



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, July 30, 2020
WELL WORK PERMIT
Horizontal 6A / Fracture

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for ADDISON NO. 4H
47-051-01574-00-00

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: ADDISON NO. 4H
Farm Name: GASTAR EXPLORATION US⁺
U.S. WELL NUMBER: 47-051-01574-00-00
Horizontal 6A Fracture
Date Issued: 7/30/2020

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 Franklin Wileyville 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Addison 4H Well Pad Name: Addison

3) Farm Name/Surface Owner: Tug Hill Operating, LLC Public Road Access: CR 29/5

4) Elevation, current ground: 1331' Elevation, proposed post-construction: 1331'

5) Well Type (a) Gas Oil Underground Storage

Other _____

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No yes

ju
6/6/2020

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Existing Marcellus was the target formation with a depth of 6750', 50' thickness and pressure of 4200 psi

8) Proposed Total Vertical Depth: 6,834'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 12,751'

11) Proposed Horizontal Leg Length: 6,016'

12) Approximate Fresh Water Strata Depths: 60'

13) Method to Determine Fresh Water Depths: Use shallow offset wells to determine deepest freshwater. Or determine using prodrill tests, testing while drilling or petrophysical evaluation of resistivity

14) Approximate Saltwater Depths: 1600'

15) Approximate Coal Seam Depths: Sewickley Coal - 935'; Pittsburgh Coal - 1090'

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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18)

CASING AND TUBING PROGRAM

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20"	NEW	BW	BW	existing	110'	CTS
Fresh Water	13 3/8"	NEW	H40	48#	existing	1177'	1071 ft^3(CTS)
Coal							
Intermediate	9 5/8"	NEW	J55	36#	existing	2621'	1109 ft^3 (CTS)
Production	5 1/2"	NEW	P110	20#	existing	12,723'	3564 ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		6718'	
Liners							

June 6/2020

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	20"	24"	.25"		existing	Type 1 + 3%CaCl	1.2 cuft/sack
Fresh Water	13 3/8"	17"	.33"	1730 psi	existing	See #22	1.2 Cuft/sack
Coal							
Intermediate	9 5/8"	12 1/4"	.352"	3520 psi	existing	See #22	1.2 Cuft/sack
Production	5 1/2"	8 7/8" & 8 3/4"	.361"	12,640 psi	existing	See #22	1.18 Cuft/sack
Tubing	2 3/8"		.19"	11,200 psi	existing		
Liners							

PACKERS

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

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6/6/2020

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

Prep and refrac existing well with estimated volumes in Item #20

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

Well to be completed with approximately 17,020,000 lb proppant and 263,142 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 7.42

22) Area to be disturbed for well pad only, less access road (acres): 2.98

23) Describe centralizer placement for each casing string:

well previously drilled

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

well previously drilled

25) Proposed borehole conditioning procedures:

well previously drilled

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*Note: Attach additional sheets as needed.

