

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



API 47- 051 - 02326 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-19HU
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 4,405,751.78 Easting 530,717.69
Landing Point of Curve Northing 4,405,744.1 Easting 529,874.2
Bottom Hole Northing 4,403,704.7 Easting 531,069.6

Elevation (ft) 1293' 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 6/22/2020 Date drilling commenced spud:9/3/2020 big rig: 2/16/2021 Date drilling ceased 4/16/2021
Date completion activities began 2/25/2022 Date completion activities ceased 4/4/2022
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 1055' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1494' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 951-957', 1049-1055' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED
Reviewed by:
SG 10-11-22
STR 10/14/2022

API 47- 051 - 02326 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-19HU

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	26"	20"	1,159'	NEW	106.5#	N/A	Y
Coal							
Intermediate 1	17 1/2"	13 3/8"	2,901'	NEW	54.5#	N/A	Y
Intermediate 2	12 1/4"	9 5/8"	11,023'	NEW	47#	N/A	Y
Intermediate 3							
Production	8 1/2"	5 1/2"	20,923'	NEW	23#	N/A	Y
Tubing		2 7/8"	10,462'	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	1170	15.6	1.18	1380	0	8
Surface	A	2040	15.6	1.184	2415	0	8
Coal							
Intermediate 1	A	2600	15.6	1.18	3068	0	8
Intermediate 2	A	4510	14.5	1.35	6088	0	8
Intermediate 3							
Production	A	5075	16.5	1.031	5232	0	8
Tubing							

Drillers TD (ft) 20,965' Loggers TD (ft) n/a
 Deepest formation penetrated Trenton Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 11,068'

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 - 02326 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-19HU

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>POINT PLEASANT</u>	<u>11880'-12016'</u> TVD	<u>13019'-20965'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 7881 psi Bottom Hole _____ psi DURATION OF TEST 4 hrs

OPEN FLOW Gas 788 mcfpd Oil 0 bpd NGL 0 bpd Water 696 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>*attached</u>					

Please insert additional pages as applicable.

Drilling Contractor Nabors Drilling USA
Address 05 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 304-376-0111
Signature *Amy L. Morris* Title Permitting Specialist - Appalachia Date 9-30-2022

Submission of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

FITZGERALD S-19HU
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	84.00	11847	10913	7380	244540	6,627	0
2	85.00	11959	11694	7466	497600	7,961	0
3	86.00	12277	10454	7578	507920	8,017	0
4	88.00	12201	11977	8039	500400	9,250	0
5	87.00	12332	12038	7634	497940	7,955	0
6	88.00	12365	11641	8228	497460	8,098	0
7	86.00	12029	10820	8232	499740	7,901	0
8	87.00	12041	10495	8373	501320	7,984	0
9	88.00	11683	10176	8418	507500	7,980	0
10	88.00	11954	9574	8585	490500	7,837	0
11	87.00	12028	9378	8452	500480	7,849	0
12	87.00	11882	9161	8285	510040	7,986	0
13	88.00	11549	9640	7206	501200	7,996	0
14	88.00	11836	9278	8273	494700	7,874	0
15	87.00	11730	9169	8310	503020	8,081	0
16	88.00	11711	9287	7888	493720	7,854	0
17	76.00	9636	10091	7975	497380	11,821	0
18	88.00	11542	8399	8010	496900	8,316	0
19	90.00	11586	9213	7865	508350	7,841	0
20	87.00	11511	9093	7980	507660	7,770	0
21	89.00	11455	9677	8043	503900	7,787	0
22	88.00	11436	9034	7489	505680	7,852	0
23	88.00	11513	9520	7859	507690	7,756	0
24	88.00	11299	8948	7980	507940	7,819	0
25	88.00	11377	9088	7889	500520	7,727	0
26	88.00	11382	9686	7726	508080	7,831	0
27	89.00	11438	9380	7451	498240	7,654	0
28	88.00	11290	9009	7421	504120	7,745	0
29	89.00	11192	8886	7478	507440	7,731	0
30	88.00	10945	8318	7319	503800	8,770	0
31	88.00	11052	8521	7375	495780	7,634	0
32	87.00	10970	8561	8282	438600	8,230	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	10914	8680	7663	502180	7,699	0
34	88.00	10886	8716	7908	494800	7,538	0
35	88.00	10631	8487	8044	495260	7,591	0
36	89.00	10915	8749	7633	489940	7,482	0
37	89.00	10606	8858	7371	503080	7,661	0
38	89.00	10719	8889	7721	498440	7,629	0
39	88.00	10622	9359	7591	502226	7,702	0

