

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
OCT 03 2022
WV Department of
Environmental Protection

API 47 - 051 - 02324 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-17HU
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 4,405,748.20 Easting 530,724.07
Landing Point of Curve Northing 4,405,526.7 Easting 529,108.6
Bottom Hole Northing 4,403,167.7 Easting 530,502.6

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:8/30/2020 big rig: 10/8/2020 Date drilling ceased 12/14/2020
Date completion activities began 2/22/2022 Date completion activities ceased 3/27/2022
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-10-11-33
10/21/2022
Steve Carver

API 47- 051 - 02324 Farm name Danny and Frances Kerns Estate Well number Fitzgerald S-17HU

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"	1,160'	NEW	106.5#	N/A	Y
Coal							
Intermediate 1	17 1/2"	13 3/8"	2,912'	NEW	54.5#	N/A	Y
Intermediate 2	12 1/4"	9 5/8"	11,576'	NEW	47#	N/A	Y
Intermediate 3							
Production	8 1/2"	5 1/2"	23,097'	NEW	23#	N/A	Y
Tubing		2 7/8"	11,549'	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	1275	15.6	1.18	1504.5	0	8
Surface	A	2127	15.6	1.18	2509.86	0	8
Coal							
Intermediate 1	A	2393	15.6	1.18	2823.74	0	8
Intermediate 2	A	4370	14.5	1.363	5956.31	0	8
Intermediate 3							
Production	A	5585	16.5	1.03	5752.55	0	8
Tubing							

Drillers TD (ft) 23,150' Loggers TD (ft) n/a
 Deepest formation penetrated Trenton Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 11,626'

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-17HU
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	83.83	12446	13016	7041	246420	6,771	0
2	86.45	12462	10471	7367	506540	9,250	0
3	85.35	12242	10838	7817	501120	9,306	0
4	85.84	12250	10055	7851	500640	9,156	0
5	87.53	12118	10076	7877	501760	9,202	0
6	86.85	12145	10052	7333	503280	11,323	0
7	86.98	12115	9803	7808	503080	9,156	0
8	86.36	11880	9830	8228	499920	9,368	0
9	85.57	11730	9847	7815	495330	9,171	0
10	87.75	11936	9804	7796	497990	9,073	0
11	89.91	11881	9850	7672	495160	9,093	0
12	85.79	11568	10127	8299	507500	9,249	0
13	89.23	11698	9426	8217	507760	9,136	0
14	87.18	11440	9366	8017	418310	8,343	0
15	86.28	11701	9292	7457	495940	8,991	0
16	87.22	12018	10119	7123	497760	8,999	0
17	89.25	11977	9378	7309	500180	8,994	0
18	88.03	11567	9497	7501	501260	9,018	0
19	86.10	10680	10076	7681	496980	9,668	0
20	88.39	11856	9993	8446	500140	9,012	0
21	88.83	11952	11589	8166	497840	9,098	0
22	87.78	11811	10315	7428	502280	9,109	0
23	88.05	11631	10062	8183	495700	9,005	0
24	88.38	11658	10468	7634	494720	9,058	0
25	89.76	11624	10083	8512	492780	9,056	0
26	88.74	11534	9877	8166	491100	8,877	0
27	88.00	11449	9336	8364	507420	8,966	0
28	88.12	11240	10180	7379	506760	9,094	0
29	88.29	11137	9559	8438	504460	10,408	0
30	89.40	11174	9038	8194	502700	9,014	0
31	88.89	11096	10193	7948	490540	9,334	0
32	89.83	11070	8790	7613	501240	8,934	0

Stage No.	Ave. Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbbls)	Amount of Nitrogen/other (units)
33	90.50	11016	9273	7912	501940	12,997	0
34	88.92	10928	9112	7572	505440	9,029	0
35	90.08	11087	9358	7584	504580	8,879	0
36	88.87	11134	9027	7659	505320	8,899	0
37	90.10	11342	10484	7513	503190	8,864	0
38	89.29	11312	9835	7904	505040	8,888	0
39	89.84	11351	9210	7427	506260	8,930	0
40	88.77	11239	9323	7655	503420	8,885	0
41	88.24	11189	9743	7501	496560	8,759	0
42	89.71	11000	9554	7432	500940	8,882	0
43	88.90	11097	9554	7529	508620	8,938	0
44	89.16	11182	9093	7550	501220	8,810	0
45	88.65	11049	9005	7345	506220	8,840	0

