

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 - 02395 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-5HM
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 4,405,760.72 Easting 530,701.74
Landing Point of Curve Northing 4,405,988.5 Easting 529,716.7
Bottom Hole Northing 4,404,017.3 Easting 530,867.4

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 4/22/2023 spud: 10/16/2021 big rig: 11/30/2021 Date drilling ceased 12/15/2022
Date completion activities began 4/22/2023 Date completion activities ceased 5/6/2023
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 - 02395 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-5HM

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"	3,077'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	16,188'	NEW	20#	N/A	Y
Tubing		2 3/8"	8,094'	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	1191	15.6	1.18	1405	0	8
Coal	A	1191	15.6	1.18	1405	0	8
Intermediate 1	A	1005	15.6	1.18	1186	0	8
Intermediate 2							
Intermediate 3							
Production	A	3360	14.5	1.23	4133	0	8
Tubing							

Drillers TD (ft) 16,221' Loggers TD (ft) n/a
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 7,205'

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 - 02395 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-5HM

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 - 02395 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-5HM

PRODUCING FORMATION(S)	DEPTHS	
MARCELLUS	6,947'-6,997' TVD	8,604'-16,221' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2734 psi Bottom Hole _____ psi DURATION OF TEST 4 hrs

OPEN FLOW Gas 2,669.63 mcfpd Oil 72 bpd NGL 0 bpd Water 288 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
*see attached					

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-5HM
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	4/22/2023	16,003	16,051	16	MARCELLUS
2	4/23/2023	15,802	15,949	48	MARCELLUS
3	4/23/2023	15,626	15,774	48	MARCELLUS
4	4/23/2023	15,451	15,598	48	MARCELLUS
5	4/24/2023	15,275	15,423	48	MARCELLUS
6	4/24/2023	15,100	15,247	48	MARCELLUS
7	4/24/2023	14,924	15,071	48	MARCELLUS
8	4/24/2023	14,748	14,896	48	MARCELLUS
9	4/25/2023	14,573	14,720	48	MARCELLUS
10	4/25/2023	14,397	14,545	48	MARCELLUS
11	4/25/2023	14,222	14,369	48	MARCELLUS
12	4/26/2023	14,046	14,193	48	MARCELLUS
13	4/26/2023	13,870	14,018	48	MARCELLUS
14	4/26/2023	13,695	13,842	48	MARCELLUS
15	4/27/2023	13,519	13,667	48	MARCELLUS
16	4/27/2023	13,344	13,491	48	MARCELLUS
17	4/27/2023	13,168	13,315	48	MARCELLUS
18	4/28/2023	12,992	13,140	48	MARCELLUS
19	4/28/2023	12,817	12,964	48	MARCELLUS
20	4/28/2023	12,641	12,789	48	MARCELLUS
21	4/29/2023	12,466	12,613	48	MARCELLUS
22	4/29/2023	12,466	12,613	48	MARCELLUS
23	4/29/2023	12,114	12,262	48	MARCELLUS
24	4/29/2023	11,939	12,086	48	MARCELLUS
25	4/30/2023	11,763	11,911	48	MARCELLUS
26	4/30/2023	11,588	11,735	48	MARCELLUS
27	4/30/2023	11,412	11,559	48	MARCELLUS
28	5/1/2023	11,236	11,384	48	MARCELLUS
29	5/1/2023	11,061	11,208	48	MARCELLUS
30	5/1/2023	10,885	11,033	48	MARCELLUS
31	5/2/2023	10,710	10,857	48	MARCELLUS
32	5/2/2023	10,534	10,681	48	MARCELLUS
33	5/3/2023	10,358	10,506	48	MARCELLUS
34	5/3/2023	10,183	10,330	48	MARCELLUS
35	5/4/2023	10,007	10,155	48	MARCELLUS
36	5/4/2023	9,832	9,979	48	MARCELLUS
37	5/4/2023	9,656	9,803	48	MARCELLUS
38	5/5/2023	9,480	9,628	48	MARCELLUS
39	5/5/2023	9,305	9,452	48	MARCELLUS
40	5/5/2023	9,129	9,277	48	MARCELLUS
41	5/6/2023	8,954	9,101	48	MARCELLUS

