



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Thursday, March 5, 2020
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for KNOB CREEK S -14HU
47-051-02288-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin
Chief

Operator's Well Number: KNOB CREEK S -14HU
Farm Name: DAVID LEE FRANKLIN
U.S. WELL NUMBER: 47-051-02288-00-00
Horizontal 6A New Drill
Date Issued: 3/5/2020

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-926-0499 Ext 1274

Randall M. Albert, Chairman
dep.wv.gov

February 19, 2020

Department of Environmental Protection
Office of Oil and Gas
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-051-02288

COMPANY: Tug Hill Operating, LLC

FARM: David Lee Franklin Knob Creek S-14HU

COUNTY: Marshall DISTRICT: Meade QUAD: Glen Easton

The deep well review of the application for the above company is Approved to drill to Trenton for Point Pleasant completion.

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Comments to Notice of Deviation filed? No
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: **yes; Docket 292-294 Exception Location Hearing
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

A handwritten signature in blue ink that reads "Susan Rose".

Susan Rose
Administrator

4705102288

WW-6B
(04/15)

API NO. 47-051 -
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Tug Hill Operating, LLC 494510851 Marshall Meade Glen Easton 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Knob Creek S-14HU Well Pad Name: Knob Creek

3) Farm Name/Surface Owner: David Lee Franklin Public Road Access: St. Joseph Road - CR 21

4) Elevation, current ground: 737' Elevation, proposed post-construction: 737'

5) Well Type (a) Gas Oil Underground Storage
Other

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No No

Ju
2/4/2020

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):

Point Pleasant is the target formation at a depth of 11,014' - 11,145' - thickness of 131' and anticipated pressure of approx. 9500 psi.

8) Proposed Total Vertical Depth: 11,295'

9) Formation at Total Vertical Depth: Trenton, plug back to Reedsville

10) Proposed Total Measured Depth: 19,886'

11) Proposed Horizontal Leg Length: 8,126.56'

12) Approximate Fresh Water Strata Depths: 70' ; 380'

13) Method to Determine Fresh Water Depths: Offset well reports or noticeable flow at the flowline or when need to start soaping

14) Approximate Saltwater Depths: 1,740'

15) Approximate Coal Seam Depths: Sewickley Coal - 292' ; Pittsburgh Coal - 374'

16) Approximate Depth to Possible Void (coal mine, karst, other): none

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No

(a) If Yes, provide Mine Info: Name: _____

Depth: _____

Seam: _____

Owner: _____

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WW-6B
(04/15)

4705102288
API NO. 47-051 -
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water	20"	NEW	J55	106.5#	480'	480'	831 FT^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2200'	2200'	1,558FT^3(CTS)
Intermediate	9 5/8"	NEW	HPP110	47#	10,077'	10,077'	3,265FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	19,886'	19,886'	4,727FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		10,529'	
Liners							

me
9/27/19

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	20"	26"	.5	2,410	1,928	SEE # 24	1.2
Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.472	10,730	6,968	SEE #24	1.99
Production	5 1/2"	8 1/2"	.415	16,510	10,864	SEE #24	1.18
Tubing	2 7/8"			11,624	11,385		
Liners							

PACKERS

Kind:	N/A			
Sizes:	N/A			
Depths Set:	N/A			

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4705109988

WW-6B
(10/14)

API NO. 47- 051 -
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

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2/14/2020

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP (10,029'). Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Well to be completed with approximately 20,312,500 lb proppant and 314,046 bbl of water. Max rate = 80 bpm; max psi = 12,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 12.93 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.55 acres

23) Describe centralizer placement for each casing string:

Will run 3 centralizers on surface casing at equal distance. Intermediate will have 1 centralizer every third joint. Production casing will have one centralizer every third joint in lateral, one centralizer every joint through curve, one centralizer every third joint to surface.

24) Describe all cement additives associated with each cement type:

*See Attachment

25) Proposed borehole conditioning procedures:

Will circulate a minimum of 3 hours at TD, short trip to curve, circulate bottoms up, check for flow, POOH

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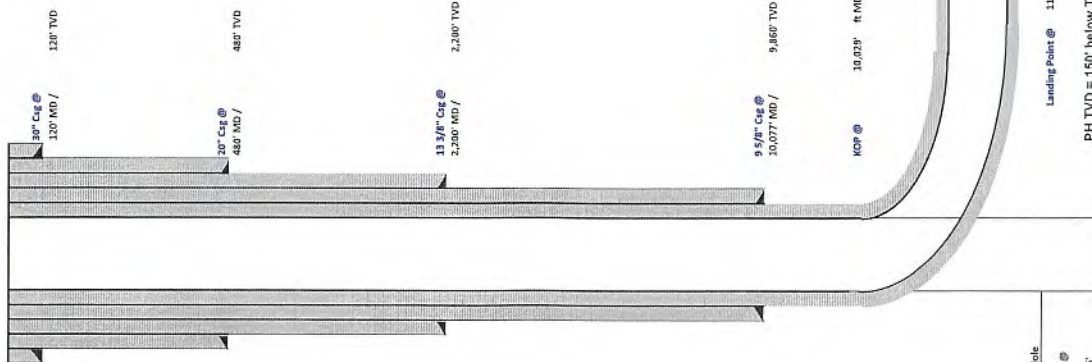
*Note: Attach additional sheets as needed.

4705102288

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WELL NAME: Knob Creek S-14HU COUNTY: Marshall
 STATE: WV DISTRICT: Meade
 DF Elev: 737' G.L. Elev: 737'
 TD: 120' MD / 120' TVD
 TH Latitude: 39.77007229
 TH Longitude: -80.70539221
 BH Latitude: 39.7749704
 BH Longitude: -80.694118



Handwritten signature: 9/22/19

Formation	Depth TVD
Deepest Fresh Water	380'
Sewardley Coal	292'
Pittsburgh Coal	374'
Big Lane	1,588'
Berea	2,089'
Tully	6,085'
Marcellus	6,130'
Onondaga	6,241'
Shinarump	6,958'
Lodport	8,009'
Utica	10,751'
Point Pleasant	11,014'
Landing Depth	11,064'
Trenton	11,145'
Pilot Hole TD	11,295'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	26	20	480'	480'	106.5	B55	Surface
Intermediate 1	17 1/2	13 3/8	2,200'	2,200'	54.5	B55	Surface
Intermediate 2	12 1/4	9 5/8	10,077'	9,860'	47	HPF110	Surface
Production	8 1/2	5 1/2	19,886'	11,200'	23	HCP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Sacks	Class	Density	Fluid Type	Centralizer Notes	
388	A	15.6	Air	None	
891	A	15.6	Air	3 Centralizers at equal distance	
1,648	A	15	Air	1 Centralizer every other ft	
2,809	A	14.5	Air	1 Centralizer every other ft	
4,105	A	15	Air / SOBMI	1 every other joint in lateral; 1 per joint in curve; 1 every other ft to etc	

Lateral TD @ 11,206' ft MD
 11,206' ft TVD

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Tug Hill Operating, LLC Casing and Cement Program

Knob Creek S-14HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	480'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,200'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	10,077'	CTS
Production	5 1/2"	HCP110	8 1/2"	19,886'	CTS

Cement

Surface:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
Intermediate 1:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.2
Intermediate 2:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.99
Production:	50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.18

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Area of Review**Sources of information to Support 35CSR8 - 5.11: 9.3 et seq.**

Description of process to identify potential pathways for well communication during hydraulic fracturing activities.

Data Sources Reviewed:

1. IHS Well Data service: Public nationwide data service that pulls directly from State agency Oil and Gas databases
2. Farm Maps
3. Topo Maps: Recent and older (contact WVGES)
4. Check with DPS

Contacted Devin Ducoeur 724-705-0444, dducoeur@dpslandservices.com DPS GIS (9/23/2019) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

1. Wellbore with IHS All Wells Layer
2. Map with Farm lines overlain and any well spots identified on Farm Maps
3. More recent (1970s vintage) topos and older topos

Discussion with Phil Dinterman WVGES GIS Department (7/15/2016)

- WVGES has plotted every well spot they have access to and are aware of with that contains a coordinate. 30000, 70000, and 90000 series wells are available via the WVGES online map. Some locations aren't great due to vintage and manipulation of maps through time
- 30000 series – any well drilled prior to 1929 – APIs were not assigned to original wells
- 70000 series – Well spots pulled from old Farm line maps that the WVGES has access to
- 90000 series – Any sources that the WVGES has access that shows a well spot but has no additional supporting information. DEP does not have 90000 series on their maps.
- There can be duplication between wells in the 3 series
- Phil indicated that other Operators are providing a screenshot of the WVGES map with their planned well and using that for permits

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Permit well - Knob Creek S-14HU

Wells within 500' Buffer

Note: Well spots depicted on Area of Review map (page 3) are derived from State held coordinates. The spots may differ from those depicted on the Well Plat because the Plat locations represent actual field surveyed locations. Please refer to the Plat for surveyed well spots

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705100736	Hope Natural Gas Company	Unknown	Unknown	Unknown	Unknown but unlikely. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Well was producing as of December 2018
4705130185	South Penn Oil	2606' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	Well was plugged -/-/1942
4705130405	Whilhelm & Jackson	Unknown	Unknown	Unknown	Unknown but unlikely. Appears to be an old shallow well, coal test bore hole or CBM well. Well has been plugged.	Well was plugged 12/4/1959
4705170083	South Penn Oil	2974' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	State records are incomplete.
4705170764	Manufacturers Light & Heat Co	Unknown	Unknown	Unknown	Unknown but unlikely. Appears to be an old shallow well, coal test bore hole or CBM well.	State records are incomplete.
4705170766	Hope Natural Gas Company	Unknown	Unknown	Unknown	Unknown but unlikely. Appears to be an old shallow well, coal test bore hole or CBM well.	State records are incomplete.
4705170767	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. Appears to be an old shallow well, coal test bore hole or CBM well.	State records are incomplete.

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WV Geological & Economic Survey

Well: County = 51 Permit = 00736

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN	
4705100736	Marginal	736	Maase	Qlan	Edison	Campan	29.750284	-82.753114	8264298.8	4401742.3

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_A1	COMPLETION	PROP_VO	PROP_TRGT_FM	TFM_EST_PR
4705100736	---	---	Complete	J.V. Sheppard	400	---	---	---	---	Maase Natural Gas Company	---	---	---	---

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTO	KOD	G_BEF	G_AFT	O_BEF	O_AFT
4705100736	---	---	887	Edison	---	---	unclassified	unclassified	---	rotary	---	unknown	unknown	---	---	---	---	---	---

There is no Pay data for this well

Production Gas Information: (Volumes in Mcf)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_GAS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100736	Parkins Oil and Gas, Inc.	1995	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2001	817	85	44	69	83	82	80	72	70	68	63	48	---
4705100736	Parkins Oil and Gas, Inc.	2002	820	85	59	74	51	43	59	60	15	15	20	42	95
4705100736	Parkins Oil and Gas, Inc.	2003	829	77	73	68	51	51	82	34	23	47	70	50	38
4705100736	Parkins Oil and Gas, Inc.	2004	793	73	85	65	51	90	62	59	63	13	64	64	82
4705100736	Parkins Oil and Gas, Inc.	2005	833	25	59	95	62	55	67	70	62	84	62	63	77
4705100736	Parkins Oil and Gas, Inc.	2006	815	22	54	69	63	65	60	62	67	61	70	63	59
4705100736	Parkins Oil and Gas, Inc.	2007	435	68	10	38	38	72	48	32	41	20	26	45	18
4705100736	Parkins Oil and Gas, Inc.	2008	203	48	39	44	34	55	37	62	65	49	71	82	48
4705100736	Parkins Oil and Gas, Inc.	2009	1,005	65	63	77	69	95	97	97	69	81	94	91	79
4705100736	Parkins Oil and Gas, Inc.	2010	824	61	24	63	78	61	65	73	63	62	103	81	66
4705100736	Parkins Oil and Gas, Inc.	2011	1,243	73	72	95	92	105	94	82	74	81	87	70	110
4705100736	Parkins Oil and Gas, Inc.	2012	1,265	93	105	103	166	82	100	89	75	100	114	102	125
4705100736	Parkins Oil and Gas, Inc.	2013	1,198	111	85	95	93	100	92	78	115	108	122	112	109
4705100736	Parkins Oil and Gas, Inc.	2014	1,229	90	84	74	111	115	114	112	68	105	102	101	105
4705100736	Parkins Oil and Gas, Inc.	2015	1,199	125	95	39	81	72	62	117	124	100	116	115	115
4705100736	Parkins Oil and Gas, Inc.	2016	1,231	83	60	100	85	113	64	100	99	109	115	112	115
4705100736	Parkins Oil and Gas, Inc.	2017	1,130	214	122	163	163	174	170	228	163	205	219	210	82
4705100736	Parkins Oil and Gas, Inc.	2018	1,024	27	83	79	77	82	98	106	101	106	89	102	106

Production Oil Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_OIL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100736	Parkins Oil and Gas, Inc.	1995	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	1996	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	1997	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2001	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2002	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2003	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2004	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2005	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2006	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2007	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2008	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2009	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2010	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2011	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2012	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production NGL Information: (Volumes in Bbl) ** some operators may have reported NGL under Oil

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_NGL	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100736	Parkins Oil and Gas, Inc.	2013	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2014	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2016	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2017	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

Production Water Information: (Volumes in Gallons)

API	PRODUCING_OPERATOR	PRD_YEAR	ANN_WTR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DCM
4705100736	Parkins Oil and Gas, Inc.	2015	0	0	0	0	0	0	0	0	0	0	0	0	0
4705100736	Parkins Oil and Gas, Inc.	2018	0	0	0	0	0	0	0	0	0	0	0	0	0

There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

WV Geological & Economic Survey

Well: County = 51 Permit = 30185

Location Information: View Map

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN	
4705101185	Marginal	30185	Maase	Qlan	Edison	Campan	29.752408	-82.534378	826205.8	4402000.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_A1	COMPLETION	PROP_VO	PROP_TRGT_FM	TFM_EST_PR
4705101185	02/27/2002	Original Log	Complete	Harley Goulsberry	1	---	Margaret Harley	21463	Harley Goulsberry	South Penn Oil & Penn Nat. Gas	---	---	---	---
4705101185	1/22/1964	---	---	Wolnes Duv	unknown	---	---	---	---	---	---	---	---	---

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTO	KOD	G_BEF	G_AFT	O_BEF	O_AFT
4705101185	02/27/2002	8/10/1962	863	Ground Level	Campan-Garner	UDev and BenLOHURN	Gorcon	Stray	Development Well	unclassified	Oil	Cable Tool	Shot	2853	2809	0	0	0	0
4705101185	1/22/1964	---	863	Ground Level	Campan-Garner	UDev and BenLOHURN	Gorcon	Stray	unclassified	unclassified	Oil	Cable Tool	Shot	2853	2809	0	0	0	0

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV DATUM
4705101185	Original Log	unclassified coal	Well Record	863	Reasonable	10	Reasonable	863
4705101185	Original Log	Pittsburgh coal	Well Record	588	Reasonable	10	Reasonable	863
4705101185	Original Log	Salt Sands (unclif)	Well Record	1365	Reasonable	180	Reasonable	863
4705101185	Original Log	Big Lime	Well Record	1640	Reasonable	40	Reasonable	863
4705101185	Original Log	Big Injw (unclif)	Well Record	1650	Reasonable	275	Reasonable	863
4705101185	Original Log	Gorcon Stray	Well Record	2540	Reasonable	5	Reasonable	863
4705101185	Original Log	Gorcon	Well Record	2830	Reasonable	18	Reasonable	863

There is no Wireline (E-Log) data for this well


Plugging Information:

API	PLG_DT	DEPTH_FBT
4705101185	---	0

There is no Sample data for this well

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4705102288


 Select County: (051) Marshall | Select datatypes: (Check All)

 Enter Permit #: 30405

 Location Production Plugging

 Owner/Completion Stratigraphy Sample

 Pay/Show/Water Logs Bm Hole Log

[Table Descriptions](#)

[County Code Translations](#)

[Permit Numbering System](#)

[LARGE NDRS](#)

[Complete Information](#)

[WVGES Main](#)

["Pipeline" Help](#)

Well: County = 51 Permit = 30405

WV Geological & Economic Survey:

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_CD	LONG_CD	UTME	UTMN
4728130405	Marshall	30405	Meade	01en	02en	0204	0204	525392.1	4402341.2

 There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT
4728130405	--1003	--	Original Log	Completed	Mannah B Richmond	453	HOPE	2005	CP&A M Shiner also	William & Jackson		

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTO	O_BEF
4728130405	--1003	--	783	Spott Level				undclassified	undclassified		not available	unknown	unknown			

 There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

Plugging Information:

API	PLG_DT	DEPTH_PBT
4728130405	12/4/1989	0

 There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 70083

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_CD	LONG_CD	UTME	UTMN
4724170083	Marshall	70083	unknown	unknown	unknown				

 There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT	FM	TFM_EST_PR
4724170083	10/10/1903	--	Original Log	Completed	Marshall Hickey	4				South Park Oil & Gas	South Park Oil & Gas			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTO	KOD	O_BEF	G_AFT	O_BEF	O_AFT
4724170083	10/10/1903	--			Chapman-Garner	Hammantine Riv	Garner	Development Well	Development Well	Oil	unknown	unknown	2674		2674		0	0	0	0

 Comment: 10/10/1903 Thought to have been 103-30376 but strat does not match. May be 051-70751, but cannot definitively determine.

Pay/Show/Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOY	FM_BOY	O_BEF	G_AFT	O_BEF	O_AFT	WATER_QNTY
4724170083	10/10/1903	Pay	Oil	Vertical	2654	Garner	2654	Garner	0	0	0	0	

 There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey:

Well: County = 51 Permit = 70764

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_CD	LONG_CD	UTME	UTMN
4704170764	Marshall	70764	Meade	01en	02en	0204	0204	52537192	4400150.8

 There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT	FM	TFM_EST_PR
4704170764	--	--	Unknown	Exp. Use	Michael Winkler		1204			Manufactured Land & Heat Co				

Completion Information:

API	CMP_DT	SPUD_DT	ELEV	DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTO	KOD	O_BEF	G_AFT	O_BEF	O_AFT
4704170764	--	--						undclassified	undclassified		not available	unknown	unknown							

 There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

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WV Geological & Economic Survey

Well: County = 51 Permit = 70766

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
6706170766	Marshall	70766	Meigs	Gas Station	Camden	32.756332	-80.700664	526632.3	4400766.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR	AT_COMPLETION	PROP_VO	PROP_TRGT_FM	TFM_EST_PR
6706170766	---	---	---	Winnon	Proy Man	Garold	WVW	---	---	---	---	---	---	---

Completion Information:

API	CMP_ID	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVS	TMD	NEW_FTS	KOD	G_BEF	G_AFT	O_BEF	O_AFT
6706170766	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey

Well: County = 51 Permit = 70767

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
6706170767	Marshall	70767	Meigs	Gas Station	Camden	32.757463	-80.697089	526632.3	4400885.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_ID	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR	AT_COMPLETION	PROP_VO	PROP_TRGT_FM	TFM_EST_PR
6706170767	---	---	---	Winnon	Proy Man	Garold	WVW	---	---	---	---	---	---	---

Completion Information:

API	CMP_ID	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVS	TMD	NEW_FTS	KOD	G_BEF	G_AFT	O_BEF	O_AFT
6706170767	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

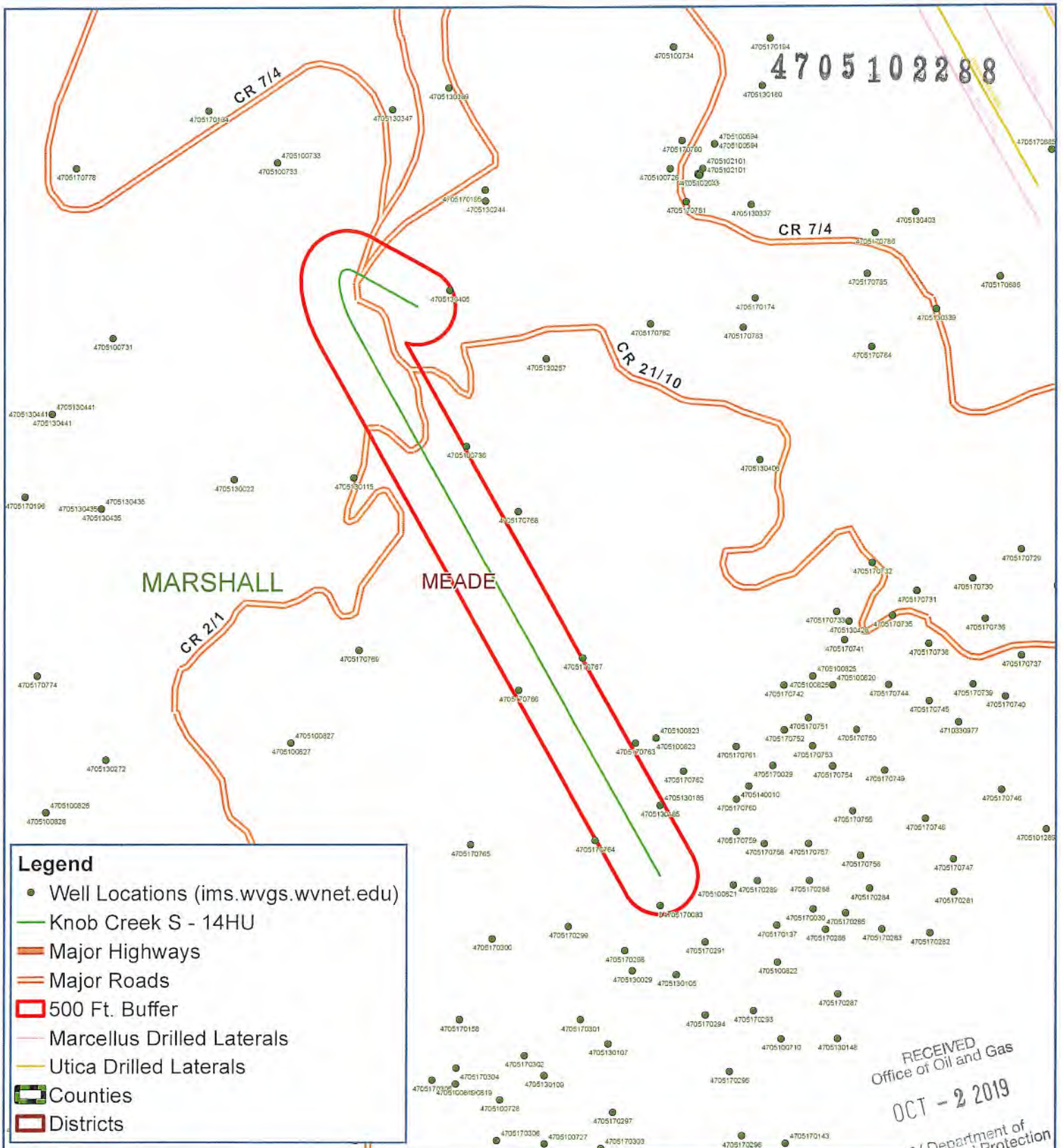
There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

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- Legend**
- Well Locations (ims.wvgs.wvnet.edu)
 - Knob Creek S - 14HU
 - Major Highways
 - Major Roads
 - ▭ 500 Ft. Buffer
 - Marcellus Drilled Laterals
 - Utica Drilled Laterals
 - ▭ Counties
 - ▭ Districts

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Knob Creek S - 14HU Meade District Marshall County, WV



Map Prepared by:
PS
LAND SERVICES

Map Created: September 23, 2018
Map Current As Of: September 23, 2019

Notes:
All locations are approximate and are for visualization purposes only.



