

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

API 47-051-02374 County Marshall District Mead
Quad Glen Easton 7.5' Pad Name Keith Stern Field/Pool Name _____
Farm name TH Exploration, LLC Well Number Keith Stern N-3HM

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 4,402,824.04 Easting 526,369.16
Landing Point of Curve Northing 4,402,578.2 Easting 526,422.1
Bottom Hole Northing 4,404,236.7 Easting 525,477.2

Elevation (ft) 741.50' 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 4/13/2021 Date drilling commenced spud:11/17/2021 big rig: 5/13/2022 Date drilling ceased 5/25/2022
Date completion activities began 1/29/2023 Date completion activities ceased 2/12/2023
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

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Freshwater depth(s) ft 440' Open mine(s) (Y/N) depths _____
Salt water depth(s) ft 933' Void(s) encountered (Y/N) depths _____
Coal depth(s) ft 341-347', 434-440' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED
N.W. Department of Environmental Protection

Reviewed by:
[Signature]
10/27/2023

API 47-051-02374 Farm name TH Exploration, LLC Well number Keith Stern N-3HM

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"	551'	NEW	54.5#	N/A	Y
Coal	17 1/2"	13 3/8"	551'	NEW	54.5#	N/A	Y
Intermediate 1	12 1/4"	9 5/8"	2,251'	NEW	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8 3/4"	5 1/2"	13,461'	NEW	20#	N/A	Y
Tubing		2 7/8"		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	700	15.6	1.2	840	0	8
Coal	A	700	15.6	1.2	840	0	8
Intermediate 1	A	753	15	1.38	1039.14	0	8
Intermediate 2							
Intermediate 3							
Production	A	3255	14.5	1.156	3762.78	0	8
Tubing							

Drillers TD (ft) 13,498' Loggers TD (ft) n/a
 Deepest formation penetrated Marcellus Plug back to (ft) n/a
 Plug back procedure n/a

Kick off depth (ft) 5,549'

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.

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS MAY 03 2023

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS WV Department of Environmental Protection

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED

10/27/2023

**KEITH STERN N-3HM
PEFORATION RECORD**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD. Ft.	Number of Perforations	Formation(s)
1	1/29/2023	13,280	13,327	30	MARCELLUS
2	1/29/2023	13,079	13,225	30	MARCELLUS
3	1/30/2023	12,902	13,049	30	MARCELLUS
4	1/30/2023	12,726	12,873	30	MARCELLUS
5	1/30/2023	12,550	12,697	30	MARCELLUS
6	1/31/2023	12,374	12,521	30	MARCELLUS
7	1/31/2023	12,198	12,345	30	MARCELLUS
8	1/31/2023	12,022	12,169	30	MARCELLUS
9	2/1/2023	11,846	11,993	30	MARCELLUS
10	2/1/2023	11,670	11,817	30	MARCELLUS
11	2/1/2023	11,494	11,641	30	MARCELLUS
12	2/2/2023	11,318	11,465	30	MARCELLUS
13	2/2/2023	11,142	11,289	30	MARCELLUS
14	2/3/2023	10,966	11,113	30	MARCELLUS
15	2/3/2023	10,790	10,937	30	MARCELLUS
16	2/3/2023	10,614	10,761	30	MARCELLUS
17	2/4/2023	10,438	10,585	30	MARCELLUS
18	2/4/2023	10,262	10,409	30	MARCELLUS
19	2/4/2023	10,086	10,233	30	MARCELLUS
20	2/5/2023	9,910	10,057	30	MARCELLUS
21	2/5/2023	9,734	9,881	30	MARCELLUS
22	2/6/2023	9,558	9,705	30	MARCELLUS
23	2/6/2023	9,382	9,529	30	MARCELLUS
24	2/6/2023	9,206	9,353	30	MARCELLUS
25	2/7/2023	9,030	9,177	30	MARCELLUS
26	2/7/2023	8,854	9,001	30	MARCELLUS
27	2/8/2023	8,678	8,825	30	MARCELLUS
28	2/8/2023	8,502	8,649	30	MARCELLUS
29	2/8/2023	8,326	8,473	30	MARCELLUS
30	2/9/2023	8,150	8,297	30	MARCELLUS
31	2/9/2023	7,974	8,121	30	MARCELLUS
32	2/10/2023	7,798	7,945	30	MARCELLUS
33	2/10/2023	7,622	7,769	30	MARCELLUS
34	2/11/2023	7,446	7,593	30	MARCELLUS
35	2/11/2023	7,270	7,417	30	MARCELLUS
36	2/12/2023	7,094	7,241	30	MARCELLUS