10/27/2023

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
42	5/6/2023	8,778	8,925	48	MARCELLUS
43	5/6/2023	8,602	8,750	48	MARCELLUS

10/27/2023

FITZGERALD S-5HM
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	81.00	8078	7977	4525	248340	6,070	0
2	84.00	7630	5677	4663	438370	8,524	0
3	85.00	7404	5294	5015	435480	8,472	0
4	85.00	7260	5624	4684	439200	8,262	0
5	87.00	7463	5202	4990	441900	8,241	0
6	85.00	7322	5219	4960	431800	8,278	0
7	84.00	7217	5436	5084	436440	8,347	0
8	87.00	7159	5294	5157	440280	8,379	0
9	84.00	7005	5461	5394	432920	8,322	0
10	84.00	7336	5202	5043	436140	8,213	0
11	86.00	7299	5169	5361	436500	8,174	0
12	85.00	7269	5192	4575	434960	8,325	0
13	85.00	7388	5455	4273	440120	8,338	0
14	85.00	7214	5516	4737	439520	8,222	0
15	85.00	7156	5394	5159	436620	8,213	0
16	85.00	7215	5517	4952	434320	8,204	0
17	85.00	7096	5325	5006	439100	8,111	0
18	85.00	7109	5113	4985	434100	8,249	0
19	85.00	7022	5334	4801	438260	8,232	0
20	85.00	6916	5149	4696	432500	7,999	0
21	85.00	6847	5148	5094	433900	8,155	0
22	85.00	6754	5097	5353	434960	8,432	0
23	85.00	6995	5591	4924	437740	9,192	0
24	85.00	6953	5344	4722	432680	8,292	0
25	85.00	6803	5011	5052	435000	8,082	0
26	85.00	6997	4958	5022	434770	8,182	0
27	85.00	6768	5154	4900	446500	8,163	0
28	85.00	6845	5123	5393	439640	8,227	0
29	85.00	6852	5408	5326	433050	8,615	0
30	85.00	6669	5039	5063	442840	7,906	0
31	85.00	6696	5420	4924	447700	8,240	0
32	86.00	6720	5446	4842	443280	8,080	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	6616	5348	5209	432380	8,165	0
34	86.00	6758	5853	4886	433920	7,600	0
35	88.00	6789	4955	5324	440540	7,997	0
36	85.00	6572	5264	5064	440120	8,233	0
37	85.00	6514	5042	4887	435800	8,243	0
38	85.00	6683	5270	4640	435430	8,107	0
39	85.00	6381	4958	4978	433680	8,005	0
40	87.00	6655	5066	5085	435510	8,052	0
41	85.00	6532	4893	4835	434480	7,912	0
42	85.00	6361	5008	5024	439140	8,007	0
43	88.00	6494	4907	4555	432900	8,076	0

FITZGERALD S-5HM

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	1860	2074	1870	2096	Sandstone
Big Lime	2074	2211	2096	2247	Limestone
Big Injun	2211	2483	2247	2569	Sandstone
Weir	2483	2703	2569	2848	Sandstone
Berea	2703	2961	2848	3189	Sandstone
Gordon	2961	3116	3189	3395	Sandstone
Fifty Foot	3116	3621	3395	4065	Sandstone
Speechley	3621	5111	4065	6052	Sandstone
Benson	5111	5536	6052	6621	Sandstone
Alexander	5536	6195	6621	7476	Siltstone
Rhinestreet	6195	6704	7476	8083	Black Shale
Middlesex	6704	6773	8083	8184	Black Shale
Geneseo/Burkett	6773	6807	8184	8237	Black Shale
Tully	6807	6831	8237	8279	Limestone
Hamilton	6831	6923	8279	8497	Gray Shale
Marcellus	6923	-	8497	-	Black Shale