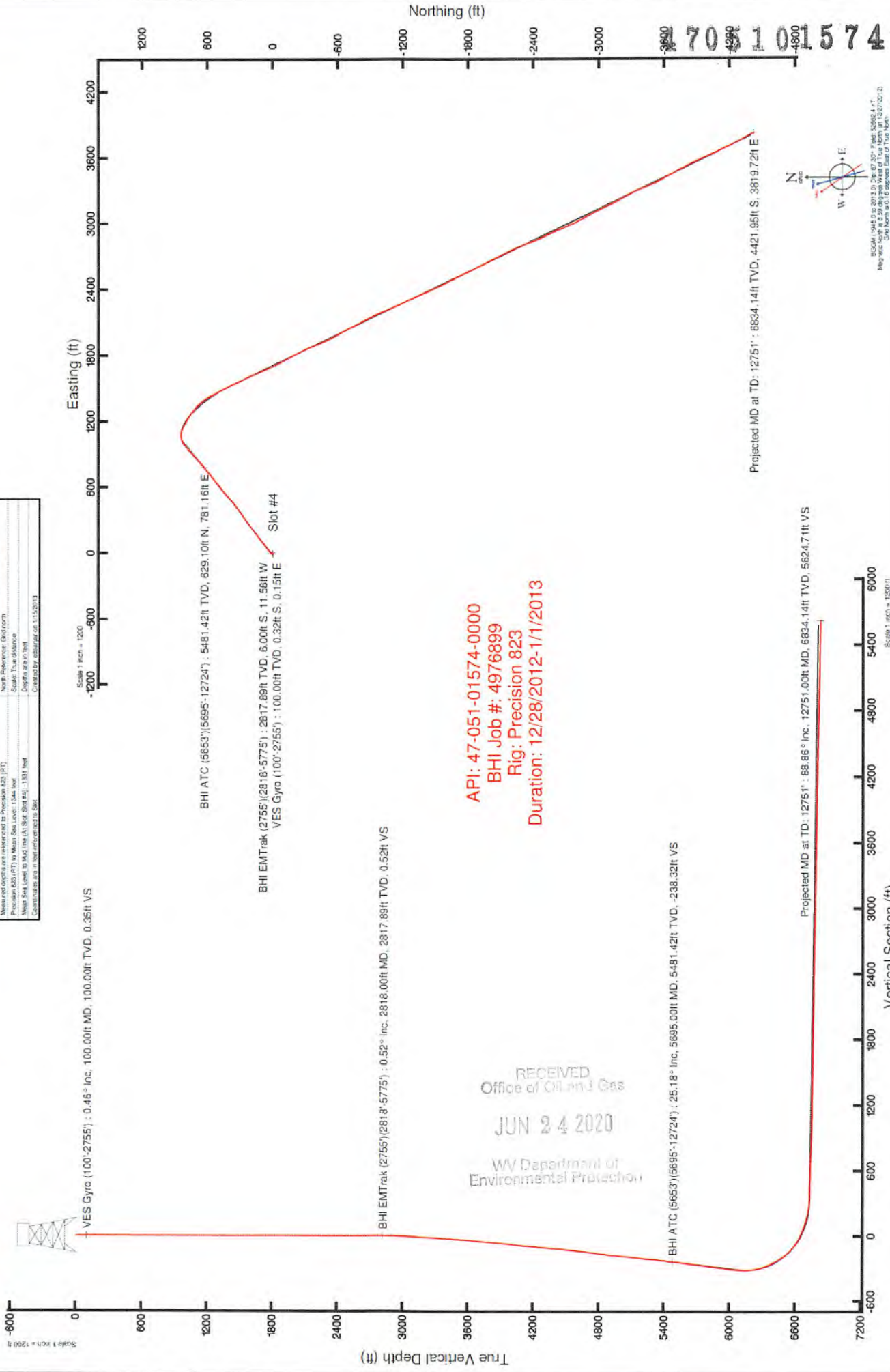


GASTAR EXPLORATION USA, INC.

Location: Marshall County, WV
Field: Marshall
Facility: Addison

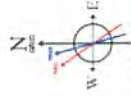
Slot: Slot #4
Well: Addison 4H
Wellbore: Addison 4H (PWB)

PWB reference wellpath is Addison 4H PWB 749-C-3	
True vertical depth as referenced to Precision 823 (RTT)	Grid Spheroid: NAD83 UTM Zone 17 North US Feet
Measured depth as referenced to Precision 823 (RT)	North Reference: Grid North
Precision 823 (RT) to Mean Sea Level: 1344 feet	Scale: True distance
Mean Sea Level to Meanline AT Slot (Slot #4): 1331 feet	Depth unit: ft
Coordinates are as listed referenced to Slot	Created by: csharlow on 11/15/2013



API: 47-051-01574-0000
BHI Job #: 4976899
Rig: Precision 823
Duration: 12/28/2012-1/1/2013

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ESCOM 1944.0 to 2011.0. Use of 3D + Grid 5695.4 + 1
May 2011. Use North 0.16 degrees East of True North
To correct datum from Mean Sea Level to North Carolina
To correct datum from Mean Sea Level to North Carolina
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90.174 = 90.17

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) Rocky Fork Quadrangle Wileyville 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 containment

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: No

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

-If oil based, what type? Synthetic, petroleum, etc. n/a

Additives to be used in drilling medium? n/a

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. n/a

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

-Landfill or offsite name/permit number? n/a

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.

Company Official Signature James A Pancake

Company Official (Typed Name) James Pancake

Company Official Title Vice President - Geoscience

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Subscribed and sworn before me this 10 day of JUNE, 2020

Maureen Stead

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

My commission expires 1/20/23

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 7.42 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
Annual Ryegrass	40
Spring Oats	96

Seed Type	lbs/acre
Orchard Grass	12
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: *John V. Baker*

Comments: _____

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Title: Oil and Gas Inspector

Date: 6/6/2020

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Field Reviewed? Yes No

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.

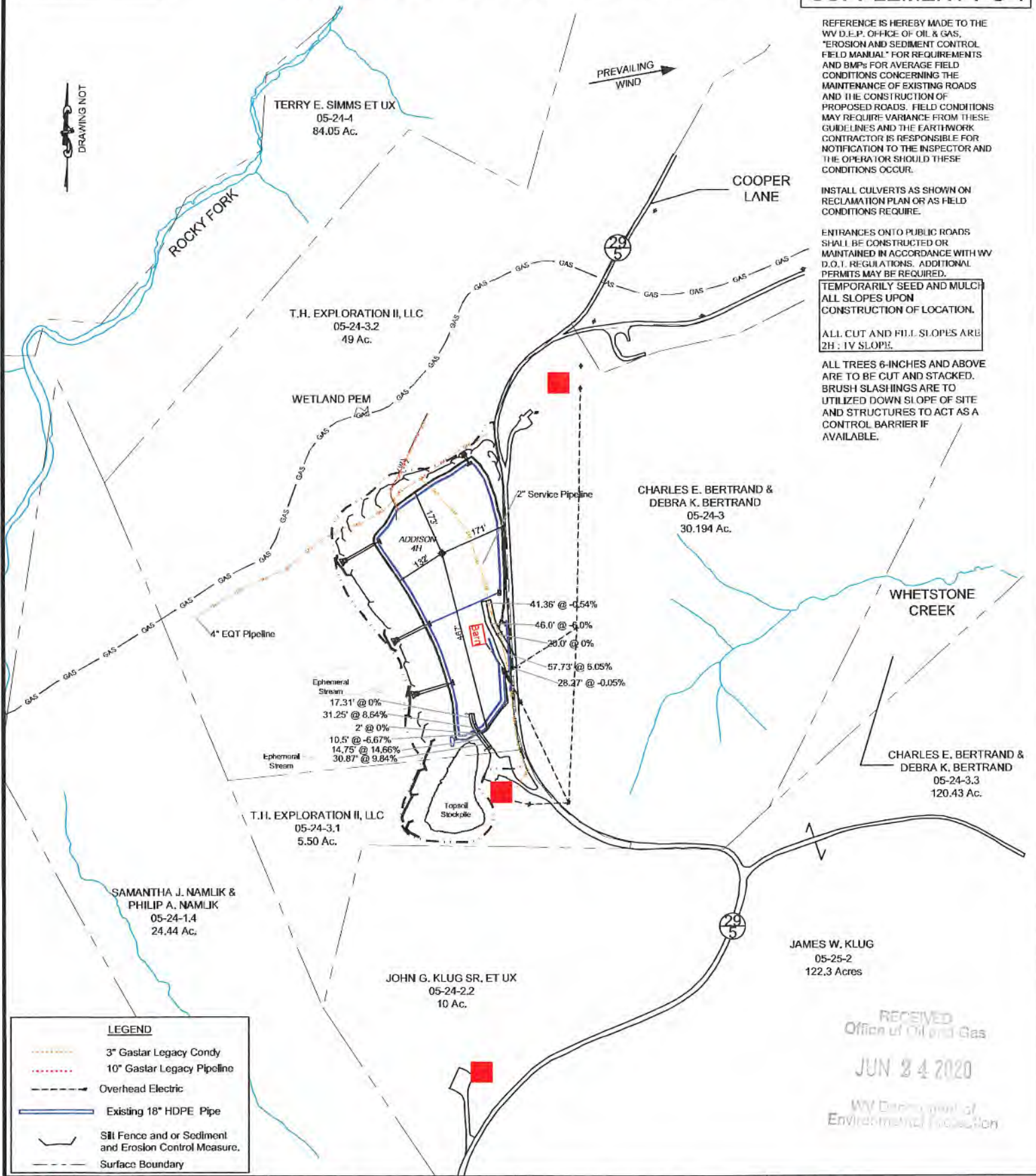
INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.

TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

ALL TREES 6-INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.



LEGEND

- 3" Gaslar Legacy Condy
- 10" Gaslar Legacy Pipeline
- Overhead Electric
- Existing 18" HDPE Pipe
- Silt Fence and or Sediment and Erosion Control Measure.
- Surface Boundary

JAMES W. KLUG
05-25-2
122.3 Acres

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Jackson Surveying Inc.
2413 E. Palm St.
Clarksburg, WV 26801
Phone: 304-823-5881

TOPO SECTION:		OPERATOR:	
WILEYVILLE 75'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC 380 SOUTHPOINT BLVD SUITE 200 CANDLERBURG, PA 15317	
MARSHALL	FRANKLIN	DATE	SCALE
DRAWN BY	_DB NO.	05-22-2020	NONE
I.D.C.	494510851		



Well Site Safety Plan

Tug Hill Operating, LLC

Jee
6/6/2020

Well Name: Addison 4H

Pad Location: Addison Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,398,452.63

Easting: 521,688.82

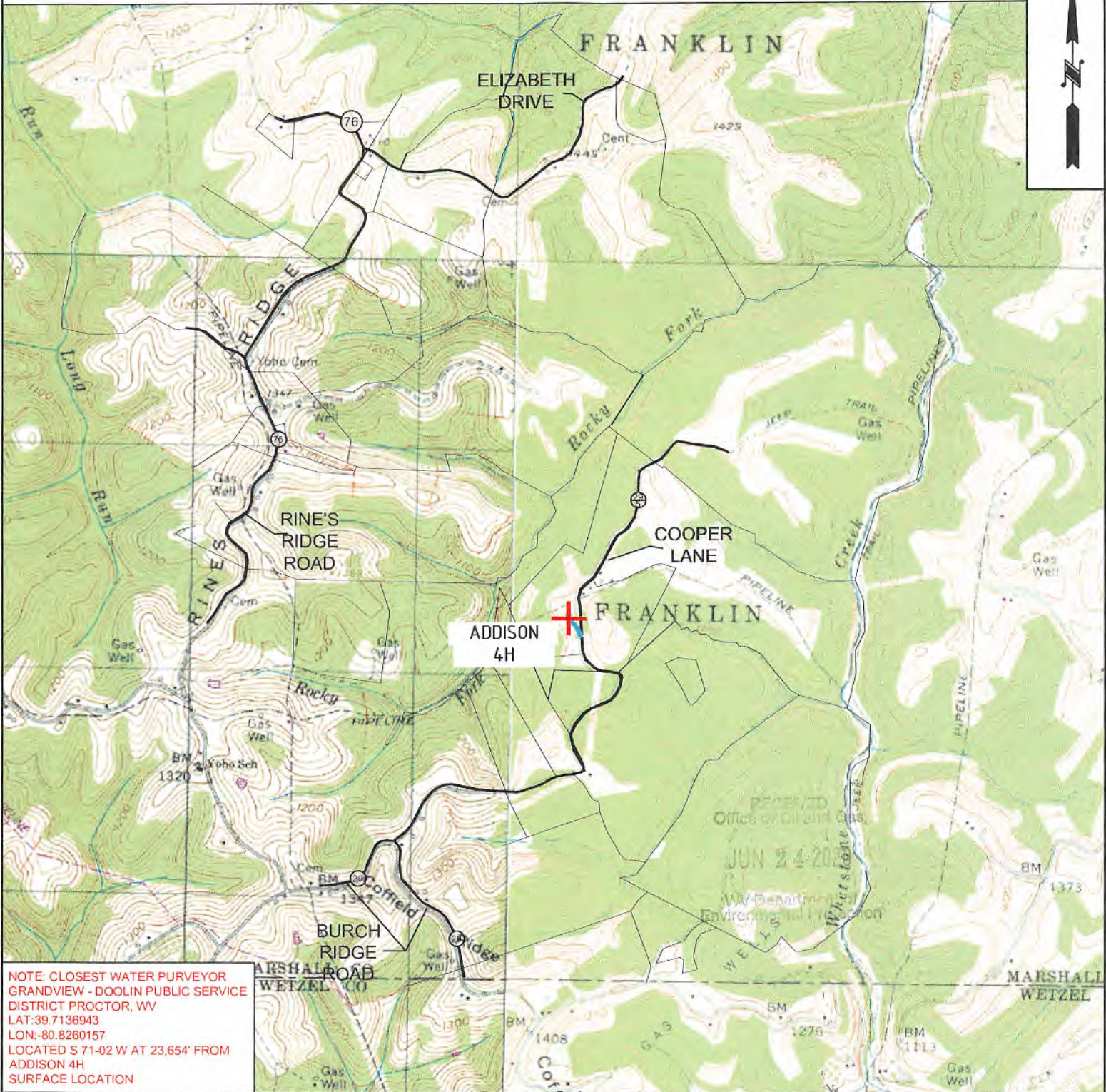
May 2020

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PROPOSED ADDISON 4H