**FITZGERALD S-19HU
PERFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	2/25/2022	20,726	20,777	48	Utica
2	2/26/2022	20,497	20,674	48	Utica
3	2/27/2022	20,295	20,472	48	Utica
4	2/28/2022	20,093	20,270	48	Utica
5	3/1/2022	19,891	20,068	48	Utica
6	3/2/2022	19,689	19,866	48	Utica
7	3/3/2022	19,487	19,664	48	Utica
8	3/4/2022	19,285	19,462	48	Utica
9	3/5/2022	19,083	19,260	48	Utica
10	3/6/2022	18,881	19,058	48	Utica
11	3/7/2022	18,679	18,856	48	Utica
12	3/8/2022	18,477	18,654	48	Utica
13	3/9/2022	18,275	18,452	48	Utica
14	3/10/2022	18,073	18,250	48	Utica
15	3/11/2022	17,871	18,048	48	Utica
16	3/12/2022	17,669	17,846	48	Utica
17	3/13/2022	17,467	17,644	48	Utica
18	3/15/2022	17,265	17,442	48	Utica
19	3/16/2022	17,063	17,240	48	Utica
20	3/17/2022	16,861	17,038	48	Utica
21	3/18/2022	16,659	16,836	48	Utica
22	3/19/2022	16,457	16,634	48	Utica
23	3/20/2022	16,255	16,432	48	Utica
24	3/21/2022	16,053	16,230	48	Utica
25	3/22/2022	15,851	16,028	48	Utica
26	3/23/2022	15,649	15,826	48	Utica
27	3/24/2022	15,447	15,624	48	Utica
28	3/25/2022	15,245	15,422	48	Utica
29	3/26/2022	15,043	15,220	48	Utica
30	3/27/2022	14,841	15,018	48	Utica
31	3/28/2022	14,639	14,816	48	Utica
32	3/28/2022	14,437	14,614	48	Utica
33	3/29/2022	14,235	14,412	48	Utica
34	3/31/2022	14,033	14,210	48	Utica
35	4/1/2022	13,831	14,008	48	Utica
36	4/2/2022	13,629	13,806	48	Utica
37	4/3/2022	13,427	13,604	48	Utica
38	4/4/2022	13,225	13,402	48	Utica
39	4/4/2022	13,023	13,200	48	Utica

Fitzgerald S-19HU

Lithology Information

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	1919	2131	1920	2133	Sandstone
Big Lime	2131	2269	2133	2272	Limestone
Big Injun	2269	2548	2272	2552	Sandstone
Weir	2548	2764	2552	2768	Sandstone
Berea	2764	3018	2768	3023	Sandstone
Gordon	3018	3174	3023	3179	Sandstone
Fifty Foot	3174	3686	3179	3699	Sandstone
Speechley	3686	5147	3699	5214	Sandstone
Benson	5147	5568	5214	5650	Sandstone
Alexander	5568	6222	5650	6328	Siltstone
Rhinstreet	6222	6705	6328	6828	Black Shale
Middlesex	6705	6780	6828	6906	Black Shale
Geneseo/Burkett	6780	6809	6906	6936	Black Shale
Tully	6809	6835	6936	6963	Limestone
Hamilton	6835	6924	6963	7056	Gray Shale
Marcellus	6924	6974	7056	7108	Black Shale
Onondaga	6974	7199	7108	7343	Limestone
Oriskany	7199	7336	7343	7487	Sandstone
Helderberg	7336	7715	7487	7890	Limestone
Salina	7715	8710	7890	8955	Salt/Anhydrite/LS
Lockport	8710	9084	8955	9346	Dolomite
Rose Hill	9084	9386	9346	9671	Shale
Packer Shell	9386	9602	9671	9902	Limestone
Clinton/Tuscarora	9602	9700	9902	10006	Sandstone
Juniata/Queenston	9700	10544	10006	10897	Red Shale
Reedsville	10544	11594	10897	12152	Gray Shale
Utica	11594	11841	12152	12740	Black Shale
Point Pleasant	11841	-	12740	-	Shale/Limestone