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/22/2023
Job End Date:	5/6/2023
State:	West Virginia
County:	Marshall
API Number:	47-051-02395-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Fitzgerald S 5HM
Latitude:	39.80125832
Longitude:	-80.64136307
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,971
Total Base Water Volume (gal):	14,747,796
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	86.50879	None
Sand (40/70 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	8.60894	None
Sand (100 Mesh Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	3.24548	None
Sand (30/50 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	1.22191	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Water	7732-18-5	85.00000	0.23861	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.10386	None
StimStream FR 9800	Chemstream	Friction Reducer	Butene, homopolymer	9003-29-6	25.00000	0.02137	None
			Alkanes, C16-20-iso-	90622-59-6	25.00000	0.02137	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00256	None

MC MX 5-3886	Multi-Chem	Biocide					
			Calcium nitrate	13477-34-4	60.00000	0.02146	None
LD-7750W	Multi-Chem	Scale Inhibitor					
			Methanol	67-56-1	60.00000	0.00661	None
			Phosphonic Acid Salt	Proprietary	5.00000	0.00055	None
ProHib 100	CNR	Acid Inhibitor					
			2-Butoxyethanol	111-76-2	60.00000	0.00052	None
			Proprietary material	Proprietary	30.00000	0.00026	None
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00017	None
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00009	None
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00009	None
ProFE 105	CNR	Iron Control					
			Citric Acid	77-92-9	20.00000	0.00021	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	0.23861	
			Butene, homopolymer	9003-29-6	25.00000	0.02137	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00256	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00055	
			Proprietary material	Proprietary	30.00000	0.00026	
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00017	
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00009	
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00009	
			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.

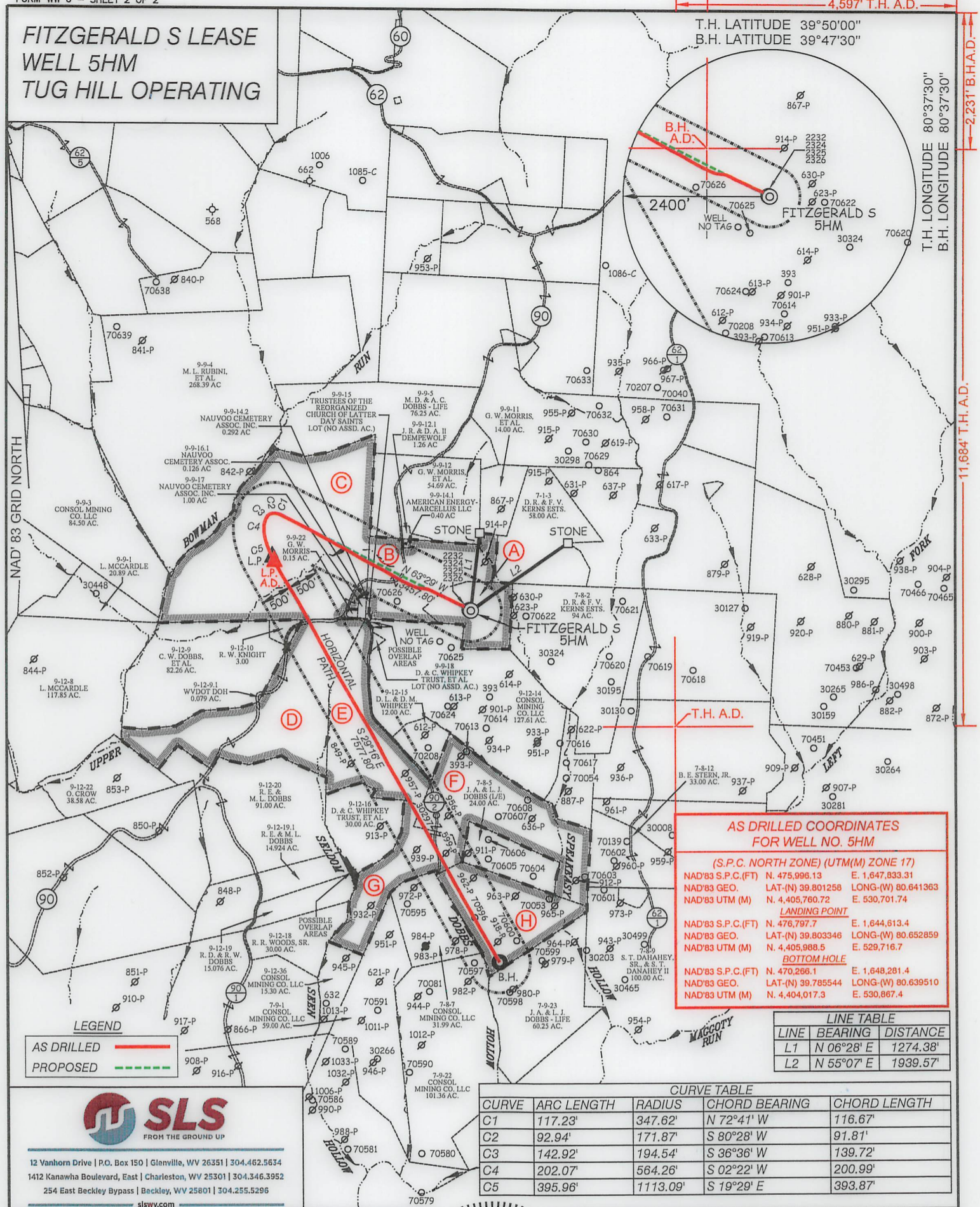
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

