

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 47-051-02392 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-2HM
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 4,405,755.36 Easting 530,711.31
Landing Point of Curve Northing 4,405,457.1 Easting 529,233.2
Bottom Hole Northing 4,403,021.9 Easting 530,652.6

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 spud:10/22/2021 big rig: 12/20/2021 Date drilling ceased 1/14/2023
Date completion activities began 5/8/2023 Date completion activities ceased 6/26/2023
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]
~~10/27/2023~~

API 47- 051 - 02392 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-2HM

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"	1,160'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	1,160'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	3,000'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	18,869'	NEW	20#	N/A	Y
Tubing		2 3/8"	9,435'	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		15.6	1.18		0	8
Intermediate 2							
Intermediate 3							
Production	A	3900	14.5	1.229	4793	0	8
Tubing							

Drillers TD (ft) 18,905' Loggers TD (ft) n/a
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 8,355'

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 _____

**FITZGERALD S-2HM
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	5/8/2023	18,685	18,732	16	Marcellus
2	5/8/2023	18,485	18,631	48	Marcellus
3	5/9/2023	18,311	18,457	48	Marcellus
4	5/10/2023	18,136	18,282	48	Marcellus
5	5/11/2023	17,962	18,108	48	Marcellus
6	5/11/2023	17,787	17,933	48	Marcellus
7	5/12/2023	17,613	17,759	48	Marcellus
8	5/13/2023	17,438	17,584	48	Marcellus
9	5/14/2023	17,264	17,410	48	Marcellus
10	5/14/2023	17,089	17,235	48	Marcellus
11	5/15/2023	16,915	17,061	48	Marcellus
12	5/16/2023	16,740	16,886	48	Marcellus
13	5/17/2023	16,566	16,712	48	Marcellus
14	5/18/2023	16,391	16,537	48	Marcellus
15	5/19/2023	16,217	16,363	48	Marcellus
16	5/19/2023	16,042	16,188	48	Marcellus
17	5/20/2023	15,868	16,014	48	Marcellus
18	5/21/2023	15,693	15,839	48	Marcellus
19	5/22/2023	15,519	15,665	48	Marcellus
20	5/23/2023	15,344	15,490	48	Marcellus
21	5/24/2023	15,170	15,316	48	Marcellus
22	5/25/2023	15,170	15,316	48	Marcellus
23	5/25/2023	14,821	14,967	48	Marcellus
24	5/26/2023	14,646	14,792	48	Marcellus
25	5/27/2023	14,472	14,618	48	Marcellus
26	5/28/2023	14,297	14,443	48	Marcellus
27	5/29/2023	14,123	14,269	48	Marcellus
28	5/30/2023	13,948	14,094	48	Marcellus
29	5/31/2023	13,774	13,920	48	Marcellus
30	5/31/2023	13,599	13,745	48	Marcellus
31	6/1/2023	13,425	13,571	48	Marcellus
32	6/2/2023	13,250	13,396	48	Marcellus
33	6/3/2023	13,076	13,222	48	Marcellus
34	6/3/2023	12,901	13,047	48	Marcellus
35	6/4/2023	12,727	12,873	48	Marcellus
36	6/5/2023	12,552	12,698	48	Marcellus
37	6/6/2023	12,378	12,524	48	Marcellus
38	6/7/2023	12,203	12,349	48	Marcellus
39	6/8/2023	12,029	12,175	48	Marcellus
40	6/9/2023	11,854	12,000	48	Marcellus
41	6/10/2023	11,680	11,826	48	Marcellus

10/27/2023

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
42	6/11/2023	11,505	11,651	48	Marcellus
43	6/13/2023	11,331	11,477	48	Marcellus
44	6/14/2023	11,156	11,302	48	Marcellus
45	6/16/2023	10,982	11,128	48	Marcellus
46	6/17/2023	10,807	10,953	48	Marcellus
47	6/19/2023	10,633	10,779	48	Marcellus
48	6/20/2023	10,458	10,604	48	Marcellus
49	6/22/2023	10,284	10,430	48	Marcellus
50	6/23/2023	10,109	10,255	48	Marcellus
51	6/25/2023	9,935	10,081	48	Marcellus
52	6/26/2023	9,760	9,906	48	Marcellus
53	6/26/2023	9,586	9,732	48	Marcellus