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/25/2022
Job End Date:	4/4/2022
State:	West Virginia
County:	Marshall
API Number:	47-051-02326-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Fitzgerald S-19HU
Latitude:	39.80117700
Longitude:	-80.64117700
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	11,944
Total Base Water Volume (gal):	13,055,112
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	84.65070	None
Sand (40/70 White Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	11.71186	None
Sand (100 Mesh Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	3.22690	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Water	7732-18-5	85.00000	0.24665	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.10736	None
StimStream FR 9800	Chemstream	Friction Reducer	Butene, homopolymer	9003-29-6	25.00000	0.01847	None
			Alkanes, C16-20-iso-	90622-59-6	25.00000	0.01847	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00222	None
MC MX 9-4743	Multi-Chem	Biocide	Sodium Nitrate	7631-99-4	60.00000	0.02148	None
LD-7750W	Multi-Chem	Scale Inhibitor					

			Methanol	67-56-1	60.00000	0.00518	None
			Phosphonic Acid Salt	Proprietary	5.00000	0.00043	None
ProHib 100	CNR	Acid Inhibitor					
			2-Butoxyethanol	111-76-2	60.00000	0.00056	None
			Proprietary material	Proprietary	30.00000	0.00028	None
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00019	None
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00009	None
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00009	None
ProFE 105	CNR	Iron Control					
			Citric Acid	77-92-9	20.00000	0.00022	None
			Acetic Acid	64-19-7	5.00000	0.00006	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	0.24665	
			Butene, homopolymer	9003-29-6	25.00000	0.01847	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00222	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00043	
			Proprietary material	Proprietary	30.00000	0.00028	
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00019	
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00009	
			Proprietary corrosion inhibitor	Proprietary	10.00000	0.00009	
			Acetic Acid	64-19-7	5.00000	0.00006	

* 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
UTICA UNIT - 377.27 AC±
WELL 19HU
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. 475,965.85	E. 1,647,885.21
NAD'83 GEO.	LAT-(N) 39.801177	LONG-(W) 80.641177
NAD'83 UTM (M)	N. 4,405,751.76	E. 530,717.71
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 477,118.2	E. 1,644,481.7
NAD'83 GEO.	LAT-(N) 39.804221	LONG-(W) 80.659343
NAD'83 UTM (M)	N. 4,406,085.5	E. 529,674.9
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 469,221.9	E. 1,648,922.1
NAD'83 GEO.	LAT-(N) 39.782700	LONG-(W) 80.637183
NAD'83 UTM (M)	N. 4,403,702.4	E. 531,067.9