October 1, 2019

WV Department of Environmental Protection
Office of Oil & Gas
601 57th Street, SE
Charleston, WV 25304
Attention: Susan Rose

RE: Knob Creek S-14HU

Subject: Proposed Voluntary Pooling and Unitization

Dear Susan:

Tug Hill Operating, LLC is authorized through, either lease or other agreement, to unitize and pool all lands falling within the boundaries of the proposed voluntary unit included with this submission, with the exception of the following tracts which we intend to force pool.

9-16-19

9-18-9

9-18-12

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me directly at 724-749-8388, or by email at amiller@tug-hill.com.

Sincerely,

A handwritten signature in blue ink that reads "Amy Miller".

Amy L. Miller
Permitting Specialist – Appalachia Region
Tug Hill Operating

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TUG HILL
OPERATING

Well: Knob Creek S-14HU (slot N)
Site: Knob Creek
Project: Marshall County, West Virginia.
Design: rev3

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD83 West Virginia - HARN
Ellipsoid: GRS 1980
Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level
Depth Reference: CL=737 @ 737.00usft
Surface location
Northing 14443145.32 Easting 1723197.98 Latitude 39.77007229 Longitude -80.70539221

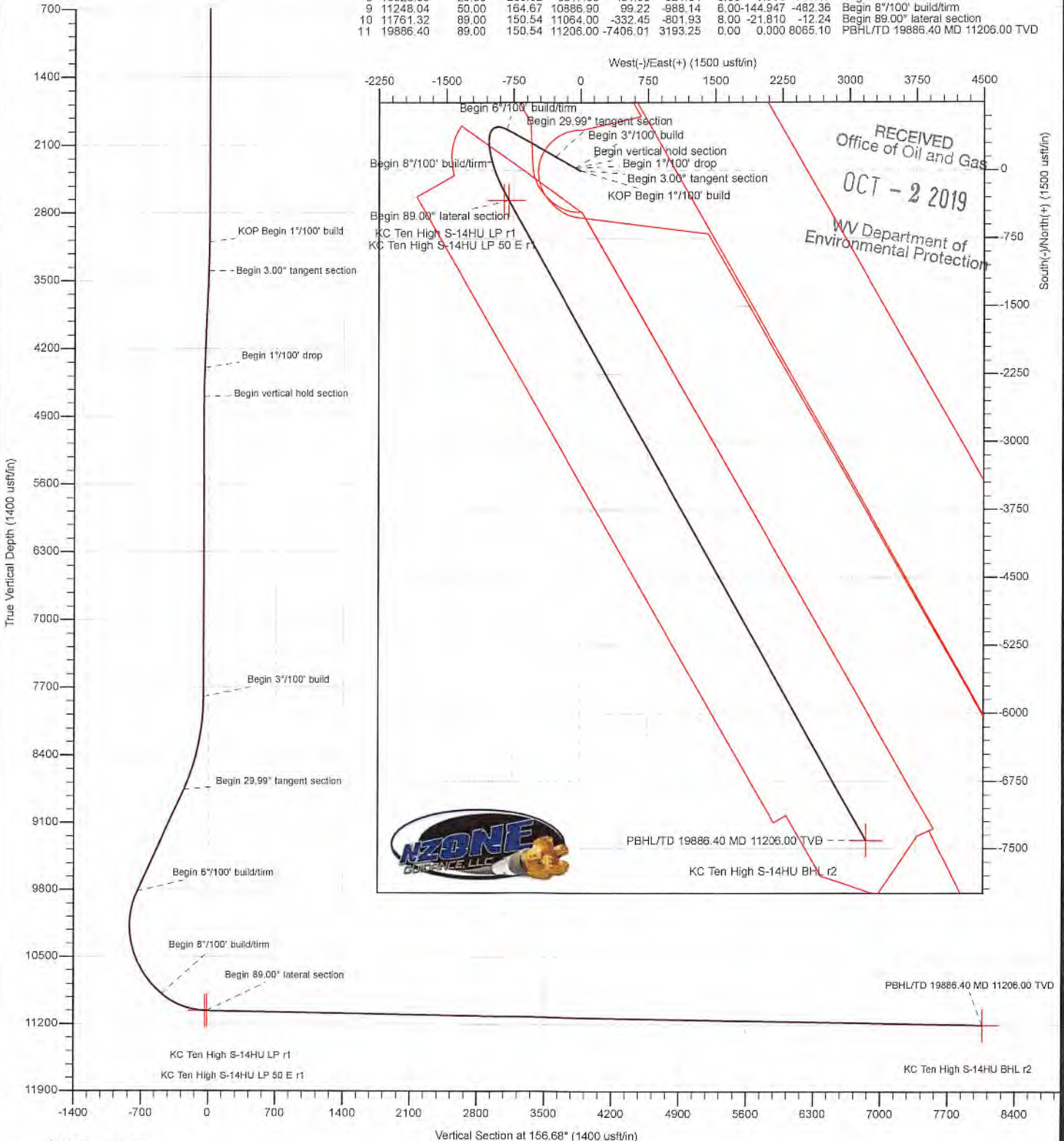
Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.88
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	
2	3100.00	0.00	0.00	3100.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 1°/100' build
3	3400.00	3.00	298.82	3399.86	3.79	-6.88	1.00	298.820	-6.20	Begin 3.00° tangent section
4	4400.00	3.00	298.82	4398.49	29.01	-52.73	0.00	0.000	-47.52	Begin 1°/100' drop
5	4700.00	0.00	298.82	4698.36	32.80	-59.61	1.00	180.000	-53.72	Begin vertical hold section
6	7801.64	0.00	298.82	7800.00	32.80	-59.61	0.00	298.820	-53.72	Begin 3°/100' build
7	8801.39	29.99	298.82	8754.71	156.08	-283.68	3.00	298.820	-255.65	Begin 29.99° tangent section
8	10028.99	29.99	298.82	9817.93	451.90	-821.34	0.00	0.000	-740.17	Begin 6°/100' build/tirm
9	11248.04	50.00	164.67	10886.90	99.22	-988.14	8.00	-144.947	-482.36	Begin 8°/100' build/tirm
10	11761.32	89.00	150.54	11064.00	-332.45	-801.93	8.00	-21.810	-12.24	Begin 89.00° lateral section
11	19886.40	89.00	150.54	11206.00	-7406.01	3193.25	0.00	0.000	8065.10	PBHL/TD 19886.40 MD 11206.00 TVD



Azimuths to Grid North
True North: -0.19°
Magnetic North: -8.88°

Magnetic Field
Strength: 52139.8snT
Dip Angle: 68.92°
Date: 9/19/2017
Model: IGRF2015





Planning Report - Geographic

Database:	DB_Jul2216dt_v14 lt	Local Co-ordinate Reference:	Well Knob Creek S-14HU (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=737 @ 737.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL=737 @ 737.00usft
Site:	Knob Creek	North Reference:	Grid
Well:	Knob Creek S-14HU (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Project	Marshall County, West Virginia.		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD83 West Virginia - HARN		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Knob Creek				
Site Position:		Northing:	14,443,053.74 usft	Latitude:	39.76982148
From:	Lat/Long	Easting:	1,723,120.29 usft	Longitude:	-80.70566975
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.188 °

Well	Knob Creek S-14HU (slot N)					
Well Position	+N/-S	0.00 usft	Northing:	14,443,145.32 usft	Latitude:	39.77007229
	+E/-W	0.00 usft	Easting:	1,723,197.98 usft	Longitude:	-80.70539221
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	737.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/19/2017	-8.693	66.922	52,139.60564337

Design	rev3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	156.68

Plan Survey Tool Program	Date	8/11/2019		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	19,886.40 rev3 (Original Hole)	MWD	
			MWD - Standard	

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Planning Report - Geographic

4705102288

Database:	DB_Jul2216dt_v14 lt	Local Co-ordinate Reference:	Well Knob Creek S-14HU (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=737 @ 737.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL=737 @ 737.00usft
Site:	Knob Creek	North Reference:	Grid
Well:	Knob Creek S-14HU (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Plan Sections											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000		
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.000		
3,400.00	3.00	298.82	3,399.86	3.79	-6.88	1.00	1.00	0.00	298.820		
4,400.00	3.00	298.82	4,398.49	29.01	-52.73	0.00	0.00	0.00	0.000		
4,700.00	0.00	298.82	4,698.36	32.80	-59.61	1.00	-1.00	0.00	180.000		
7,801.64	0.00	298.82	7,800.00	32.80	-59.61	0.00	0.00	0.00	298.820		
8,801.39	29.99	298.82	8,754.71	156.08	-283.68	3.00	3.00	0.00	298.820		
10,028.99	29.99	298.82	9,817.93	451.90	-821.34	0.00	0.00	0.00	0.000		
11,248.04	50.00	164.67	10,886.90	99.22	-988.14	6.00	1.64	-11.00	-144.947		
11,761.32	89.00	150.54	11,064.00	-332.45	-801.93	8.00	7.60	-2.75	-21.810		
19,886.40	89.00	150.54	11,206.00	-7,406.01	3,193.25	0.00	0.00	0.00	0.000	KC Ten High S-14HU	

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Planning Report - Geographic

4705102288

Database:	DB_Jul2216dt_v14 lt	Local Co-ordinate Reference:	Well Knob Creek S-14HU (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=737 @ 737.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL=737 @ 737.00usft
Site:	Knob Creek	North Reference:	Grid
Well:	Knob Creek S-14HU (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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Planned Survey

WV Department of Environmental Protection

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
100.00	0.00	0.00	100.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
200.00	0.00	0.00	200.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
300.00	0.00	0.00	300.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
400.00	0.00	0.00	400.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
500.00	0.00	0.00	500.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
600.00	0.00	0.00	600.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
700.00	0.00	0.00	700.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
800.00	0.00	0.00	800.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
900.00	0.00	0.00	900.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,600.00	0.00	0.00	2,600.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,700.00	0.00	0.00	2,700.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,800.00	0.00	0.00	2,800.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
2,900.00	0.00	0.00	2,900.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
3,000.00	0.00	0.00	3,000.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,443,145.32	1,723,197.98	39.77007229	-80.70539221
KOP Begin 1°/100' build									
3,200.00	1.00	298.82	3,199.99	0.42	-0.76	14,443,145.74	1,723,197.22	39.77007345	-80.70539493
3,300.00	2.00	298.82	3,299.96	1.68	-3.06	14,443,147.00	1,723,194.92	39.77007694	-80.70540307
3,400.00	3.00	298.82	3,399.86	3.79	-6.88	14,443,149.10	1,723,191.10	39.77008275	-80.70541665
Begin 3.00° tangent section									
3,500.00	3.00	298.82	3,499.73	6.31	-11.46	14,443,151.63	1,723,186.52	39.77008972	-80.70543294
3,600.00	3.00	298.82	3,599.59	8.83	-16.05	14,443,154.15	1,723,181.93	39.77009669	-80.70544923
3,700.00	3.00	298.82	3,699.45	11.35	-20.64	14,443,156.67	1,723,177.34	39.77010368	-80.70546552
3,800.00	3.00	298.82	3,799.31	13.88	-25.22	14,443,159.20	1,723,172.76	39.77011063	-80.70548181
3,900.00	3.00	298.82	3,899.18	16.40	-29.81	14,443,161.72	1,723,168.17	39.77011760	-80.70549809
4,000.00	3.00	298.82	3,999.04	18.92	-34.39	14,443,164.24	1,723,163.59	39.77012457	-80.70551438
4,100.00	3.00	298.82	4,098.90	21.45	-38.98	14,443,166.76	1,723,159.00	39.77013154	-80.70553067
4,200.00	3.00	298.82	4,198.77	23.97	-43.56	14,443,169.29	1,723,154.42	39.77013851	-80.70554696
4,300.00	3.00	298.82	4,298.63	26.49	-48.15	14,443,171.81	1,723,149.83	39.77014548	-80.70556325
4,400.00	3.00	298.82	4,398.49	29.01	-52.73	14,443,174.33	1,723,145.25	39.77015245	-80.70557954
Begin 1°/100' drop									
4,500.00	2.00	298.82	4,498.40	31.12	-56.55	14,443,176.44	1,723,141.43	39.77015826	-80.70559311
4,600.00	1.00	298.82	4,598.36	32.38	-58.85	14,443,177.70	1,723,139.13	39.77016174	-80.70560126
4,700.00	0.00	298.82	4,698.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
Begin vertical hold section									
4,800.00	0.00	298.82	4,798.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
4,900.00	0.00	298.82	4,898.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398



Planning Report - Geographic

4705102288

Database: DB_Jul2216dt_v14 It
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Knob Creek
 Well: Knob Creek S-14HU (slot N)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Knob Creek S-14HU (slot N)
 TVD Reference: GL=737 @ 737.00usft
 MD Reference: GL=737 @ 737.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,000.00	0.00	298.82	4,998.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
5,100.00	0.00	298.82	5,098.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
5,200.00	0.00	298.82	5,198.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
5,300.00	0.00	298.82	5,298.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
5,400.00	0.00	298.82	5,398.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
5,500.00	0.00	298.82	5,498.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
5,600.00	0.00	298.82	5,598.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
5,700.00	0.00	298.82	5,698.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
5,800.00	0.00	298.82	5,798.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
5,900.00	0.00	298.82	5,898.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,000.00	0.00	298.82	5,998.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,100.00	0.00	298.82	6,098.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,200.00	0.00	298.82	6,198.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,300.00	0.00	298.82	6,298.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,400.00	0.00	298.82	6,398.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,500.00	0.00	298.82	6,498.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,600.00	0.00	298.82	6,598.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,700.00	0.00	298.82	6,698.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,800.00	0.00	298.82	6,798.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
6,900.00	0.00	298.82	6,898.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,000.00	0.00	298.82	6,998.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,100.00	0.00	298.82	7,098.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,200.00	0.00	298.82	7,198.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,300.00	0.00	298.82	7,298.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,400.00	0.00	298.82	7,398.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,500.00	0.00	298.82	7,498.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,600.00	0.00	298.82	7,598.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,700.00	0.00	298.82	7,698.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,800.00	0.00	298.82	7,798.36	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
7,801.64	0.00	298.82	7,800.00	32.80	-59.61	14,443,178.12	1,723,138.37	39.77016291	-80.70560398
Begin 3°/100' build									
7,900.00	2.95	298.82	7,898.31	34.02	-61.83	14,443,179.34	1,723,136.15	39.77016628	-80.70561186
8,000.00	5.95	298.82	7,998.00	37.76	-68.63	14,443,183.08	1,723,129.35	39.77017661	-80.70563601
8,100.00	8.95	298.82	8,097.14	44.01	-79.99	14,443,189.33	1,723,117.99	39.77019388	-80.70567636
8,200.00	11.95	298.82	8,195.47	52.75	-95.88	14,443,198.07	1,723,102.10	39.77021803	-80.70573281
8,300.00	14.95	298.82	8,292.72	63.97	-116.26	14,443,209.28	1,723,081.72	39.77024901	-80.70580520
8,400.00	17.95	298.82	8,388.61	77.61	-141.07	14,443,222.93	1,723,056.91	39.77028672	-80.70589333
8,500.00	20.95	298.82	8,482.90	93.67	-170.24	14,443,238.98	1,723,027.74	39.77033106	-80.70599696
8,600.00	23.95	298.82	8,575.31	112.07	-203.69	14,443,257.39	1,722,994.29	39.77038191	-80.70611581
8,700.00	26.95	298.82	8,665.59	132.79	-241.34	14,443,278.10	1,722,956.64	39.77043913	-80.70624954
8,800.00	29.95	298.82	8,753.51	155.75	-283.07	14,443,301.07	1,722,914.91	39.77050257	-80.70639780
8,801.39	29.99	298.82	8,754.71	156.08	-283.68	14,443,301.40	1,722,914.30	39.77050350	-80.70639997
Begin 29.99° tangent section									
8,900.00	29.99	298.82	8,840.11	179.84	-326.87	14,443,325.16	1,722,871.11	39.77056914	-80.70655339
9,000.00	29.99	298.82	8,926.72	203.94	-370.67	14,443,349.26	1,722,827.31	39.77063571	-80.70670897
9,100.00	29.99	298.82	9,013.33	228.04	-414.46	14,443,373.36	1,722,783.52	39.77070228	-80.70686456
9,200.00	29.99	298.82	9,099.94	252.14	-458.26	14,443,397.46	1,722,739.72	39.77076885	-80.70702015
9,300.00	29.99	298.82	9,186.55	276.23	-502.06	14,443,421.55	1,722,695.92	39.77083542	-80.70717574
9,400.00	29.99	298.82	9,273.16	300.33	-545.86	14,443,445.65	1,722,652.12	39.77090199	-80.70733132
9,500.00	29.99	298.82	9,359.77	324.43	-589.65	14,443,469.75	1,722,608.33	39.77096856	-80.70748691
9,600.00	29.99	298.82	9,446.38	348.53	-633.45	14,443,493.84	1,722,564.53	39.77103513	-80.70764250
9,700.00	29.99	298.82	9,532.99	372.62	-677.25	14,443,517.94	1,722,520.73	39.77110170	-80.70779809
9,800.00	29.99	298.82	9,619.60	396.72	-721.04	14,443,542.04	1,722,476.94	39.77116827	-80.70795368
9,900.00	29.99	298.82	9,706.21	420.82	-764.84	14,443,566.14	1,722,433.14	39.77123484	-80.70810927



Planning Report - Geographic

Database:	DB_Jul2216dt_v14 lt	Local Co-ordinate Reference:	Well Knob Creek S-14HU (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=737 @ 737.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL=737 @ 737.00usft
Site:	Knob Creek	North Reference:	Grid
Well:	Knob Creek S-14HU (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

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Planned Survey										WV Department of Environmental Protection
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
10,000.00	29.99	298.82	9,792.81	444.91	-808.64	14,443,590.23	1,722,389.34	39.77130141	-80.70826486	
10,028.99	29.99	298.82	9,817.93	451.90	-821.34	14,443,597.22	1,722,376.64	39.77132071	-80.70830997	
Begin 6°/100' build/tirm										
10,100.00	26.61	293.35	9,880.45	466.77	-851.50	14,443,612.08	1,722,346.48	39.77136181	-80.70841714	
10,200.00	22.31	283.19	9,971.49	479.98	-890.57	14,443,625.30	1,722,307.41	39.77139846	-80.70855605	
10,300.00	18.91	269.07	10,065.14	484.06	-925.29	14,443,629.38	1,722,272.69	39.77140995	-80.70867955	
10,400.00	16.95	250.55	10,160.35	478.93	-955.26	14,443,624.25	1,722,242.72	39.77139615	-80.70878629	
10,500.00	16.94	229.86	10,256.10	464.68	-980.17	14,443,610.00	1,722,217.81	39.77135722	-80.70887508	
10,600.00	18.88	211.30	10,351.33	441.44	-999.73	14,443,586.76	1,722,198.25	39.77129357	-80.70894497	
10,700.00	22.27	197.14	10,444.99	409.47	-1,013.74	14,443,554.79	1,722,184.25	39.77120592	-80.70899518	
10,800.00	26.56	186.94	10,536.06	369.13	-1,022.03	14,443,514.45	1,722,175.95	39.77109520	-80.70902517	
10,900.00	31.38	179.54	10,623.55	320.86	-1,024.52	14,443,466.18	1,722,173.46	39.77096265	-80.70903460	
11,000.00	36.52	173.98	10,706.50	265.18	-1,021.19	14,443,410.50	1,722,176.79	39.77080972	-80.70902337	
11,100.00	41.86	169.64	10,783.99	202.71	-1,012.06	14,443,348.03	1,722,185.92	39.77063807	-80.70899161	
11,200.00	47.34	166.14	10,855.17	134.12	-997.24	14,443,279.44	1,722,200.74	39.77044959	-80.70893966	
11,248.04	50.00	164.67	10,886.90	99.22	-988.14	14,443,244.54	1,722,209.84	39.77035365	-80.70890768	
Begin 8°/100' build/tirm										
11,300.00	53.88	162.76	10,918.93	59.97	-976.65	14,443,205.29	1,722,221.33	39.77024575	-80.70886726	
11,400.00	61.41	159.56	10,972.42	-19.87	-949.31	14,443,125.45	1,722,248.67	39.77002625	-80.70877086	
11,500.00	69.00	156.79	11,014.34	-104.04	-915.52	14,443,041.28	1,722,282.46	39.76979478	-80.70865159	
11,600.00	76.64	154.29	11,043.86	-190.92	-875.95	14,442,954.40	1,722,322.03	39.76955586	-80.70851179	
11,700.00	84.30	151.94	11,060.41	-278.79	-831.38	14,442,866.52	1,722,366.60	39.76931412	-80.70835417	
11,761.32	89.00	150.54	11,064.00	-332.45	-801.93	14,442,812.87	1,722,396.05	39.76916652	-80.70825000	
Begin 89.00° lateral section										
11,800.00	89.00	150.54	11,064.67	-366.12	-782.91	14,442,779.20	1,722,415.07	39.76907388	-80.70818271	
11,900.00	89.00	150.54	11,066.42	-453.18	-733.74	14,442,692.14	1,722,464.24	39.76883435	-80.70800873	
12,000.00	89.00	150.54	11,068.17	-540.23	-684.57	14,442,605.09	1,722,513.41	39.76859482	-80.70783476	
12,100.00	89.00	150.54	11,069.92	-627.29	-635.40	14,442,518.03	1,722,562.58	39.76835530	-80.70766078	
12,200.00	89.00	150.54	11,071.66	-714.35	-586.23	14,442,430.97	1,722,611.75	39.76811577	-80.70748681	
12,300.00	89.00	150.54	11,073.41	-801.41	-537.06	14,442,343.91	1,722,660.92	39.76787624	-80.70731283	
12,400.00	89.00	150.54	11,075.16	-888.47	-487.89	14,442,256.85	1,722,710.09	39.76763672	-80.70713886	
12,500.00	89.00	150.54	11,076.91	-975.53	-438.72	14,442,169.79	1,722,759.26	39.76739719	-80.70696489	
12,600.00	89.00	150.54	11,078.65	-1,062.58	-389.55	14,442,082.74	1,722,808.43	39.76715766	-80.70679092	
12,700.00	89.00	150.54	11,080.40	-1,149.64	-340.38	14,441,995.68	1,722,857.60	39.76691814	-80.70661695	
12,800.00	89.00	150.54	11,082.15	-1,236.70	-291.20	14,441,908.62	1,722,906.78	39.76667861	-80.70644298	
12,900.00	89.00	150.54	11,083.90	-1,323.76	-242.03	14,441,821.56	1,722,955.95	39.76643908	-80.70626902	
13,000.00	89.00	150.54	11,085.65	-1,410.82	-192.86	14,441,734.50	1,723,005.12	39.76619955	-80.70609505	
13,100.00	89.00	150.54	11,087.39	-1,497.88	-143.69	14,441,647.44	1,723,054.29	39.76596002	-80.70592109	
13,200.00	89.00	150.54	11,089.14	-1,584.93	-94.52	14,441,560.39	1,723,103.46	39.76572049	-80.70574712	
13,300.00	89.00	150.54	11,090.89	-1,671.99	-45.35	14,441,473.33	1,723,152.63	39.76548096	-80.70557316	
13,400.00	89.00	150.54	11,092.64	-1,759.05	3.82	14,441,386.27	1,723,201.80	39.76524143	-80.70539920	
13,500.00	89.00	150.54	11,094.38	-1,846.11	52.99	14,441,299.21	1,723,250.97	39.76500190	-80.70522524	
13,600.00	89.00	150.54	11,096.13	-1,933.17	102.16	14,441,212.15	1,723,300.14	39.76476237	-80.70505129	
13,700.00	89.00	150.54	11,097.88	-2,020.23	151.33	14,441,125.09	1,723,349.31	39.76452284	-80.70487733	
13,800.00	89.00	150.54	11,099.63	-2,107.28	200.50	14,441,038.03	1,723,398.49	39.76428331	-80.70470337	
13,900.00	89.00	150.54	11,101.37	-2,194.34	249.68	14,440,950.98	1,723,447.66	39.76404378	-80.70452942	
14,000.00	89.00	150.54	11,103.12	-2,281.40	298.85	14,440,863.92	1,723,496.83	39.76380425	-80.70435547	
14,100.00	89.00	150.54	11,104.87	-2,368.46	348.02	14,440,776.86	1,723,546.00	39.76356472	-80.70418151	
14,200.00	89.00	150.54	11,106.62	-2,455.52	397.19	14,440,689.80	1,723,595.17	39.76332519	-80.70400756	
14,300.00	89.00	150.54	11,108.37	-2,542.58	446.36	14,440,602.74	1,723,644.34	39.76308565	-80.70383361	
14,400.00	89.00	150.54	11,110.11	-2,629.63	495.53	14,440,515.68	1,723,693.51	39.76284612	-80.70365967	
14,500.00	89.00	150.54	11,111.86	-2,716.69	544.70	14,440,428.63	1,723,742.68	39.76260659	-80.70348572	
14,600.00	89.00	150.54	11,113.61	-2,803.75	593.87	14,440,341.57	1,723,791.85	39.76236706	-80.70331177	
14,700.00	89.00	150.54	11,115.36	-2,890.81	643.04	14,440,254.51	1,723,841.02	39.76212752	-80.70313783	