10/27/2023

FITZGERALD S-2HM
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	70.00	8478	8175	4025	0	7,309	0
2	80.00	7388	5405	4977	297120	8,771	0
3	80.00	7365	5496	5337	287620	8,420	0
4	85.00	7734	5389	5384	294960	8,662	0
5	85.00	7670	5457	5059	297280	8,499	0
6	85.00	7640	5378	5972	297700	8,425	0
7	85.00	7613	5334	5714	295600	8,547	0
8	85.00	7632	5117	5426	299420	8,502	0
9	86.00	7669	5452	5791	293200	8,364	0
10	86.00	7522	5424	5259	301940	8,381	0
11	85.00	7589	5494	5877	297080	8,621	0
12	89.00	7450	5208	4957	292420	8,541	0
13	85.00	7598	5135	4730	298000	8,475	0
14	85.00	7446	5100	4887	298700	8,490	0
15	85.00	7821	5830	4832	299080	8,480	0
16	85.00	7328	5632	5757	295760	8,523	0
17	85.00	7393	5210	5172	297220	8,605	0
18	85.00	7545	5508	5304	296180	8,379	0
19	83.00	7297	5027	5024	298580	8,473	0
20	85.00	7250	4948	5249	297360	8,422	0
21	85.00	7307	5278	4880	295720	8,386	0
22	85.00	7180	5361	4609	297220	8,506	0
23	85.00	7216	5527	4966	297940	8,513	0
24	85.00	7419	5116	4899	293520	9,500	0
25	85.00	6963	5017	5183	299040	8,488	0
26	85.00	7254	4868	4896	295960	8,561	0
27	85.00	7017	4972	5165	297730	8,409	0
28	86.00	7141	5414	5193	296060	8,507	0
29	85.00	6989	5150	5234	295290	8,259	0
30	86.00	6904	4869	5076	291900	9,548	0
31	85.00	7086	5257	5338	297020	8,338	0
32	86.00	7069	5133	5132	292950	8,365	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	7135	5215	5065	293680	8,531	0
34	85.00	7098	5128	4945	301180	8,632	0
35	85.00	7307	5112	4720	294020	8,391	0
36	85.00	6814	5025	5063	297560	8,457	0
37	85.00	7089	4843	4542	293980	8,445	0
38	85.00	6845	5085	4930	293280	8,402	0
39	85.00	7014	4914	5003	296680	8,294	0
40	85.00	7108	5133	4670	298280	8,312	0
41	85.00	6951	4902	4712	300560	8,368	0
42	85.00	7023	5099	5151	300940	9,152	0
43	85.00	6888	5234	5094	298920	8,337	0
44	88.00	7155	5067	4566	296800	8,066	0
45	88.00	6847	5069	5583	299540	8,178	0
46	88.00	7103	4879	4810	299880	8,202	0
47	87.00	6864	4907	5615	293660	7,999	0
48	88.00	7088	5092	4881	295620	8,035	0
49	88.00	7012	4921	4976	294600	8,055	0
50	88.00	6993	4877	4829	296460	8,040	0
51	88.00	7134	5148	4736	299200	10,691	0
52	88.00	6947	5372	4676	298480	10,792	0
53	87.00	6813	5260	4234	302000	11,670	0

FITZGERALD S-2HM

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
Maxton	1848	2062	1849	2066	Sandstone
Big Lime	2062	2199	2066	2209	Limestone
Big Injun	2199	2471	2209	2503	Sandstone
Weir	2471	2691	2503	2757	Sandstone
Berea	2691	2949	2757	3086	Sandstone
Gordon	2949	3104	3086	3304	Sandstone
Fifty Foot	3104	3609	3304	4092	Sandstone
Speechley	3609	5099	4092	6446	Sandstone
Benson	5099	5524	6446	7118	Sandstone
Alexander	5524	6183	7118	8164	Siltstone
Rhinestreet	6183	6708	8164	8969	Black Shale
Middlesex	6708	6783	8969	9096	Black Shale
Geneseo/Burkett	6783	6811	9096	9150	Black Shale
Tully	6811	6836	9150	9202	Limestone
Hamilton	6836	6922	9202	9472	Gray Shale
Marcellus	6922	-	9472	-	Black Shale