**FITZGERALD S-17HU
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	2/22/2022	22,897	22,949	48	Utica
2	2/22/2022	22,682	22,834	48	Utica
3	2/22/2022	22,482	22,634	48	Utica
4	2/23/2022	22,281	22,434	48	Utica
5	2/23/2022	22,081	22,233	48	Utica
6	2/23/2022	21,881	22,033	48	Utica
7	2/23/2022	21,681	21,833	48	Utica
8	2/23/2022	21,481	21,633	48	Utica
9	2/24/2022	21,280	21,433	48	Utica
10	2/24/2022	21,080	21,232	48	Utica
11	2/24/2022	20,880	21,032	48	Utica
12	2/24/2022	20,680	20,832	48	Utica
13	2/24/2022	20,480	20,632	48	Utica
14	2/25/2022	20,279	20,432	48	Utica
15	2/26/2022	20,079	20,231	48	Utica
16	2/27/2022	19,879	20,031	48	Utica
17	2/28/2022	19,679	19,831	48	Utica
18	3/1/2022	19,479	19,631	48	Utica
19	3/2/2022	19,278	19,431	48	Utica
20	3/3/2022	19,078	19,230	48	Utica
21	3/4/2022	18,878	19,030	48	Utica
22	3/5/2022	18,678	18,830	48	Utica
23	3/6/2022	18,478	18,630	48	Utica
24	3/7/2022	18,277	18,430	48	Utica
25	3/7/2022	18,077	18,229	48	Utica
26	3/8/2022	17,877	18,029	48	Utica
27	3/8/2022	17,677	17,829	48	Utica
28	3/9/2022	17,477	17,629	48	Utica
29	3/10/2022	17,276	17,429	48	Utica
30	3/11/2022	17,076	17,228	48	Utica
31	3/12/2022	16,876	17,028	48	Utica
32	3/13/2022	16,676	16,828	48	Utica
33	3/14/2022	16,476	16,628	48	Utica
34	3/16/2022	16,275	16,428	48	Utica
35	3/17/2022	16,075	16,227	48	Utica
36	3/18/2022	15,875	16,027	48	Utica
37	3/19/2022	15,675	15,827	48	Utica
38	3/20/2022	15,475	15,627	48	Utica
39	3/21/2022	15,274	15,427	48	Utica
40	3/22/2022	15,074	15,226	48	Utica
41	3/23/2022	14,874	15,026	48	Utica

10/21/2022

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
42	3/24/2022	14,674	14,826	48	Utica
43	3/25/2022	14,474	14,626	48	Utica
44	3/26/2022	14,273	14,426	48	Utica
45	3/27/2022	14,073	14,225	48	Utica

Fitzgerald S-17HU

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	1906	2118	1908	2191	Sandstone
Big Lime	2118	2256	2191	2260	Limestone
Big Injun	2256	2535	2260	2540	Sandstone
Weir	2535	2751	2540	2757	Sandstone
Berea	2751	3005	2757	3013	Sandstone
Gordon	3005	3161	3013	3170	Sandstone
Fifty Foot	3161	3673	3170	3684	Sandstone
Speechley	3673	5134	3684	5307	Sandstone
Benson	5134	5555	5307	5795	Sandstone
Alexander	5555	6209	5795	6532	Siltstone
Rhinstreet	6209	6692	6532	7072	Black Shale
Middlesex	6692	6767	7072	7151	Black Shale
Geneseo/Burkett	6767	6796	7151	7181	Black Shale
Tully	6796	6820	7181	7206	Limestone
Hamilton	6820	6915	7206	7305	Gray Shale
Marcellus	6915	6958	7305	7349	Black Shale
Onondaga	6958	7178	7349	7576	Limestone
Oriskany	7178	7307	7576	7710	Sandstone
Helderberg	7307	7667	7710	8095	Limestone
Salina	7667	8700	8095	9295	Salt/Anhydrite/LS
Lockport	8700	9072	9295	9725	Dolomite
Rose Hill	9072	9372	9725	10080	Shale
Packer Shell	9372	9586	10080	10331	Limestone
Clinton/Tuscarora	9586	9685	10331	10446	Sandstone
Juniata/Queenston	9685	10525	10446	11437	Red Shale
Reedsville	10525	11561	11437	13290	Gray Shale
Utica	11561	11810	13290	13894	Black Shale
Point Pleasant	11810	-	13894	-	Shale/Limestone