TAG	SURFACE OWNER	PARCEL	ACRES
A	DANNY R. & FRANCES V. KERNS ESTATE	7-8-1	27.00
B	CONSOL MINING CO., LLC	9-12-14	127.61
C	DANNY R. & FRANCES V. KERNS ESTATE	9-9-14	48.308
D	GARY W. MORRIS	9-9-12	54.74
E	NAUVOO CEMETERY ASSOC. INC.	9-9-16.1	0.126
F	TODD L. SCHERICH, ET AL	9-9-16	168.204
G	MARY LOU RUBINI, DAVID & ERIC KATZMEYER	9-9-4	268.39
H	GARY W. MORRIS	9-9-22	0.15
I	ROBERT W. KNIGHT	9-12-10	3.00
J	CHARLES WILLIAM DOBBS, ET AL	9-12-9	82.26
K	WARREN BERYLE & ELEANOR LOU CHAMBERS - LIFE	9-12-11	91.00
L	WHIPKEY TRUST	9-12-12	61.00
M	VIRGINIA MCILVAIN ESTATE & THE WHIPKEY TRUST	9-9-18	LOT
N	WHIPKEY TRUST	9-12-15	12.00
O	VIRGINIA MCILVAIN ESTATE & THE WHIPKEY TRUST	9-12-16	30.00
P	VIRGINIA MCILVAIN ESTATE & THE WHIPKEY TRUST	9-12-17	37.27
Q	JOHN ALFRED & LEORA JEAN DOBBS - LIFE	7-8-4	65.65
R	JOHN ALFRED & LEORA JEAN DOBBS - LIFE	7-8-5	24.00
S	CONSOL MINING CO., LLC	7-8-7	31.99
T	JOHN ALFRED & LEORA JEAN DOBBS - LIFE	7-8-8	51.97
U	CONSOL MINING CO., LLC	7-9-22	101.36
V	JOHN ALFRED & LEORA JEAN DOBBS - LIFE	7-9-23	60.25

MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
9-9-12.1	JESSICA R. & DAVID A. II DEMPEWOLF	1.26
9-9-14.1	AMERICAN ENERGY-MARCELLUS, LLC	0.40
9-9-14.2	NAUVOO CEMETERY ASSOCIATION, INC.	0.292
9-9-15	TRUSTEES OF THE REORGANIZED CHURCH OF LATTER DAY SAINTS	LOT
9-9-17	NAUVOO CEMETERY ASSOCIATION, INC.	1.00

**AS DRILLED COORDINATES
FOR WELL NO. 19HU**

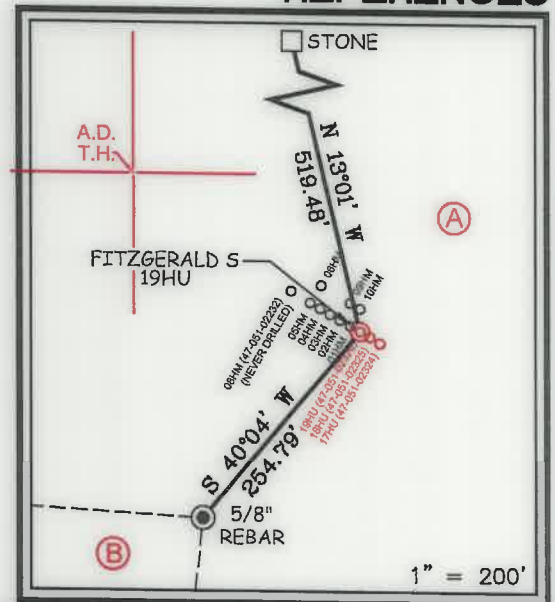
(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT)	N. 475,965.91	E. 1,647,885.14
NAD'83 GEO.	LAT-(N) 39.801177	LONG-(W) 80.641177
NAD'83 UTM (M)	N. 4,405,751.76	E. 530,717.69
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 475,966.9	E. 1,645,116.9
NAD'83 GEO.	LAT-(N) 39.801138	LONG-(W) 80.651030
NAD'83 UTM (M)	N. 4,405,744.1	E. 529,874.2
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 469,229.2	E. 1,648,927.7
NAD'83 GEO.	LAT-(N) 39.782720	LONG-(W) 80.637183
NAD'83 UTM (M)	N. 4,403,704.7	E. 531,069.6

