHEELING POWER COMPANY AKA WHEELING ELECTRIC COMPANY	786	383
10*14300	I	5-20-40	PPG INDUSTRIES, INC.	725	123
10*14300	J	5-20-20	PPG INDUSTRIES, INC.	725	123
10*14300	K	5-20-22	PPG INDUSTRIES, INC.	725	123
10*14922	K	5-20-22	ROGER R WEESE, SPECIAL COMMISSIONER	836	488
10*14300	L	5-20-21	PPG INDUSTRIES, INC.	725	123
10*14300	M	5-13-2	PPG INDUSTRIES, INC.	725	123
10*14300	N	5-13-5	PPG INDUSTRIES, INC.	725	123
10*14300	O	5-20-47	PPG INDUSTRIES, INC.	725	123

WELL OPERATOR TUG HILL OPERATING, LLC  
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LEASE NO.	TAG	PARCEL	OIL & GAS ROYALTY OWNER	BOOK	PAGE
10*14300	O	2-50-47	PPG INDUSTRIES, INC.	752	153
10*14300	N	2-13-2	PPG INDUSTRIES, INC.	752	153
10*14300	M	2-13-2	PPG INDUSTRIES, INC.	752	153
10*14300	L	2-50-21	PPG INDUSTRIES, INC.	752	153
10*14325	K	2-50-22	ROGER R WEESE, SPECIAL COMMISSIONER	836	488
10*14300	K	2-50-22	PPG INDUSTRIES, INC.	752	153
10*14300	J	2-50-20	PPG INDUSTRIES, INC.	752	153
10*14300	I	2-50-40	PPG INDUSTRIES, INC.	752	153
10*14703	H	2-50-39	ELECTRIC COMPANY	786	383
10*14703	G	2-50-38	ELECTRIC COMPANY	786	383
10*14300	F	2-50-37	PPG INDUSTRIES, INC.	752	153
10*14300	E	2-50-36	PPG INDUSTRIES, INC.	752	153
10*14300	D	2-50-35	PPG INDUSTRIES, INC.	752	153
10*14300	C	2-21-3	PPG INDUSTRIES, INC.	752	153
10*14300	C	2-21-3	PPG INDUSTRIES, INC.	752	153
10*14300	B	2-50-34	PPG INDUSTRIES, INC.	752	153
10*14300	B	2-50-34	PPG INDUSTRIES, INC.	752	153
10*16424	A	2-50-33	CHURCH OF CHRIST OF CAMERON OHIO	900	158
10*16328	A	2-50-33	CUEVAS	903	648
10*16327	A	2-50-33	DEANNA M CAMPBELL	904	1
10*16326	A	2-50-33	DARYL S BUCKNOR AND JOYCE T BUCKNOR	904	31
10*16325	A	2-50-33	JAMES P LONG AND LINDA J LONG	904	10
10*16230	A	2-50-33	JAMES BRIAN YOHO	900	134
10*16220	A	2-50-33	WILLIAM LONG	792	92
10*12766	A	2-50-33	JOHN I POZENEI	904	7
10*12765	A	2-50-33	JOHN A BUCKNOR AND RHONDA BUCKNOR	904	16
10*12764	A	2-50-33	JAMES E BUCKNOR	904	28
10*12763	A	2-50-33	BONNIE I SELDERS	904	34
10*12762	A	2-50-33	DAWN PETROVICH	904	4
10*12761	A	2-50-33	CAMERON CEMETERY ASSOCIATION INC	903	642
10*12760	A	2-50-33	DEIRDRE J WINGER AND DANIEL W WINGER	903	642
10*12734	A	2-50-33	GENEVIEVE J LONG	904	13
10*14419	A	2-50-33	CROSSROAD CHILD AND FAMILY SERVICES INC	887	102
10*14416	A	2-50-33	KATHERINE ANN WILLIAMS COTHRAN	879	1
10*14413	A	2-50-33	JUANITA SANDIFER	872	206
10*14412	A	2-50-33	SMITHVILLE, OHIO	872	203
			THE VILLAGE NETWORK, F\K\A BOYS VILLAGE OF		

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