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/22/2022
Job End Date:	3/27/2022
State:	West Virginia
County:	Marshall
API Number:	47-051-02324-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Fitzgerald S-17HU
Latitude	39.80114500
Longitude	-80.64110300
Datum	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	11,934
Total Base Water Volume (gal):	17,296,944
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Abstract 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	86.33973	None
Sand (40/70 White Proppant)	Tug Hill Operating	Proppant					
Sand (100 Mesh Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	10.43586	None
Hydrochloric Acid (7.5%)	CNR	Acidizing	Silica Substrate	14808-60-7	100.00000	2.85121	None
StimStream FR 9800	Chemstream	Friction Reducer	Water	7732-18-5	85.00000	0.21119	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.09193	None
			Alkanes, C16-20-iso-	90622-59-6	25.00000	0.01969	None
			Butene, homopolymer	9003-29-6	25.00000	0.01969	None
MC-MX 9-4743	Multi-Chem	Biocide	Ethoxylated alcohols (C12-18)	56213-23-0	3.00000	0.00236	None
LD-7750W	Multi-Chem	Scale Inhibitor	Sodium Nitrate	7631-99-4	60.00000	0.02051	None

			Methanol	67-56-1	60.00000	0.00598	None
			Phosphonic Acid Salt	Proprietary	5.00000	0.00050	None
ProHib 100	CNR	Acid Inhibitor					
			2-Butoxyethanol	111-76-2	60.00000	0.00049	None
			Proprietary material	Proprietary	30.00000	0.00025	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	0.00020	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	0.21119	
			Butene, homopolymer	9003-29-6	25.00000	0.01963	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00236	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00050	
			Proprietary material	Proprietary	30.00000	0.00025	
			Proprietary non-ionic surfactant	Proprietary	20.00000	0.00016	
			Proprietary ethoxylated alcohol	Proprietary	10.00000	0.00008	
			Proprietary corrosion inhibitor	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
UTICA UNIT - 412.02 AC ±
WELL 17HU
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. 475,953.93 E. 1,647,905.85
NAD'83 GEO. LAT-(N) 39.801145 LONG-(W) 80.641103
NAD'83 UTM (M) N. 4,405,748.24 E. 530,724.06

LANDING POINT

NAD'83 S.P.C.(FT) N. 475,210.8 E. 1,642,684.1
NAD'83 GEO. LAT-(N) 39.798921 LONG-(W) 80.659653
NAD'83 UTM (M) N. 4,405,495.2 E. 529,137.0

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 467,484.4 E. 1,647,023.4
NAD'83 GEO. LAT-(N) 39.777864 LONG-(W) 80.643860
NAD'83 UTM (M) N. 4,403,163.5 E. 530,498.3

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

5,014' B.H. A.D.

11,726' T.H. A.D.