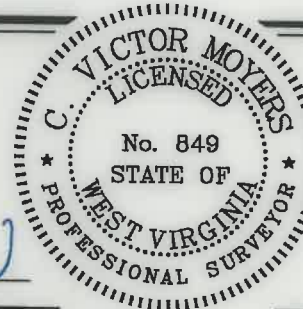
NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPO MARK SCALE ARE 1"=2000'
- PROPOSED LATERAL OR TOP HOLE OF FITZGERALD S-19HU (47-051-02326) IS WITHIN 3000' OF THE TOP HOLES OR LATERALS OF FITZGERALD S-17HU (47-051-02324), FITZGERALD S-18HU (47-051-02325), HUDSON S-11HU (47-051-02296), HUDSON S-12HU (47-051-02292), HUDSON S-13HU (47-051-02293), HUDSON S-14HU (47-051-02327), HUDSON S-15HU (47-051-02328), HUDSON S-16HU (47-051-02329).
- AS-DRILLED DATA PROVIDED BY TUG HILL OPERATING, LLC.
- PLAT UPDATED TO SHOW AS-DRILLED PATH.

REFERENCES



12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26031 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.546.3952
254 East Beckley Bypass | Beckley, WV 25901 | 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. 849 *C. Victor Moyers*

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE MAY 14, 20 21
REVISED _____, 20 ____
OPERATORS WELL NO. FITZGERALD S-19HU
API WELL NO. 47 - 051 - 02326
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8910P19HUAD.dwg
FITZGERALD S-19HU REV9
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 X 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: LEASE NO. SEE WW 16/14/2022
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 POINT PLEASANT ESTIMATED DEPTH TVD: 12,076' / TMD: 22,323'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS CT CORPORATION SYSTEM
FORT WORTH, TX 76107 ADDRESS 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

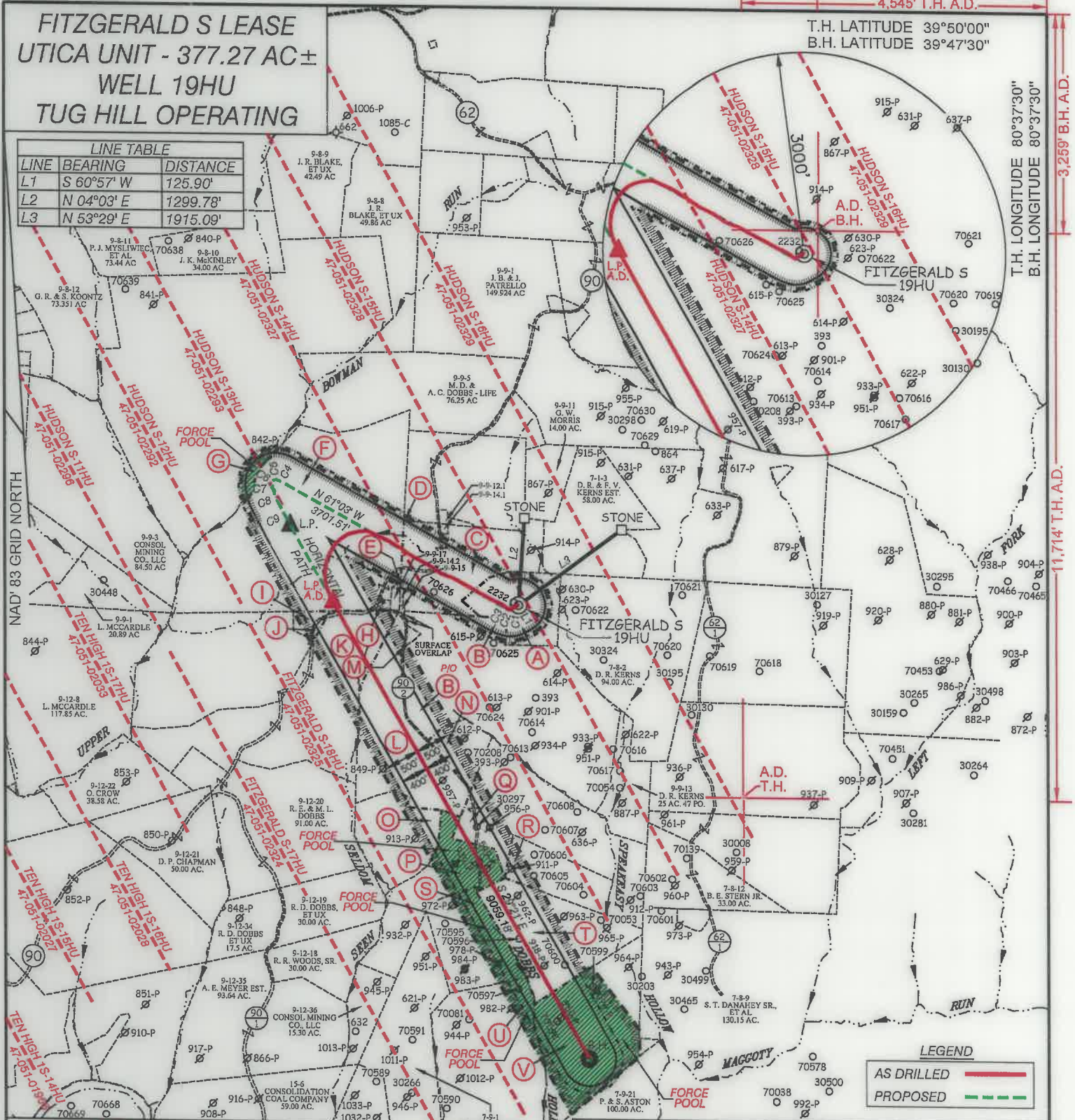
T.H. LONGITUDE 80°37'30"
B.H. LONGITUDE 80°37'30"
3,269' B.H. A.D.
11,714' T.H. A.D.