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**KEITH STERN N-3HM
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	0	0	6119		251700	0	0
2	90.00	6963	5161	4794	441580	9,892	0
3	89.00	7010	5368	5093	444780	8,345	0
4	89.00	6935	5142	5465	444000	7,637	0
5	89.00	6927	5423	5220	448400	8,244	0
6	88.00	6808	5227	4936	442500	7,620	0
7	88.00	6620	5184	5048	445300	7,546	0
8	88.00	6808	5231	5089	442300	8,164	0
9	90.00	6803	5654	5016	444920	8,236	0
10	90.00	6900	4975	4971	437120	7,774	0
11	89.00	6855	5031	4943	400204	7,507	0
12	89.00	6843	5755	5033	443080	8,039	0
13	89.00	6706	5135	5112	439780	7,718	0
14	83.00	6587	5333	5288	440520	8,623	0
15	90.00	6796	5245	5180	438660	7,691	0
16	88.00	6658	5370	5399	449700	8,269	0
17	88.00	6770	5278	5309	444360	8,479	0
18	88.00	6603	5200	5263	443480	7,935	0
19	88.00	6534	5116	5272	448180	8,383	0
20	89.00	6608	5256	5166	446740	7,734	0
21	90.00	6604	5063	5044	439808	7,730	0
22	89.00	6790	5291	5001	448440	7,944	0
23	90.00	6577	230	4939	446120	7,857	0
24	90.00	6683	5052	4992	442380	8,187	0
25	90.00	6576	5041	5090	434600	7,840	0
26	90.00	6537	4989	4978	442060	7,942	0
27	90.00	6551	4952	4986	444620	7,932	0
28	90.00	6559	5201	4873	439540	7,953	0
29	90.00	6497	5121	5227	440560	7,638	0
30	89.00	6738	6145	5082	446440	8,180	0
31	88.00	6739	5108	5082	442060	7,845	0
32	90.00	6637	5401	4851	441080	7,905	0

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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	91.00	6475	5230	5140	449040	7,981	0
34	90.00	6293	5241	4897	441140	7,869	0
35	90.00	6359	5009	4964	447640	7,996	0
36	88.00	6303	5377	5011	441861	7,938	0

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KEITH STERN N-3HM

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	1510	1684	1510	1684	Sandstone
Big Lime	1684	1750	1684	1750	Limestone
Big Injun	1750	1968	1750	1968	Sandstone
Weir	1968	2171	1968	2171	Sandstone
Berea	2171	2434	2171	2435	Sandstone
Gordon	2434	2514	2435	2516	Sandstone
Fifty Foot	2514	3096	2516	3100	Sandstone
Speechley	3096	4577	3100	4852	Sandstone
Benson	4577	4952	4852	5339	Sandstone
Alexander	4952	5580	5339	6044	Siltstone
Rhinestreet	5580	6065	6044	6553	Black Shale
Middlesex	6065	6138	6553	6649	Black Shale
Geneseo/Burkett	6138	6164	6649	6687	Black Shale
Tully	6164	6191	6687	6731	Limestone
Hamilton	6191	6272	6731	6936	Gray Shale
Marcellus	6272	-	6936	-	Black Shale

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/29/2023
Job End Date:	2/12/2023
State:	West Virginia
County:	Marshall
API Number:	47-051-02374-00-00
Operator Name:	Tug Hill Operating, LLC
Well Name and Number:	Keith Stern N-3HM
Latitude:	39.77495200
Longitude:	-80.69209400
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,293
Total Base Water Volume (gal):	12,474,336
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	87.62874	None
Sand (Proppant)	Tug Hill Operating	Proppant	Silica Substrate	14808-60-7	100.00000	12.02381	None
Hydrochloric Acid (7.5%)	Producers Service Corp.	Acidizing	Water	7732-18-5	85.00000	0.22921	None
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.09977	None
StimStream FR-9800	Chemstream	Friction Reducer	Alkanes, C16-20-iso-	90622-59-6	25.00000	0.01715	None
			Butene, homopolymer	9003-29-6	25.00000	0.01715	None
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00206	None
LD-7750W	Multi-Chem	Scale Inhibitor	Methanol	67-56-1	60.00000	0.00521	None
			Phosphonic Acid Salt	Proprietary	5.00000	0.00043	None
4-N-1	Producers Service Corp.	Corrosion Inhibitor	Acetic acid	64-19-7	90.00000	0.00048	None