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Planning Report - Geographic

Database: DB_Jul2216dt_v14 lt
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Knob Creek
 Well: Knob Creek S-14HU (slot N)
 Wellbore: Original Hole
 Design: rev3

Local Co-ordinate Reference: Well Knob Creek S-14HU (slot N)
 TVD Reference: GL=737 @ 737.00usft
 MD Reference: GL=737 @ 737.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

WV Department of
 Environmental Protection

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,800.00	89.00	150.54	11,117.10	-2,977.87	692.21	14,440,167.45	1,723,890.20	39.76188799	-80.70296388
14,900.00	89.00	150.54	11,118.85	-3,064.93	741.39	14,440,080.39	1,723,939.37	39.76164846	-80.70278994
15,000.00	89.00	150.54	11,120.60	-3,151.98	790.56	14,439,993.33	1,723,988.54	39.76140892	-80.70261600
15,100.00	89.00	150.54	11,122.35	-3,239.04	839.73	14,439,906.28	1,724,037.71	39.76116939	-80.70244206
15,200.00	89.00	150.54	11,124.09	-3,326.10	888.90	14,439,819.22	1,724,086.88	39.76092985	-80.70226812
15,300.00	89.00	150.54	11,125.84	-3,413.16	938.07	14,439,732.16	1,724,136.05	39.76069032	-80.70209418
15,400.00	89.00	150.54	11,127.59	-3,500.22	987.24	14,439,645.10	1,724,185.22	39.76045078	-80.70192025
15,500.00	89.00	150.54	11,129.34	-3,587.28	1,036.41	14,439,558.04	1,724,234.39	39.76021125	-80.70174631
15,600.00	89.00	150.54	11,131.09	-3,674.34	1,085.58	14,439,470.98	1,724,283.56	39.75997171	-80.70157238
15,700.00	89.00	150.54	11,132.83	-3,761.39	1,134.75	14,439,383.93	1,724,332.73	39.75973218	-80.70139845
15,800.00	89.00	150.54	11,134.58	-3,848.45	1,183.92	14,439,296.87	1,724,381.90	39.75949264	-80.70122452
15,900.00	89.00	150.54	11,136.33	-3,935.51	1,233.10	14,439,209.81	1,724,431.08	39.75925310	-80.70105059
16,000.00	89.00	150.54	11,138.08	-4,022.57	1,282.27	14,439,122.75	1,724,480.25	39.75901357	-80.70087666
16,100.00	89.00	150.54	11,139.82	-4,109.63	1,331.44	14,439,035.69	1,724,529.42	39.75877403	-80.70070273
16,200.00	89.00	150.54	11,141.57	-4,196.69	1,380.61	14,438,948.63	1,724,578.59	39.75853449	-80.70052880
16,300.00	89.00	150.54	11,143.32	-4,283.74	1,429.78	14,438,861.58	1,724,627.76	39.75829496	-80.70035488
16,400.00	89.00	150.54	11,145.07	-4,370.80	1,478.95	14,438,774.52	1,724,676.93	39.75805542	-80.70018095
16,500.00	89.00	150.54	11,146.82	-4,457.86	1,528.12	14,438,687.46	1,724,726.10	39.75781588	-80.70000703
16,600.00	89.00	150.54	11,148.56	-4,544.92	1,577.29	14,438,600.40	1,724,775.27	39.75757634	-80.69983311
16,700.00	89.00	150.54	11,150.31	-4,631.98	1,626.46	14,438,513.34	1,724,824.44	39.75733680	-80.69965919
16,800.00	89.00	150.54	11,152.06	-4,719.04	1,675.63	14,438,426.28	1,724,873.61	39.75709727	-80.69948527
16,900.00	89.00	150.54	11,153.81	-4,806.09	1,724.81	14,438,339.23	1,724,922.79	39.75685773	-80.69931135
17,000.00	89.00	150.54	11,155.55	-4,893.15	1,773.98	14,438,252.17	1,724,971.96	39.75661819	-80.69913743
17,100.00	89.00	150.54	11,157.30	-4,980.21	1,823.15	14,438,165.11	1,725,021.13	39.75637865	-80.69896352
17,200.00	89.00	150.54	11,159.05	-5,067.27	1,872.32	14,438,078.05	1,725,070.30	39.75613911	-80.69878960
17,300.00	89.00	150.54	11,160.80	-5,154.33	1,921.49	14,437,990.99	1,725,119.47	39.75589957	-80.69861569
17,400.00	89.00	150.54	11,162.54	-5,241.39	1,970.66	14,437,903.93	1,725,168.64	39.75566003	-80.69844178
17,500.00	89.00	150.54	11,164.29	-5,328.44	2,019.83	14,437,816.87	1,725,217.81	39.75542049	-80.69826786
17,600.00	89.00	150.54	11,166.04	-5,415.50	2,069.00	14,437,729.82	1,725,266.98	39.75518095	-80.69809395
17,700.00	89.00	150.54	11,167.79	-5,502.56	2,118.17	14,437,642.76	1,725,316.15	39.75494141	-80.69792005
17,800.00	89.00	150.54	11,169.54	-5,589.62	2,167.34	14,437,555.70	1,725,365.32	39.75470186	-80.69774614
17,900.00	89.00	150.54	11,171.28	-5,676.68	2,216.52	14,437,468.64	1,725,414.50	39.75446232	-80.69757223
18,000.00	89.00	150.54	11,173.03	-5,763.74	2,265.69	14,437,381.58	1,725,463.67	39.75422278	-80.69739833
18,100.00	89.00	150.54	11,174.78	-5,850.79	2,314.86	14,437,294.52	1,725,512.84	39.75398324	-80.69722442
18,200.00	89.00	150.54	11,176.53	-5,937.85	2,364.03	14,437,207.47	1,725,562.01	39.75374370	-80.69705052
18,300.00	89.00	150.54	11,178.27	-6,024.91	2,413.20	14,437,120.41	1,725,611.18	39.75350415	-80.69687662
18,400.00	89.00	150.54	11,180.02	-6,111.97	2,462.37	14,437,033.35	1,725,660.35	39.75326461	-80.69670272
18,500.00	89.00	150.54	11,181.77	-6,199.03	2,511.54	14,436,946.29	1,725,709.52	39.75302507	-80.69652882
18,600.00	89.00	150.54	11,183.52	-6,286.09	2,560.71	14,436,859.23	1,725,758.69	39.75278552	-80.69635492
18,700.00	89.00	150.54	11,185.27	-6,373.14	2,609.88	14,436,772.17	1,725,807.86	39.75254598	-80.69618103
18,800.00	89.00	150.54	11,187.01	-6,460.20	2,659.05	14,436,685.12	1,725,857.03	39.75230644	-80.69600713
18,900.00	89.00	150.54	11,188.76	-6,547.26	2,708.22	14,436,598.06	1,725,906.21	39.75206689	-80.69583324
19,000.00	89.00	150.54	11,190.51	-6,634.32	2,757.40	14,436,511.00	1,725,955.38	39.75182735	-80.69565934
19,100.00	89.00	150.54	11,192.26	-6,721.38	2,806.57	14,436,423.94	1,726,004.55	39.75158780	-80.69548545
19,200.00	89.00	150.54	11,194.00	-6,808.44	2,855.74	14,436,336.88	1,726,053.72	39.75134826	-80.69531156
19,300.00	89.00	150.54	11,195.75	-6,895.50	2,904.91	14,436,249.82	1,726,102.89	39.75110871	-80.69513767
19,400.00	89.00	150.54	11,197.50	-6,982.55	2,954.08	14,436,162.77	1,726,152.06	39.75086917	-80.69496378
19,500.00	89.00	150.54	11,199.25	-7,069.61	3,003.25	14,436,075.71	1,726,201.23	39.75062962	-80.69478990
19,600.00	89.00	150.54	11,200.99	-7,156.67	3,052.42	14,435,988.65	1,726,250.40	39.75039007	-80.69461601
19,700.00	89.00	150.54	11,202.74	-7,243.73	3,101.59	14,435,901.59	1,726,299.57	39.75015053	-80.69444213
19,800.00	89.00	150.54	11,204.49	-7,330.79	3,150.76	14,435,814.53	1,726,348.74	39.74991098	-80.69426824
19,886.40	89.00	150.54	11,206.00	-7,406.01	3,193.25	14,435,739.31	1,726,391.23	39.74970400	-80.69411800

PBHL/TD 19886.40 MD 11206.00 TVD

4705102288



Planning Report - Geographic

Database:	DB_Jul2216dt_v14 It	Local Co-ordinate Reference:	Well Knob Creek S-14HU (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=737 @ 737.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL=737 @ 737.00usft
Site:	Knob Creek	North Reference:	Grid
Well:	Knob Creek S-14HU (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev3		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
KC Ten High S-14HU LF - plan misses target center by 0.04usft at 11761.32usft MD (11064.00 TVD, -332.44 N, -801.93 E) - Point	0.00	0.01	11,064.00	-332.42	-801.90	14,442,812.89	1,722,396.08	39.76916657	-80.70824990
KC Ten High S-14HU LF - plan misses target center by 43.62usft at 11737.30usft MD (11063.19 TVD, -311.48 N, -813.64 E) - Point	0.00	0.01	11,064.00	-332.42	-851.90	14,442,812.89	1,722,346.08	39.76916702	-80.70842783
KC Ten High S-14HU BF - plan hits target center - Point	0.00	0.00	11,206.00	-7,406.01	3,193.25	14,435,739.31	1,726,391.23	39.74970400	-80.69411800

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S	+E/-W	
		(usft)	(usft)	
3,100.00	3,100.00	0.00	0.00	KOP Begin 1°/100' build
3,400.00	3,399.86	3.79	-6.88	Begin 3.00° tangent section
4,400.00	4,398.49	29.01	-52.73	Begin 1°/100' drop
4,700.00	4,698.36	32.80	-59.61	Begin vertical hold section
7,801.64	7,800.00	32.80	-59.61	Begin 3°/100' build
8,801.39	8,754.71	156.08	-283.68	Begin 29.99° tangent section
10,028.99	9,817.93	451.90	-821.34	Begin 6°/100' build/tirm
11,248.04	10,886.90	99.22	-988.14	Begin 8°/100' build/tirm
11,761.32	11,064.00	-332.45	-801.93	Begin 89.00° lateral section
19,886.40	11,206.00	-7,406.01	3,193.25	PBHL/TD 19886.40 MD 11206.00 TVD

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WW-9
(4/16)

4705102288

API Number 47 - 051 -
Operator's Well No. Knob Creek S-14HU

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

Watershed (HUC 10) Fish Creek Quadrangle Glen Easton 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: AST Tanks with proper containment will be used for staging fresh water for frac and flow back water

Will a synthetic liner be used in the pit? Yes No If so, what ml.? AST Tanks will be used with proper contain

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number UIC 2459, UIC 965, UIC 359, UIC 2D0732540, UIC 2D0732523)
- Reuse (at API Number)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain)

Will closed loop system be used? If so, describe: Yes - For Vertical and Horizontal Drilling

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Air for vertical / Oil for Horizontal

-If oil based, what type? Synthetic, petroleum, etc. Synthetic Oil Base

Additives to be used in drilling medium? Barite for weight

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. All drill cuttings to be disposed of in a Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Welzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386426)

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

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Company Official Signature *Jim Pancake*

Company Official (Typed Name) Jim Pancake

WV Department of Environmental Protection

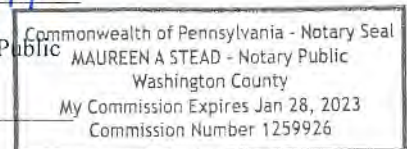
Company Official Title VP Geosciences

Subscribed and sworn before me this 26 day of SEPTEMBER, 20 19

Maureen A Stead

Notary Public

My commission expires 1/20/23



4705102288

Form WW-9

Operator's Well No. Knob Creek S-14HU

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 12.93 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Orchard Grass	12
Spring Oats	96	Ladino	3
		White Clover	2

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jae Nichols*

Comments:

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WV Department of Environmental Protection

Title: WVDEP Oil and Gas Inspector

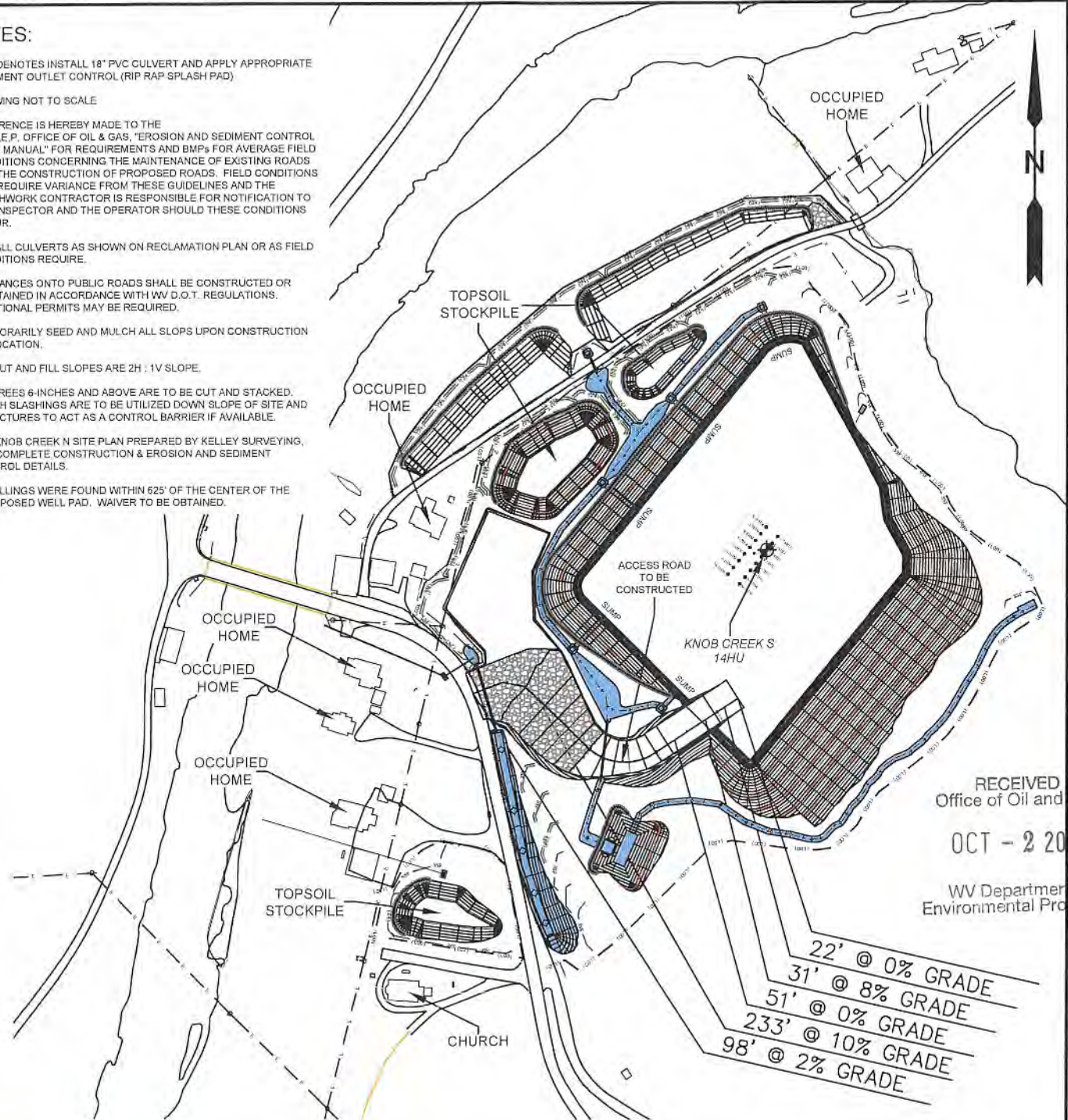
Date: 9/27/19

Field Reviewed? (X) Yes () No

PROPOSED KNOB CREEK S - 14HU

NOTES:

1. - DENOTES INSTALL 18" PVC CULVERT AND APPLY APPROPRIATE SEDIMENT OUTLET CONTROL (RIP RAP SPLASH PAD)
2. DRAWING NOT TO SCALE
3. REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.
4. INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.
5. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
6. TEMPORARILY SEED AND MULCH ALL SLOPS UPON CONSTRUCTION OF LOCATION.
7. ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.
8. ALL TREES 6-INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO BE UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.
9. SEE KNOB CREEK N SITE PLAN PREPARED BY KELLEY SURVEYING, FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.
10. DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF THE PROPOSED WELL PAD. WAIVER TO BE OBTAINED.



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22' @ 0% GRADE
31' @ 8% GRADE
51' @ 0% GRADE
233' @ 10% GRADE
98' @ 2% GRADE

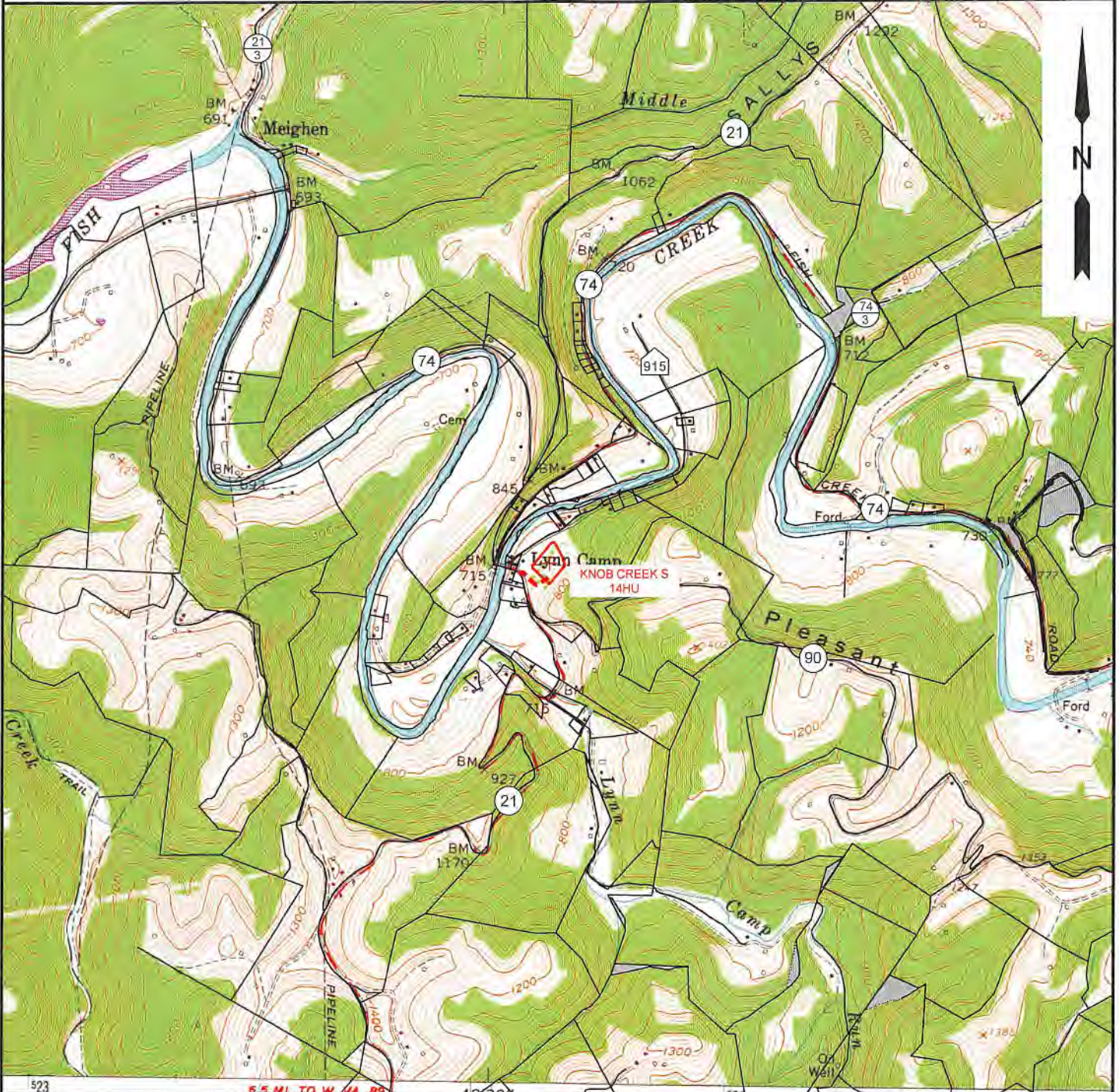
----- * * * * *
SILT FENCE AND/OR SEDIMENT AND EROSION CONTROL MEASURE.

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Land & Energy Development
Solutions from the ground up.
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www.slsww.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8789	09/27/2019	NONE

TUG HILL
OPERATING

PROPOSED KNOB CREEK S - 14HU



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE DISTRICT
PROCTOR, WV

LAT: 39.7137712
LON: -80.8258327
LOCATED: S 59°36'12" W AT 39,574.55' FROM THE CENTER OF KNOB CREEK N WELL PAD LOCATION.



SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 112 Vanhorn Drive • Glenville, WV 26351 • (804) 462-5534
www.slsww.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
DRAWN BY		DATE	SCALE
K.G.M.		09/27/2019	1" = 2000'



TUG HILL
OPERATING

4705102288



Well Site Safety Plan

Tug Hill Operating, LLC

me
9/27/19

Well Name: Knob Creek S-14HU

Pad Location: Knob Creek

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

NORTHING - 4,402,279.50

EASTING - 525,231.80

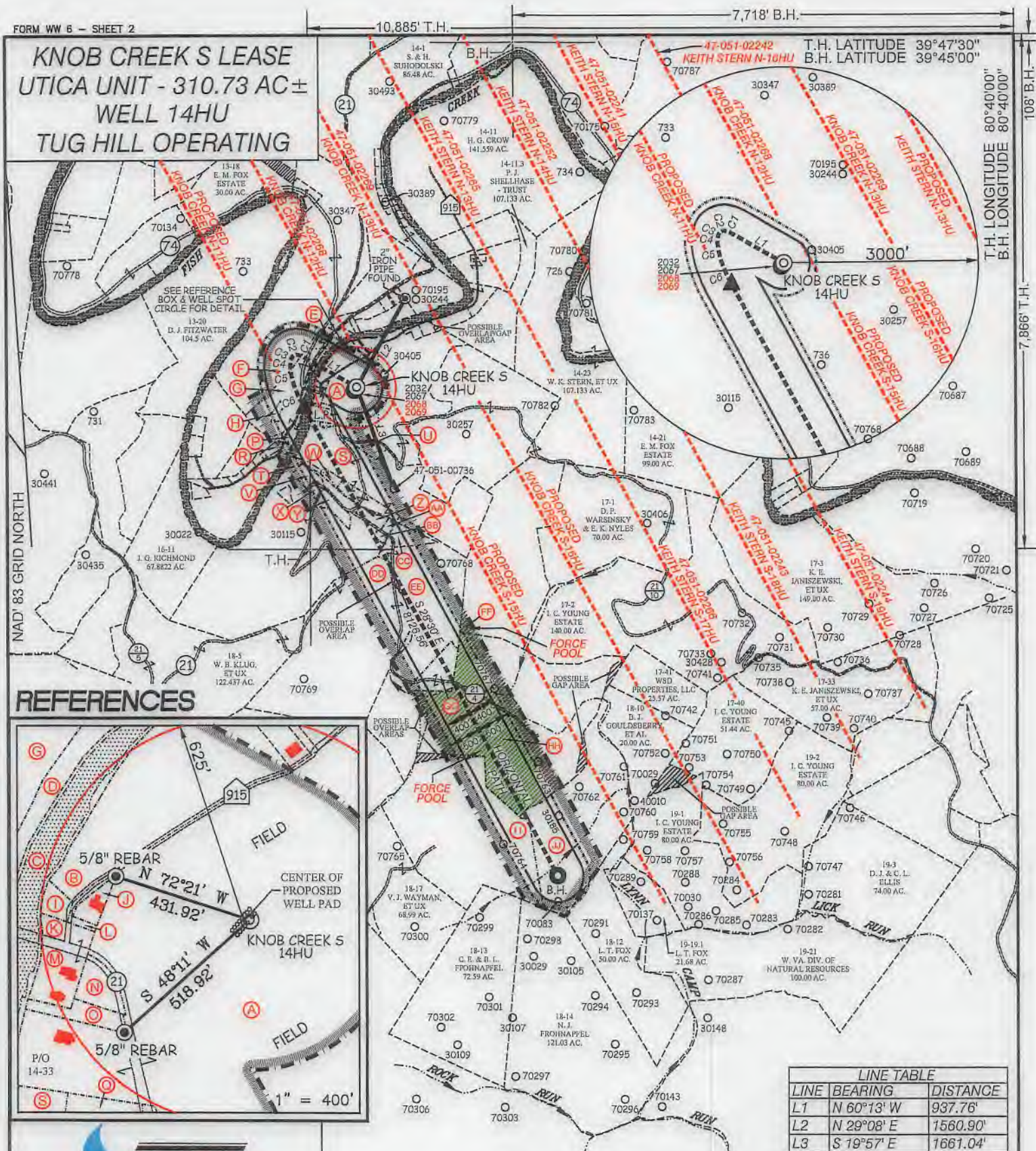
RECEIVED
Office of Oil and Gas

OCT - 2 2019

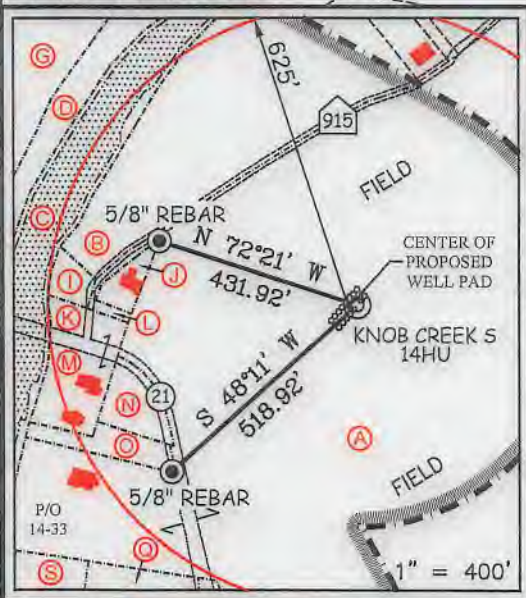
September 2019

WV Department of
Environmental Protection

**KNOB CREEK S LEASE
UTICA UNIT - 310.73 AC±
WELL 14HU
TUG HILL OPERATING**



REFERENCES



LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 60°13' W	937.76'
L2	N 29°08' E	1560.90'
L3	S 19°57' E	1661.04'

CHORD BEARING				
CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	93.12'	262.75'	N 69°18' W	92.64'
C2	91.01'	89.43'	S 71°30' W	87.13'
C3	70.37'	149.45'	S 24°37' W	69.72'
C4	96.82'	391.36'	S 03°55' W	96.57'
C5	280.49'	1131.40'	S 11°23' E	279.77'
C6	389.12'	2199.17'	S 23°40' E	388.61'

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P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634
www.sls-wv.com

P.S. 849 *C. Victor Moyers*

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)			
NAD'83 S.P.C.(FT)	N. 464,872.53	E. 1,629,692.92	
NAD'83 GEO.	LAT-(N) 39.770072	LONG-(W) 80.705392	
NAD'83 UTM (M)	N. 4,402,279.50	E. 525,231.80	
LANDING POINT			
NAD'83 S.P.C.(FT)	N. 464,553.4	E. 1,628,885.9	
NAD'83 GEO.	LAT-(N) 39.769167	LONG-(W) 80.708250	
NAD'83 UTM (M)	N. 4,402,178.2	E. 524,987.4	
BOTTOM HOLE			
NAD'83 S.P.C.(FT)	N. 457,411.7	E. 1,632,763.0	
NAD'83 GEO.	LAT-(N) 39.749704	LONG-(W) 80.694118	
NAD'83 UTM (M)	N. 4,400,022.1	E. 525,205.1	



(+) 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. 8789P14HUR.dwg
KNOB CREEK S-14HU REV3
DATE OCTOBER 1, 20 19
REVISED DECEMBER 18, 20 19
OPERATORS WELL NO. KNOB CREEK S-14HU
API WELL NO. 47 - D51 - 02288 H6A
NO. STATE COUNTY PERMIT

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

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	5400 D BIG TYLER ROAD
	CHARLESTON, WV 25313

10,885' T.H.

7,718' B.H.

B.H.

T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°45'00"

**KNOB CREEK S LEASE
UTICA UNIT - 310.73 AC±
WELL 14HU
TUG HILL OPERATING**

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

NAD'83 S.P.C.(FT) N. 464,872.53 E. 1,629,692.92
NAD'83 GEO. LAT-(N) 39.770072 LONG-(W) 80.705392
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LANDING POINT

NAD'83 S.P.C.(FT) N. 464,553.4 E. 1,628,885.3
NAD'83 GEO. LAT-(N) 39.769167 LONG-(W) 80.708250
NAD'83 UTM (M) N. 4,402,178.2 E. 524,987.4

BOTTOM HOLE

NAD'83 S.P.C.(FT) N. 457,411.7 E. 1,632,763.0
NAD'83 GEO. LAT-(N) 39.749704 LONG-(W) 80.694118
NAD'83 UTM (M) N. 4,400,022.1 E. 526,205.1

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

7,866' T.H.

T.H.

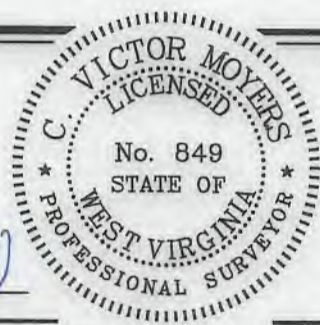
NOTES ON SURVEY

- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- SEE REFERENCES FOR DWELLINGS LOCATED 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.
- PROPOSED LATERAL OR TOP HOLE OF KNOB CREEK S-14HU IS WITHIN 3000' OF THE TOP HOLES OR LATERALS OF EXISTING WELLS PROPOSED KNOB CREEK N-11HU, KNOB CREEK N-12HU (47-051-02268), KNOB CREEK N-13HU (47-051-02269), PROPOSED KNOB CREEK S-15HU, PROPOSED KNOB CREEK S-16HU, KEITH STERN N-13HU (47-051-02265).

TAG	SURFACE OWNER	PARCEL	ACRES
A	DAVID LEE FRANKLIN	9-14-33	65.824
B	DAVID LEE FRANKLIN	9-14-44	2.913
C	STATE OF WEST VIRGINIA (FISH CREEK)	N/A	N/A
D	JOHN C. LAGOS, ET UX	9-14-42	1.87
E	JAMES G. FOX	9-14-43	0.66
F	NILA JEAN FROHNAPFEL	9-13-12	91.1007
G	MARGARET FOX - LIFE	9-13-13	15.513
H	THOMAS JOHN FOX	9-13-13.1	0.827
I	MARGARET FOX - LIFE	9-14-41	9,163 SQ. FT
J	MARGARET FOX - LIFE	9-14-39	8,675 SQ. FT
K	MARGARET FOX - LIFE	9-14-40	19,560 SQ. FT
L	MARGARET FOX - LIFE	9-14-36	1,600 SQ. FT
M	MARGARET FOX - LIFE	9-14-37	LOT
N	MARGARET FOX - LIFE	9-14-38	0.631
O	PAUL G. FOX	9-14-35	0.338
P	JAMES RICHMOND	9-16-12	28.638
Q	LYNN CAMP METHODIST CHURCH	9-16-14	0.762
R	JAMES G. RICHMOND, ET UX	9-16-12.1	0.691
S	RONALD R. YOUNG, ET UX - LIFE	9-16-15	52.02
T	PAUL R. BLAKE	9-16-13	97.9962
U	ERIC J. YOUNG	9-16-15.1	1.98
V	WESLEY D. YEATER, ET UX	9-16-13.6	2.144
W	CLINTON B. WHITEFATCH, SR.	9-16-16	1 AC. & 5 6/10 P.
X	PAUL W. BLAKE - LIFE	9-16-13.1	0.91
Y	PAUL R. BLAKE & PAUL R. BLAKE, II	9-16-13.5	2.291
Z	ELEANOR M. FOX ESTATE	9-16-13.2	1.570
AA	ELEANOR M. FOX ESTATE	9-16-17	0.741
BB	JOHN FOX	9-16-13.4	0.533
CC	ROBIN D. & DAVID G. STEWART	9-16-18.1	3.333
DD	LOUIS T. FOX	9-16-20	86.174
EE	ALICE FAYE WINLAND	9-16-18	48.667
FF	ALICE FAYE WINLAND	9-16-19	75.00
GG	LOUIS T. FOX	9-18-7	27.864
HH	ROBERT J. COMBS, ET AL	9-18-9	110.75
II	DOUGLAS J. WAYMAN	9-18-8	92.72
JJ	BETTY J. GOULDSBERRY ESTATE, ET AL	9-18-11	60.00



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 OCTOBER 1, 20 19
REVISED DECEMBER 18, 20 19
OPERATORS WELL NO. KNOB CREEK S-14HU
API WELL NO. 47-051-02288116A
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8789P14HUR.dwg
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'
KNOB CREEK S-14HU REV3

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: GROUND = 730.90' ELEVATION PROPOSED = 734.67' WATERSHED FISH CREEK (HUC 10)
DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER DAVID LEE FRANKLIN ACREAGE 65.824±
ROYALTY OWNER DAVID LEE FRANKLIN, ET AL - SEE ADDITIONAL SHEETS ACREAGE 65.824±

PROPOSED WORK: LEASE NO. SEE ADDITIONAL SHEETS
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: 11,295'/ TMD: 19,886'

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

COUNTY NAME
PERMIT

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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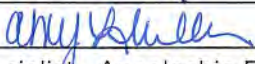
*See attached pages

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Tug Hill Operating, LLC
 By: Amy L. Miller 
 Its: Permitting Specialist - Appalachia Region

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment			
10*15946	9-18-11	JJ	JOSEPH M EMERY	CHESAPEAKE APPALACHIA LLC	1/8+	707	150	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15947	9-18-11	JJ	GERALD ARTHUR EBERT	CHESAPEAKE APPALACHIA LLC	1/8+	703	588	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15948	9-18-11	JJ	GERALD ALLEN EBERT	CHESAPEAKE APPALACHIA LLC	1/8+	707	352	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15949	9-18-11	JJ	CLARENCE W EMERY	CHESAPEAKE APPALACHIA LLC	1/8+	703	590	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15950	9-18-11	JJ	KAREN S GIBSON	CHESAPEAKE APPALACHIA LLC	1/8+	707	154	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15951	9-18-11	JJ	GEORGE R FINNEGAN	CHESAPEAKE APPALACHIA LLC	1/8+	707	156	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15952	9-18-11	JJ	TOM A FINNEGAN	CHESAPEAKE APPALACHIA LLC	1/8+	707	135	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15953	9-18-11	JJ	GARNET E EMERY	CHESAPEAKE APPALACHIA LLC	1/8+	708	77	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*17174	9-18-11	JJ	JOSHUA EARL YOHO, JR.	CHESAPEAKE APPALACHIA LLC	1/8+	715	381	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*17175	9-18-11	JJ	JANE ELLEN MARCUM	CHESAPEAKE APPALACHIA LLC	1/8+	716	17	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*17176	9-18-11	JJ	NOEL S YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	716	32	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*17178	9-18-11	JJ	THOMAS S YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	716	386	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*17179	9-18-11	JJ	CHARLES VINCENT YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	716	381	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

Lease ID	Parcel	Tags	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*17180	9-18-11	JJ	CHRISTA JO DAVIES	CHESAPEAKE APPALACHIA LLC	1/8+	716	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc.: 29/325	Chesapeake Appalachia LLC to SWN Production Company: 35/424	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 35/424	SWN Exchange Titleholder LLC merged into and with SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	N/A
10*17689	9-18-11	JJ	DONNA V YOHIO	TH EXPLORATION LLC	1/8+	933	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18764	9-18-11	JJ	CRAIG ALAN YOHIO AND DONNIA M YOHIO	TH EXPLORATION LLC	1/8+	938	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18765	9-18-11	JJ	SAMUEL D YOHIO	TH EXPLORATION LLC	1/8+	938	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19508	9-18-11	JJ	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	941	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23260	9-18-11	JJ	IDA M TRAVIS ET AL DAVID C WHITE AS SPECIAL COMMISSIONER	TH EXPLORATION LLC	1/8+	988	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24650	9-18-11	JJ	TIMOTHY B COURTWRIGHT AND KAREN COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24651	9-18-11	JJ	WILBUR L COURTWRIGHT AND GAIL COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24652	9-18-11	JJ	DEAN M COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24653	9-18-11	JJ	FRED C COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24654	9-18-11	JJ	JACOB A COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*24655	9-18-11	JJ	FREDA L COURTWRIGHT	TH EXPLORATION LLC	1/8+	1026	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26720	9-18-11	JJ	ADAM D COURTWRIGHT	TH EXPLORATION LLC	1/8+	1041	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26725	9-18-11	JJ	HAZEL B KOFFER AND MALPH KOFFER	TH EXPLORATION LLC	1/8+	1041	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26726	9-18-11	JJ	MILLIE F LUND AND DAVID LUND	TH EXPLORATION LLC	1/8+	1041	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26727	9-18-11	JJ	CHARLOTTE R MCMILLEN AND MARK E MCMILLEN	TH EXPLORATION LLC	1/8+	1041	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*26728	9-18-11	JJ	WRETHA M RICE AND AARON RICE	TH EXPLORATION LLC	1/8+	1041	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27357	9-18-11	JJ	JOYCE E ROSPERT AND RICHARD ROSPERT	TH EXPLORATION LLC	1/8+	1054	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27358	9-18-11	JJ	ROBERT E RIGGLE JR AND TAMI S RIGGLE	TH EXPLORATION LLC	1/8+	1054	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27359	9-18-11	JJ	MARK D RIGGLE AND ALICIA RIGGLE	TH EXPLORATION LLC	1/8+	637	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27361	9-18-11	JJ	KATHY L SULLIVAN AND MICHAEL SULLIVAN	TH EXPLORATION LLC	1/8+	1053	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27362	9-18-11	JJ	LARRY G TAYLOR AND ROXANNE D TAYLOR	TH EXPLORATION LLC	1/8+	643	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27616	9-18-11	JJ	REBECCA K HICKS	TH EXPLORATION LLC	1/8+	1054	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*27878	9-18-12	KK	SMITH RICHMOND AND BELLE RICHMOND	EDWARD KLUG	1/8+	132	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Co-tenancy utilization - At least 75% of mineral owners in tract. At least 75% of the royalty owners have executed a lease on the tract. The interests of the remaining co-tenants were acquired pursuant to the Co-tenancy Modernization and Majority Protection Act.

PARTIAL ASSIGNMENT OF OIL AND GAS LEASES

This **PARTIAL ASSIGNMENT OF OIL AND GAS LEASES** (hereinafter, "**Assignment**"), made the 31 day of May, 2018 (hereinafter, "**Effective Date**"), is by and between **CNX GAS COMPANY LLC**, a Virginia limited liability company, whose address is 1000 CONSOL Energy Drive, Suite 400, Canonsburg, Pennsylvania 15317 (hereinafter "**Assignor**") and **TH EXPLORATION, LLC**, a Texas limited liability company, whose address is 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 (hereinafter "**Assignee**"). All references in this Assignment to "**Party**" or "**Parties**" shall be deemed at all times to mean Assignor or Assignee or both. Capitalized terms used but not defined herein shall have the meaning given such terms in the Acreage Trade Agreement, by and between Assignor and Assignee dated April 9, 2018 (the "**ATA**").

WHEREAS, Assignor desires to assign all of Assignor's right, title and interest in and to those Oil and Gas Lease(s) as same may have been previously or will in the future be modified, extended, or amended (hereinafter, "**Lease**" or "**Leases**"), covering certain tracts of land (hereinafter, "**Lands**") located in Marshall County, West Virginia; such Leases and Lands covered thereby being more particularly described on **Exhibit "A"** attached hereto and made a part hereof insofar and only insofar as such Leases cover the Target Formations (as defined below).

NOW, THEREFORE, for and in consideration of TEN AND NO/100 DOLLARS (\$10.00) and other valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor does hereby **GRANT, BARGAIN, ASSIGN, TRANSFER, AND CONVEY** unto Assignee the following "**Assigned Rights**":

- (a) All of Assignor's right, title, and interest in and to those Leases set forth on **Exhibit A** attached hereto **INSOFAR AND ONLY INSOFAR** as to the particular Target Formation(s) (defined below) described and delineated on **Exhibit A** for each Lease:
 - i. "**Target Formation(s)**" means, with respect to each Lease, two hundred feet (200') above the top and two hundred feet (200') below the base of the Marcellus Formation or the Utica Formation or both, as specified for each Lease on **Exhibit A**. For the purposes of this Assignment, the Marcellus Formation shall be defined as the formation commonly known as the Marcellus Shale Formation, with the top of the Marcellus Shale Formation defined as the correlative stratigraphic equivalent to that point found at 6517 feet (6517') measured depth on the Halliburton Simms U-5H Composite_DLL_DEN_NEU Log dated June 14, 2014 (the "**Log**")



TUG HILL

4705102288

October 1, 2019

WV Department of Environmental Protection
Office of Oil & Gas
601 57th Street, SE
Charleston, WV 25304
Attention: Laura Adkins

RE: Knob Creek S-14HU

Subject: CR 21 , 74 and 95 Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Route 21, 74 and 95 in the area reflected on the Knob Creek S-14HU well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

If your office has any questions or concerns regarding the contents of this letter, please do not hesitate to contact me directly at 304-376-0111, or by email at amiller@tug-hilop.com.

Sincerely,

Amy Miller
Permit Specialist – Appalachia Region
Cell 304-376-0111
Email: amiller@tug-hilop.com

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Environmental Protection

WW-6AC
(1/12)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION

Date of Notice Certification: 10/01/2019

API No. 4705102288
Operator's Well No. Knob Creek S-14HU
Well Pad Name: Knob Creek

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>525,231.80</u>
County:	<u>Marshall</u>		Northing:	<u>4,402,279.50</u>
District:	<u>Meade</u>	Public Road Access:	<u>St. Joseph Road - CR 21</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>David Lee Franklin</u>	
Watershed:	<u>Fish Creek (HUC 10)</u>			

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p style="text-align: center;">OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p style="text-align: center;">RECEIVED Office of Oil and Gas</p> <p style="text-align: center;">OCT - 2 2019</p> <p><input checked="" type="checkbox"/> RECEIVED</p>
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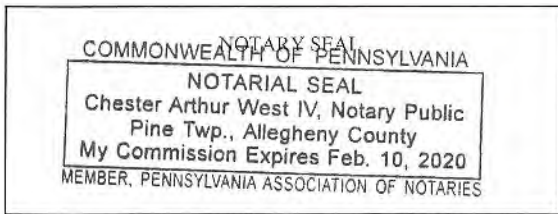
Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

Certification of Notice is hereby given:

THEREFORE, I Amy L. Miller, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>Tug Hill Operating, LLC</u>	Address:	<u>380 Southpointe Boulevard, Plaza II, Suite 200</u>
By:	<u>Amy L. Miller <i>[Signature]</i></u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permitting Specialist - Appalachia</u>	Facsimile:	<u>724-749-8388</u>
Telephone:	<u>724-749-8388</u>	Email:	<u>amiller@tug-hillop.com</u>



Subscribed and sworn before me this 15th day of October 2019
[Signature] Notary Public
 My Commission Expires 2-10-2020

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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(9-13)

API NO. 47- -
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the filing date of permit application.

Date of Notice: 9/30/2019 Date Permit Application Filed: 10/1/2019

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
Name: David Lee Franklin
Address: 131 Saint Joseph Road
Glen Easton, WV 26039

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: David Lee Franklin
Address: 131 Saint Joseph Road
Glen Easton, WV 26039

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: CNX Land Resources, Inc.
Address: 1000 Consol Energy Drive
Canonsburg, PA 15318

COAL OPERATOR
Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: *See attached list
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

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API NO. 47-

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OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

WV Department of
Environmental Protection

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Location Restrictions

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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API NO. 47-_____-_____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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API NO. 47-
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

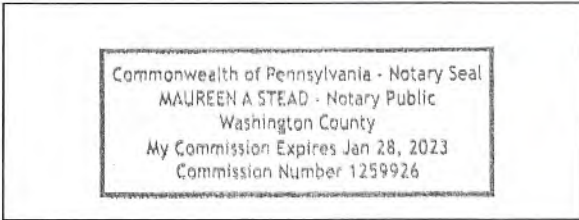
Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amiller@tug-hilltop.com *amy Miller*

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-338-2030

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.



