

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

JUL 26 2023

API 47-051-02391 County Marshall District Liberty
Quad Glen Easton 7.5' Pad Name Fitzgerald Field/Pool Name _____
Farm name Danny and Frances Kerns Estate Well Number Fitzgerald S-1111
Operator (as registered with the OOG) Tug Hill Operating, LLC
Address 380 Southpointe Boulevard, Plaza II, Suite 200 City Canonsburg State PA Zip 15317

WV Department of
Environmental Protection

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,405,753.57 Easting 530,714.50
Landing Point of Curve Northing 4,405,290.9 Easting 529,063.7
Bottom Hole Northing 4,403,062.5 Easting 530,386.5

Elevation (ft) 1,293' 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 8/26/2021 Date drilling commenced 5/14/2021 Date drilling ceased 3/10/2023
Date completion activities began 5/8/2023 Date completion activities ceased 6/24/2023
Verbal plugging (Y/N) N 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 1062' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1501' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 958-964', 1056-1062' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED

Reviewed by:
[Signature]
12/08/2023

API 47- 051 - 02391 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-1HM

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	36"	30"	120'	NEW	94.5#	N/A	Y
Surface	17 1/2"	13 3/8"	1,159'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	1,159'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2,727'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	18,758'	NEW	20#	N/A	Y
Tubing		2 3/8"	9,379'	NEW	4.7#	N/A	Y
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 ³)	Cement Top (MD)	WOC (hrs)
Conductor	A	65	15.6	1.21	78	0	8
Surface	A	1192	15.6	1.18	1407	0	8
Coal	A	1192	15.6	1.18	1407	0	8
Intermediate 1	A	845	15	1.38	1166	0	8
Intermediate 2							
Intermediate 3							
Production	A	3875	14.5	1.23	4766	0	8
Tubing							

Drillers TD (ft) 18,784' Loggers TD (ft) n/a
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 8,899'

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 _____

API 47- 051 - 02391 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-1HM

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)
	attached							

Please insert additional pages as applicable.

API 47- 051 - 02391 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-1HM

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6,935'-7,059'</u> TVD	<u>10,301'-18,784'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 2566 psi Bottom Hole _____ psi DURATION OF TEST 4 hrs
 OPEN FLOW Gas 1374 mcfpd Oil 0 bpd NGL _____ bpd Water 816 bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP DEPTH IN FT NAME TVD</u>	<u>BOTTOM DEPTH IN FT TVD</u>	<u>TOP DEPTH IN FT MD</u>	<u>BOTTOM DEPTH IN FT MD</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>0</u>		<u>0</u>		
<u>*see attached</u>					

Please insert additional pages as applicable.

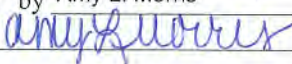
Drilling Contractor Nabors Drilling USA
 Address 505 West Greens Road, Suite 1000 City Houston State TX Zip 77067

Logging Company n/a
 Address _____ City _____ State _____ Zip _____

Cementing Company Halliburton Energy Services, Inc.
 Address 121 Champion Way, Suite 200 City Canonsburg State PA Zip 15317

Stimulating Company PRO-FRAC
 Address 333 Shops Boulevard City Willow Park State TX Zip 76087

Please insert additional pages as applicable.

Completed by Amy L. Morris Telephone 724-749-8388
 Signature  Title Permitting Specialist Date 7/25/2023