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT: 39.7136943
LON: -80.8260157
LOCATED S 71-02' W AT 23.654' FROM
ADDISON 4H
SURFACE LOCATION

 TUG HILL OPERATING	OPERATOR	494510851	TOPO SECTION	LEASE NAME
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		WILEYVILLE 7.5'	ADDISON
			SCALE: 1" = 2000'	DATE: DATE: 5-22-2020

ADDISON LEASE WELL 4H 504.192± ACRES

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

LEGEND	
	LEASED TRACTS
	SURFACE TRACTS
	UNIT BOUNDARY
	LEASE # (SEE 6A1 FORM)

REFERENCES
SCALE 1"=400'

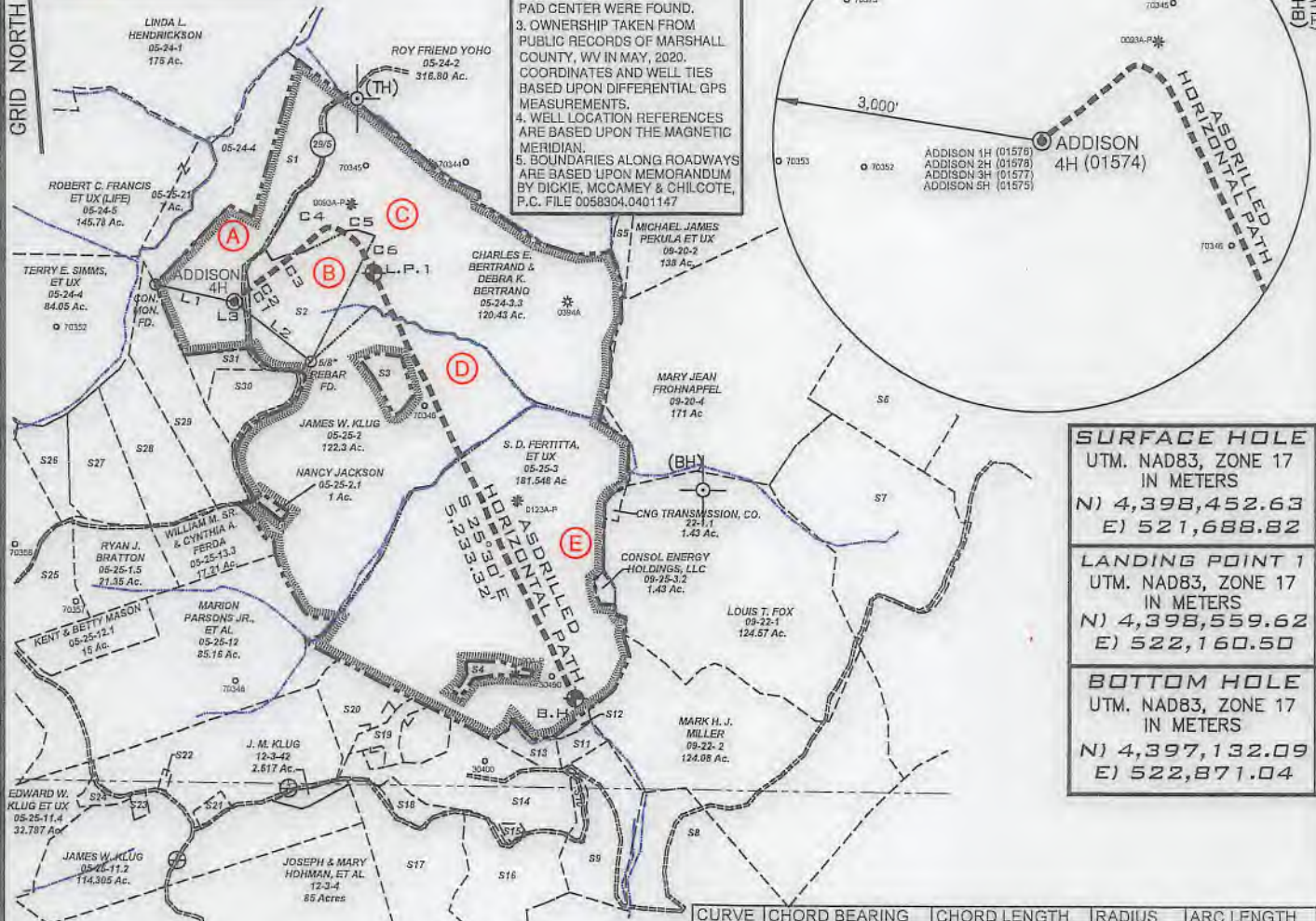
NOTES

- BORE PATH BASED ON GRID NORTH.
- NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 825' OF PAD CENTER WERE FOUND.
- OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MAY, 2020. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
- WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
- BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DIGKIE, MCCAMEY & CHILCOTE, P.C. FILE 0058304.040.1147

TOP HOLE LATITUDE: 39°45'00"
BOTTOM HOLE LATITUDE: 39°45'00"