**FITZGERALD S LEASE
UTICA UNIT - 377.27 AC±
WELL 19HU
TUG HILL OPERATING**

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

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 60°57' W	125.90'
L2	N 04°03' E	1299.78'
L3	N 53°29' E	1915.09'



T.H. LONGITUDE 80°37'30"
B.H. LONGITUDE 80°37'30"
3,259' B.H.A.D.
11,714' T.H.A.D.

LEGEND

AS DRILLED	
PROPOSED	

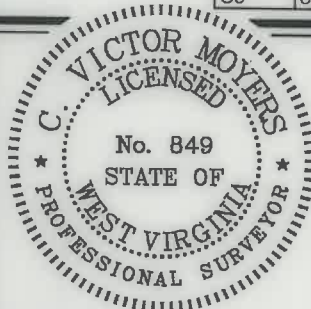
CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	20.32'	41.27'	S 87°39' W	20.12'
C2	38.87'	250.60'	N 73°20' W	38.83'
C3	136.17'	1287.06'	N 64°47' W	136.11'
C4	84.83'	258.98'	N 67°28' W	84.46'
C5	40.60'	66.37'	S 82°38' W	39.97'
C6	53.81'	60.38'	S 27°39' W	52.05'
C7	88.47'	278.59'	S 06°40' E	88.10'
C8	208.62'	1139.99'	S 21°38' E	208.33'
C9	390.81'	5958.89'	S 27°34' E	390.74'

SLS
FROM THE GROUND UP

12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5624
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.253.5296
slsvw.com

P.S. 849 *C. Victor Moyers*



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

NAD'83 S.P.C.(FT)	N. 475,965.85	E. 1,647,885.21
NAD'83 GEO.	LAT-(N) 39.801177	LONG-(W) 80.641177
NAD'83 UTM (M)	N. 4,405,751.76	E. 530,717.71

LANDING POINT

NAD'83 S.P.C.(FT)	N. 477,118.2	E. 1,644,481.7
NAD'83 GEO.	LAT-(N) 39.804221	LONG-(W) 80.653343
NAD'83 UTM (M)	N. 4,406,085.5	E. 529,674.9

