

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
WV Department of
Environmental Protection

API 47 - 051 - 02386 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-10HM
Operator (as registered with the OOG) Tug Hill Operating, LLC
Address 380 Southpointe Boulevard, Plaza II, Suite 200 City Canonsburg State PA Zip 15317

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,405,759.15 Easting 530,717.63
Landing Point of Curve Northing 4,406,620.8 Easting 530,696.9
Bottom Hole Northing 4,404,434.1 Easting 531,946.7

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 7/6/2021 Date drilling commenced 4/1/2023 spud:10/20/2021 big rig: 11/3/2021 Date drilling ceased 9/28/2022
Date completion activities began 4/1/2023 Date completion activities ceased 4/21/2023
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]
09/22/2023

API 47- 051 - 02386 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-10HM

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"	1,158'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	1,158'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2,959'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	16,980'	NEW	20#	N/A	Y
Tubing		2 3/8"	8,490'	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	921	15.6	1.18	1087	0	8
Coal	A	921	15.6	1.18	1087	0	8
Intermediate 1	A	1005	15.6	1.18	1186	0	8
Intermediate 2							
Intermediate 3							
Production	A	3510	14.5	1.23	4317	0	8
Tubing							

Drillers TD (ft) 17,010' Loggers TD (ft) n/a
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 7,055'

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 - 02386 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-10HM

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 - 02386 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-10HM

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6,967'-7,037'</u> TVD	<u>8,788'-17,010'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3145 psi Bottom Hole _____ psi DURATION OF TEST 4 hrs

OPEN FLOW Gas 3,695.49 mcfpd Oil 96 bpd NGL 0 bpd Water 216 bpd GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</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 Amy L. Morris Title Permitting Specialist Date 7-25-2023

**FITZGERALD S-10HM
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	4/1/2023	16,794	16,843	12	MARCELLUS
2	4/1/2023	16,416	16,569	40	MARCELLUS
3	4/2/2023	16,241	16,394	40	MARCELLUS
4	4/2/2023	16,067	16,220	40	MARCELLUS
5	4/3/2023	15,892	16,045	40	MARCELLUS
6	4/3/2023	15,718	15,871	40	MARCELLUS
7	4/4/2023	15,543	15,696	40	MARCELLUS
8	4/4/2023	15,369	15,522	40	MARCELLUS
9	4/5/2023	15,194	15,347	40	MARCELLUS
10	4/5/2023	15,020	15,173	40	MARCELLUS
11	4/6/2023	14,845	14,998	40	MARCELLUS
12	4/6/2023	14,671	14,824	40	MARCELLUS
13	4/7/2023	14,496	14,649	40	MARCELLUS
14	4/7/2023	14,322	14,475	40	MARCELLUS
15	4/8/2023	14,147	14,300	40	MARCELLUS
16	4/8/2023	13,973	14,126	40	MARCELLUS
17	4/9/2023	13,798	13,951	40	MARCELLUS
18	4/9/2023	13,624	13,777	40	MARCELLUS
19	4/10/2023	13,449	13,602	40	MARCELLUS
20	4/10/2023	13,275	13,428	40	MARCELLUS
21	4/10/2023	13,100	13,253	40	MARCELLUS
22	4/11/2023	12,926	13,079	40	MARCELLUS
23	4/11/2023	12,751	12,904	40	MARCELLUS
24	4/12/2023	12,577	12,730	40	MARCELLUS
25	4/13/2023	12,402	12,555	40	MARCELLUS
26	4/13/2023	12,228	12,381	40	MARCELLUS
27	4/14/2023	12,053	12,206	40	MARCELLUS
28	4/14/2023	11,879	12,032	40	MARCELLUS
29	4/14/2023	11,704	11,857	40	MARCELLUS
30	4/15/2023	11,530	11,683	40	MARCELLUS
31	4/15/2023	11,355	11,508	40	MARCELLUS
32	4/16/2023	11,181	11,334	40	MARCELLUS
33	4/16/2023	11,006	11,159	40	MARCELLUS
34	4/16/2023	10,832	10,985	40	MARCELLUS
35	4/17/2023	10,657	10,810	40	MARCELLUS
36	4/17/2023	10,483	10,636	40	MARCELLUS
37	4/18/2023	10,308	10,461	40	MARCELLUS
38	4/18/2023	10,134	10,287	40	MARCELLUS
39	4/18/2023	9,959	10,112	40	MARCELLUS
40	4/19/2023	9,785	9,938	40	MARCELLUS
41	4/19/2023	9,610	9,763	40	MARCELLUS