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			2-Ethylhexanol	104-76-7	10.00000	0.00005	None
			Methanol	67-56-1	10.00000	0.00005	None
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00003	None
			Diethanolamine	111-42-2	1.00000	0.00001	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					
			Hydrochloric Acid (Hydrogen Chloride)	7647-01-0	37.00000	0.09977	
			Alkanes, C16-20-iso-	90622-59-6	25.00000	0.01715	
			Ethoxylated alcohols (C12-18)	68213-23-0	3.00000	0.00206	
			Phosphonic Acid Salt	Proprietary	5.00000	0.00043	
			Methanol	67-56-1	10.00000	0.00005	
			2-Ethylhexanol	104-76-7	10.00000	0.00005	
			Cocamide Diethanolamine	68603-42-9	5.00000	0.00003	
			Diethanolamine	111-42-2	1.00000	0.00001	

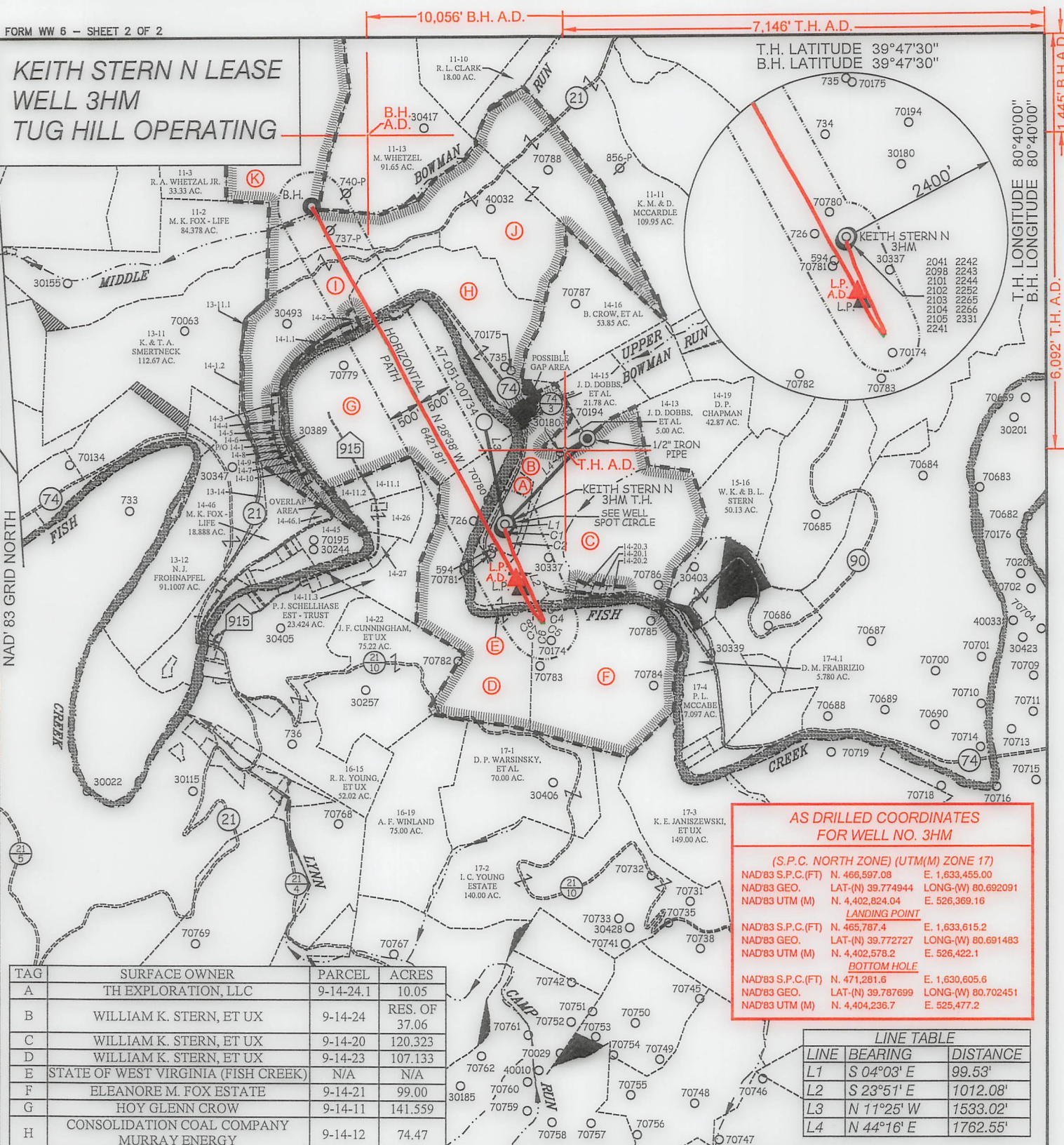
* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** 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)