**FITZGERALD S-1HM
PERFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	5/8/2023	18,573	18,621	12	Marcellus
2	5/9/2023	18,370	18,523	48	Marcellus
3	5/10/2023	18,196	18,349	48	Marcellus
4	5/10/2023	18,022	18,175	48	Marcellus
5	5/11/2023	17,674	17,827	48	Marcellus
6	5/12/2023	17,674	17,827	48	Marcellus
7	5/13/2023	17,500	17,653	48	Marcellus
8	5/13/2023	17,326	17,479	48	Marcellus
9	5/14/2023	17,152	17,305	48	Marcellus
10	5/15/2023	16,978	17,131	48	Marcellus
11	5/16/2023	16,804	16,957	48	Marcellus
12	5/17/2023	16,630	16,783	48	Marcellus
13	5/17/2023	16,456	16,609	48	Marcellus
14	5/18/2023	16,282	16,435	48	Marcellus
15	5/19/2023	16,108	16,261	48	Marcellus
16	5/20/2023	15,934	16,087	48	Marcellus
17	5/21/2023	15,760	15,913	48	Marcellus
18	5/22/2023	15,586	15,739	48	Marcellus
19	5/23/2023	15,412	15,565	48	Marcellus
20	5/23/2023	15,238	15,391	48	Marcellus
21	5/25/2023	15,064	15,217	48	Marcellus
22	5/25/2023	14,890	15,043	48	Marcellus
23	5/26/2023	14,716	14,869	48	Marcellus
24	5/27/2023	14,542	14,695	48	Marcellus
25	5/28/2023	14,368	14,521	48	Marcellus
26	5/29/2023	14,194	14,347	48	Marcellus
27	5/29/2023	14,020	14,173	48	Marcellus
28	5/30/2023	13,846	13,999	48	Marcellus
29	5/31/2023	13,672	13,825	48	Marcellus
30	6/1/2023	13,498	13,651	48	Marcellus
31	6/2/2023	13,324	13,477	48	Marcellus
32	6/3/2023	13,150	13,303	48	Marcellus
33	6/4/2023	12,976	13,129	48	Marcellus
34	6/5/2023	12,802	12,955	48	Marcellus
35	6/6/2023	12,628	12,781	48	Marcellus
36	6/7/2023	12,454	12,607	48	Marcellus
37	6/8/2023	12,280	12,433	48	Marcellus
38	6/9/2023	12,106	12,259	48	Marcellus
39	6/10/2023	11,932	12,085	48	Marcellus
40	6/11/2023	11,758	11,911	48	Marcellus
41	6/12/2023	11,584	11,737	48	Marcellus

12/08/2023

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
42	6/14/2023	11,410	11,563	48	Marcellus
43	6/15/2023	11,236	11,389	48	Marcellus
44	6/17/2023	11,062	11,215	48	Marcellus
45	6/18/2023	10,888	11,041	48	Marcellus
46	6/20/2023	10,714	10,867	48	Marcellus
47	6/21/2023	10,540	10,693	48	Marcellus
48	6/23/2023	10,366	10,519	48	Marcellus
49	6/24/2023	10,192	10,345	48	Marcellus

12/08/2023

FITZGERALD S-1HM
STIMULATION INFORMATION PER STAGE

Stage No.	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)
1	73.00	8454	0	4680	250280	6,689	0
2	80.00	7286	5610	5564	436940	8,513	0
3	85.00	7612	5446	5401	448180	8,579	0
4	85.00	7490	5313	5515	441180	8,790	0
5	85.00	7610	5210	5738	442800	8,465	0
6	85.00	7429	5193	5329	440560	8,599	0
7	85.00	7835	5730	5150	446320	8,824	0
8	85.00	7643	5445	5286	435340	8,666	0
9	85.00	7409	5276	5487	445940	8,405	0
10	85.00	7673	5154	4263	438480	8,474	0
11	85.00	7385	5020	4197	439380	8,389	0
12	89.00	7612	5239	4390	443440	8,467	0
13	84.00	7865	5518	5302	441620	8,513	0
14	84.00	7375	5289	5080	447500	8,557	0
15	85.00	7052	5134	4764	444520	8,494	0
16	85.00	7755	5098	4636	442440	8,365	0
17	85.00	7340	5611	4854	445080	8,459	0
18	86.00	7508	5417	5011	441980	8,387	0
19	86.00	7398	5243	4755	443950	8,405	0
20	86.00	7450	5297	5036	442660	8,412	0
21	85.00	7389	5031	4973	440640	8,381	0
22	85.00	7098	5343	5321	443060	8,469	0
23	85.00	7138	4887	4878	445340	8,637	0
24	85.00	6996	5256	4468	446560	8,549	0
25	85.00	7075	5518	4686	444760	8,595	0
26	86.00	7205	5367	4263	445480	8,390	0
27	85.00	6942	5235	5022	446140	8,320	0
28	85.00	7103	5892	4916	442600	8,544	0
29	86.00	7046	5117	4695	440200	8,431	0
30	85.00	7215	5701	5013	440140	8,338	0
31	88.00	7455	6359	4625	441580	8,443	0
32	85.00	7179	5290	4853	448800	8,442	0