DETAIL SKETCH "A"
SCALE 1"=100'

- ADDISON 1H (01576)
- ADDISON 2H (01578)
- ADDISON 3H (01577)
- ADDISON 4H (01574)
- ADDISON 5H (01575)



SURFACE HOLE	
UTM. NAD83, ZONE 17 IN METERS	
N) 4,398,452.63	E) 521,688.82
LANDING POINT 1	
UTM. NAD83, ZONE 17 IN METERS	
N) 4,398,559.62	E) 522,160.50
BOTTOM HOLE	
UTM. NAD83, ZONE 17 IN METERS	
N) 4,397,132.09	E) 522,871.04

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	N 36°01' E	34.66'	59.46'	35.17'
C2	N 51°19' E	157.01'	1079.59'	157.15'
C3	N 51°02' E	1091.82'	9440.57'	1092.43'
C4	N 86°36' E	174.15'	147.48'	186.29'
C5	S 52°15' E	300.25'	646.23'	303.02'
C6	S 27°54' E	346.47'	3309.18'	346.63'

LINE	BEARING	DISTANCE
L1	N 77°33' W	902.45'
L2	S 52°04' E	1081.08'
L3	S 55°55' W	13.92'

FILE NUMBER _____

DRAWING NUMBER ADDISON_WP_4H

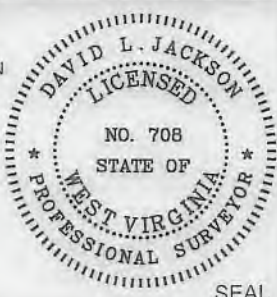
SCALE 1" = 2000'

MINIMUM DEGREE OF ACCURACY 1/200

PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

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 RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.S. 708
David L Jackson



JACKSON SURVEYING INC.
P.O. Box 1460
Clarksburg, WV 26302
304-623-5851



WVDEP
OFFICE OF OIL & GAS
601 57TH STREET, SE
CHARLESTON, WV 25304

DATE: MAY 28, 2020

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

OPERATORS WELL NO. ADDISON 4H
API WELL NO. 47-051-01574
STATE COUNTY PERMIT

LOCATION ELEVATION 1327.28' WATERSHED (HUC 10) Rocky Fork of Fish Creek (HUC-10)

DISTRICT Franklin COUNTY Marshall
QUADRANGLE Wileyville 7.5' LEASE NUMBER SEE WW-6A1 Form

SURFACE OWNER T.H. EXPLORATION II, LLC ACREAGE 49.0

OIL & GAS ROYALTY OWNER T.H. EXPLORATION II, LLC LEASE ACREAGE 49.0

PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE (SPECIFY) _____

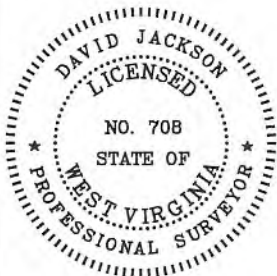
TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD: 6,812' TMD: 12,585'
PLUG & ABANDON ___ CLEAN OUT & REPLUG ___

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

COUNTY NAME
PERMIT

**ADDISON LEASE
WELL 4H
504.192± ACRES**

Number	TAX MAP-PARCEL	SURFACE OWNERS	ACRES
S1	A 05-24-3.2	T.H. EXPLORATION II, LLC	49.0
S2	B 05-24-03	CHARLES E. BERTRAND & DEBRA K. BERTRAND	30.194
S3	05-25-2.1	NANCY JACKSON	1.0
S4	05-25-3.1	S.D. FERTITTA, ET UX	3.022
S5	09-20-01	MICHAEL JAMES PEKULA, ET UX	5.0
S6	09-20-05	GERALD A. FROHNAPFEL ET UX TRUST	164.143
S7	09-22-03	MARK HILARY MILLER	63.73
S8	09-22-2.1	JOHN LOGAN WRIGHT	46.13
S9	05-25-08	JOHN W. & TALMARA J. WETZEL	24.25
S10	12-03-40	ROSE L. & ALAN J. ABBOTT	2.6
S11	05-25-06	MELANIE JEANNE CARR	3.0
S12	05-25-05	MELANIE JEANNE CARR	1.12
S13	05-25-04	MELANIE JEANNE CARR	5.0
S14	12-03-41.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	74.138
S15	05-25-13.1	MORGAN CHAD GUMP, ET UX	0.8
S16	12-03-4.4	LARRY & MARILYN K. MILLER	29.76
S17	12-03-41.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	74.138
S18	12-03-41	CARL L. KIRKLAND HRS.	4.102
S19	05-25-10.1	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	5.250
S20	05-25-10	TERRY L. & TAMMY J. KIRKLAND, AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST	18.75
S21	12-03-43	ADAM W. FERRELL & BRITTANY M. LOY	1.97
S22	12-03-47	WETZEL CO. EMERGENCY AMBULANCE	0.50
S23	12-03-44	JAMES A. & JO C. ESTEP	1.10
S24	05-25-11.1	EDWARD W. KLUG, ET UX	2.343
S25	05-25-13	WILLIAM M. FERDA, JR ET AL	16.014
S26	05-25-1.1	RYAN A. LAYMAN & JACQUELINE E. LAYMAN	9.79
S27	05-25-1.2	WILLIAM DUBIEL JR. & ANDREA J. DUBIEL	20.10
S28	05-25-1.3	MICHAEL E. CHAPMAN & ANNIE A. CHAPMAN	26.20
S29	05-25-1.4	SAMANTHA J. NAMLIK & PHILIP A. NAMLIK	24.44
S30	05-25-2.2	JOHN G. KLUG SR., ET UX	10.0
S31	05-24-3.1	T.H. EXPLORATION II, LLC	5.50