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/8/2023
Job End Date:	6/26/2023
State:	West Virginia
County:	Marshall
API Number:	47-051-02392-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Fitzgerald S 2HM
Latitude:	39.80120963
Longitude:	-80.64125156
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,989
Total Base Water Volume (gal):	19,123,356
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	86.87974	None
Sand (40/70 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	8.40077	None
Sand (100 Mesh Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	3.14007	None
Sand (30/50 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	1.19662	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Water	7732-18-5	85.00000	0.20824	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.09064	None
StimStream FR 9800	Chemstream	Friction Reducer	Alkanes, C16-20-iso-	90622-59-6	25.00000	0.02197	None
			Butene, homopolymer	9003-29-6	25.00000	0.02197	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	0.02354	None
LD-7750W	Multi-Chem	Scale Inhibitor					
			Methanol	67-56-1	60.00000	0.00534	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 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	0.00020	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	0.20824	
			Butene, homopolymer	9003-29-6	25.00000	0.02197	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00264	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00045	
			Proprietary material	Proprietary	30.00000	0.00025	
			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)

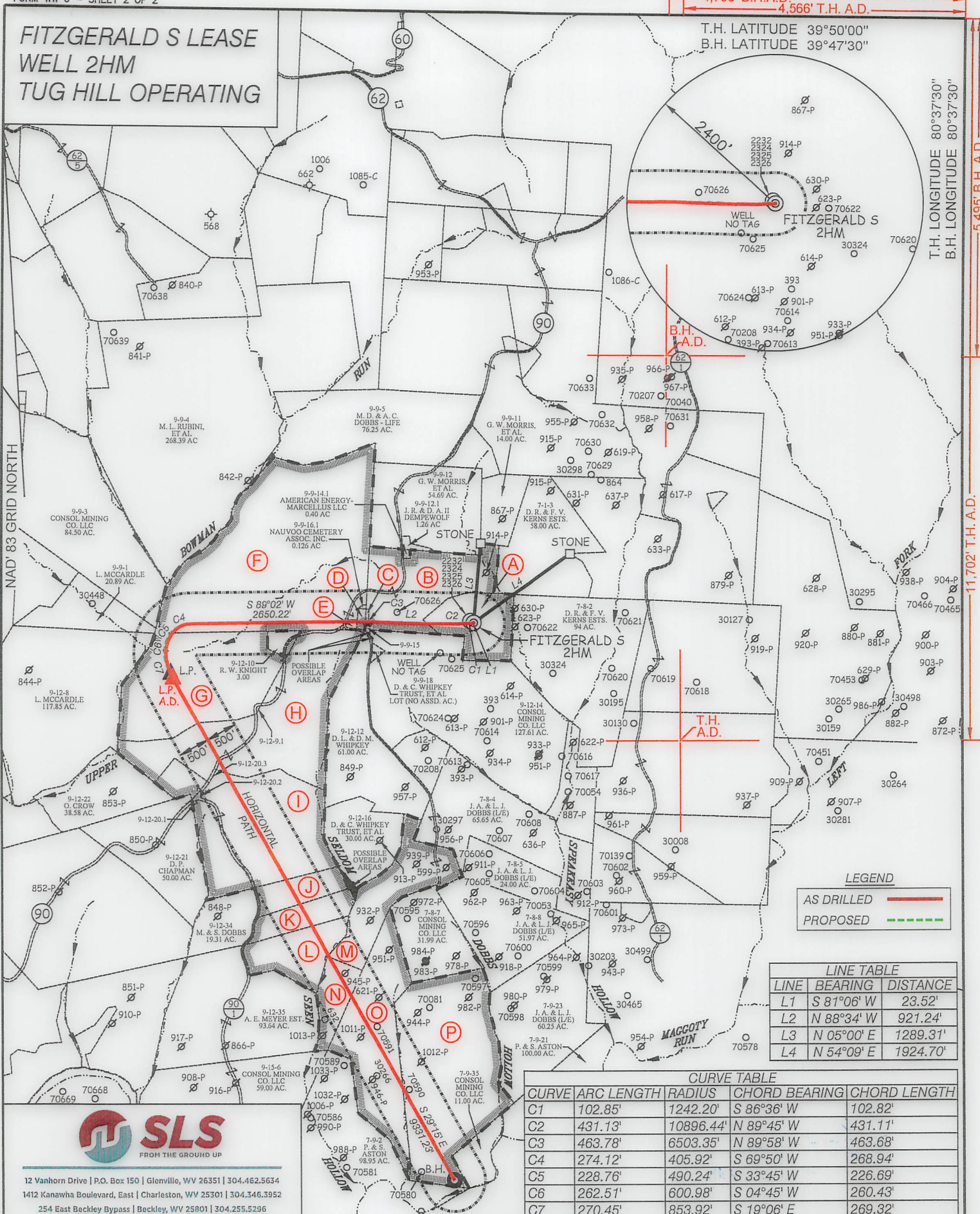
**FITZGERALD S LEASE
WELL 2HM
TUG HILL OPERATING**

4,796' B.H.A.D.
4,566' T.H.A.D.

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

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

5,495' B.H.A.D.
11,702' T.H.A.D.



LEGEND

AS DRILLED ——— (Red line)
PROPOSED ——— (Dashed green line)

LINE TABLE

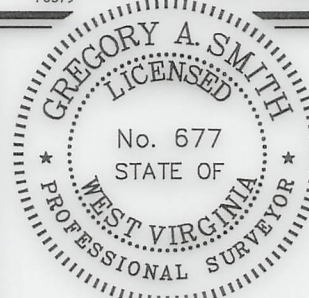
LINE	BEARING	DISTANCE
L1	S 81°06' W	23.52'
L2	N 88°34' W	921.24'
L3	N 05°00' E	1289.31'
L4	N 54°09' E	1924.70'