**KEITH STERN N LEASE
WELL 3HM
TUG HILL OPERATING**



AS DRILLED COORDINATES FOR WELL NO. 3HM

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

NAD'83 S.P.C.(FT)	N. 466,597.08	E. 1,633,455.00
NAD'83 GEO.	LAT-(N) 39.774944	LONG-(W) 80.692091
NAD'83 UTM (M)	N. 4,402,824.04	E. 526,369.16

LANDING POINT

NAD'83 S.P.C.(FT)	N. 465,787.4	E. 1,633,615.2
NAD'83 GEO.	LAT-(N) 39.772727	LONG-(W) 80.691483
NAD'83 UTM (M)	N. 4,402,578.2	E. 526,422.1

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 471,281.6	E. 1,630,605.6
NAD'83 GEO.	LAT-(N) 39.767699	LONG-(W) 80.702451
NAD'83 UTM (M)	N. 4,404,238.7	E. 525,477.2

TAG	SURFACE OWNER	PARCEL	ACRES
A	TH EXPLORATION, LLC	9-14-24.1	10.05
B	WILLIAM K. STERN, ET UX	9-14-24	RES. OF 37.06
C	WILLIAM K. STERN, ET UX	9-14-20	120.323
D	WILLIAM K. STERN, ET UX	9-14-23	107.133
E	STATE OF WEST VIRGINIA (FISH CREEK)	N/A	N/A
F	ELEANORE M. FOX ESTATE	9-14-21	99.00
G	HOY GLENN CROW	9-14-11	141.559
H	CONSOLIDATION COAL COMPANY MURRAY ENERGY	9-14-12	74.47
I	SAMUEL & HEATHER SUHODOLSKI	9-14-1	86.48
J	J. F. CROW ESTATE, ET AL	9-11-12	162.88
K	RAY A. WHETZAL, JR.	9-11-5	106.89

LINE TABLE

LINE	BEARING	DISTANCE
L1	S 04°03' E	99.53'
L2	S 23°51' E	1012.08'
L3	N 11°25' W	1533.02'
L4	N 44°16' E	1762.55'

CURVE TABLE

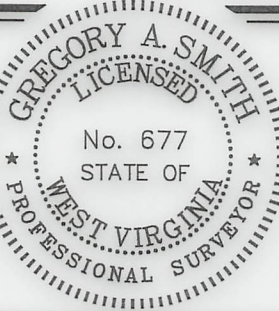
CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	66.08'	350.35'	S 13°36' E	65.98'
C2	251.24'	2809.39'	S 21°50' E	251.16'
C3	138.30'	1088.26'	S 21°02' E	138.20'
C4	27.07'	67.04'	S 06°04' E	26.89'
C5	8.14'	4.45'	S 67°49' W	7.05'
C6	16.33'	48.81'	N 53°57' W	16.25'
C7	29.13'	249.68'	N 42°03' W	29.11'
C8	138.44'	1397.32'	N 35°15' W	138.39'
C9	451.79'	5902.57'	N 30°33' W	451.68'



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

LEGEND

- AS DRILLED ————
- PROPOSED - - - - -



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

COUNTY NAME
PERMIT

SCALE 1" = 2000' FILE NO. 8811P3HMR-AD.dwg
 KEITH STERN N-3HM-REV1
 DATE FEBRUARY 15, 20 23
 REVISED _____, 20 ____
 OPERATORS WELL NO. KEITH STERN N-3HM
 API WELL NO. 47 — 051 — 02374
 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

10,056' B.H. A.D.

7,146' T.H. A.D.

**KEITH STERN N LEASE
WELL 3HM
TUG HILL OPERATING**

B.H.
A.D.