P.S.
708

David L Jackson

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TUG HILL
OPERATING

OPERATOR'S

WELL #: ADDISON 4H

DISTRICT: Franklin

COUNTY: Marshall

STATE: WV

API #: 47-051-01574

WELL PLAT

PAGE 2 OF 2

DATE: 05/28/2020

WW-6A1
(5/13)

Operator's Well No. Addison 4H

**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
-------------------------	-----------------------	-----------------------	---------	-----------

*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

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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 *Amy Miller*
 Its: Permitting Specialist - Appalachia Region

WW-6A1 Supplement

Operator's Well No. Addison - 4H

4705101574

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment
10*14068	A	5-24-3.2	ROHN JEAN MARTIN	GASTAR EXPLORATION USA INC	1/8+	666	552	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14069	A	5-24-3.2	SHARON E YOHO	GASTAR EXPLORATION USA INC	1/8+	708	193	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14070	A	5-24-3.2	CLAUDIA R SCHEEHLE	GASTAR EXPLORATION USA INC	1/8+	708	197	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14071	A	5-24-3.2	SHIRLEY M DORSEY AND WILLIAM DORSEY	GASTAR EXPLORATION USA INC	1/8+	708	187	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14072	A	5-24-3.2	CHARLES ROBERT MYERS	GASTAR EXPLORATION USA INC	1/8+	708	189	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14073	A	5-24-3.2	RICHARD WHITE II & GLORIA J WHITE	GASTAR EXPLORATION USA INC	1/8+	708	195	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14074	A	5-24-3.2	JANE N FISHER AND LEX FISHER	GASTAR EXPLORATION USA INC	1/8+	710	604	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14075	A	5-24-3.2	SHIRLEY K WHITE	GASTAR EXPLORATION USA INC	1/8+	708	201	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14076	A	5-24-3.2	PATRICIA CROW AGENT & AIF FOR VERLA SHUTLER	GASTAR EXPLORATION USA INC	1/8+	710	63	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14077	A	5-24-3.2	WILLIAM FRANK TORRES	GASTAR EXPLORATION USA INC	1/8+	710	72	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14078	A	5-24-3.2	CAROL VASS	GASTAR EXPLORATION USA INC	1/8+	710	74	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14079	A	5-24-3.2	JON & SUSAN NEWMAN	GASTAR EXPLORATION USA INC	1/8+	710	76	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14080	A	5-24-3.2	EDITH OBLINGER	GASTAR EXPLORATION USA INC	1/8+	714	133	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14081	A	5-24-3.2	STEVEN L & CAROL J NEWMAN	GASTAR EXPLORATION USA INC	1/8+	724	50	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14082	A	5-24-3.2	PAUL E & LYNN E BARCUS JR	GASTAR EXPLORATION USA INC	1/8+	734	455	26/183 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14083	A	5-24-3.2	JAN L O'DONNELL	GASTAR EXPLORATION USA INC	1/8+	739	415	26/183 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14084	A	5-24-3.2	ROGER A & LAURA J MAY	GASTAR EXPLORATION USA INC	1/8+	741	643	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14085	A	5-24-3.2	BRAD EYNON	GASTAR EXPLORATION USA INC	1/8+	741	645	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14086	A	5-24-3.2	BRUCE BAILEY	GASTAR EXPLORATION USA INC	1/8+	741	647	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14087	A	5-24-3.2	GERALD H COOPER	GASTAR EXPLORATION USA INC	1/8+	748	464	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14088	A	5-24-3.2	GREGORY T COOPER	GASTAR EXPLORATION USA INC	1/8+	748	466	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14089	A	5-24-3.2	ROBERT LOHR	GASTAR EXPLORATION USA INC	1/8+	748	317	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14090	A	5-24-3.2	CATHERINE R KLUG PAUL FOX - POWER OF ATTORNEY	GASTAR EXPLORATION USA INC	1/8+	762	454	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14091	A	5-24-3.2	AGNES C KLUG	GASTAR EXPLORATION USA INC	1/8+	762	456	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14092	A	5-24-3.2	HAYHURST COMPANY A FLORIDA PARTNERSHIP	CHEESAPEAKE APPALACHIA LLC	1/8+	716	611	27/321 Chesapeake Appalachia LLC and Statoil USA Onshore Properties to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14094	A	5-24-3.2	GASPARE A INGRASSELINO	GASTAR EXPLORATION INC	1/8+	839	528	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14068	B	5-24-3	ROHN JEAN MARTIN	GASTAR EXPLORATION USA INC	1/8+	666	552	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14069	B	5-24-3	SHARON E YOHO	GASTAR EXPLORATION USA INC	1/8+	708	193	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14070	B	5-24-3	CLAUDIA R SCHEEHLE	GASTAR EXPLORATION USA INC	1/8+	708	197	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14071	B	5-24-3	SHIRLEY M DORSEY AND WILLIAM DORSEY	GASTAR EXPLORATION USA INC	1/8+	708	187	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14072	B	5-24-3	CHARLES ROBERT MYERS	GASTAR EXPLORATION USA INC	1/8+	708	189	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14073	B	5-24-3	RICHARD WHITE II & GLORIA J WHITE	GASTAR EXPLORATION USA INC	1/8+	708	195	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14074	B	5-24-3	JANE N FISHER AND LEX FISHER	GASTAR EXPLORATION USA INC	1/8+	710	604	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14075	B	5-24-3	SHIRLEY K WHITE	GASTAR EXPLORATION USA INC	1/8+	708	201	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14076	B	5-24-3	PATRICIA CROW AGENT & AIF FOR VERLA SHUTLER	GASTAR EXPLORATION USA INC	1/8+	710	63	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14077	B	5-24-3	WILLIAM FRANK TORRES	GASTAR EXPLORATION USA INC	1/8+	710	72	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14078	B	5-24-3	CAROL VASS	GASTAR EXPLORATION USA INC	1/8+	710	74	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14079	B	5-24-3	JON & SUSAN NEWMAN	GASTAR EXPLORATION USA INC	1/8+	710	76	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14080	B	5-24-3	EDITH OBLINGER	GASTAR EXPLORATION USA INC	1/8+	714	133	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14081	B	5-24-3	STEVEN L & CAROL J NEWMAN	GASTAR EXPLORATION USA INC	1/8+	724	50	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14082	B	5-24-3	PAUL E & LYNN E BARCUS JR	GASTAR EXPLORATION USA INC	1/8+	734	455	26/183 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14083	B	5-24-3	JAN L ODOMNELL	GASTAR EXPLORATION USA INC	1/8+	739	415	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14084	B	5-24-3	ROGER A & LAURA J MAY	GASTAR EXPLORATION USA INC	1/8+	741	643	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14085	B	5-24-3	BRAD EYNON	GASTAR EXPLORATION USA INC	1/8+	741	645	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14086	