Subscribed and sworn before me this 30 day of SEPT, 2019.
Maureen A. Stead Notary Public
My Commission Expires 1/28/23

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Office of Oil and Gas
OCT - 2 2019
WV Department of
Environmental Protection

Exhibit WW-6A

Supplement Pg. 1A

Tug Hill Operating, LLC
380 Southpointe Blvd, Suite 200
Cannonsburg, PA 15137

Residences within Two-Thousand Feet (2,000')

Well: KNOB CREEK S – 14HU
District: Meade (Residence #'s 1-12, 14-26) (Church #13)
State: WV

There are twenty-five (25) residences, no businesses, one (1) church, no schools or no emergency facilities within two-thousand feet (2,000') of the above referenced well location.

<p>Residence # 1 TM 14 Pcl. 39 Margaret Fox – Life c/o Paul Fox Phone: 304-455-3817 (Per Tax Address – Paul G. Fox) Physical Address: 31 Crow Dr. Glen Easton, WV 26039 Tax Address: 5761 Saint Joseph Rd. Proctor, WV 26055</p>	<p>Residence # 2 TM 14 Pcl. 32 Twila C. Coffield Phone: 304-845-5941 Physical Address: 184 Crow Dr. Glen Easton, WV 26039 Tax Address: 16 Sandy Ave. Moundsville, WV 26041-1020</p>	<p>Residence # 3 TM 14 Pcl. 54 Richard L. Harveth, Et Ux c/o Richard Lee Harveth Phone: 304-845-7397; 304-845-5128 Physical Address: 220 Crow Dr. Glen Easton, WV 26039 Tax Address: Same</p>
<p>Residence # 4 TM 14 Pcl. 42 John C. Lagos, Et Ux Phone: 304-845-2793 Physical Address: 12529 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: 404 Jefferson Ave. Glen Dale, WV 26038</p>	<p>Residence # 5 TM 14 Pcl. 53 James E. Peelman Phone: None Found Physical Address: 12551 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: 12551 Fish Creek Rd. Glen Easton, WV 26039</p>	<p>Residence # 6 TM 14 Pcl. 29.1 Andrew Fasouletos, Et Ux Phone: 304-845-9009 Physical Address: 329 Crow Dr. Glen Easton, WV 26039 Tax Address: 1. Rd. 2 Box 150 Proctor, WV 26055 2. 3391 Taylors Ridge Rd. Proctor, WV 26055-9723</p>
<p>Residence # 7 TM 14 Pcl. 29.1 Andrew Fasouletos, Et Ux Phone: 304-845-9009 Physical Address: 361 Crow Dr. Glen Easton, WV 26039 Tax Address: 1. Rd. 2 Box 150 Proctor, WV 26055 2. 3391 Taylors Ridge Rd. Proctor, WV 26055-9723</p>	<p>Residence # 8 TM 14 Pcl. 29 Andrew Fasouletos, Et Ux c/o Tena Marie Stricklin Phone: 304-845-9009 Physical Address: 389 Crow Dr. Glen Easton, WV 26039 Tax Address: 1. 3391 Taylors Ridge Rd. Proctor, WV 26055-9723 2. Rd. 2 Box 150 Proctor, WV 26055</p>	<p>Residence # 9 TM 14 Pcl. 48 Michael L. & Cheryl J. Acree Phone: 304-455-2148; 304-455-5859 Physical Address: 12725 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: 189 Plum St. Proctor, WV 26055</p>

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OCT - 2 2019

WV Department of
Environmental Protection

4705102288

<p>Residence # 10 TM 14 Pcl. 45 George R. Taylor, Et Ux Phone: 304-845-2987 Physical Address: 12781 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: Same</p>	<p>Residence # 11 TM 16 Pcl. 15.1 Eric J. Young Phone: 304-686-3398; 304-905-1986 (Per Address – Chelsey Long); 304-845-0154 (Per Address – Bill J. Blatt) Physical Address: 153 Young Ln. Glen Easton, WV 26039 Tax Address: Same</p>	<p>Residence # 12 TM 16 Pcl. 15 Ronald R. Young, Et Ux - Life Phone: 304-845-6044 (Per Tax Address – Geraldine M. Young) Physical Address: 348 Saint Joseph Rd. Glen Easton, WV 26039 Tax Address: Same</p>
<p>Church # 13 TM 16 Pcl. 14 Lynn Camp Methodist Church Phone: Physical Address: 171 Saint Joseph Rd. Glen Easton, WV 26039 Tax Address: Unknown Address Moundsville, WV 26041</p>	<p>Residence # 14 TM 16 Pcl. 15 Ronald R. Young, Et Ux - Life Phone: 304-845-6044 (Per Tax Address – Geraldine M. Young) Physical Address: 323 Saint Joseph Rd. Glen Easton, WV 26039 Tax Address: 348 Saint Joseph Rd. Glen Easton, WV 26039</p>	<p>Residence # 15 TM 16 Pcl. 13.5 Paul R. Blake & Paul R. Blake II Phone: 304-845-9369 Physical Address: 616 Saint Joseph Rd. Glen Easton, WV 26039 Tax Address: 121 Vandivere Ln. Glen Easton, WV 26039-9707</p>
<p>Residence # 16 TM 16 Pcl. 13.1 Paul W. Blake - Life Phone: 304-845-2999 Physical Address: 581 Saint Joseph Rd. Glen Easton, WV 26039 Tax Address: 1500 8th St. Moundsville, WV 26041-2031</p>	<p>Residence # 17 TM 16 Pcl. 13.6 Wesley D. Yeater, Et Ux Phone: 304-843-5212 Physical Address: 37 Vandivere Ln. Glen Easton, WV 26039 Tax Address: Same</p>	<p>Residence # 18 TM 16 Pcl. 13.3 Paul R. Blake Phone: 304-845-9369 Physical Address: 121 Vandivere Ln. Glen Easton, WV 26039 Tax Address: Same</p>
<p>Residence # 19 TM 16 Pcl. 12.2 Spencer J. & Carrie A. Richmond Phone: 304-845-2274; 304-845-8186 Physical Address: 293 Richmond Ln. Glen Easton, WV 26039 Tax Address: 243 Richmond Ln. Glen Easton, WV 26039</p>	<p>Residence # 20 TM 16 Pcl. 12.7 Spencer J. & Carrie A. Richmond Phone: 304-845-2274; 304-845-8186 Physical Address: 243 Richmond Ln. Glen Easton, WV 26039 Tax Address: Same</p>	<p>Residence # 21 TM 16 Pcl. 12.1 James G. Richmond, Et Ux Phone: 304-845-8186 Physical Address: 157 Richmond Ln. Glen Easton, WV 26039 Tax Address: Same</p> <p style="text-align: right;">RECEIVED Office of Oil and Gas OCT - 2 2019</p>
<p>Residence # 22 TM 14 Pcl. 33 David Lee Franklin Phone: 304-845-6025; 304-845-3203 Physical Address: 131 Saint Joseph Rd. Glen Easton, WV 26039 Tax Address: 131 Saint Joseph Rd. Glen Easton, WV 26039</p>	<p>Residence # 23 TM 14 Pcl. 37 Margaret Fox – Life c/o Paul Fox Phone: 304-455-3817 (Per Tax Address – Paul G. Fox) Physical Address: 107 Saint Joseph Rd. Glen Easton, WV 26039 Tax Address: 5761 Saint Joseph Rd. Proctor, WV 26055</p>	<p>Residence # 24 TM 14 Pcl. 37 Margaret Fox – Life c/o Paul Fox Phone: 304-455-3817 (Per Tax Address – Paul G. Fox) Physical Address: 51 Saint Joseph Rd. Glen Easton, WV 26039 Tax Address: 5761 Saint Joseph Rd. Proctor, WV 26055</p> <p style="text-align: right;">WV Department of Environmental Protection</p>

4705102288

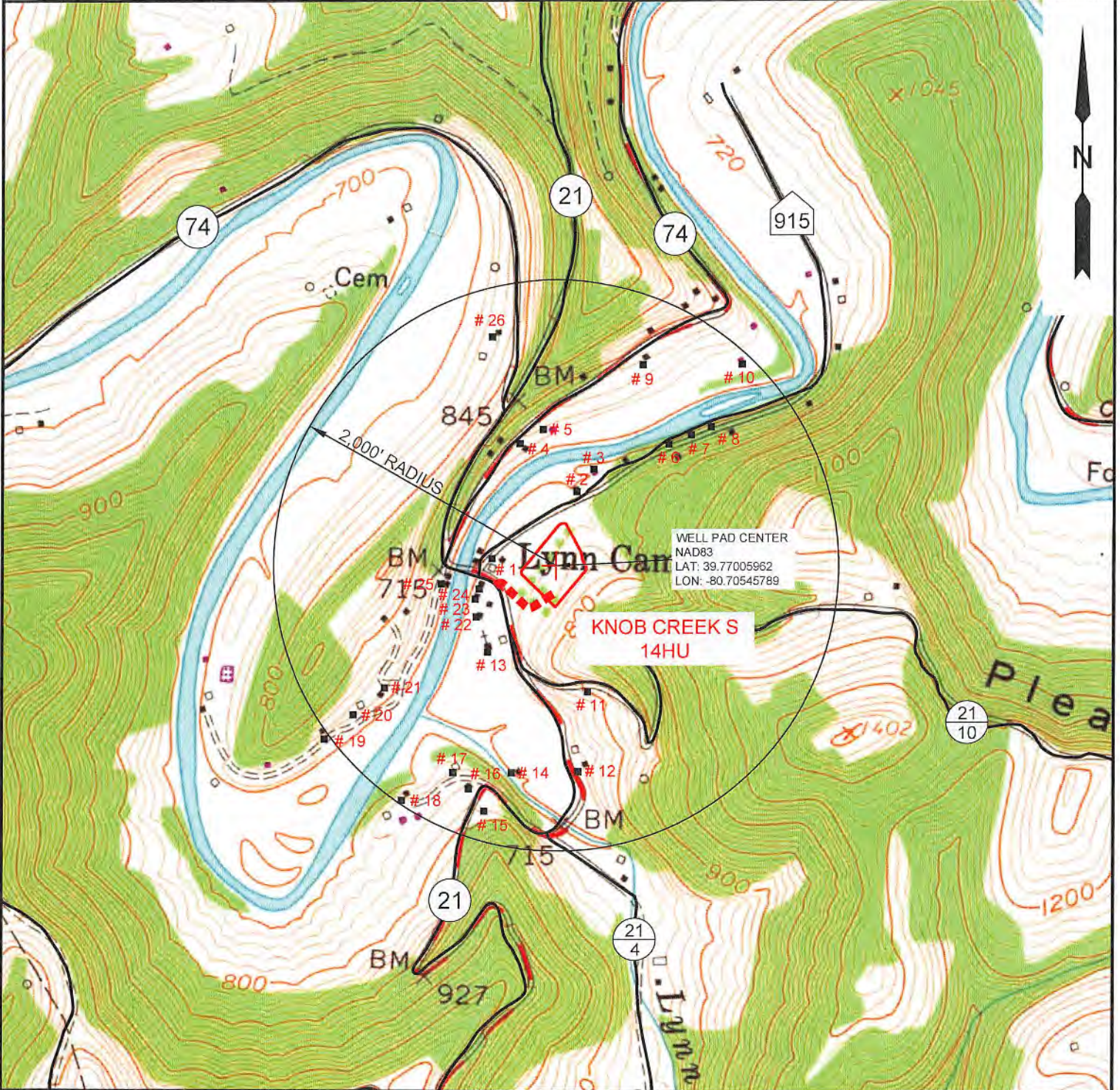
<p>Residence # 25 TM 13 Pcl. 13 Margaret K. Fox – Life c/o Paul Fox Phone: 304-455-3817 (Per Tax Address – Paul G. Fox) Physical Address: 28 Richmond Ln. Glen Easton, WV 26039 Tax Address: 5761 Saint Joseph Rd. Proctor, WV 26055</p>	<p>Residence # 26 TM 13 Pcl. 12 Nila Jean Prohnappel Phone: None Found Physical Address: 11975 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: Rd. 1 Box 190 Proctor, WV 26055-9703</p>	
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WV Department of
Environmental Protection

PROPOSED KNOB CREEK S - 14HU



NOTE: THERE APPEARS TO BE TWENTY-SIX (26) POSSIBLE WATER SOURCES WITHIN 2,000'.

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OCT - 2 2019

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634
www.slsww.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT		
MARSHALL	MEADE		
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8789	09/27/2019	1" = 1000'

WV Department of
Environmental Protection
TUG HILL
OPERATING

WW-6A3
(1/12)

Operator Well No. Knob Creek N-14HU

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF ENTRY FOR PLAT SURVEY

Notice Time Requirement: Notice shall be provided at least **SEVEN (7)** days but no more than **FORTY-FIVE (45)** days prior to entry

Date of Notice: 2/5/2018 **Date of Planned Entry:** 2/12/2018

Delivery method pursuant to West Virginia Code § 22-6A-10a

PERSONAL SERVICE REGISTERED MAIL METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

Notice is hereby provided to:

SURFACE OWNER(s)
Name: David Lee Franklin (Pad and Access Road)
Address: 131 Saint Joseph Road
Glen Easton, WV 26039

Name: _____
Address: _____

Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: CNX Land Resources, Inc.
Address: 1000 Consol Energy Drive
Canonsburg, PA 15318

MINERAL OWNER(s)
Name: David Lee Franklin
Address: 131 Saint Joseph Road
Glen Easton, WV 26039

*please attach additional forms if necessary

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: West Virginia
County: Marshall
District: Meade
Quadrangle: Glen Easton 7.5'

Approx. Latitude & Longitude: 39.7700596; -80.7054579
Public Road Access: St. Joseph Road - County Route 21
Watershed: Fish Creek (HUC 10)
Generally used farm name: David Lee Franklin

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amiller@tug-hillop.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-338-2030

RECEIVED
Office of Oil and Gas

OCT - 2 2019

WV Department of
Environmental Protection

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

WW-6A5
(1/12)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 10/01/2019 **Date Permit Application Filed:** 10/01/2019

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)

(at the address listed in the records of the sheriff at the time of notice):

Name: David Lee Franklin

Name: _____

Address: 131 Saint Joseph Road

Address: _____

Glen Easton, WV 26039

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>525,231.80</u>
County:	<u>Marshall</u>		Northing:	<u>4,402,279.50</u>
District:	<u>Meade</u>	Public Road Access:	<u>St. Joseph Road - CR 21</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>David Lee Franklin</u>	
Watershed:	<u>Fish Creek (HUC 10)</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: Tug Hill Operating, LLC

Address: 380 Southpointe Boulevard, Plaza II, Suite 200

Telephone: 724-749-8388

Canonsburg, PA 15317

Email: amiller@tug-hillop.com

Facsimile: 724-338-2030

RECEIVED
Office of Oil and Gas

OCT - 2 2019

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our Regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

WV Regulatory
Environmental Protection

TUG HILL OPERATING LLC
SUSANNE DELIERE
380 SOUTHPOINTE BLVD
SUITE 200
CANONSBURG PA 15317

LIMITED POWER OF ATTORNEY

That I, David Lee Franklin, hereby make, name and appoint, Tug Hill Operating, LLC, by and through its officers, agents or employees to be my limited power of attorney, for the sole and specific purpose of executing Well Location Restriction Waivers(s) that permit the conducting of oil or gas well work and the drilling of additional oil and gas wells on the Knob Creek Well Pad situate in Meade District, Marshall County, West Virginia, shown on Tax Map 14, as Parcel 33. See attached **Exhibit A**. Said waivers shall be of the type shown on the attached **Exhibit B**, differing only in the api number and operator well number located on the form.

I the said David Lee Franklin hereby declare that acts done by my said attorney for said specific and sole purpose shall be as good, valid and effective, to all intents and purposes whatsoever, as if the same had been made or done by me, and I hereby undertake to ratify whatsoever my attorney shall lawfully do or cause to be done, by virtue of these presents.

I further direct this Limited Power of Attorney shall be good and valid until a revocation thereof has been duly executed by the undersigned.

David Lee Franklin (SEAL)

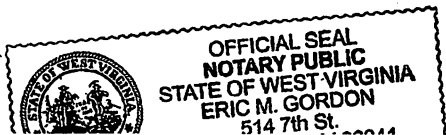
STATE OF West Virginia:
County of Marshall, to-wit:

The foregoing instrument was acknowledged before me this 29th day of March, 2018, by David Lee Franklin.

Given under my hand this 29th day of March, 2018.

My commission expires: Jan 18, 2022.

(NOTARY SEAL/STAMP REQUIRED)



Eric M. Gordon
Notary Public for the aforesaid

TUG HILL OPERATING LLC
SUSANNE DELIERE
380 SOUTHPOINTE BLVD
SUITE 200
CANONSBURG PA 15317

BOOK 0024 PAGE 0409

LIMITED POWER OF ATTORNEY

That I, Linda Lee Franklin, hereby make, name and appoint, Tug Hill Operating, LLC, by and through its officers, agents or employees to be my limited power of attorney, for the sole and specific purpose of executing Well Location Restriction Waivers(s) that permit the conducting of oil or gas well work and the drilling of additional oil and gas wells on the Knob Creek Well Pad situate in Meade District, Marshall County, West Virginia, shown on Tax Map 14, as Parcel 33. See attached **Exhibit A**. Said waivers shall be of the type shown on the attached **Exhibit B**, differing only in the api number and operator well number located on the form.

I the said Linda Lee Franklin hereby declare that acts done by my said attorney for said specific and sole purpose shall be as good, valid and effective, to all intents and purposes whatsoever, as if the same had been made or done by me, and I hereby undertake to ratify whatsoever my attorney shall lawfully do or cause to be done, by virtue of these presents.

I further direct this Limited Power of Attorney shall be good and valid until a revocation thereof has been duly executed by the undersigned.

Linda Lee Franklin (SEAL)

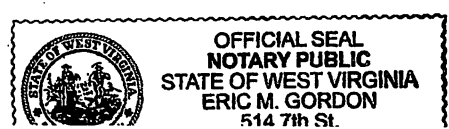
STATE OF West Virginia :
County of Marshall , to-wit:

The foregoing instrument was acknowledged before me this 29th day of March , 2018, by Linda Lee Franklin.

Given under my hand this 29th day of March , 2018.

My commission expires: Jan 18, 2022

(NOTARY SEAL/STAMP REQUIRED)



Eric M. Gordon
Notary Public for the aforesaid

LIMITED POWER OF ATTORNEY

That I, Louis T. Fox, hereby make, name and appoint, Tug Hill Operating, LLC, its successors and assigns, by and through its officers, agents or employees to be my limited power of attorney, for the sole and specific purpose of executing Well Location Restriction Waivers(s) waiving all well site restrictions listed under West Virginia Code 22-6A-12(a) for the Knob Creek Well Pad situate in Meade District, Marshall County, West Virginia, located on Tax Map 14, Parcel 33 and depicted on the attached **Exhibit A**. Said waivers shall be of the type shown on the attached **Exhibit B**.

I the said Louis T. Fox hereby declare that acts done by my said attorney for said specific and sole purpose shall be as good, valid and effective, to all intents and purposes whatsoever, as if the same had been made or done by me, and I hereby undertake to ratify whatsoever my attorney shall lawfully do or cause to be done, by virtue of these presents.

I further direct this Limited Power of Attorney shall be good and valid until a revocation thereof has been duly executed by the undersigned.

Louis T. Fox 3-24-18 (SEAL)

STATE OF West Virginia:

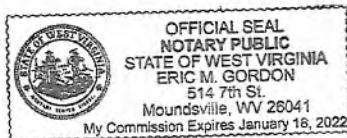
COUNTY OF Marshall, to-wit:

The foregoing instrument was acknowledged before me this 24th day of March, 2018, by Louis T. Fox.

Given under my hand this 24th day of March, 2018.

My commission expires: Jan 18, 2022.

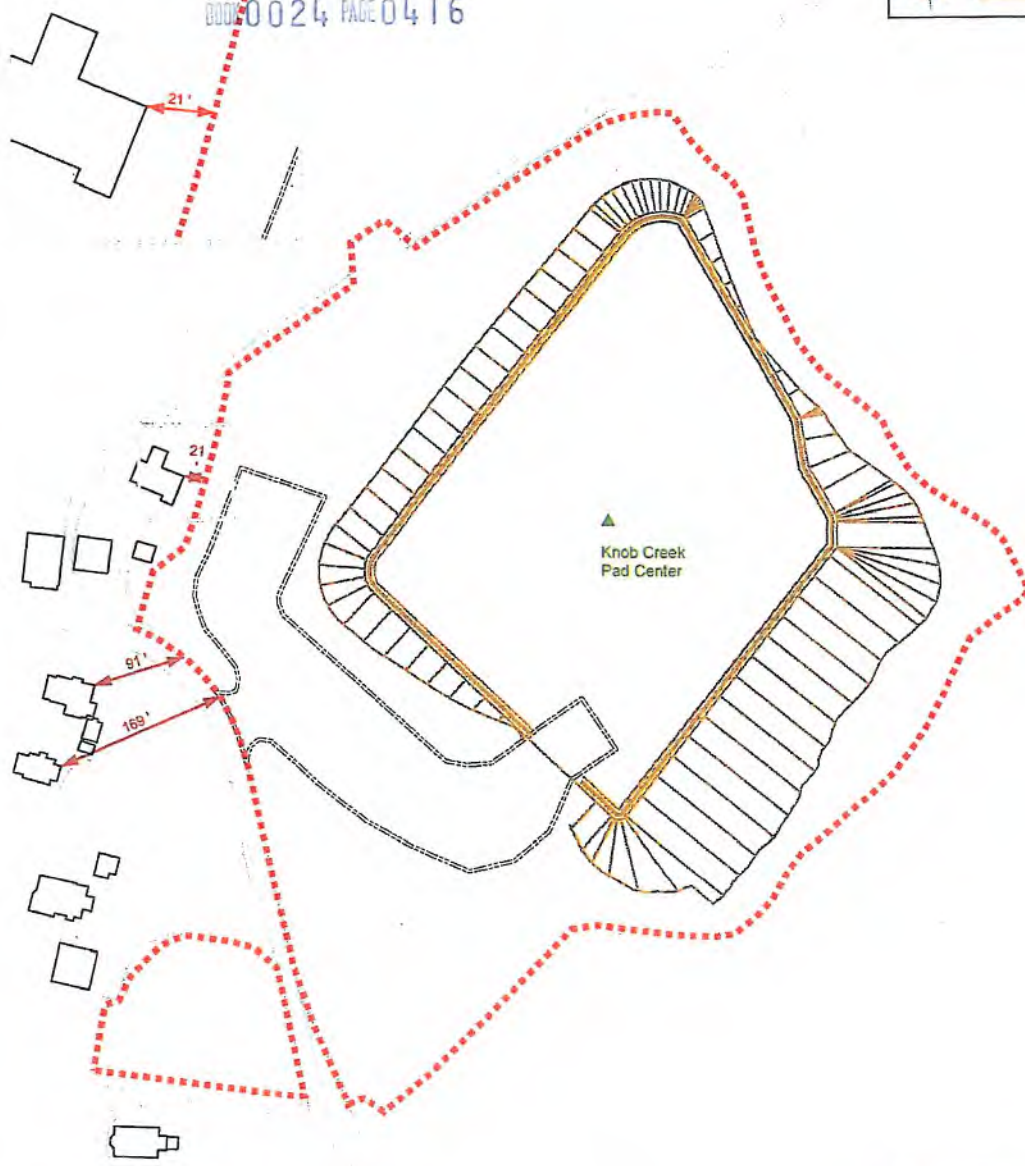
(NOTARY SEAL/STAMP REQUIRED)



Notary Public for the aforesaid
County and/or State

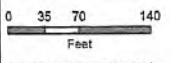
This Instrument Prepared By:
Eric M. Gordon, Esquire
Berry, Kessler, Crutchfield, Taylor & Gordon
514 Seventh Street
Moundsville, WV 26041
(304) 845-2580

Marshall County
Jan Pest, Clerk
Instrument 1439957
05/03/2018 @ 02:36:25 PM
POWER OF ATTORNEY
Book 24 @ Page 415
Pages Recorded 3
Recording Cost \$ 11.00



..... Limits of Disturbance
 ——— Pad Boundary
 ——— Pad Boundary Areas

1 inch: 143 feet



NOTE: THE APPROVED SITE LOCATION FOR THE SURFACE SITE, ACCESS ROAD, RIGHT OF WAY AND THE LOCATION OF THE PROPERTY FOR THE PAD AREA, USUALLY INDICATIVE OF THE PAD AREA, LOCATIONS MAY VARY AS THE SURVEY IS NOT AN EXACT REPRESENTATION OF THE PROPERTY. THE PAD AREA SHALL BE BOUNDARIED AND BOUNDARIES AS FILED IN THE COUNTY RECORDS AND THE APPLICABLE LEGISLATION FOR THE SURFACE SITE ACCESS ROAD AND RIGHT OF WAY SHALL BE FOLLOWED AS ACTUALLY CONSTRUCTED.