Stage No.	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)
33	85.00	7236	5877	4905	447100	8,414	0
34	85.00	7130	5236	5359	446860	8,475	0
35	86.00	7432	5344	4622	448060	8,503	0
36	80.00	7137	5349	5345	447120	8,440	0
37	85.00	7635	5375	4668	448660	8,495	0
38	85.00	7196	5114	4419	445500	8,445	0
39	85.00	7146	5564	4531	448120	8,262	0
40	85.00	6932	5014	5220	449820	8,432	0
41	84.00	6988	5414	4833	450340	9,880	0
42	85.00	7188	5309	5068	445540	9,033	0
43	88.00	7136	5021	5051	437700	7,966	0
44	87.00	7188	4918	5719	445760	8,104	0
45	88.00	7325	4904	4906	449000	8,084	0
46	88.00	7196	5434	5209	444760	7,982	0
47	88.00	7318	4937	4640	438240	7,905	0
48	88.00	7107	5259	4904	444260	7,895	0
49	88.00	6978	5191	4895	444780	10,642	0

FITZGERALD S-1HM

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
Big Lime	2063	2200	2065	2205	Limestone
Big Injun	2200	2472	2205	2495	Sandstone
Weir	2472	2692	2495	2741	Sandstone
Berea	2692	2950	2741	3046	Sandstone
Gordon	2950	3105	3046	3247	Sandstone
Fifty Foot	3105	3610	3247	4058	Sandstone
Speechley	3610	5100	4058	6664	Sandstone
Benson	5100	5525	6664	7408	Sandstone
Alexander	5525	6184	7408	8572	Siltstone
Rhinestreet	6184	6682	8572	9439	Black Shale
Middlesex	6692	6758	9439	9589	Black Shale
Geneseo/Burkett	6764	6789	9589	9660	Black Shale
Tully	6793	6813	9660	9725	Limestone
Hamilton	6818	6912	9725	10063	Gray Shale
Marcellus	6908	-	10063	-	Black Shale

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/8/2023
Job End Date:	6/24/2023
State:	West Virginia
County:	Marshall
API Number:	47-051-02391-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Fitzgerald S 1HM
Latitude:	39.80119340
Longitude:	-80.64121439
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,932
Total Base Water Volume (gal):	17,427,816
Total Base Non Water Volume:	0



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
Water	Tug Hill Operating	Carrier/Base Fluid	Water	7732-18-5	100.00000	86.74817	None
Sand (40/70 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	8.46605	None
Sand (100 Mesh Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	3.17978	None
Sand (30/50 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	1.21743	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Water	7732-18-5	85.00000	0.21060	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.09167	None
StimStream FR 9800	Chemstream	Friction Reducer	Butene, homopolymer	9003-29-6	25.00000	0.02265	None
			Alkanes, C16-20-iso-	90622-59-6	25.00000	0.02265	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00272	None