**FITZGERALD S LEASE
WELL 5HM
TUG HILL OPERATING**

4,078' B.H.A.D. 4,597' 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"



AS DRILLED COORDINATES FOR WELL NO. 5HM

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

NAD'83 S.P.C.(FT)	N. 475,996.13	E. 1,647,833.31
NAD'83 GEO.	LAT-(N) 39.801258	LONG-(W) 80.641363
NAD'83 UTM (M)	N. 4,405,760.72	E. 530,701.74

LANDING POINT

NAD'83 S.P.C.(FT)	N. 476,797.7	E. 1,644,613.4
NAD'83 GEO.	LAT-(N) 39.803346	LONG-(W) 80.652859
NAD'83 UTM (M)	N. 4,405,988.5	E. 529,716.7

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 470,266.1	E. 1,648,281.4
NAD'83 GEO.	LAT-(N) 39.785544	LONG-(W) 80.639510
NAD'83 UTM (M)	N. 4,404,017.3	E. 530,867.4

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 06°28' E	1274.38'
L2	N 55°07' E	1939.57'

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	117.23'	347.62'	N 72°41' W	116.67'
C2	92.94'	171.87'	S 80°28' W	91.81'
C3	142.92'	194.54'	S 36°36' W	139.72'
C4	202.07'	564.26'	S 02°22' W	200.99'
C5	395.96'	1113.09'	S 19°29' E	393.87'

LEGEND

AS DRILLED ——— (Red line)

PROPOSED - - - - - (Green dashed line)

SLS
FROM THE GROUND UP

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
slsvv.com

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

NAD'83 S.P.C.(FT)	N. 475,996.13	E. 1,647,833.31
NAD'83 GEO.	LAT-(N) 39.801258	LONG-(W) 80.641363
NAD'83 UTM (M)	N. 4,405,760.72	E. 530,701.74

LANDING POINT

NAD'83 S.P.C.(FT)	N. 476,875.0	E. 1,644,577.0
NAD'83 GEO.	LAT-(N) 39.803557	LONG-(W) 80.652992
NAD'83 UTM (M)	N. 4,406,011.9	E. 529,705.2

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 470,264.9	E. 1,648,282.4
NAD'83 GEO.	LAT-(N) 39.785541	LONG-(W) 80.639506
NAD'83 UTM (M)	N. 4,404,017.0	E. 530,867.7



(+) 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. 8910P5HMR2-AD.dwg
FITZGERALD S 5HM REV5

DATE MARCH 10, 2023

REVISED _____

OPERATORS WELL NO. FITZGERALD S 5HM

API WELL NO. 47 — 051 — 02395

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 5HM
TUG HILL OPERATING**

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

B.H. A.D.