Exhibit "A"

Marshall, WV

Date: 3-24-18
Paul H. Fox 3-24-18
 Name: _____
 Name: Mark H. Fox



Date: 3/9/2018
 PCS: NAD 1983 UTM Zone 17N Foot US

Mark H. Fox 3-24-18

May 2nd 3-30-18
Thomas J. Fox 3-31-18

TUG HILL OPERATING LLC
SUSANNE DELIERE
380 SOUTHPOINTE BLVD
SUITE 200
GANDNSBURG PA 15317

LIMITED POWER OF ATTORNEY

That I, Thomas John Fox, hereby make, name and appoint, Tug Hill Operating, LLC, by and through its officers, agents or employees to be my limited power of attorney, for the sole and specific purpose of executing Well Location Restriction Waivers(s) that permit the conducting of oil or gas well work and the drilling of additional oil and gas wells on the Knob Creek Well Pad situate in Meade District, Marshall County, West Virginia, shown on Tax Map 14, as Parcel 33. See attached **Exhibit A**. Said waivers shall be of the type shown on the attached **Exhibit B**, differing only in the api number and operator well number located on the form.

I the said Thomas John Fox hereby declare that acts done by my said attorney for said specific and sole purpose shall be as good, valid and effective, to all intents and purposes whatsoever, as if the same had been made or done by me, and I hereby undertake to ratify whatsoever my attorney shall lawfully do or cause to be done, by virtue of these presents.

I further direct this Limited Power of Attorney shall be good and valid until a revocation thereof has been duly executed by the undersigned.

Thomas John Fox (SEAL)

STATE OF West Virginia:

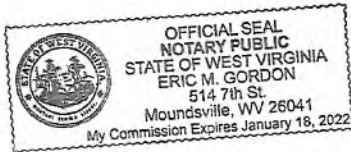
County of Marshall, to-wit:

The foregoing instrument was acknowledged before me this 31st day of March, 2018, by Thomas John Fox.

Given under my hand this 31st day of March, 2018.

My commission expires: Jan 18, 2022

(NOTARY SEAL/STAMP REQUIRED)



[Signature]
Notary Public for the aforesaid
County and/or State

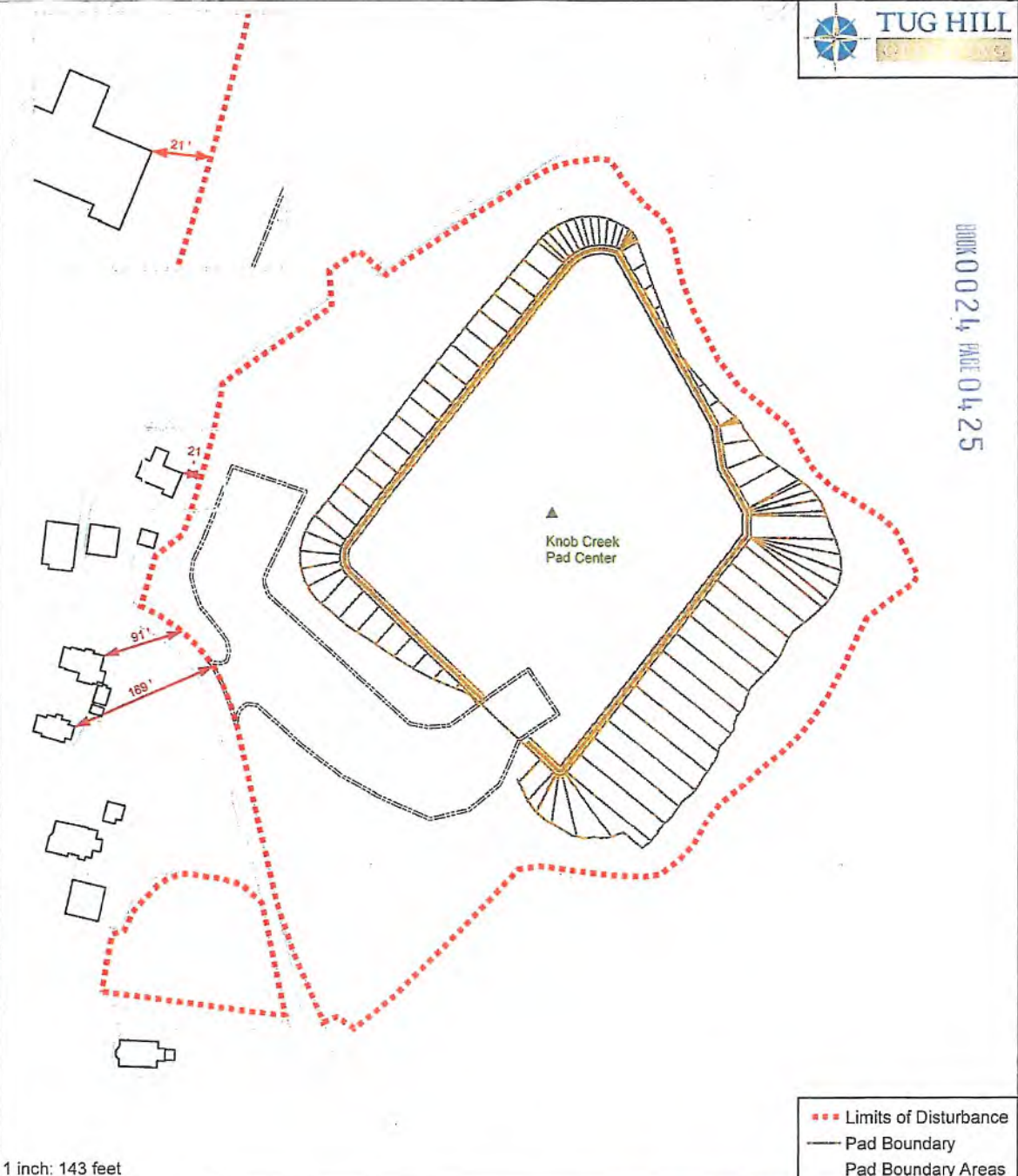
This Instrument Prepared By:

Eric M. Gordon, Esquire
Berry, Kessler, Crutchfield, Taylor & Gordon
514 Seventh Street
Moundsville, WV 26041
(304) 845-2580

Marshall County
Jan Pest, Clerk
Instrument 1439960
05/03/2018 @ 02:36:25 PM
POWER OF ATTORNEY
Book 24 @ Page 424
Pages Recorded 3
Recording Cost \$ 11.00

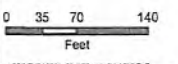
** (Mandatory Limited Power of Attorney) (DC General P&A Law)

BOOK 0024, PAGE 0425



--- Limits of Disturbance
 — Pad Boundary
 --- Pad Boundary Areas

1 inch: 143 feet



NOTE: THE APPROVED SITE LOCATION FOR THE SURFACE SITE, ACCESS ROAD, RIGHT OF WAY AND THE LOCATION OF THE PROPOSED PAD BOUNDARY AREAS, GENERALLY SHOWN HERE, SUBJECT TO THE FINAL LOCATION SURVEY AS THIS DRAWING IS NOT AN ENGINEERING DRAWING. THE USER MUST VERIFY THE EXACT PAD BOUNDARY AND DISTANCES BY THE SURVEY AS FILED IN THE COUNTY RECORDS. THE APPROVED SITE LOCATION FOR THE SURFACE SITE, ACCESS ROAD AND RIGHT OF WAY SHALL BE THE LOCATION AS ACTUALLY CONSTRUCTED.

Exhibit "A"
 Marshall, WV

Date: 3-24-18
Paul H. Fox 3-24-18
 Name: _____
 Name: Mark H. Fox



Date: 3/9/2018
 PCS: NAD 1983 UTM Zone 17N Foot US

Mark H. Fox 3-24-18

May 24 3-30-18
Thomas J. Fox 3-31-18

LIMITED POWER OF ATTORNEY

That I, MARK H. FOX, hereby make, name and appoint, Tug Hill Operating, LLC, its successors and assigns, by and through its officers, agents or employees to be my limited power of attorney, for the sole and specific purpose of executing Well Location Restriction Waivers(s) waiving all well site restrictions listed under West Virginia Code 22-6A-12(a) for the Knob Creek Well Pad situate in Meade District, Marshall County, West Virginia, located on Tax Map 14, Parcel 33 and depicted on the attached **Exhibit A**. Said waivers shall be of the type shown on the attached **Exhibit B**.

I the said MARK H. FOX hereby declare that acts done by my said attorney for said specific and sole purpose shall be as good, valid and effective, to all intents and purposes whatsoever, as if the same had been made or done by me, and I hereby undertake to ratify whatsoever my attorney shall lawfully do or cause to be done, by virtue of these presents.

I further direct this Limited Power of Attorney shall be good and valid until a revocation thereof has been duly executed by the undersigned.

Mark H. Fox 3-24-18 (SEAL)

STATE OF West Virginia:

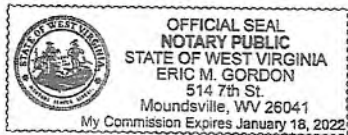
COUNTY OF Marshall, to-wit:

The foregoing instrument was acknowledged before me this 24th day of March, 2018, by MARK H. FOX.

Given under my hand this 24th day of March, 2018.

My commission expires: Jan 18, 2022.

(NOTARY SEAL/STAMP REQUIRED)



Notary Public for the aforesaid County and/or State

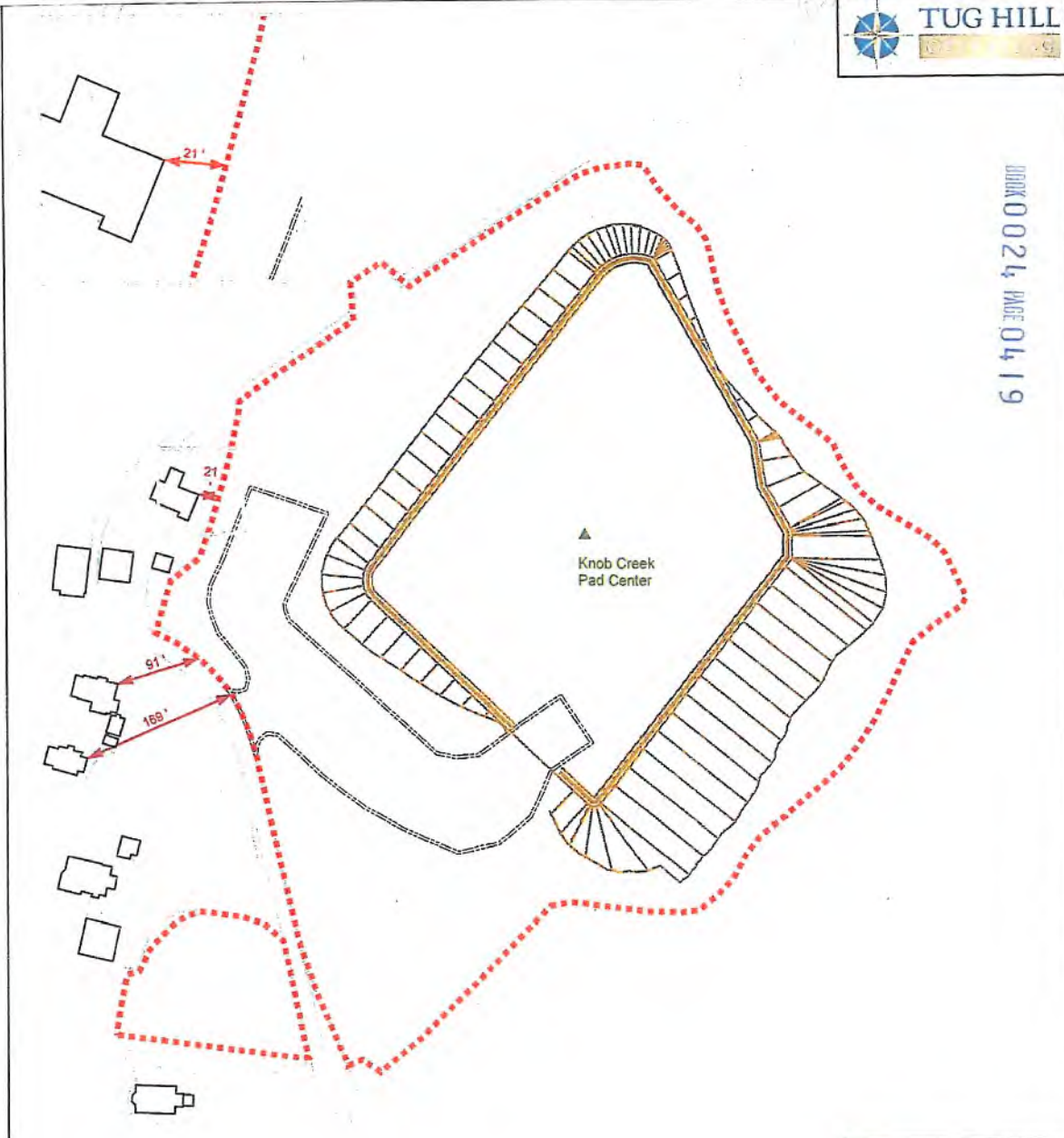
This Instrument Prepared By:

Eric M. Gordon, Esquire
Berry, Kessler, Crutchfield, Taylor & Gordon
514 Seventh Street
Moundsville, WV 26041
(304) 845-2580

T:\MSAston\Limited Power of Attorney\EMG.Limited.POA.wpd

Marshall County
Jan Pest, Clerk
Instrument 1439959
05/03/2018 @ 02:36:25 PM
POWER OF ATTORNEY
Book 24 @ Page 421
Pages Recorded 3
Recording Cost \$ 11.00

JOB# 0024 DATE 04 19



1 inch: 143 feet

..... Limits of Disturbance
 ——— Pad Boundary
 - - - - Pad Boundary Areas

0 35 70 140
Feet

NOTE: THE APPROVED SITES FOR THE SERVICE SITE, ACCESS ROAD, WIDTH OF WAY AND THE DESIGN OF THE PROPERTY ARE BASED ON A GENERAL SURVEY. HOWEVER, THE ACTUAL LOCATION OF THE SERVICE SITE, ACCESS ROAD, WIDTH OF WAY AND THE DESIGN OF THE PROPERTY SHALL BE DETERMINED BY THE ACTUAL PROPERTY SURVEY. THE COUNTY RECORDS ARE THE AUTHORITY FOR THE LOCATION OF THE SERVICE SITE, ACCESS ROAD AND WIDTH OF WAY. THE LOCATION OF THE SERVICE SITE, ACCESS ROAD AND WIDTH OF WAY SHALL BE AS SHOWN ON THE ACTUAL SURVEY.

Exhibit "A"

Marshall, WV

Date: 3-24-18
Paul H. Fox 3-24-18

Name: [Signature]

Name: Mark H. Fox



Date: 3/2/2018
 PCS: NAD 1983 UTM Zone 17N Foot US

Mark H. Fox 3-24-18

Maya J. Fox 3-30-18
Thomas J. Fox 3-31-18

TUG HILL OPERATING LLC
SUSANNE DELIERE
380 SOUTHPOINTE BLVD
SUITE 200
DANONSBURG PA 15317

LIMITED POWER OF ATTORNEY

That I, Paul G. Fox, hereby make, name and appoint, Tug Hill Operating, LLC, its successors and assigns, by and through its officers, agents or employees to be my limited power of attorney, for the sole and specific purpose of executing Well Location Restriction Waivers(s) waiving all well site restrictions listed under West Virginia Code 22-6A-12(a) for the Knob Creek Well Pad situate in Meade District, Marshall County, West Virginia, located on Tax Map 14, Parcel 33 and depicted on the attached **Exhibit A**. Said waivers shall be of the type shown on the attached **Exhibit B**.

I the said Paul G. Fox hereby declare that acts done by my said attorney for said specific and sole purpose shall be as good, valid and effective, to all intents and purposes whatsoever, as if the same had been made or done by me, and I hereby undertake to ratify whatsoever my attorney shall lawfully do or cause to be done, by virtue of these presents.

I further direct this Limited Power of Attorney shall be good and valid until a revocation thereof has been duly executed by the undersigned.

Paul G. Fox 324-18 (SEAL)

STATE OF West Virginia:

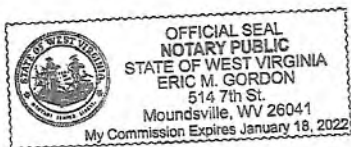
COUNTY OF Marshall, to-wit:

The foregoing instrument was acknowledged before me this 24th day of March, 2018, by Paul G. Fox.

Given under my hand this 24th day of March, 2018.

My commission expires: Jan 18, 2022

(NOTARY SEAL/STAMP REQUIRED)

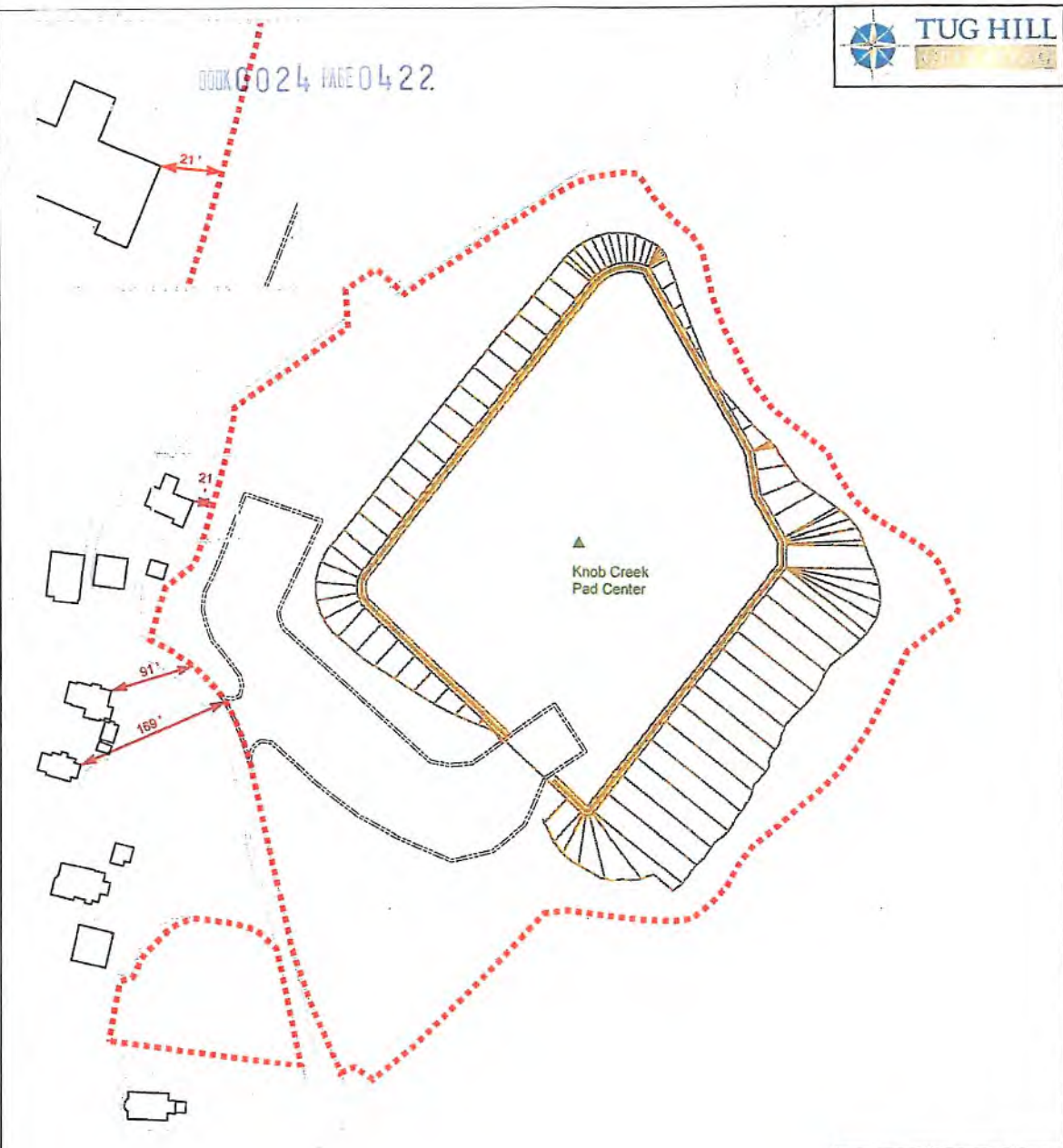


Notary Public for the aforesaid County and/or State

This Instrument Prepared By:
Eric M. Gordon, Esquire
Berry, Kessler, Crutchfield, Taylor & Gordon
514 Seventh Street
Moundsville, WV 26041
(304) 845-2580

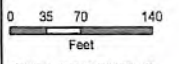
T:\MSAston\Limited Power of Attorney\EMG.Limited.POA.wpd

Marshall County
Jan Pest, Clerk
Instrument 1439958
05/03/2018 @ 02:36:25 PM
POWER OF ATTORNEY
Book 24 @ Page 418
Pages Recorded 3
Recording Cost \$ 11.00



..... Limits of Disturbance
 ——— Pad Boundary
 ——— Pad Boundary Areas

1 inch: 143 feet



NOTE: THE APPROXIMATE DIMENSIONS FOR THE SURFACE OF THE ACCESS ROAD, RIGHT OF WAY AND THE LOCATION OF THE PROPERTY TO BE FINISHED SHALL BE CONTROLLED BY THE SURVEY. THE LOCATION OF THE PROPERTY TO BE FINISHED SHALL BE CONTROLLED BY THE SURVEY. THE LOCATION OF THE PROPERTY TO BE FINISHED SHALL BE CONTROLLED BY THE SURVEY. THE LOCATION OF THE PROPERTY TO BE FINISHED SHALL BE CONTROLLED BY THE SURVEY.