MC MX 5-3886	Multi-Chem	Biocide					
			Calcium nitrate	13477-34-4	60.00000	0.02366	None
LD-7750W	Multi-Chem	Scale Inhibitor					
			Methanol	67-56-1	60.00000	0.00536	None
			Phosphonic Acid Salt	Proprietary	5.00000	0.00045	None
ProHib 100	CNR	Acid Inhibitor					
			2-Butoxyethanol	111-76-2	60.00000	0.00050	None
			Proprietary material	Proprietary	30.00000	0.00025	None
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00017	None
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00008	None
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00008	None
ProFE 105	CNR	Iron Control					
			Citric Acid	77-92-9	20.00000	0.00020	None
			Acetic Acid	64-19-7	5.00000	0.00005	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Water	7732-18-5	85.00000	0.21060	
			Butene, homopolymer	9003-29-6	25.00000	0.02265	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00272	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00045	
			Proprietary material	Proprietary	30.00000	0.00025	
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00017	
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00008	
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00008	
			Acetic Acid	64-19-7	5.00000	0.00005	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

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

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)

**FITZGERALD S LEASE
WELL 1HM
TUG HILL OPERATING**

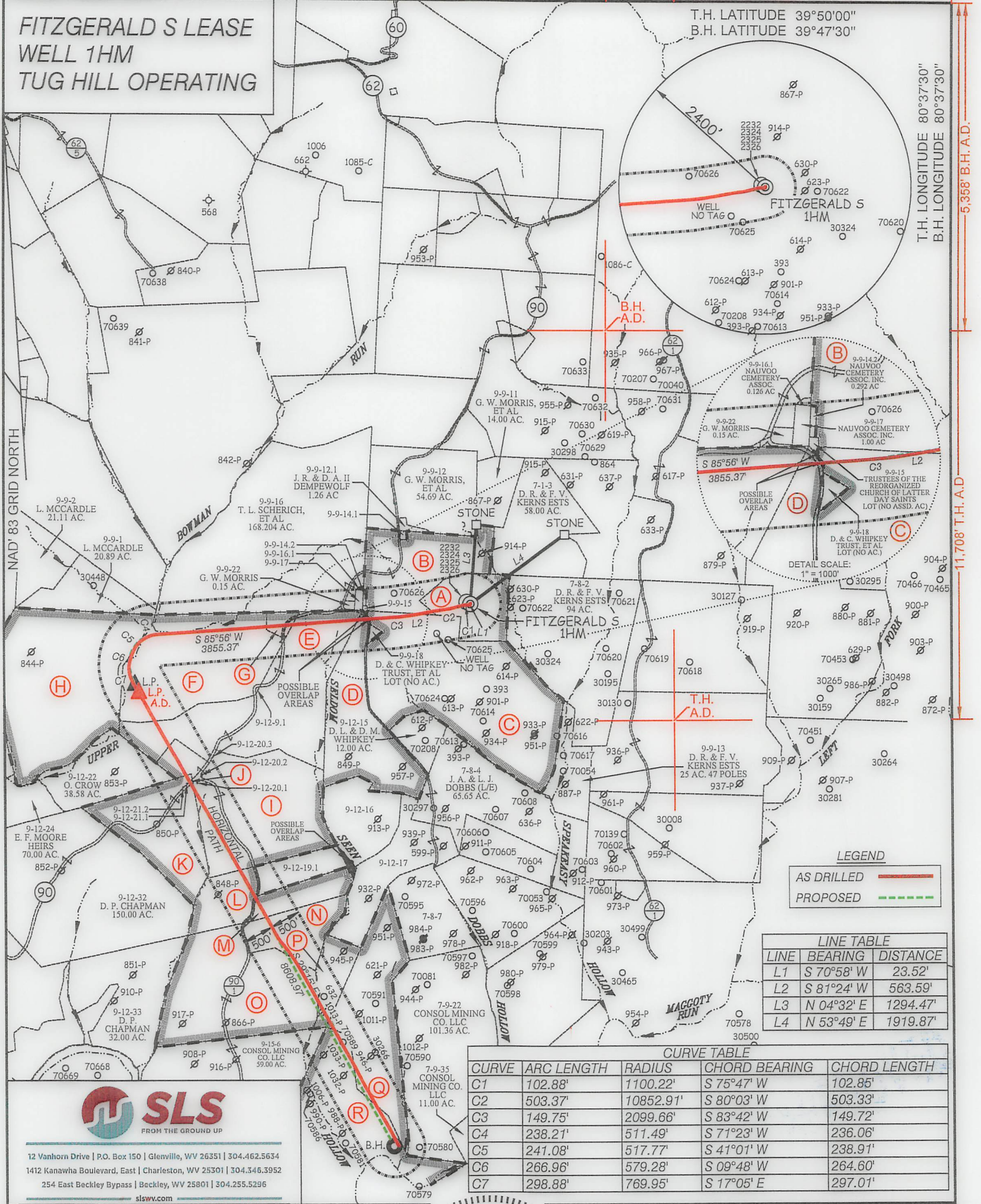
T.H. LATITUDE 39°50'00"
B.H. LATITUDE 39°47'30"