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

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

NAD'83 S.P.C.(FT)	N. 466,597.08	E. 1,633,455.00
NAD'83 GEO.	LAT-(N) 39.774944	LONG-(W) 80.692091
NAD'83 UTM (M)	N. 4,402,824.04	E. 526,369.16

LANDING POINT

NAD'83 S.P.C.(FT)	N. 466,649.6	E. 1,633,683.8
NAD'83 GEO.	LAT-(N) 39.772352	LONG-(W) 80.691232
NAD'83 UTM (M)	N. 4,402,536.5	E. 526,443.7

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 471,286.1	E. 1,630,606.7
NAD'83 GEO.	LAT-(N) 39.787712	LONG-(W) 80.702447
NAD'83 UTM (M)	N. 4,404,238.1	E. 525,477.5

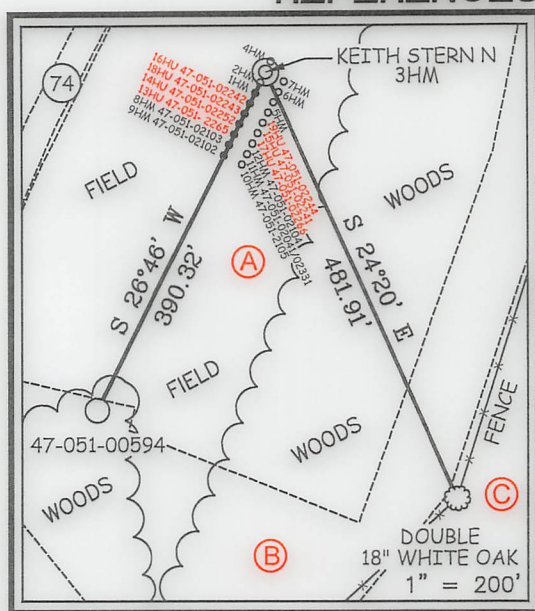
T.H. LONGITUDE 80°40'00"
B.H. LONGITUDE 80°40'00"

6,092' T.H. A.D.

MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
9-13-11.1	SAMUEL & HEATHER SUHODOLSKI	0.49
9-13-14	MARGARET K. FOX - LIFE	3.00
9-14-1.1	MICHAEL L. ALVAREZ	1.6
9-14-1.2	KENNETH N. & TERESA A. SMERTNECK	1.02
9-14-2	MICHAEL L. ALVAREZ	0.75
9-14-3	MICHAEL L. ALVAREZ	NORTH P/O 3 PCLS
9-14-4	MICHAEL L. ALVAREZ	3 PCLS & 1/8 AC.
9-14-5	MICHAEL L. ALVAREZ	200 X 60 PCL
9-14-6	MICHAEL L. ALVAREZ	120 X 200 PCL
9-14-7	JOHN T. ERAZMUS, III	0.25
9-14-8	JOHNNY C. HOLCOMB & JOHNNY C. HOLCOMB, II	2/5 AC.
9-14-9	JOHN E. DUFFY, ET UX	2/5 AC.
9-14-10	ROBERT I. DUFFY - LIFE	25/100 AC.
9-14-21	ELANOR M. FOX EST	99
9-14-11.1	PATRICK J. SCHELLHASE EST - TRUST	7.617
9-14-11.2	LOYE A. BLAKE	4.00
9-14-20.1	WILLIAM K. STERN, ET UX	1.321
9-14-20.2	WILLIAM K. STERN, ET UX	1.525
9-14-20.3	WILLIAM K. STERN, ET UX	0.831
9-14-26	PATRICK J. SCHELLHASE EST - TRUST	12.588
9-14-27	PATRICK J. SCHELLHASE EST - TRUST	3.004
9-14-28	CHARLES R. SCHELLHASE, ET UX	3.029
9-14-45	GEORGE R. TAYLOR, ET UX	10.98
9-14-46.1	MARHA JANE FAZZARO	1.512

T.H. A.D.

REFERENCES



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
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.
677

Gregory A. Smith



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

DATE FEBRUARY 15, 20 23

REVISED _____, 20 _____

OPERATORS WELL NO. KEITH STERN N-3HM

API WELL NO. 47 - 051 - 02374
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8811P3HMR-AD.dwg
KEITH STERN N-3HM-REV1
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 INJECTION _____ WASTE DISPOSAL _____ IF "GAS" PRODUCTION X STORAGE _____ DEEP _____ SHALLOW X

LOCATION: GROUND = 741.50' ELEVATION PROPOSED = 744.65' WATERSHED FISH CREEK (HUC 10) DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER TH EXPLORATION, LLC ACREAGE 10.05±

ROYALTY OWNER ISAAC CROW, ET AL - SEE WW-6A1 ACREAGE 10.05±

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: 6,404' / TMD: 13,550'

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