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	102.85'	1242.20'	S 86°36' W	102.82'
C2	431.13'	10896.44'	N 89°45' W	431.11'
C3	463.78'	6503.35'	N 89°58' W	463.68'
C4	274.12'	405.92'	S 69°50' W	268.94'
C5	228.76'	490.24'	S 33°45' W	226.69'
C6	262.51'	600.98'	S 04°45' W	260.43'
C7	270.45'	853.92'	S 19°06' E	269.32'



12 Vanhorn Drive | P.O. Box 150 | Glenview, 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
slsvw.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. 475,978.00	E. 1,647,864.41
NAD'83 GEO.	LAT-(N) 39.801210	LONG-(W) 80.641252
NAD'83 UTM (M)	N. 4,405,755.36	E. 530,711.31

LANDING POINT

NAD'83 S.P.C.(FT)	N. 475,153.8	E. 1,642,961.1
NAD'83 GEO.	LAT-(N) 39.798775	LONG-(W) 80.658664
NAD'83 UTM (M)	N. 4,405,479.3	E. 529,221.7

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 467,012.4	E. 1,647,520.7
NAD'83 GEO.	LAT-(N) 39.776586	LONG-(W) 80.642069
NAD'83 UTM (M)	N. 4,403,022.2	E. 530,652.3

SCALE 1" = 2000' FILE NO. 8910P2HMR2-AD.dwg
FITZGERALD S 2HM REV5

DATE MARCH 30, 20 23
REVISED _____

OPERATORS WELL NO. FITZGERALD S 2HM
API WELL NO. 47 — 051 — 02392
NO. 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 2HM
TUG HILL OPERATING**

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	NAUVOO CEMETERY ASSOCIATION, INC.	9-9-14.2	0.292
D	NAUVOO CEMETERY ASSOCIATION, INC.	9-9-17	1.00
E	GARY W. MORRIS	9-9-22	0.15
F	TODD L. SCHERICH, ET AL	9-9-16	168.204
G	CHARLES WILLIAM DOBBS, ET AL	9-12-9	82.18
H	MARK D. & SHERYL CHAMBERS	9-12-11	91.00
I	RONALD E. & MARY L. DOBBS - LIFE	9-12-20	90.963
J	RONALD EUGENE & MARY LEE DOBBS	9-12-19.1	14.924
K	RAYMOND D. DOBBS, ET AL	9-12-19	15.076
L	ROY ROGERS WOODS, SR.	9-12-18	30.00
M	DAVID & CAROL WHIPKEY TRUST, ET AL	9-12-17	37.27
N	CONSOL MINING CO., LLC	9-12-36	15.30
O	CONSOL MINING CO., LLC	7-9-1	59.00
P	CONSOL MINING CO., LLC	7-9-22	101.36

PARCEL	SURFACE ADJOINER	ACRES
9-9-15	TRUSTEES OF THE REORGANIZED CHURCH OF LATTER DAY SAINTS	LOT (NO AC.)
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

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
 slsww.com

4,796' B.H.A.D. / 4,566' T.H.A.D.