5,669' B.H. A.D.
4,556' T.H. A.D.

T.H. LONGITUDE 80°37'30"
B.H. LONGITUDE 80°37'30"

5,358' B.H. A.D.

11,708' T.H. A.D.



LEGEND

AS DRILLED ——— (Red line)

PROPOSED - - - - - (Green dashed line)

LINE TABLE

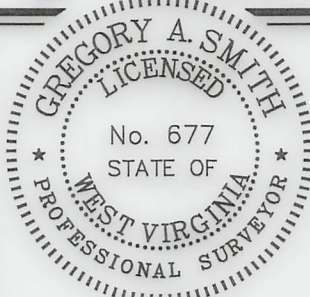
LINE	BEARING	DISTANCE
L1	S 70°58' W	23.52'
L2	S 81°24' W	563.59'
L3	N 04°32' E	1294.47'
L4	N 53°49' E	1919.87'

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	102.88'	1100.22'	S 75°47' W	102.85'
C2	503.37'	10852.91'	S 80°03' W	503.33'
C3	149.75'	2099.66'	S 83°42' W	149.72'
C4	238.21'	511.49'	S 71°23' W	236.06'
C5	241.08'	517.77'	S 41°01' W	238.91'
C6	266.96'	579.28'	S 09°48' W	264.60'
C7	298.88'	769.95'	S 17°05' E	297.01'



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
 1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.345.3952
 254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
 slsvv.com



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

P.S. 677 *Gregory A. Smith*

LEGEND

LEASE LINE ———

SURFACE LINE ———

WELL LATERAL ———

OFFSET LINE ———

TIE LINE ———

CREEK ———

ROAD ———

COUNTY ROUTE ———

PROPOSED WELL ———

EXISTING WELL ———

PERMITTED WELL ———

TAX MAP-PARCEL ———

SURFACE OWNER (SEE TABLE) ———

LEASE # (SEE WW-6A1) ———

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT) N. 475,971.96 E. 1,647,874.78

NAD'83 GEO. LAT-(N) 39.801193 LONG-(W) 80.641214

NAD'83 UTM (M) N. 4,405,753.57 E. 530,714.50

LANDING POINT

NAD'83 S.P.C.(FT) N. 474,678.0 E. 1,642,367.0

NAD'83 GEO. LAT-(N) 39.797448 LONG-(W) 80.660757

NAD'83 UTM (M) N. 4,405,331.3 E. 529,043.1

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 467,166.6 E. 1,646,573.4

NAD'83 GEO. LAT-(N) 39.776976 LONG-(W) 80.645446

NAD'83 UTM (M) N. 4,403,064.3 E. 530,362.9

SCALE 1" = 2000' FILE NO. 8910P1HMR2-AD.dwg

FITZGERALD S 1HM REV4

DATE MARCH 30, 20 23

REVISED _____

OPERATORS WELL NO. FITZGERALD S 1HM

API WELL NO. 47 — 051 — 02391

STATE COUNTY PERMIT

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS

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

DESIGNATED AGENT DARREN BROWN CT CORPORATION ADDRESS 5098 WASHINGTON ST. W, STE 407 CHARLESTON, WV 25313-1561

COUNTY NAME PERMIT

**FITZGERALD S LEASE
WELL 1HM
TUG HILL OPERATING**

T.H. LATITUDE 39°50'00"
B.H. LATITUDE 39°47'30"