B	5-24-3	BRUCE BAILEY	GASTAR EXPLORATION USA INC	1/8+	741	647	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14087	B	5-24-3	GERALD H COOPER	GASTAR EXPLORATION USA INC	1/8+	748	464	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14088	B	5-24-3	GREGORY T COOPER	GASTAR EXPLORATION USA INC	1/8+	748	466	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14089	B	5-24-3	ROBERT LOHR	GASTAR EXPLORATION USA INC	1/8+	748	317	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14090	B	5-24-3	CATHERINE R KLUG PAUL FOX - POWER OF ATTORNEY	GASTAR EXPLORATION USA INC	1/8+	762	454	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14091	B	5-24-3	AGNES C KLUG	GASTAR EXPLORATION USA INC	1/8+	762	456	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14092	B	5-24-3	HAYHURST COMPANY A FLORIDA PARTNERSHIP	CHESAPEAKE APPALACHIA LLC	1/8+	716	611	27/321 Chesapeake Appalachia LLC and Statoil USA Onshore Properties to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14094	B	5-24-3	GASPARE A INGRASSELINO	GASTAR EXPLORATION INC	1/8+	839	528	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14068	C	5-24-3.4	ROHN JEAN MARTIN	GASTAR EXPLORATION USA INC	1/8+	666	552	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14069	C	5-24-3.4	SHARON E YOHO	GASTAR EXPLORATION USA INC	1/8+	708	193	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14070	C	5-24-3.4	CLAUDIA R SCHEEHLE	GASTAR EXPLORATION USA INC	1/8+	708	197	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14071	C	5-24-3.4	SHIRLEY M DORSEY AND WILLIAM DORSEY	GASTAR EXPLORATION USA INC	1/8+	708	187	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14072	C	5-24-3.4	CHARLES ROBERT MYERS	GASTAR EXPLORATION USA INC	1/8+	708	189	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14073	C	5-24-3.4	RICHARD WHITE II & GLORIA J WHITE	GASTAR EXPLORATION USA INC	1/8+	708	195	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14074	C	5-24-3.4	JANE N FISHER AND LEX FISHER	GASTAR EXPLORATION USA INC	1/8+	710	604	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14075	C	5-24-3.4	SHIRLEY K WHITE	GASTAR EXPLORATION USA INC	1/8+	708	201	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14076	C	5-24-3.4	PATRICIA CROW AGENT & AIF FOR VERLA SHUTLER	GASTAR EXPLORATION USA INC	1/8+	710	63	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14077	C	5-24-3.4	WILLIAM FRANK TORRES	GASTAR EXPLORATION USA INC	1/8+	710	72	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14079	C	5-24-3.4	JON & SUSAN NEWMAN	GASTAR EXPLORATION USA INC	1/8+	710	76	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
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10*14081	C	5-24-3.4	STEVEN L & CAROL J NEWMAN	GASTAR EXPLORATION USA INC	1/8+	724	50	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
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10*14068	D	5-24-3.3	ROHN JEAN MARTIN	GASTAR EXPLORATION USA INC	1/8+	666	552	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14069	D	5-24-3.3	SHARON E YOHO	GASTAR EXPLORATION USA INC	1/8+	708	193	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14070	D	5-24-3.3	CLAUDIA R SCHEEHLE	GASTAR EXPLORATION USA INC	1/8+	708	197	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14071	D	5-24-3.3	SHIRLEY M DORSEY AND WILLIAM DORSEY	GASTAR EXPLORATION USA INC	1/8+	708	187	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14072	D	5-24-3.3	CHARLES ROBERT MYERS	GASTAR EXPLORATION USA INC	1/8+	708	189	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14073	D	5-24-3.3	RICHARD WHITE II & GLORIA J WHITE	GASTAR EXPLORATION USA INC	1/8+	708	195	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14074	D	5-24-3.3	JANE N FISHER AND LEX FISHER	GASTAR EXPLORATION USA INC	1/8+	710	604	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14075	D	5-24-3.3	SHIRLEY K WHITE	GASTAR EXPLORATION USA INC	1/8+	708	201	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14076	D	5-24-3.3	PATRICIA CROW AGENT & AIF FOR VERLA SHUTLER	GASTAR EXPLORATION USA INC	1/8+	710	63	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14077	D	5-24-3.3	WILLIAM FRANK TORRES	GASTAR EXPLORATION USA INC	1/8+	710	72	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14078	D	5-24-3.3	CAROL VASS	GASTAR EXPLORATION USA INC	1/8+	710	74	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14079	D	5-24-3.3	JON & SUSAN NEWMAN	GASTAR EXPLORATION USA INC	1/8+	710	76	24/335 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14080	D	5-24-3.3	EDITH OBLINGER	GASTAR EXPLORATION USA INC	1/8+	714	133	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14081	D	5-24-3.3	STEVEN L & CAROL J NEWMAN	GASTAR EXPLORATION USA INC	1/8+	724	50	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14082	D	5-24-3.3	PAUL E & LYNN E BARCUS JR	GASTAR EXPLORATION USA INC	1/8+	734	455	26/183 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14083	D	5-24-3.3	JAN L ODONNELL	GASTAR EXPLORATION USA INC	1/8+	739	415	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14084	D	5-24-3.3	ROGER A & LAURA J MAY	GASTAR EXPLORATION USA INC	1/8+	741	643	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14085	D	5-24-3.3	BRAD EYNON	GASTAR EXPLORATION USA INC	1/8+	741	645	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14086	D	5-24-3.3	BRUCE BAILEY	GASTAR EXPLORATION USA INC	1/8+	741	647	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14087	D	5-24-3.3	GERALD H COOPER	GASTAR EXPLORATION USA INC	1/8+	748	464	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14088	D	5-24-3.3	GREGORY T COOPER	GASTAR EXPLORATION USA INC	1/8+	748	466	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14089	D	5-24-3.3	ROBERT LOHR	GASTAR EXPLORATION USA INC	1/8+	748	317	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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10*14090	D	5-24-3.3	CATHERINE R KLUG PAUL FOX - POWER OF ATTORNEY	GASTAR EXPLORATION USA INC	1/8+	762	454	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14091	D	5-24-3.3	AGNES C KLUG	GASTAR EXPLORATION USA INC	1/8+	762	456	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14092	D	5-24-3.3	HAYHURST COMPANY A FLORIDA PARTNERSHIP	CHESAPEAKE APPALACHIA LLC	1/8+	716	611	27/321 Chesapeake Appalachia LLC and Statoil USA Onshore Properties to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14094	D	5-24-3.3	GASPARE A INGRASSELINO	GASTAR EXPLORATION INC	1/8+	839	528	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14525	E	5-25-2	IMA LEE YOHO	GASTAR EXPLORATION USA INC	1/8+	757	192	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14524	F	5-25-3	IMA LEE YOHO	GASTAR EXPLORATION USA INC	1/8+	757	194	26/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