Date: 3/8/2018
 PCS: NAD 1983 UTM Zone 17N Feet US

Exhibit "A"

Marshall, WV

Date: 3-24-18
Paul H. Fox 3-24-18
 Name: _____
 Name: Mark H. Fox



Mark H. Fox 3-24-18

May 1st 3-30-18
Thomas John Fox 3-31-18

LIMITED POWER OF ATTORNEY

That I, David E. Fox, hereby make, name and appoint, Tug Hill Operating, LLC, by and through its officers, agents or employees to be my limited power of attorney, for the sole and specific purpose of executing Well Location Restriction Waivers(s) that permit the conducting of oil or gas well work and the drilling of additional oil and gas wells on the Knob Creek Well Pad situate in Meade District, Marshall County, West Virginia, shown on Tax Map 14, as Parcel 33. See attached **Exhibit A**. Said waivers shall be of the type shown on the attached **Exhibit B**, differing only in the api number and operator well number located on the form.

I the said David E. Fox hereby declare that acts done by my said attorney for said specific and sole purpose shall be as good, valid and effective, to all intents and purposes whatsoever, as if the same had been made or done by me, and I hereby undertake to ratify whatsoever my attorney shall lawfully do or cause to be done, by virtue of these presents.

I further direct this Limited Power of Attorney shall be good and valid until a revocation thereof has been duly executed by the undersigned.

David E. Fox (SEAL)

STATE OF West Virginia :

County of Marshall , to-wit:

The foregoing instrument was acknowledged before me this 27 day of March, 2018, by David E. Fox.

Given under my hand this 27 day of March, 2018.

My commission expires: August 30, 2023

(NOTARY SEAL/STAMP REQUIRED)

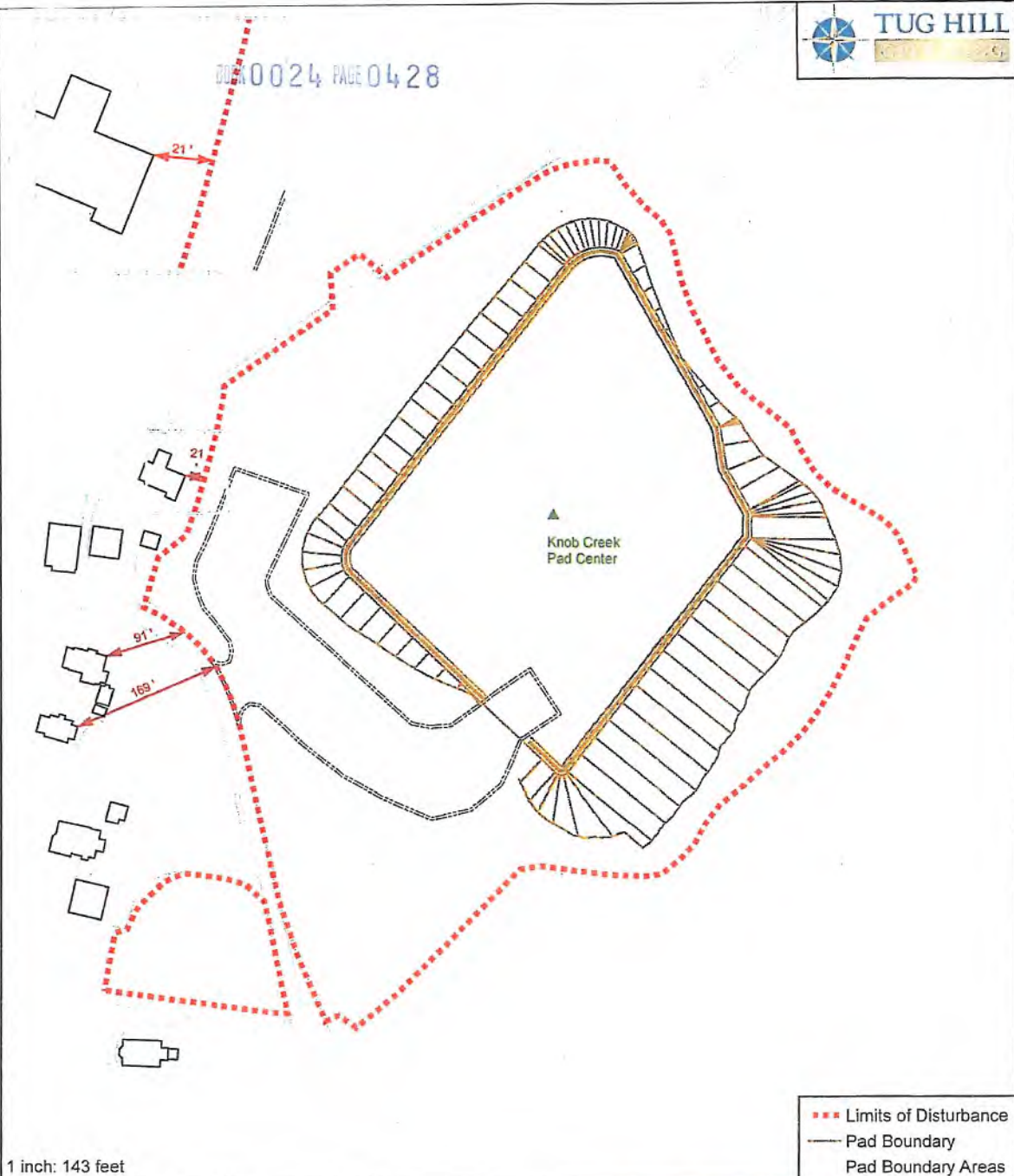


Mary M Aston
Notary Public for the aforesaid
County and/or State

This Instrument Prepared By:

Eric M. Gordon, Esquire
Berry, Kessler, Crutchfield, Taylor & Gordon
514 Seventh Street
Moundsville, WV 26041
(304) 845-2580

Marshall County
Jan Pest, Clerk
Instrument 1439961
05/03/2018 @ 02:36:25 PM
POWER OF ATTORNEY
Book 24 @ Page 427
Pages Recorded 3
Recording Cost \$ 11.00



..... Limits of Disturbance
 ——— Pad Boundary
 Pad Boundary Areas

1 inch = 143 feet

0 35 70 140
Feet

N

NOTE: THE APPROVED SITE LOCATION FOR THE SURFACE SITE ACCESS ROAD, RIGHT OF WAY AND THE LOCATION OF THE PAD SITE ON THESE PLANS ARE TO BE MAINTAINED. ANY CHANGES TO THESE LOCATIONS SHALL BE APPROVED BY THE COUNTY ENGINEER. THE ACTUAL LOCATION OF THE PAD SITE SHALL BE AS SHOWN AND RECORDED IN THE DEED AS FILED IN THE COUNTY RECORDS AND THE APPROVED SITE LOCATION FOR THE SURFACE SITE ACCESS ROAD AND RIGHT OF WAY SHALL BE THE LOCATION AS ACTUALLY CONSTRUCTED.

Exhibit "A"

Marshall, WV

Date: 3-24-18
Mark H. Fox 3-24-18

Name: _____

Name: Mark H. Fox



Date: 3/9/2018
 PCS: NAD 1983 UTM Zone 17N Foot US

Mark H. Fox 3-24-18

Maya J. Fox 3-30-18
Thomas J. Fox 3-31-18

TUG HILL OPERATING LLC
SUSANNE DELIERE
380 SOUTHPOINTE BLVD
SUITE 200
DANONSBURG PA 15317

LIMITED POWER OF ATTORNEY

That I, Mary A. Fox, hereby make, name and appoint, Tug Hill Operating, LLC, its successors and assigns, by and through its officers, agents or employees to be my limited power of attorney, for the sole and specific purpose of executing Well Location Restriction Waivers(s) waiving all well site restrictions listed under West Virginia Code 22-6A-12(a) for the Knob Creek Well Pad situate in Meade District, Marshall County, West Virginia, located on Tax Map 14, Parcel 33 and depicted on the attached **Exhibit A**. Said waivers shall be of the type shown on the attached **Exhibit B**.

I the said Mary A. Fox hereby declare that acts done by my said attorney for said specific and sole purpose shall be as good, valid and effective, to all intents and purposes whatsoever, as if the same had been made or done by me, and I hereby undertake to ratify whatsoever my attorney shall lawfully do or cause to be done, by virtue of these presents.

I further direct this Limited Power of Attorney shall be good and valid until a revocation thereof has been duly executed by the undersigned.

Mary A. Fox (SEAL)

STATE OF West Virginia:

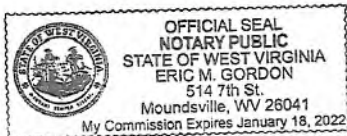
COUNTY OF Marshall, to-wit:

The foregoing instrument was acknowledged before me this 30th day of March, 2018, by Mary A. Fox.

Given under my hand this 30th day of March, 2018.

My commission expires: Jan 18, 2022.

(NOTARY SEAL/STAMP REQUIRED)



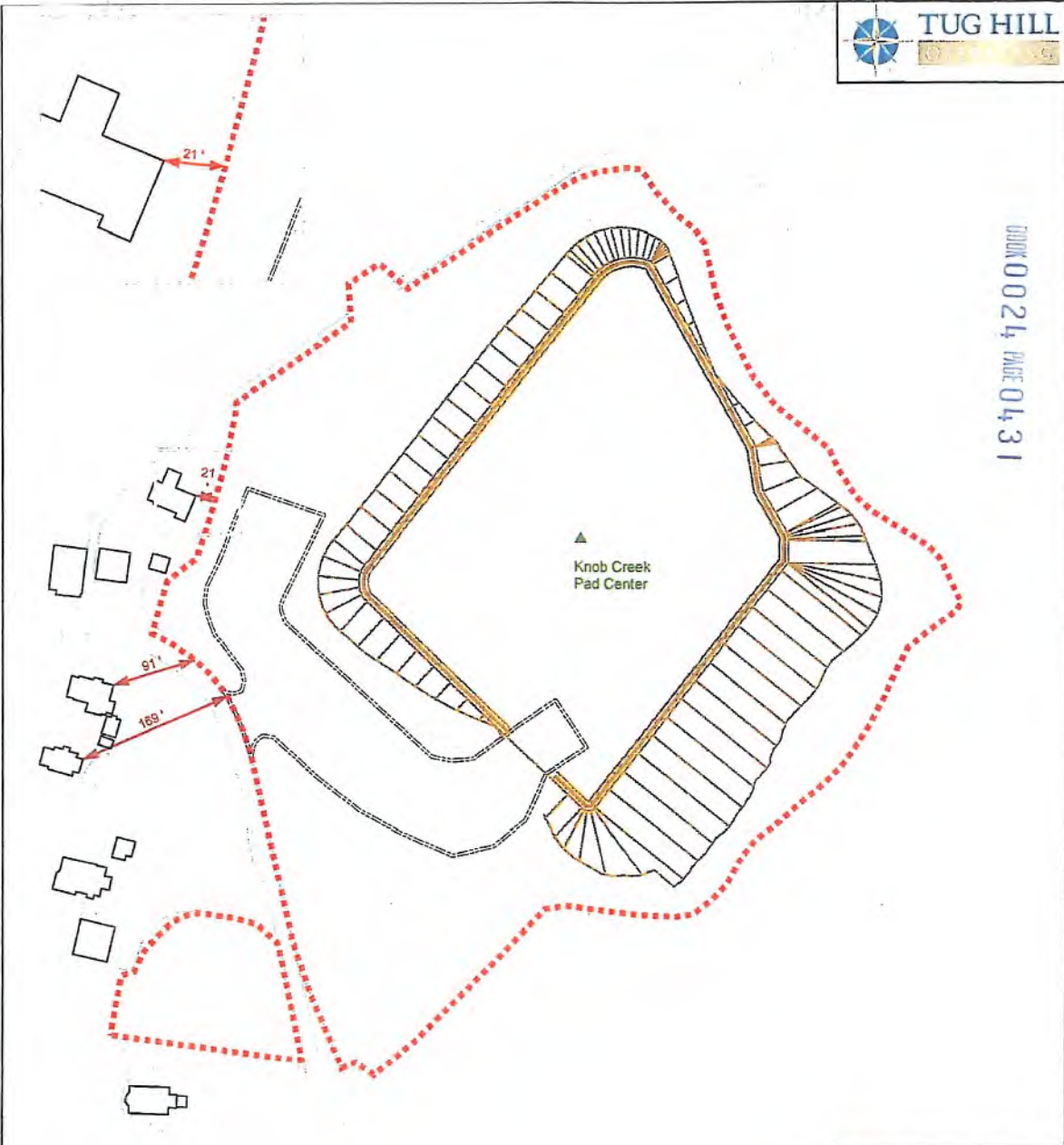
Notary Public for the aforesaid County and/or State

This Instrument Prepared By:

Eric M. Gordon, Esquire
Berry, Kessler, Crutchfield, Taylor & Gordon
514 Seventh Street
Moundsville, WV 26041
(304) 845-2580

T:\MSAston\Limited Power of Attorney\EMG.Limited.POA.wpd

Marshall County
Jan Pest, Clerk
Instrument 1439962
05/03/2018 @ 02:36:25 PM
POWER OF ATTORNEY
Book 24 @ Page 430
Pages Recorded 3
Recording Cost \$ 11.00



- - - Limits of Disturbance
 — Pad Boundary
 — Pad Boundary Areas

1 inch: 143 feet

0 35 70 140
 Feet

N

NOTE: THE ABOVE DELINEATION FOR THE SURFACE AND ACCESSORY WEIGHT OF THE LOCATION OF THE PROPERTY AND PAD CENTER IS A GENERAL INDICATION. THE ACTUAL LOCATION OF THE PAD CENTER AND ACCESSORY WEIGHT SHALL BE DETERMINED BY THE SURVEYOR AND THE APPLICABLE CODES AND REGULATIONS. THE SURVEYOR SHALL BE RESPONSIBLE FOR THE LOCATION OF THE PAD CENTER AND ACCESSORY WEIGHT.

Exhibit "A"

Marshall, WV

Date: 3-24-18
Mark H. Fox 3-24-18

Name: [Signature]

Name: Mark H. Fox



Date: 3/9/2018
 PCS: NAD 1983 UTM Zone 17N Foot US

Mark H. Fox 3-24-18

May 24 3-30-18
Thomas J. Fox 3-31-18

WW-6RW
(1-12)

API NO. 47- _____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL LOCATION RESTRICTION WAIVER

The well operator, Tug Hill Operating, LLC is applying for a permit from the State of West Virginia to conduct oil or gas well work. Please be advised that well work permits are valid for twenty-four (24) months.

Well Location Restrictions

Pursuant to West Virginia Code § 22-6A-12(a), Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements.

WAIVER

I, Thomas John Fox, by my Attorney-in-Fact, TH Exploration, LLC, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State: West Virginia UTM NAD 83 Easting: 525,231.80
County: Marshall UTM NAD 83 Northing: 4,402,279.50
District: Meade Public Road Access: St. Joseph Road - County Route 21
Quadrangle: Glen Easton 7.5' Generally used farm name: David Lee Franklin
Watershed: Fish Creek (HUC-10)

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials and I therefore waive all well site restrictions listed under West Virginia Code § 22-6A-12(a).

WELL SITE RESTRICTIONS BEING WAIVED

*Please check all that apply

- EXISTING WATER WELLS
- DEVELOPED SPRINGS
- DWELLINGS
- AGRICULTURAL BUILDINGS

FOR EXECUTION BY A NATURAL PERSON

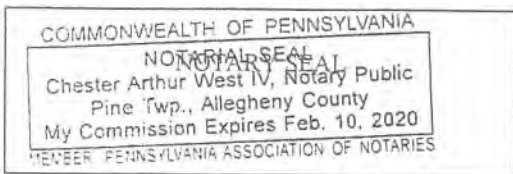
Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: TH Exploration, LLC as Attorney-in-Fact for Thomas John Fox
By: Douglas L. DeMartino
Its: Attorney-in-Fact
Signature: [Signature]
Date: 9/30/2019

Well Operator: Tug Hill Operating, LLC
By: David G. DeLallo
Its: Land Team Lead

Signature: [Signature]
Telephone: 724-749-8388



Subscribed and sworn before me this 30th day of September 2019
[Signature] Notary Public
My Commission Expires 2-10-2020

WW-6RW
(1-12)

API NO. 47- _____ - _____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL LOCATION RESTRICTION WAIVER

The well operator, Tug Hill Operating, LLC is applying for a permit from the State of West Virginia to conduct oil or gas well work. Please be advised that well work permits are valid for twenty-four (24) months.

Well Location Restrictions

Pursuant to West Virginia Code § 22-6A-12(a), Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements.

WAIVER

I, David Lee Franklin, by my Attorney-in-Fact, TH Exploration, LLC, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State: West Virginia UTM NAD 83 Easting: 525,231.80
County: Marshall UTM NAD 83 Northing: 4,402,279.50
District: Meade Public Road Access: St. Joseph Road - County Route 21
Quadrangle: Glen Easton 7.5' Generally used farm name: David Lee Franklin
Watershed: Fish Creek (HUC-10)

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials and I therefore waive all well site restrictions listed under West Virginia Code § 22-6A-12(a).

WELL SITE RESTRICTIONS BEING WAIVED

*Please check all that apply

- EXISTING WATER WELLS
- DEVELOPED SPRINGS
- DWELLINGS
- AGRICULTURAL BUILDINGS

FOR EXECUTION BY A NATURAL PERSON

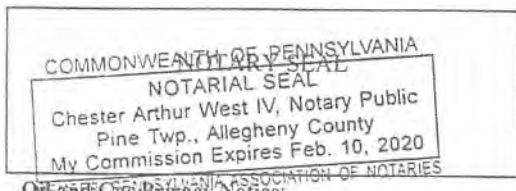
Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: TH Exploration, LLC as Attorney-in-Fact for David Lee Franklin
By: Douglas L. DeMartino
Its: Attorney-in-Fact
Signature: [Signature]
Date: 9/30/2017

Well Operator: Tug Hill Operating, LLC
By: David G. DeLallo
Its: Land Team Lead

Signature: [Signature]
Telephone: 724-749-9388



Subscribed and sworn before me this 30th day of September 2017

Notary Public

My Commission Expires 2-10-2020

WW-6RW
(1-12)

API NO. 47- _____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek _____

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL LOCATION RESTRICTION WAIVER

The well operator, Tug Hill Operating, LLC is applying for a permit from the State of West Virginia to conduct oil or gas well work. Please be advised that well work permits are valid for twenty-four (24) months.

Well Location Restrictions

Pursuant to West Virginia Code § 22-6A-12(a), Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements.

WAIVER

I, Linda Lee Franklin, by my Attorney-in-Fact, TH Exploration, LLC, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State: West Virginia UTM NAD 83 Easting: 525,231.80
County: Marshall UTM NAD 83 Northing: 4,402,279.50
District: Meade Public Road Access: St. Joseph Road - County Route 21
Quadrangle: Glen Easton 7.5' Generally used farm name: David Lee Franklin
Watershed: Fish Creek (HUC-10)

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials and I therefore waive all well site restrictions listed under West Virginia Code § 22-6A-12(a).

WELL SITE RESTRICTIONS BEING WAIVED

*Please check all that apply

- EXISTING WATER WELLS
- DEVELOPED SPRINGS
- DWELLINGS
- AGRICULTURAL BUILDINGS

FOR EXECUTION BY A NATURAL PERSON

Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: TH Exploration, LLC as Attorney-in-Fact for Linda Lee Franklin
By: Douglas L. DeMartino
Its: Attorney-in-Fact
Signature: [Signature]
Date: 9/30/2019

Well Operator: Tug Hill Operating, LLC
By: David G. DeLallo
Its: Land Team Lead

Signature: [Signature]
Telephone: 724-749-8368

COMMONWEALTH OF PENNSYLVANIA
NOTARY PUBLIC
Chester Arthur West IV, Notary Public
Pine Twp., Allegheny County
My Commission Expires Feb. 10, 2020
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Subscribed and sworn before me this 30th day of September 2019
[Signature] Notary Public
My Commission Expires 2-10-2020

WW-6RW
(1-12)

API NO. 47- _____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL LOCATION RESTRICTION WAIVER

The well operator, Tug Hill Operating, LLC is applying for a permit from the State of West Virginia to conduct oil or gas well work. Please be advised that well work permits are valid for twenty-four (24) months.

Well Location Restrictions

Pursuant to West Virginia Code § 22-6A-12(a), Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements.

WAIVER

I, Douglas L. DeMartino, Esq., hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State: West Virginia UTM NAD 83 Easting: 525,231.80
County: Marshall UTM NAD 83 Northing: 4,402,279.50
District: Meade Public Road Access: St. Joseph Road - County Route 21
Quadrangle: Glen Easton 7.5' Generally used farm name: David Lee Franklin
Watershed: Fish Creek (HUC-10)

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials and I therefore waive all well site restrictions listed under West Virginia Code § 22-6A-12(a).

WELL SITE RESTRICTIONS BEING WAIVED

*Please check all that apply

- EXISTING WATER WELLS
- DEVELOPED SPRINGS
- DWELLINGS
- AGRICULTURAL BUILDINGS

FOR EXECUTION BY A NATURAL PERSON

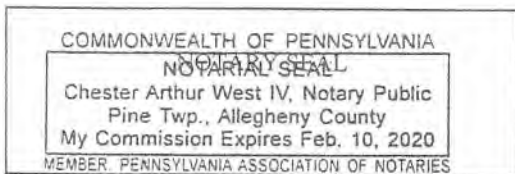
Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: TH Exploration, LLC
By: Douglas L. DeMartino, Esq.
Its: Attorney-in-Fact
Signature: _____
Date: 9/30/2019

Well Operator: Tug Hill Operating, LLC
By: David G. DeLallo
Its: Land Team Lead

Signature: _____
Telephone: 724-749-8388



Subscribed and sworn before me this 30th day of September 2019

Notary Public

My Commission Expires 2-10-2020

WW-6RW
(1-12)

API NO. 47- _____ - _____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL LOCATION RESTRICTION WAIVER

The well operator, Tug Hill Operating, LLC is applying for a permit from the State of West Virginia to conduct oil or gas well work. Please be advised that well work permits are valid for twenty-four (24) months.

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WAIVER

I, Paul G. Fox, by my Attorney-in-Fact, TH Exploration, LLC, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State: West Virginia UTM NAD 83 Easting: 525,231.80
County: Marshall UTM NAD 83 Northing: 4,402,279.50
District: Meade Public Road Access: St. Joseph Road - County Route 21
Quadrangle: Glen Easton 7.5' Generally used farm name: David Lee Franklin
Watershed: Fish Creek (HUC-10)

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials and I therefore waive all well site restrictions listed under West Virginia Code § 22-6A-12(a).