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	NAUVOO CEMETERY ASSOC. INC.	9-9-14.2	0.292
E	TRUSTEES OF THE REORGANIZED CHURCH OF LATTER DAY SAINTS	9-9-15	LOT
F	VIRGINIA MCILVAIN ESTATE & THE WHIPKEY TRUST	9-9-18	LOT
G	WHIPKEY TRUST	9-12-12	61.00
H	NAUVOO CEMETERY ASSOC. INC.	9-9-16.1	0.126
I	NAUVOO CEMETERY ASSOC. INC.	9-9-17	1.00
J	GARY W. MORRIS	9-9-22	0.15
K	WARREN BERYLE & ELEANOR LOU CHAMBERS - LIFE	9-12-11	91.00
L	ROBERT W. KNIGHT	9-12-10	3.00
M	TODD L. SCHERICH, ET AL	9-9-16	168.204
N	CHARLES WILLIAM DOBBS, ET AL	9-12-9	82.26
O	MARY LOU RUBINI, DAVID & ERIC KATZMEYER	9-9-4	268.39
P	CONSOL MINING CO., LLC	9-9-3	84.50
Q	LUCY MCCARDLE	9-9-1	20.89
R	LUCY MCCARDLE	9-12-8	117.85
S	DAVID PAUL CHAPMAN	9-12-21	50.00
T	RONALD EUGENE & MARY LEE DOBBS	9-12-20	91.00
U	RAYMOND D. DOBBS, ET UX	9-12-34	17.5
V	RAYMOND D. DOBBS, ET UX	9-12-19	30.00
W	ROY ROGERS WOODS, SR.	9-12-18	30.00
X	VIRGINIA MCILVAIN ESTATE & THE WHIPKEY TRUST	9-12-17	37.27
Y	ANNA E. MEYER ESTATE	9-12-35	93.64
Z	CONSOL MINING CO., LLC	9-12-36	15.30
AA	CONSOL MINING CO., LLC	9-15-6	59.00
BB	CONSOL MINING CO., LLC	7-9-1	59.00
CC	PAUL & SUSAN ASTON	7-9-2	98.95
DD	CONSOL MINING CO., LLC	7-9-22	101.36

AS DRILLED COORDINATES FOR WELL NO. 17HU

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

NAD'83 S.P.C.(FT) N. 475,953.83 E. 1,647,905.89
NAD'83 GEO. LAT-(N) 39.801145 LONG-(W) 80.641103
NAD'83 UTM (M) N. 4,405,748.20 E. 530,724.07

LANDING POINT

NAD'83 S.P.C.(FT) N. 475,315.7 E. 1,642,592.5
NAD'83 GEO. LAT-(N) 39.799208 LONG-(W) 80.659984
NAD'83 UTM (M) N. 4,405,526.7 E. 529,108.8

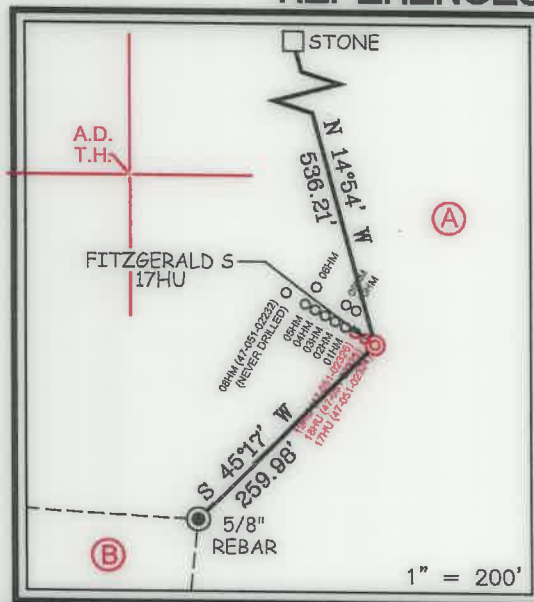
BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 467,498.0 E. 1,647,037.8
NAD'83 GEO. LAT-(N) 39.777902 LONG-(W) 80.643809
NAD'83 UTM (M) N. 4,403,167.7 E. 530,502.6

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-17HU (47-051-02324) IS WITHIN 3000' OF THE TOP HOLES OR LATERALS OF FITZGERALD S-17HU (47-051-02325), FITZGERALD S-18HU (47-051-02326), 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), TEN HIGH 1S-16HU (47-051-0202B) & TEN HIGH 1S-17HU (47-051-02033).
- AS-DRILLED DATA PROVIDED BY TUG HILL OPERATING, LLC.
- PLAT UPDATED TO SHOW AS-DRILLED PATH.