09/22/2023

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
42	4/19/2023	9,436	9,589	40	MARCELLUS
43	4/20/2023	9,261	9,414	40	MARCELLUS
44	4/20/2023	9,087	9,240	40	MARCELLUS
45	4/20/2023	8,912	9,065	40	MARCELLUS
46	4/21/2023	8,738	8,891	40	MARCELLUS

09/22/2023

FITZGERALD S-10HM
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	80.00	7799	6298	5101	145620	8,301	0
2	83.00	8163	5458	4847	440540	8,413	0
3	80.00	8068	5959	5233	402180	7,938	0
4	79.00	7700	5668	5129	436020	8,572	0
5	80.00	7606	6079	5138	442120	8,451	0
6	83.00	7626	5427	4990	447320	8,440	0
7	85.00	7794	5316	5361	443080	8,489	0
8	83.00	7645	6162	5113	443180	8,449	0
9	86.00	7538	5838	5424	440740	8,439	0
10	82.00	7470	5889	5071	441940	8,465	0
11	88.00	7732	5556	5554	442320	8,381	0
12	85.00	7902	5798	5100	445600	8,541	0
13	87.00	8391	5721	5248	446220	8,352	0
14	87.00	8141	5499	4823	442220	8,361	0
15	85.00	7787	5655	5525	437160	8,614	0
16	87.00	7637	6639	5481	435040	8,231	0
17	85.00	7417	5866	5382	435810	8,182	0
18	85.00	7648	5473	5293	447660	8,280	0
19	86.00	7539	5803	5600	435010	8,153	0
20	85.00	7538	5703	5303	447300	8,335	0
21	85.00	7766	5365	4800	437790	8,163	0
22	85.00	7429	5926	5109	441880	8,268	0
23	89.00	7387	5654	5077	438080	8,322	0
24	85.00	7373	5669	5623	433840	8,166	0
25	87.00	7591	5611	5368	437640	8,272	0
26	85.00	7290	5705	5539	438960	8,155	0
27	90.00	7403	5327	5184	455300	8,392	0
28	85.00	7062	5505	5413	432720	8,109	0
29	90.00	7165	5549	5277	449480	8,292	0
30	91.00	7432	5469	4997	448720	8,302	0
31	90.00	7636	5533	5322	433560	8,023	0
32	90.00	7454	5639	5391	439560	8,136	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	89.00	7448	5637	5306	435760	8,755	0
34	91.00	7320	5752	5043	440800	8,032	0
35	86.00	7391	5208	4688	439360	8,758	0
36	89.00	7342	5300	5011	439480	7,964	0
37	91.00	7178	5299	5111	433100	7,975	0
38	89.00	7026	5151	5227	439120	8,126	0
39	90.00	7193	5594	5358	436100	8,277	0
40	90.00	7172	5376	5486	434000	8,089	0
41	90.00	6973	5051	5246	434840	8,008	0
42	91.00	7017	5585	5485	439229	8,177	0
43	85.00	6919	5448	4869	431080	7,974	0

FITZGERALD S-10HM

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 QUQUANTITY AND TYPE OF FLUID
Maxton	1854	2068	1854	2070	Sandstone
Big Lime	2068	2205	2070	2211	Limestone
Big Injun	2205	2477	2211	2499	Sandstone
Weir	2477	2697	2499	2742	Sandstone
Berea	2697	2955	2742	3047	Sandstone
Gordon	2955	3110	3047	3236	Sandstone
Fifty Foot	3110	3615	3236	3913	Sandstone
Speechley	3615	5105	3913	6026	Sandstone
Benson	5105	5530	6026	6627	Sandstone
Alexander	5530	6189	6627	7463	Siltstone
Rhinestreet	6189	6718	7463	8054	Black Shale
Middlesex	6718	6790	8054	8156	Black Shale
Geneseo/Burkett	6790	6821	8156	8206	Black Shale
Tully	6821	6845	8206	8249	Limestone
Hamilton	6845	6943	8249	8515	Gray Shale
Marcellus	6943	-	8515	-	Black Shale