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT)	N. 475,971.96	E. 1,647,874.78
NAD'83 GEO.	LAT-(N) 39.801193	LONG-(W) 80.641214
NAD'83 UTM (M)	N. 4,405,753.57	E. 530,714.50

LANDING POINT

NAD'83 S.P.C.(FT)	N. 474,678.0	E. 1,642,367.0
NAD'83 GEO.	LAT-(N) 39.797448	LONG-(W) 80.660757
NAD'83 UTM (M)	N. 4,405,331.3	E. 529,043.1

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 467,166.6	E. 1,646,573.4
NAD'83 GEO.	LAT-(N) 39.776976	LONG-(W) 80.645446
NAD'83 UTM (M)	N. 4,403,064.3	E. 530,362.9

TAG	SURFACE OWNER	PARCEL	ACRES
A	DANNY R. & FRANCES V. KERNS ESTATE	7-8-1	27.00
B	DANNY R. & FRANCES V. KERNS ESTATE	9-9-14	48.308
C	CONSOL MINING CO., LLC	9-12-14	127.61
D	DAVID L. WHIPKEY & DAVID MATTHEW WHIPKEY	9-12-12	61.00
E	MARK D. & SHERYL CHAMBERS	9-12-11	91.00
F	CHARLES WILLIAM DOBBS, ET AL	9-12-9	82.18
G	ROBERT W. KNIGHT	9-12-10	3.00
H	LUCY MCCARDLE	9-12-8	117.85
I	RONALD E. & MARY L. DOBBS - LIFE	9-12-20	90.963
J	WV DEPT OF TRANSPORTATION DOH	9-12-21.3	0.005
K	DAVID P. CHAPMAN	9-12-21	49.985
L	MICHAEL DOUGLAS & STEPHANIE JO DOBBS	9-12-34	19.31
M	RAYMOND D. DOBBS, ET AL	9-12-19	15.076
N	ROY ROGERS WOODS, SR.	9-12-18	30.00
O	ANNA E. MEYER ESTATE	9-12-35	93.64
P	CONSOL MINING CO., LLC	9-12-36	15.30
Q	CONSOL MINING CO., LLC	7-9-1	59.00
R	PAUL & SUSAN ASTON	7-9-2	98.95

PARCEL	SURFACE ADJOINER	ACRES
7-8-7	CONSOL MINING CO. LLC	31.99
9-9-14.1	AMERICAN ENERGY-MARCELLUS LLC	0.40
9-9-14.2	NAUVOO CEMETERY ASSOCIATION INC.	0.292
9-9-16.1	NAUVOO CEMETERY ASSOCIATION INC.	0.126
9-9-17	NAUVOO CEMETERY ASSOCIATION INC.	1.00
9-12-9.1	WV DEPT OF TRANSPORTATION DOH	0.079
9-12-16	DAVID & CAROL WHIPKEY TRUST, ET AL	30.00
9-12-17	DAVID & CAROL WHIPKEY TRUST, ET AL	37.27
9-12-19.1	RONALD E. DOBBS & MARY L. DOBBS	14.924
9-12-20.1	WV DEPT OF TRANSPORTATION DOH	0.004
9-12-20.2	WV DEPT OF TRANSPORTATION DOH	0.026
9-12-20.3	WV DEPT OF TRANSPORTATION DOH	0.007
9-12-21.1	WV DEPT OF TRANSPORTATION DOH	0.005
9-12-21.2	WV DEPT OF TRANSPORTATION DOH	0.005