REFERENCES

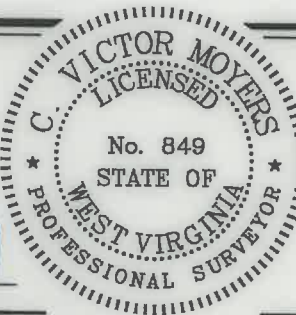


12 Vashorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.9634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slswv.com

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 APRIL 11, 20 21

REVISED MAY 17, 20 21

OPERATORS WELL NO. FITZGERALD S-17HU

API WELL NO. 47 - 051 - 02324
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8910P17HUADR.dwg
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'
FITZGERALD S-17HU REV6

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



WELL TYPE: OIL GAS INJECTION _____ LIQUID WASTE 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 POINT PLEASANT ESTIMATED DEPTH TVD: 12,064' / TMD: 23,833'

LEASE NO. SEE WELL 10/21/2022

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER CT CORPORATION SYSTEM

ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME PERMIT

**FITZGERALD S LEASE
UTICA UNIT - 412.02 AC ±
WELL 17HU
TUG HILL OPERATING**

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

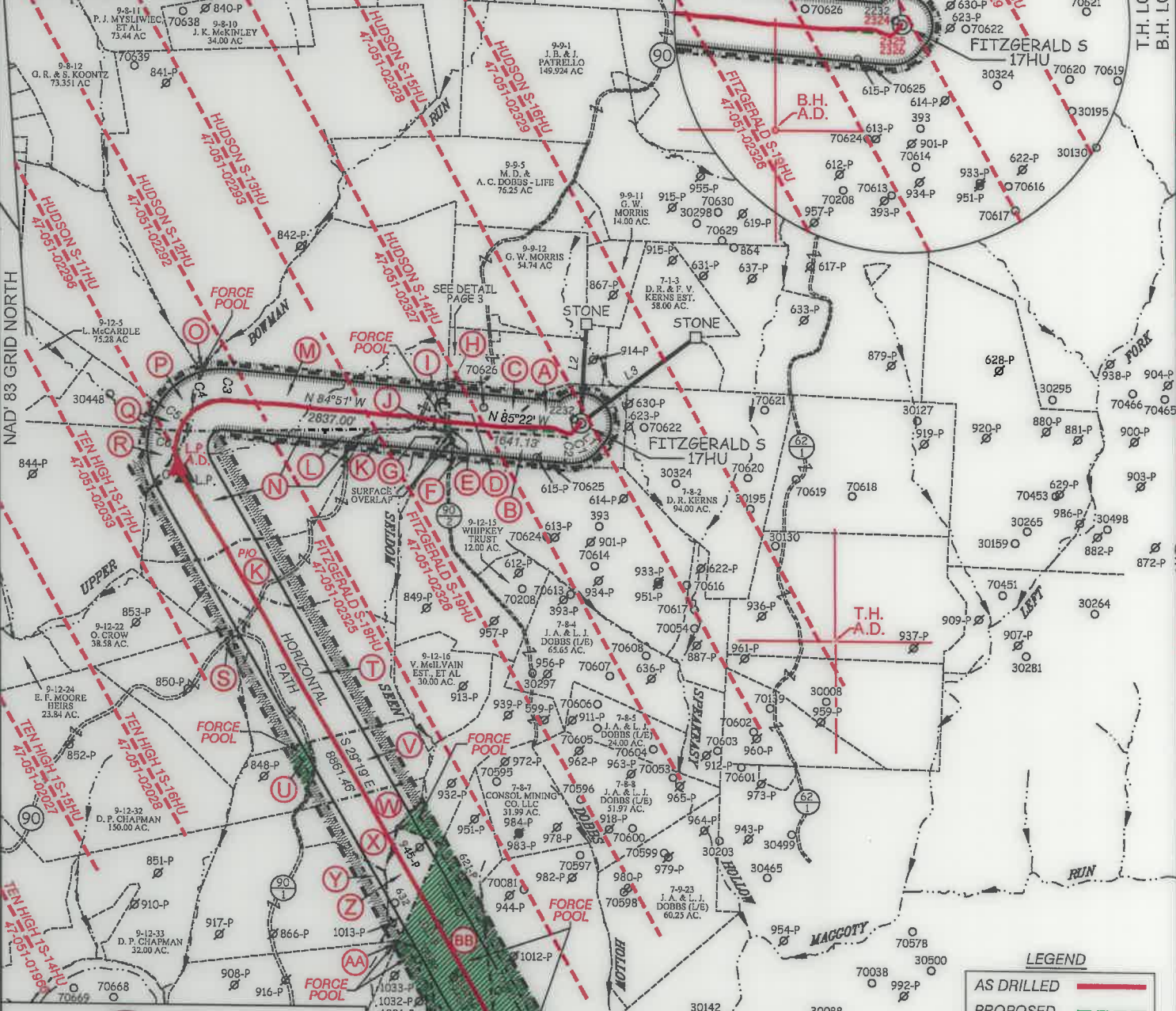
T.H. LONGITUDE 80°37'30"
B.H. LONGITUDE 80°37'30"

5,014' B.H. A.D.