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

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	TODD L. SCHERICH, ET AL	9-9-16	168.204
D	MARK D. & SHERYL CHAMBERS	9-12-11	91.00
E	DAVID L. WHIPKEY & DAVID MATTHEW WHIPKEY	9-12-12	61.00
F	JOHN ALFRED & LEORA JEAN DOBBS (L/E)	7-8-4	65.65
G	DAVID & CAROL WHIPKEY TRUST, ET AL	9-12-17	37.27
H	JOHN ALFRED & LEORA JEAN DOBBS (L/E)	7-8-8	51.97

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

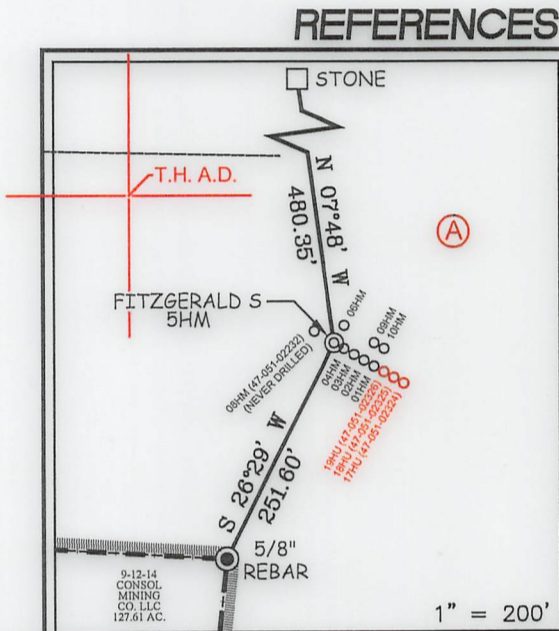
NAD'83 S.P.C.(FT)	N. 475,996.13	E. 1,647,833.31
NAD'83 GEO.	LAT-(N) 39.801258	LONG-(W) 80.641363
NAD'83 UTM (M)	N. 4,405,760.72	E. 530,701.74
<u>LANDING POINT</u>		
NAD'83 S.P.C.(FT)	N. 476,875.0	E. 1,644,577.0
NAD'83 GEO.	LAT-(N) 39.803557	LONG-(W) 80.652992
NAD'83 UTM (M)	N. 4,406,011.9	E. 529,705.2
<u>BOTTOM HOLE</u>		
NAD'83 S.P.C.(FT)	N. 470,264.9	E. 1,648,282.4
NAD'83 GEO.	LAT-(N) 39.785541	LONG-(W) 80.639506
NAD'83 UTM (M)	N. 4,404,017.0	E. 530,867.7

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.

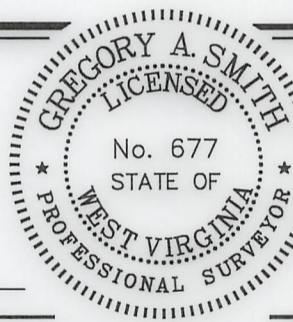


12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slsw.com



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 10, 2023
REVISED _____
OPERATORS WELL NO. FITZGERALD S 5HM
API WELL NO. 47 - 051 - 02395
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8910P5HMR2-AD.dwg
FITZGERALD S 5HM 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 LIQUID 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: 7,025' / TMD: 16,206'

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

10/27/2023

COUNTY NAME
PERMIT