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. 475,978.00	E. 1,647,864.41
NAD'83 GEO.	LAT-(N) 39.801210	LONG-(W) 80.641252
NAD'83 UTM (M)	N. 4,405,755.36	E. 530,711.31

LANDING POINT

NAD'83 S.P.C.(FT)	N. 475,153.8	E. 1,642,961.1
NAD'83 GEO.	LAT-(N) 39.798775	LONG-(W) 80.658664
NAD'83 UTM (M)	N. 4,405,479.3	E. 529,221.7

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 467,012.4	E. 1,647,520.7
NAD'83 GEO.	LAT-(N) 39.776586	LONG-(W) 80.642069
NAD'83 UTM (M)	N. 4,403,022.2	E. 530,652.3

T.H. LONGITUDE 80°37'30"
 B.H. LONGITUDE 80°37'30"
 5,495' B.H.A.D.
 11,702' T.H.A.D.

AS DRILLED COORDINATES FOR WELL NO. 2HM

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

NAD'83 S.P.C.(FT)	N. 475,978.00	E. 1,647,864.41
NAD'83 GEO.	LAT-(N) 39.801210	LONG-(W) 80.641252
NAD'83 UTM (M)	N. 4,405,755.36	E. 530,711.31

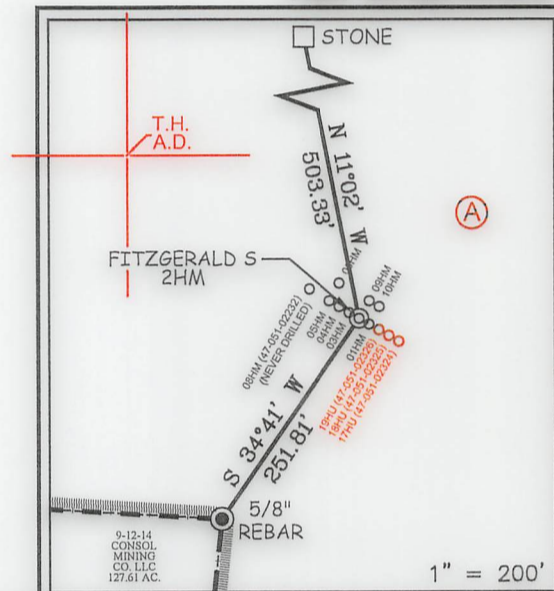
LANDING POINT

NAD'83 S.P.C.(FT)	N. 475,080.5	E. 1,642,997.5
NAD'83 GEO.	LAT-(N) 39.798575	LONG-(W) 80.658531
NAD'83 UTM (M)	N. 4,405,457.1	E. 529,233.2

BOTTOM HOLE

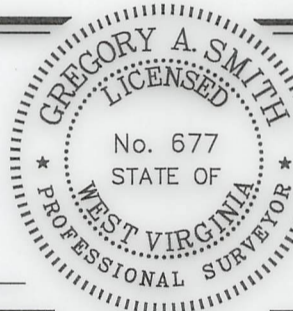
NAD'83 S.P.C.(FT)	N. 467,011.6	E. 1,647,521.8
NAD'83 GEO.	LAT-(N) 39.776584	LONG-(W) 80.642065
NAD'83 UTM (M)	N. 4,403,021.9	E. 530,652.6

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. Gregory A. Smith
 677



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE MARCH 30, 20 23
 REVISED _____
 OPERATORS WELL NO. FITZGERALD S 2HM
 API WELL NO. 47 - 051 - 02392
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500
 FILE NO. 8910P2HMR2-AD.dwg
 FITZGERALD S 2HM REV5
 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 INJECTION _____ WASTE DISPOSAL _____ IF "GAS" PRODUCTION STORAGE _____ DEEP _____ SHALLOW

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 CONVERT _____ DRILL DEEPER _____ REDRILL _____ FRACTURE OR STIMULATE 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: 7,018' / TMD: 18,906'

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