11,726' T.H. A.D.

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 40°58' W	153.14'
L2	N 03°07' E	1310.39'
L3	N 52°50' E	1905.72'



LEGEND

AS DRILLED	
PROPOSED	

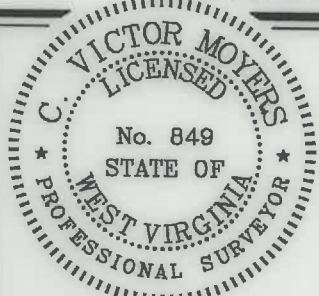
CURVE TABLE

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	19.05'	33.83'	S 61°10' W	18.80'
C2	28.43'	102.99'	S 86°47' W	28.34'
C3	139.64'	989.05'	N 87°22' W	139.53'
C4	408.91'	599.07'	S 67°38' W	401.02'
C5	322.40'	631.18'	S 32°33' W	318.91'
C6	337.71'	681.85'	S 03°59' W	334.27'
C7	271.73'	801.26'	S 19°24' E	270.43'



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 | 304.255.5286
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. 475,953.93 E. 1,647,905.85
NAD'83 GEO. LAT-(N) 39.801145 LONG-(W) 80.641103
NAD'83 UTM (M) N. 4,405,748.24 E. 530,724.06

LANDING POINT
NAD'83 S.P.C.(FT) N. 475,210.8 E. 1,642,684.1
NAD'83 GEO. LAT-(N) 39.798921 LONG-(W) 80.659653
NAD'83 UTM (M) N. 4,405,495.2 E. 529,137.0

BOTTOM HOLE
NAD'83 S.P.C.(FT) N. 467,484.4 E. 1,647,023.4
NAD'83 GEO. LAT-(N) 39.777864 LONG-(W) 80.643860
NAD'83 UTM (M) N. 4,403,163.5 E. 530,498.3

SCALE 1" = 2000' FILE NO. 8910P17HUADR.dwg
FITZGERALD S-17HU REV6
DATE APRIL 11, 20 21
REVISED MAY 17, 20 21
OPERATORS WELL NO. FITZGERALD S-17HU
API WELL NO. 47 - 051 - 02324
STATE COUNTY PERMIT

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)	

WELL OPERATOR TUG HILL OPERATING, LLC
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FORT WORTH, TX 76107

DESIGNATED AGENT DIANNA STAMPER
ADDRESS 5400 D BIG TYLER ROAD
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10/21/2022