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/1/2023
Job End Date:	4/21/2023
State:	West Virginia
County:	Marshall
API Number:	47-051-02386-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Fitzgerald S 10HM
Latitude:	39.80124357
Longitude:	-80.64117757
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,992
Total Base Water Volume (gal):	16,000,740
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	86.50653	None
Sand (40/70 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	8.81249	None
Sand (100 Mesh Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	3.08188	None
Sand (30/50 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	1.20336	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Water	7732-18-5	85.00000	0.21921	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.09542	None
StimStream FR 9800	Chemstream	Friction Reducer	Alkanes, C16-20-iso-	90622-59-6	25.00000	0.02198	None
			Butene, homopolymer	9003-29-6	25.00000	0.02198	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00264	None

MC MX 5-3886	Multi-Chem	Biocide					
			Calcium nitrate	13477-34-4	60.00000	0.02355	None
LD-7750W	Multi-Chem	Scale Inhibitor					
			Methanol	67-56-1	60.00000	0.00535	None
			Phosphonic Acid Salt	Proprietary	5.00000	0.00045	None
ProHib 100	CNR	Acid Inhibitor					
			2-Butoxyethanol	111-76-2	60.00000	0.00047	None
			Proprietary material	Proprietary	30.00000	0.00024	None
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00016	None
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00008	None
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00008	None
ProFE 105	CNR	Iron Control					
			Citric Acid	77-92-9	20.00000	0.00019	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	0.21921	
			Butene, homopolymer	9003-29-6	25.00000	0.02198	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00264	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00045	
			Proprietary material	Proprietary	30.00000	0.00024	
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00016	
			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	

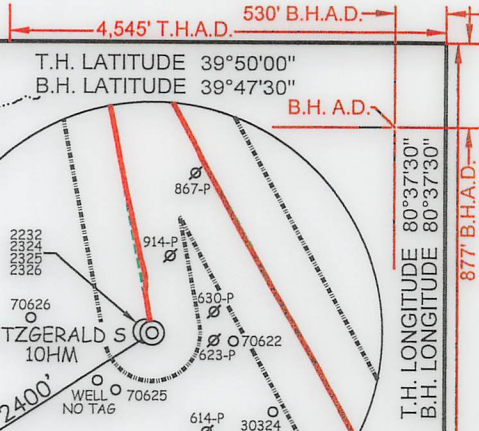
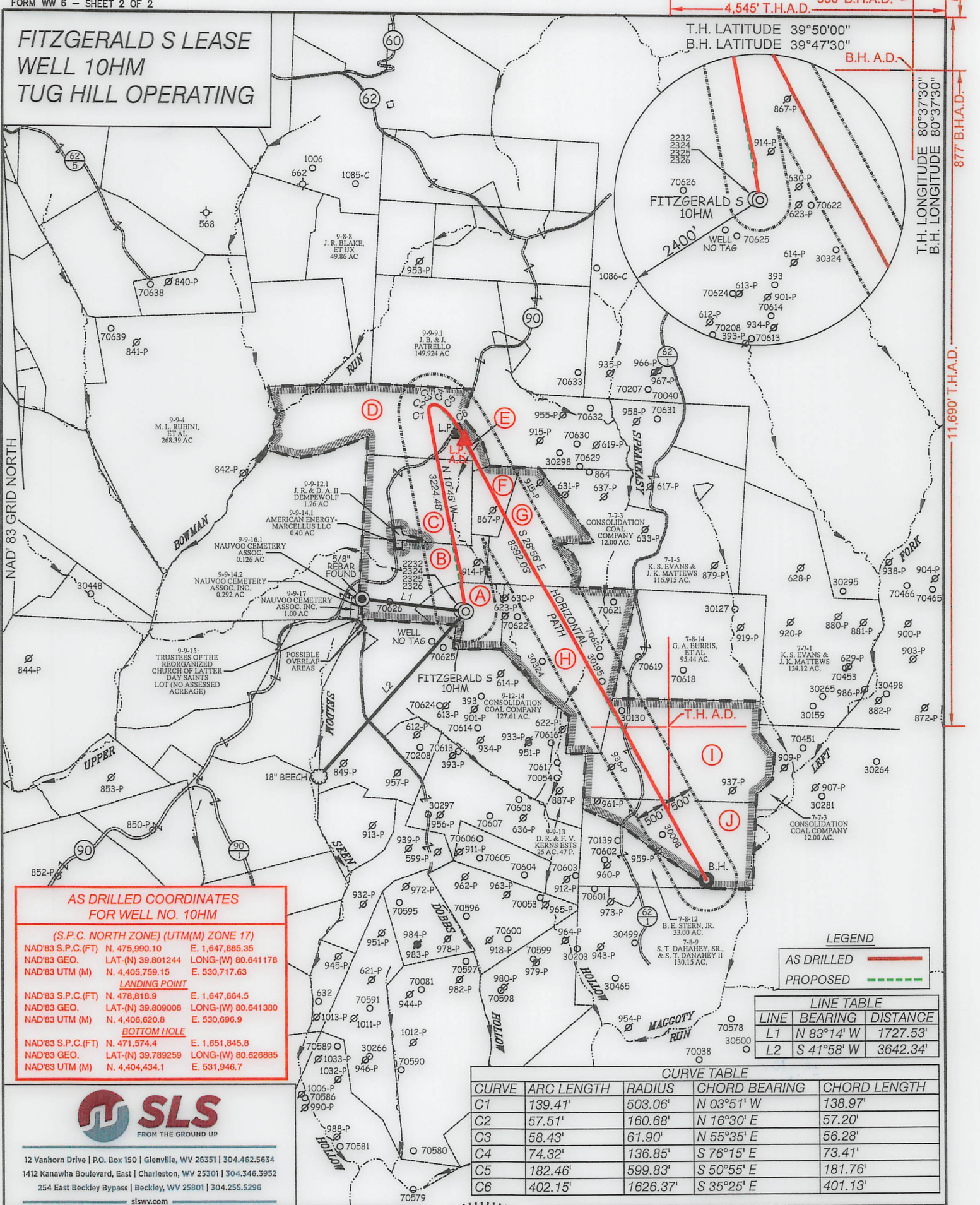
* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** 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 10HM
TUG HILL OPERATING**