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 469,221.9	E. 1,648,922.1
NAD'83 GEO.	LAT-(N) 39.782700	LONG-(W) 80.637183
NAD'83 UTM (M)	N. 4,403,702.4	E. 531,067.9

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

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

LEGEND

UNIT BOUNDARY	
LEASED TRACTS INSIDE	
UNIT BOUNDARY	
SURFACE LINE	
PROPOSED UTICA	
WELL LATERAL	
400' OFFSET LINE	
500' OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
FORCE POOL TRACT	
COUNTY ROUTE	
PROPOSED WELL	
EXISTING WELL	
PERMITTED WELL	
SURFACE OWNER (SEE TABLE)	
LEASE # (SEE ADDITIONAL SHEETS)	

SCALE 1" = 2000' FILE NO. 8910P19HUAD.dwg
FITZGERALD S-19HU REV9

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API WELL 47 - 051 - 02326
NO. STATE COUNTY PERMIT

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

COUNTY NAME PERMIT

10/14/2022

**FITZGERALD S LEASE
UTICA UNIT - 377.27AC±
WELL 19HU
TUG HILL OPERATING**



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254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slsvv.com

NO.	Lease ID	Tags	Parcel	Grantor, Lessor, Etc.	Deed Book/Page
1	10*25518	A	7-8-1	DANNY S KERNS, MARRIED MAN DEALING WITH HIS SOLE AND SEPARATE PROPERTY	1010 532
2	10*18339	B	9-12-14	RESOURCE MINERALS HEADWATER LP	940 448
3	PENDING	C	9-9-14	REGINA DANETTE FIGUEROA	1075 137
4	10*21859	D	9-9-12	GARY WAYNE MORRIS	980 192
5	10*19987	E	9-9-16.1	LESLEY D BALLA	955 103
6	10*19987	F	9-9-16	LESLEY D BALLA	955 103
7	**	G	9-9-4	MARY LOU RUBINI AKA MARY LOU MILLER	793 287
8	10*24535	H	9-9-22	BOARD OF EDUCATION OF MARSHALL COUNTY	1026 64
9	10*23656	I	9-12-10	ROBERT W KNIGHT AND BARBARA J KNIGHT	1011 504
10	10*15999	J	9-12-9	CHARLES W DOBBS AND JUDITH M DOBBS	702 171
11	10*15494	K	9-12-11	CHRISTOPHER SINGER AND SHEREA SINGER	898 433
12	10*19557	L	9-12-12	TERRY L BLAKE	944 649
13	10*22524	M	9-9-18	ALYCE LYNN MCGUFFIE	1027 233
14	10*21512	N	9-12-15	THE WHIPKEY TRUST ACTING TRUSTEES DAVID L AND CAROL J WHIPKEY	949 266
15	10*21512	O	9-12-16	THE WHIPKEY TRUST	949 266
16	10*21532	P	9-12-17	CHARLES E RICHARDSON AND SHIRLEY S RICHARDSON	957 327
17	10*18988	Q	7-8-4	MICHAEL R DOBBS AND LEANNE DOBBS	957 307
18	10*21112	R	7-8-5	CLARENCE C STOVER JR AND LOU E STOVER	952 382
19	10*21532	S	7-8-7	CHARLES E RICHARDSON AND SHIRLEY S RICHARDSON	1017 620
20	10*21112	T	7-8-8	CLARENCE C STOVER JR AND LOU E STOVER	952 382
21	10*17930	U	7-9-22	BOUNTY MINERALS LLC	928 396
22	**	V	7-9-23	O E BURGE AND SARAH L BURGE ET AL	395 586

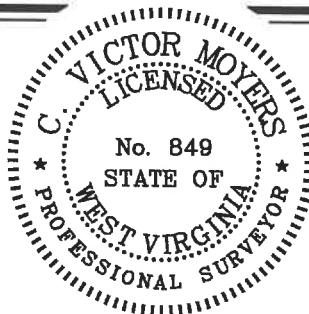
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