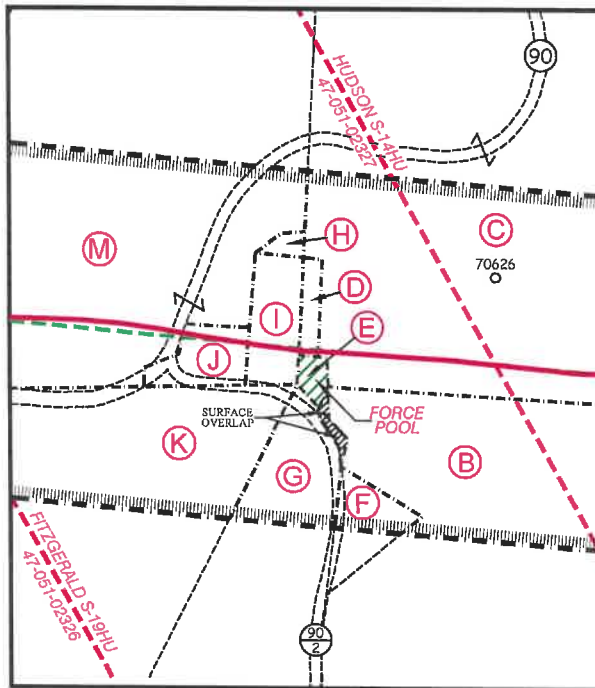
**FITZGERALD S LEASE
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NO.	Lease ID	Tags	Parcel	Grantor, Lessor, Etc.	Deed Book/Page
1	10*25518	A	7-8-1	DANNYS KERNS, MARRIED MAN DEALING WITH HIS SOLE AND SEPARATE PROPERTY et al	1010 532
2	10*18339	B	9-12-14	RESOURCE MINERALS HEADWATER LP et al	940 448
3	PENDING	C	9-9-14	REGINA DANETTE FIGUEROA et al	1075 137
4	10*27299	D	9-9-14.2	NAUVOO CEMETERY ASSOCIATION	1057 357
5	**	E	9-9-15	REORGANIZED CHURCH OF LATER DAY SAINTS	UNLEASED
6	10*22524	F	9-9-18	ALYCE LYNN MCGUFFIE et al	1027 293
7	10*19557	G	9-12-12	TERRY L BLAKE et al	944 649
8	10*19987	H	9-9-16.1	LESLEY D BALLA et al	955 103
9	10*27299	I	9-9-17	NAUVOO CEMETERY ASSOCIATION	1057 357
10	10*24535	J	9-9-22	BOARD OF EDUCATION OF MARSHALL COUNTY	1026 64
11	10*15494	K	9-12-11	CHRISTOPHER SINGER AND SHEREA SINGER et al	898 433
12	10*23656	L	9-12-10	ROBERT W KNIGHT AND BARBARA J KNIGHT	1011 504
13	10*19987	M	9-9-16	LESLEY D BALLA et al	955 103
14	10*15999	N	9-12-9	CHARLES W DOBBS AND JUDITH M DOBBS et al	702 171
15	**	O	9-9-4	MARY LOU RUBINI AKA MARY LOU MILLER et al	793 287
16	10*47051.304.0	P	9-9-3	UNITED BANK INC	905 5
17	10*23386	Q	9-9-1	EDITH CARMICHAEL HEIRS BY HERMAN LANTZ, ESQ AS SPEC COMMISSIONER et al	1008 68
18	10*47051.289.1	R	9-12-8	JANICE M HIXSON AND HARRY C HIXSON et al	898 461
19	10*47051.140.1	S	9-12-21	DAVID P CHAPMAN & DEBORAH BORCK-CHAPMAN et al	866 318
20	10*24679	T	9-12-20	PIKEWOOD ENERGY CORPORATION AN OHIO CORPORATION et al	1026 149
21	10*21449	U	9-12-34	GARY WAYNE MORRIS et al	957 262
22	10*19748	V	9-12-19	ELIZABETH JANE KELLEY et al	957 335
23	10*18073	W	9-12-18	ROY R WOODS	927 22
24	10*21532	X	9-12-17	CHARLES E RICHARDSON AND SHIRLEY S RICHARDSON et al	957 327
25	10*19706	Y	9-12-35	BARBARA JO BEVERIDGE et al	944 627
26	PENDING	Z	9-12-36	OCTO OIL COMPANY LLC	1076 17
27	PENDING	AA	9-15-6	OCTO OIL COMPANY LLC et al	1076 17
28	10*22631	BB	7-9-1	FREDA ELIZABETH BLAKE et al	966 632
29	**	CC	7-9-2	AUSTIE CARNEY ET AL	363 15
30	10*17930	DD	7-9-22	BOUNTY MINERALS LLC et al	928 396

DETAIL
SCALE: 1" = 500'



FILE NO. 8910P17HUADR.dwg
FITZGERALD S-17HU REV6

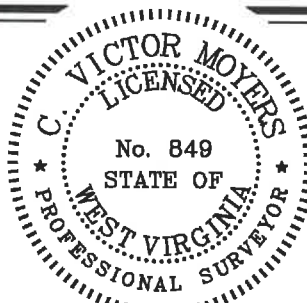
DATE APRIL 9, 20 21

REVISED MAY 17, 20 21

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10/27/2022

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