AS DRILLED COORDINATES FOR WELL NO. 10HM

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

NAD'83 S.P.C.(FT)	N. 475,990.10	E. 1,647,885.35
NAD'83 GEO.	LAT-(N) 39.801244	LONG-(W) 80.641178
NAD'83 UTM (M)	N. 4,405,759.15	E. 530,717.63

LANDING POINT

NAD'83 S.P.C.(FT)	N. 478,818.9	E. 1,647,864.5
NAD'83 GEO.	LAT-(N) 39.809008	LONG-(W) 80.641380
NAD'83 UTM (M)	N. 4,406,620.8	E. 530,696.9

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 471,574.4	E. 1,651,845.8
NAD'83 GEO.	LAT-(N) 39.789259	LONG-(W) 80.626885
NAD'83 UTM (M)	N. 4,404,434.1	E. 531,946.7

LEGEND

AS DRILLED ———

PROPOSED - - - - -

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 83°14' W	1727.53'
L2	S 41°58' W	3642.34'

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	139.41'	503.06'	N 03°51' W	138.97'
C2	57.51'	160.68'	N 16°30' E	57.20'
C3	58.43'	61.90'	N 55°35' E	56.28'
C4	74.32'	136.85'	S 76°15' E	73.41'
C5	182.46'	599.83'	S 50°55' E	181.76'
C6	402.15'	1626.37'	S 35°25' E	401.13'



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
 slswv.com

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

NAD'83 S.P.C.(FT)	N. 475,990.10	E. 1,647,885.35
NAD'83 GEO.	LAT-(N) 39.801244	LONG-(W) 80.641178
NAD'83 UTM (M)	N. 4,405,759.15	E. 530,717.63

LANDING POINT

NAD'83 S.P.C.(FT)	N. 478,924.4	E. 1,647,782.3
NAD'83 GEO.	LAT-(N) 39.809295	LONG-(W) 80.641677
NAD'83 UTM (M)	N. 4,406,652.6	E. 530,671.3

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 471,579.8	E. 1,651,842.3
NAD'83 GEO.	LAT-(N) 39.789274	LONG-(W) 80.626898
NAD'83 UTM (M)	N. 4,404,435.7	E. 531,945.6



(+) 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	00-00
SURFACE OWNER (SEE TABLE)	(A)
LEASE # (SEE WW-6A1)	

SCALE 1" = 2000' FILE NO. 8910P10HMR-AD.dwg
 FITZGERALD S 10HM REV4
 DATE MARCH 10, 2023
 OPERATORS WELL NO. FITZGERALD S 10HM
 API WELL NO. 47-051-02386
 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

COUNTRY NAME PERMIT

**FITZGERALD S LEASE
WELL 10HM
TUG HILL OPERATING**

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

4,545' T.H.A.D. 530' B.H.A.D.