WELL SITE RESTRICTIONS BEING WAIVED

*Please check all that apply

- EXISTING WATER WELLS
- DEVELOPED SPRINGS
- DWELLINGS
- AGRICULTURAL BUILDINGS

FOR EXECUTION BY A NATURAL PERSON

Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: TH Exploration, LLC as Attorney-in-Fact for Paul G. Fox
By: Douglas L. DeMartino
Its: Attorney-in-Fact
Signature: _____
Date: 9/30/2019

Well Operator: Tug Hill Operating, LLC
By: David G. DeLallo
Its: Land Team Lead

Signature: _____
Telephone: 724-749-8388

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Sean Cotter, Notary Public
City of Pittsburgh, Allegheny County
My Commission Expires Oct. 12, 2019

Subscribed and sworn before me this 30 day of September

Notary Public

My Commission Expires 10/12/2019

WW-6RW
(1-12)

API NO. 47- _____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL LOCATION RESTRICTION WAIVER

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WAIVER

I, Mark H. Fox, by my Attorney-in-Fact, TH Exploration, LLC, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

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- DWELLINGS
- AGRICULTURAL BUILDINGS

FOR EXECUTION BY A NATURAL PERSON

Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: TH Exploration, LLC as Attorney-in-Fact for Mark H. Fox
By: Douglas L. DeMartino
Its: Attorney-in-Fact
Signature: [Signature]
Date: 9/30/2019

Well Operator: Tug Hill Operating, LLC
By: David G. DeLallo
Its: Land Team Lead

Signature: _____
Telephone: 724-749-8388

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Sean Cotter, Notary Public
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My Commission Expires Oct. 12, 2019

Subscribed and sworn before me this 30 day of September

Notary Public

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WW-6RW
(1-12)

API NO. 47- _____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
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WAIVER

I, David E. Fox by my Attorney-in-Fact TH Exploration, LLC, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

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- DEVELOPED SPRINGS
- DWELLINGS
- AGRICULTURAL BUILDINGS

FOR EXECUTION BY A NATURAL PERSON

Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: TH Exploration, LLC as Attorney-in-Fact for David E. Fox
By: Douglas L. DeMartino
Its: Attorney-in-Fact
Signature: [Signature]
Date: 9/30/2019

Well Operator: Tug Hill Operating, LLC

By: David G. DeLallo

Its: Land Team Lead

Signature: _____

Telephone: 724-749-8388

Commonwealth of West Virginia - Notary Seal
MAUREEN A STEAD - Notary Public
Washington County
My Commission Expires Jan 28, 2023
Commission Number 1259926

Subscribed and sworn before me this 30 day of SEPTEMBER 2019

Maureen A Stead Notary Public

My Commission Expires 1/28/23

WW-6RW
(1-12)

API NO. 47- _____ - _____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
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WAIVER

I, Mary A. Fox, by my Attorney-in-Fact, TH Exploration, LLC, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

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- DEVELOPED SPRINGS
- DWELLINGS
- AGRICULTURAL BUILDINGS

FOR EXECUTION BY A NATURAL PERSON

Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: TH Exploration, LLC as Attorney-in-Fact for Mary A. Fox
By: Douglas L. DeMartino
Its: Attorney-in-Fact
Signature: [Signature]
Date: 9/30/2019

Well Operator: Tug Hill Operating, LLC
By: David G. DeLallo
Its: Land Team Lead

Signature: [Signature]
Telephone: 724-749-8388

Commonwealth of Pennsylvania - Notary Seal
MAUREEN A STEAD - Notary Public
Washington County
My Commission Expires Jan 28, 2023
Commission Number 1259926

Subscribed and sworn before me this 30 day of SEPTEMBER 2019

[Signature] Notary Public

My Commission Expires 1/28/23

WW-6RW
(1-12)

API NO. 47- _____
OPERATOR WELL NO. Knob Creek S-14HU
Well Pad Name: Knob Creek

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WAIVER

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 - DEVELOPED SPRINGS
 - DWELLINGS
 - AGRICULTURAL BUILDINGS

FOR EXECUTION BY A NATURAL PERSON

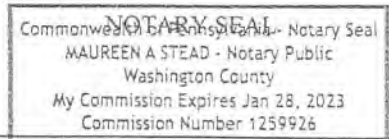
Signature: _____
Print Name: _____
Date: _____

FOR EXECUTION BY A CORPORATION, ETC.

Company: TH Exploration, LLC as Attorney-in-Fact for Louis T. Fox
By: Douglas L. DeMartino
Its: Attorney-in-Fact
Signature: _____
Date: 9/20/2019

Well Operator: Tug Hill Operating, LLC
By: David G. DeLallo
Its: Land Team Lead

Signature: _____
Telephone: 724-749-8388



Subscribed and sworn before me this 30 day of SEPTEMBER 2019
Maureen A Stead Notary Public
My Commission Expires 1/28/23



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

October 1, 2019

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the Knob Creek Pad, Marshall County

Knob Creek Unit N-1HM	Knob Creek Unit N-2HM	Knob Creek Unit N-3HM
Knob Creek Unit S-6HM	Knob Creek Unit S-7HM	Knob Creek Unit S-8HM
Knob Creek Unit S-9HM	Knob Creek Unit S-10HM	Knob Creek Unit N-11HU
Knob Creek Unit S-14HU	Knob Creek Unit S-15HU	Knob Creek Unit S-16HU

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2018-0224 which has been issued to Tug Hill Operating, LLC for access to the State Road for a well site located off of Marshall County Route 21 SLS.

This operator is in compliance with §22-6A-20 of the WV Code. Operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated October 1, 2018.

Very Truly Yours,

Gary K. Clayton, P.E.
Regional Maintenance Engineer
Central Office O&G Coordinator

Cc: Amy Miller
Tug Hill Operating, LLC
CH, OM, D-6
File

RECEIVED
Office of Oil and Gas

OCT - 2 2019

WV Department of
Environmental Protection



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Knob Creek S-14HU

PRODUCT NAME:	CHEMICAL DESCRIPTION:	PRODUCT USE:	HAZARDOUS COMPONENT:
GBW-20C	Hemicellulase Breaker	Breaker - Water	None
ALPHA 1427		Biocide	Glutaraldehyde – CAS#000111-30-8 Quaternary ammonium chloride CAS# 007173-51-5 Alky dimethyl benzyl ammonium Chloride (C12-16) – CAS#068424-85-1 Ethanol – CAS# 000064-17-5 Water – CAS# 007732-18-5
FRAC SAND	Silica Sand (various Mesh sizes)	Proppant	Crystalline silica (quartz) CAS# 14808-60-7
S-8C, Sand	Silica Sand (100 mesh)	Sand	Silica – CAS# 14808-60-7
GW-3LDF		Gellant - Water	Petroleum Distillate Blend – Proprietary, (Not Associated with Diesel Fuel) Guar gum – CAS# 009000-30-0
FRW-18		Friction Reducer	Hydrotreated light distillate CAS# 064742-47-8
Scaletrol		Scale Inhibitor	Ethylene glycol – CAS# 000107-21-1 Diethylene glycol – CAS# 000111-46-6

RECEIVED
Office of Oil and Gas
OCT - 2 2019
WV Department of
Environmental Protection

WEST VIRGINIA COUNTY MAP



**WVDEP OOG
ACCEPTED AS-BUILT**

WJL 10/8/2019

Knob Creek 1 Site

Site Design, Construction Plan, &
Erosion and Sediment Control Plans
Tug Hill Operating
Marshall County
Meade District
Latitude 39.77005962°
Longitude -80.70545789°
Middle Fish Creek Watershed

Pertinent Site Information

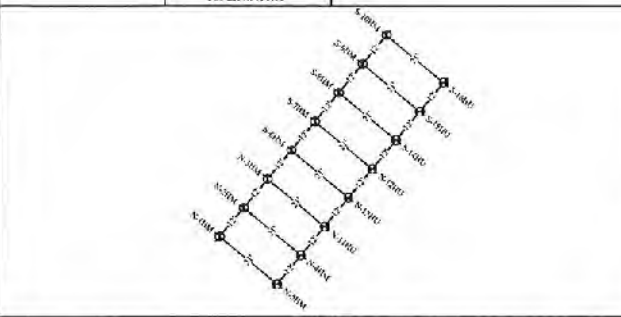
Knob Creek 1 Site
Emergency Number: 304-845-1920
Meade District, Marshall County, WV
Watershed: Middle Fish Creek Watershed
Tug Hill Contact Number: 1-817-632-3400

Property Owner Information - Knob Creek 1 Site

Owner	TM - Parcel	Well Pad	Pond	Access Road	Topsoil Storage	ADD. Clearing	Total Disturbed
David L. Franklin	14-11	5-35	1-18	1-42	0-78	1-81	11-24
Don J. Franklin	14-11	0-00	1-00	0-15	0-94	1-21	1-19
Sub Totals (Total)		5-35	1-18	1-57	1-72	3-02	12-92

Exhibit A: Final Design: Issue for Permitting

Site Features	Center of Well Pad
WV-N NAD 83 E: 464593.81	WV-N NAD 83 N: 464883.36
WV-N NAD 83 E: 163285.21	WV-N NAD 83 E: 162861.10
WV-N NAD 27 N: 464583.65	WV-N NAD 27 N: 464811.46
WV-N NAD 27 E: 164072.29	WV-N NAD 27 E: 163111.43
Lat. NAD 83: 39.7691389	Lat. NAD 83: 39.7705962
Long. NAD 83: -80.7045343	Long. NAD 83: -80.7053293
Lat. NAD 27: 39.7694766	Lat. NAD 27: 39.7695918
Long. NAD 27: -80.7070410	Long. NAD 27: -80.7054894
UTM 17 NAD 83 E: 440217.34	UTM 17 NAD 83 E: 440227.07
UTM 17 NAD 83 E: 52515.39	UTM 17 NAD 83 E: 52525.17
	Pad Elev: 825.04



S-6101	S-6102
WV-N NAD 83 N: 464903.40	WV-N NAD 83 E: 162908.21
WV-N NAD 83 E: 162908.21	WV-N NAD 27 N: 464903.40
WV-N NAD 27 N: 464903.40	WV-N NAD 27 E: 162908.21
WV-N NAD 27 E: 162908.21	Lat. NAD 83: 39.7705977
	Long. NAD 83: -80.7053066
	Lat. NAD 27: 39.7706013
	Long. NAD 27: -80.7053800
	UTM 17 NAD 83 (m) N: 440229.29
	UTM 17 NAD 83 (m) E: 52521.35



WV State Plane Coordinate System
North Zone, NAD 83
Elevation Based on NAVD 83
Established by Survey Grade GPS
and CP175 Post-Processor

Surface Owner	TM - Parcel	Well Pad	Pond	Access Road	Type
David L. Franklin	14-11	5-35	1-18	1-42	New Access Road (Construction)

Disturbed Area	
Well Pad Construction	5.55 Ac
Collection Pond Construction	0.18 Ac
Access Road Construction	1.41 Ac
Topsoil Storage Material	1.72 Ac
Additional Clearing	4.04 Ac
Total Disturbed Area	12.99 ac
Additional Information	
Total Wooded Acres Disturbed	1.41 Ac
Total Linear Feet of Access Road	434.27

Knob Creek 1 Site Quantities						
Description	CU (CY)	Fill (CY)	Spill (CY)	Borrow (CY)	Max. Slope	Length of Slope
Well Pad	56,618.17	48,114.99	8,503.18	N/A	N/A	N/A
Well Pad Access Road	691.75	2,924.36	308.61	2,299.81	10.66%	211.34
Collection Pond	928.28	18.27	308.61	N/A	N/A	N/A
County Road Right-of-Way	1,091.99	0.00	1,091.99	N/A	N/A	N/A
Topsoil Storage Material Stockpile	0.00	17,196.01	1,395.43	19,099.84	N/A	N/A
Sub Total	58,329.19	68,253.63	10,208.21	19,099.84		
Total Spill (CY)			8,503.18			

S-6103	S-6104	S-6105	S-6106	S-6107	S-6108
WV-N NAD 83 E: 464806.64	WV-N NAD 83 E: 162961.49	WV-N NAD 83 E: 162961.49	WV-N NAD 83 E: 162961.49	WV-N NAD 83 E: 162961.49	WV-N NAD 83 E: 162961.49
WV-N NAD 83 E: 162961.49	WV-N NAD 27 N: 464806.64	WV-N NAD 27 N: 464806.64	WV-N NAD 27 N: 464806.64	WV-N NAD 27 N: 464806.64	WV-N NAD 27 N: 464806.64
WV-N NAD 27 N: 464806.64	WV-N NAD 27 E: 162961.49	WV-N NAD 27 E: 162961.49	WV-N NAD 27 E: 162961.49	WV-N NAD 27 E: 162961.49	WV-N NAD 27 E: 162961.49
WV-N NAD 27 E: 162961.49	Lat. NAD 83: 39.7705977	Lat. NAD 83: 39.7705977	Lat. NAD 83: 39.7705977	Lat. NAD 83: 39.7705977	Lat. NAD 83: 39.7705977
	Long. NAD 83: -80.7053066	Long. NAD 83: -80.7053066	Long. NAD 83: -80.7053066	Long. NAD 83: -80.7053066	Long. NAD 83: -80.7053066
	Lat. NAD 27: 39.7706013	Lat. NAD 27: 39.7706013	Lat. NAD 27: 39.7706013	Lat. NAD 27: 39.7706013	Lat. NAD 27: 39.7706013
	Long. NAD 27: -80.7053800	Long. NAD 27: -80.7053800	Long. NAD 27: -80.7053800	Long. NAD 27: -80.7053800	Long. NAD 27: -80.7053800
	UTM 17 NAD 83 (m) N: 440229.29	UTM 17 NAD 83 (m) N: 440229.29	UTM 17 NAD 83 (m) N: 440229.29	UTM 17 NAD 83 (m) N: 440229.29	UTM 17 NAD 83 (m) N: 440229.29
	UTM 17 NAD 83 (m) E: 52521.35	UTM 17 NAD 83 (m) E: 52521.35	UTM 17 NAD 83 (m) E: 52521.35	UTM 17 NAD 83 (m) E: 52521.35	UTM 17 NAD 83 (m) E: 52521.35

Existing API Numbers
47-051-02032

Project Contacts

Site/Well Operator
Jonathan White - Regulatory Analyst
724-415-2000 ext. 201-689-2676 Cell

Survey and Engineer
Kevin Kelly
304-831-4983 Cell

Client/Owner
John P. See
817-632-3230 Cell

Design/Construction
Zachary Sumarfield
304-718-6997 Cell

Site/Well Operator, LLC
180 Southpointe Blvd.
Soudersville, PA 15317

Environmental

Method Deliverables as provided by Altior Ecology
date 04-7-2019

Topographic Information

The topographic information shown herein is based on aerial photography by Blue Mountain Aerial Mapping, Burton, WV

MISS UTILITY OF WEST VIRGINIA
1-800-245-4848
West Virginia State Law
Section 20-2-10, Chapter 24-2 requires
that you call before you dig.
IT'S THE LAW
Know what's below.
Call before you dig.

Tug Hill Operating will obtain an Erosion/Sediment Permit (Form EM-109) from the WV Department of Transportation, Division of Highways, prior to the commencement of any construction activities

The WV Mines Website was consulted. Previous (Current) mining activities are not within the AOI.

WVDEP Website files show that there are no active and/or abandoned gas wells within the AOI

Site Locations (NAD 27)		
Structure	Latitude (DD)	Longitude (DD)
Site Entrance	39.7691366	-80.7053218
Center of Well Pad	39.7698413	-80.7054894

Site Locations (NAD 83)		
Structure	Latitude (DD)	Longitude (DD)
Site Entrance	39.7691366	-80.7053218
Center of Well Pad	39.7700596	-80.7054579

Approach Routes:

From the intersection of WV Rt 2 and Co Rt 17 (12th Street) in Mountsville, WV. Turn onto 12th Street (towards Fairgrounds). Follow Co Rt 17 (12th Street) for 1.1 mi. Co Rt 17 (12th Street) becomes Co Rt 17 (Fork Ridge Rd). Follow Co Rt 17 (Fork Ridge Rd) for 0.2 mi. Turn Right onto Co Rt 54 (Big Camp Creek Rd). Follow Co Rt 54 for 7.8 mi. Turn Left onto Co Rt 21 (Roberts Ridge St Joseph Rd). Follow Co Rt 21 for 1.7 mi. Turn Right onto Emr R: 2 (Co Rt 21). Follow Emr R: 2 for 5.0 mi. The site entrance will be on the Left (East) side of the road.

Floodplain Conditions

Do the construction activities take place in a floodplain?	NO
Are there existing or nearby floodplain conditions?	NO
Is the site located in a flood hazard zone?	NO
Has a flood hazard study been conducted?	N/A
Is a flood hazard study on file?	N/A
Has a flood hazard study been conducted for the site?	NO
Are there floodplain conditions in the vicinity?	N/A

Site Locations (NAD 27)		
Structure	Latitude (DD)	Longitude (DD)
Site Entrance	39.7691366	-80.7053218
Center of Well Pad	39.7700596	-80.7054579

Site Locations (NAD 83)		
Structure	Latitude (DD)	Longitude (DD)
Site Entrance	39.7691366	-80.7053218
Center of Well Pad	39.7700596	-80.7054579

Well Location Restrictions

All Pad construction complies with the following restrictions:
 *25' from an existing well or developed spring used for human or domestic animals.
 *100' from the edge of disturbance (i.e. wetlands, perennial streams, natural or artificial lakes, pond or reservoir).
 *500' from the edge of disturbance to a natural reproducing fish habitat.
 *100' of a surface or ground water intake to a public water supply.
 (Well Location Restriction of WV Code 22-8A-12)



Design/Construction
The drawings, specifications and information contained herein have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Civil and Environmental Engineering.
At Home, Sheets and/or Reference Drawings included in this design document are a complete set of plans.
Zachary C. Sumarfield
Professional Engineer
Date: 06-26-2019

Sheet	Description
1	Cover Sheet
V1	Schedule of Quantities
N1-N4	Site Notices
2	Pre-Construction Site Conditions
3	Site Soil Map
4	Clearing Exhibit
5	Overall Plan View
6	E&S Plan View
7	Job Key Exhibit
8	Plan View
9-10	Cross Sections - Well Pad
11	Cross Sections - Access Road
G1-G2	Geotechnical Exhibit
L1	Landowner Disturbed Area Exhibit
S1	Site Reclamation
M1-M3	Production Exhibit
D1-D2	Erosion and Sediment Control Details
R1	Access Road Details
P1	Pad Details

Cover Sheet
Knob Creek 1 Site
Meade District
Marshall County, WV

Date: 06/20/2018
Scale: As Shown
Designed by: ZS
File No:
Sheet 1 of 11

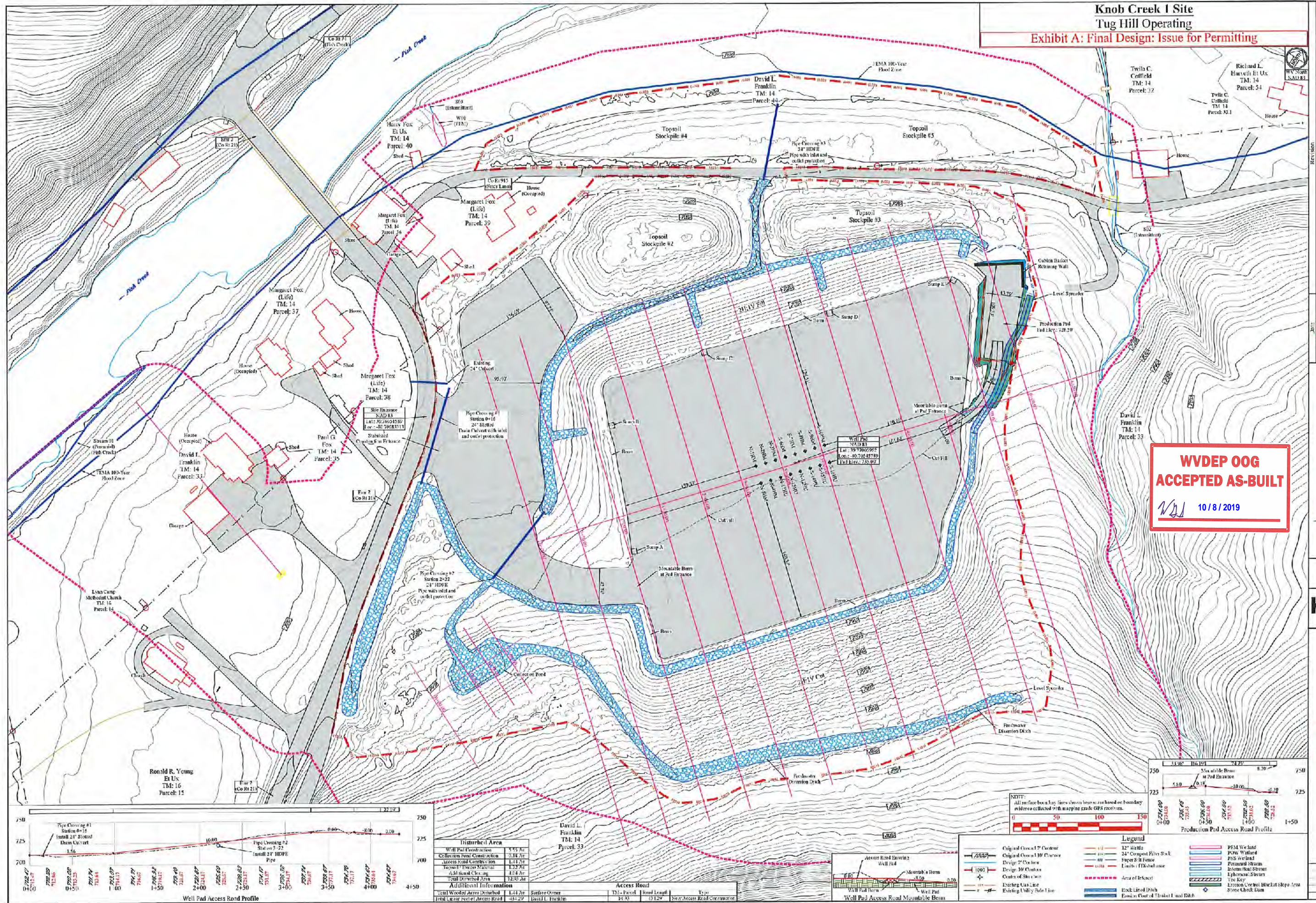


THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

Kelly Surveying
304-798-2444
1000 W. Main St.
Martinsburg, WV 26150

Revised:
03-30-2018
04-10-2019
08-15-2019
09-26-2019
Design: Production Pad

Knob Creek 1 Site
Tug Hill Operating
Exhibit A: Final Design: Issue for Permitting



**WVDEP OOG
 ACCEPTED AS-BUILT**
 WJD 10/8/2019



Disturbed Area		Access Road	
Well Pad Construction	1.95 Ac.	TM: Parcel	TM: Parcel
Collection Road Construction	2.14 Ac.	Road Length	0.43
Access Road Construction	1.41 Ac.		0.129
Access Road Construction	1.22 Ac.	Type	Non-Access Road Connector
6.50 In. Round Culvert	1.14 Ac.		
Total Disturbed Area	12.97 Ac.		
Additional Information		Access Road	
Total Wooded Acres Disturbed	1.44 Ac.	Surface Owner	TM: Parcel
Total Linear Feet of Access Road	48.29	TM: Parcel	TM: Parcel
		David L. Franklin	David L. Franklin

Legend

- Original Contour
- Design 2' Contour
- Design 10' Contour
- Center of Slope
- Existing Gas Line
- Existing Utility Pole Line
- 12" Wells
- 24" Composite Filter S&K
- 60" Paper S&K
- Entity - FT/State Line
- Area of Impact
- Rock Lined Ditch
- Entity - Cont. of Trunk Line and Ditch
- PEM Wetland
- POW Wetland
- POW Wetland
- Perennial Stream
- Intermittent Stream
- Epifaunal Stream
- Use Key
- Erosion Control Block Slope Area
- Stone Check Dam

NOTES:
 All elevation data has been verified based on boundary evidence collected with mapping grade GPS receivers.

Production Pad Access Road Profile

TUG HILL OPERATING

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

Kelly S. Surveying
 P.O. Box 2814
 Fairmont, WV 26030
 Group 360000

Site Plan
Knob Creek 1 Site
 Meads District
 Marshall County, WV

WVDEP OOG ACCEPTED AS-BUILT
 WJD 10/8/2019

Date: 05/20/2018
 Scale: As Shown
 Designed By: ZS
 File No.
 Sheet R of 11