**AS DRILLED COORDINATES
FOR WELL NO. 1HM**

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17)

NAD'83 S.P.C.(FT)	N. 475,971.96	E. 1,647,874.78
NAD'83 GEO.	LAT-(N) 39.801193	LONG-(W) 80.641214
NAD'83 UTM (M)	N. 4,405,753.57	E. 530,714.50

LANDING POINT

NAD'83 S.P.C.(FT)	N. 474,544.3	E. 1,642,432.3
NAD'83 GEO.	LAT-(N) 39.797083	LONG-(W) 80.660518
NAD'83 UTM (M)	N. 4,405,290.9	E. 529,063.7

BOTTOM HOLE

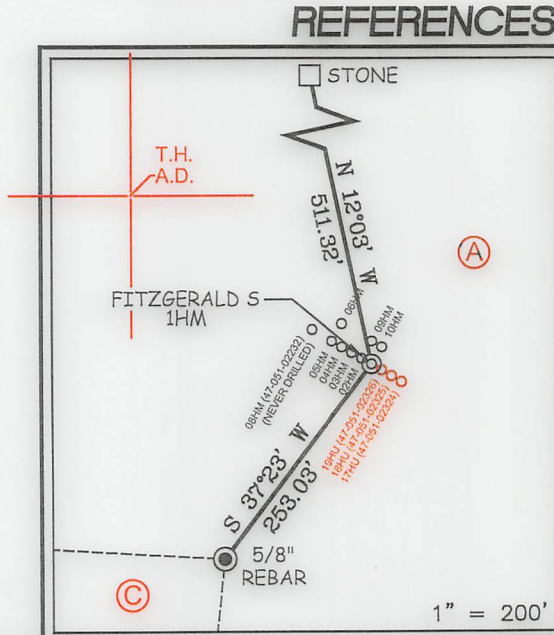
NAD'83 S.P.C.(FT)	N. 467,159.3	E. 1,646,650.8
NAD'83 GEO.	LAT-(N) 39.776959	LONG-(W) 80.645171
NAD'83 UTM (M)	N. 4,403,062.5	E. 530,386.5

NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS OR DWELLINGS ≥ 2500 SQ. FT. WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.
- AS-DRILLED DATA PROVIDED BY TUG HILL OPERATING, LLC.
- PLAT UPDATED TO SHOW AS-DRILLED PATH.

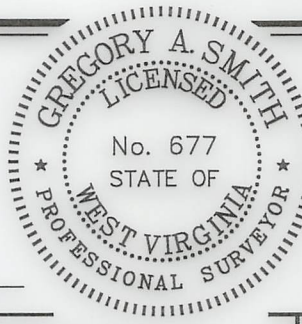


12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slsw.com



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 DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 677 *Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE MARCH 30, 20 23
REVISED _____
OPERATORS WELL NO. FITZGERALD S 1HM
API WELL NO. 47 - 051 - 02391
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8910P1HMR2-AD.dwg
FITZGERALD S 1HM REV4
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS



WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ IF "GAS" PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

LOCATION:
ELEVATION 1,293.00' WATERSHED SPEAKEASY HOLLOW OF MAGGOTY RUN
DISTRICT LIBERTY COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER DANNY AND FRANCES KERNS ESTATE ACREAGE 27.00±
ROYALTY OWNER DANNY S. KERNS, ET AL ACREAGE 27.00±

PROPOSED WORK:
DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___ OTHER ___
PHYSICAL CHANGE IN WELL (SPECIFY) TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD: 7,013' / TMD: 18,713'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN CT CORPORATION
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107 ADDRESS 5098 WASHINGTON ST. W, STE 407 CHARLESTON, WV 25313-1561

COUNTY NAME PERMIT