B.H. A.D.

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

11,690' T.H.A.D.

877' B.H.A.D.

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	GARY W. MORRIS & CYNTHIA PATRELLO	9-9-12	54.69
D	MARVIN D. & ADA C. DOBBS (L/E)	9-9-5	76.25
E	MARTIN DAVIS	9-9-10	6.00
F	GARY W. MORRIS & CYNTHIA PATRELLO	9-9-11	14.00
G	DANNY R. & FRANCES V. KERNS ESTATE	7-1-3	58.00
H	DANNY R. & FRANCES V. KERNS ESTATE	7-8-2	94.00
I	BLAINE E. STERN, JR.	7-8-13	104.92
J	BLAINE E. STERN, JR.	7-8-11	60.62

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

NAD'83 S.P.C.(FT)	N. 475,990.10	E. 1,647,885.35
NAD'83 GEO.	LAT-(N) 39.801244	LONG-(W) 80.641178
NAD'83 UTM (M)	N. 4,405,759.15	E. 530,717.63
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 478,924.4	E. 1,647,782.3
NAD'83 GEO.	LAT-(N) 39.809295	LONG-(W) 80.641677
NAD'83 UTM (M)	N. 4,406,652.6	E. 530,671.3
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 471,579.8	E. 1,651,842.3
NAD'83 GEO.	LAT-(N) 39.789274	LONG-(W) 80.626898
NAD'83 UTM (M)	N. 4,404,435.7	E. 531,945.6

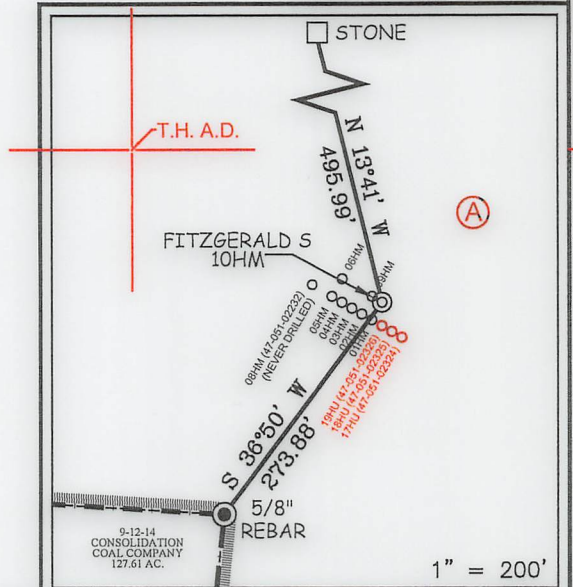
NOTES ON SURVEY

- 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'.
- BASED ON WV DOT COUNTY ROUTE 74 IS A 40' STRIP OF LAND ACQUIRED IN NUMEROUS DEEDS.
- PLAT UPDATED TO SHOW AS-DRILLED PATH.
- AS DRILLED DATA PROVIDED BY TUG HILL OPERATING.



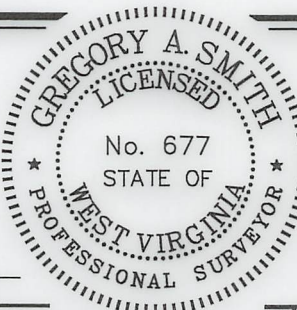
12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5295
slswv.com

REFERENCES



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 10, 20 23
REVISED _____
OPERATORS WELL NO. FITZGERALD S 10HM
API WELL NO. 47 - 051 - 02386
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8910P10HMR-AD.dwg
FITZGERALD S 10HM 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: 7,038' / TMD: 16,984'

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

COUNTY NAME
PERMIT

09/22/2023

LEASE NO. SEE WW-6A1