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JUN 1 2020
 MARSHALL County 4:20:51 PM
 Instrument No 1403489
 Date Recorded 04/27/2016
 Document Type ASN
 Pages Recorded 77
 Book-Page 36-9
 Recording Fee \$77.00
 Additional \$13.00

WHEN RECORDED RETURN TO:
 TH Exploration II, LLC
 1320 South University Drive, Suite 500
 Fort Worth, Texas 76107
 Attn: David Kalish

Execution Version

ASSIGNMENT AND BILL OF SALE

STATE OF WV §
 § KNOW ALL MEN BY THESE PRESENTS:
 COUNTY OF MARSHALL §

THIS ASSIGNMENT AND BILL OF SALE (this "*Assignment*"), dated April 7, 2016, but effective as of 7:00 A.M. Houston time on January 1, 2016 (the "*Effective Time*"), is between Gastar Exploration Inc., a Delaware corporation, whose address is 1331 Lamar Street, Suite 650 Houston, Texas 77010 ("*Assignor*"), and TH Exploration II, LLC, a Texas limited liability company, whose address is 1320 South University Drive, Suite 500, Fort Worth, Texas 76107 ("*Assignee*"). Assignor and Assignee are each, individually, referred to herein as a "*Party*" and, collectively, as the "*Parties*".

Capitalized terms used but not defined herein shall have the respective meanings set forth in that certain Purchase and Sale Agreement (the "*Purchase Agreement*"), dated as of February 19, 2016, by and between Assignor and Assignee (as successor-in-interest).

Section 1. Assignment. The conveyance and assignment herein shall be deemed effective as of the Effective Time.

For Ten Dollars (\$10.00) and other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged), Assignor does hereby forever GRANT, BARGAIN, SELL, CONVEY, ASSIGN, TRANSFER, SET OVER AND DELIVER unto Assignee, all of Assignor's right, title and interest in and to the following interests and properties (such right, title and interest described in *subsections (a)* through *(k)* of this Section 1, less and except the Excluded Assets, collectively, the "*Conveyed Interests*"):

(a) all oil, gas and/or mineral leases of Assignor, together with any and all other right, title and interest of Assignor in and to the leasehold estates created thereby, including subleases, royalties, overriding royalties, net profits interest, carried interests or similar rights or interests in such leases, and together with all rights, privileges, benefits and powers conferred upon Assignor with respect to the use and occupation of the lands covered thereby that may be necessary, convenient or incidental to the possession and enjoyment of such leases, located in Marshall, Wetzel, Doddridge, Harrison, Lewis, Marion, and Monongalia Counties, West Virginia and Greene, Butler, Fayette, Somerset, and Clearfield Counties, Pennsylvania, including those described on Exhibit A—Part 1 attached hereto (subject to any reservations, limitations or depth restrictions described on Exhibit A—Part 1), (Assignor's interest in such leases and other right, title and interest as so limited, the "*Leases*");

(b) all rights and interests in, under or derived from all unitization agreements in effect with respect to any of the Leases and the units created thereby, including those described

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TUG HILL

4705101574

June 18, 2020

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

RE: Addison 4H

Subject: Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC will not be drilling, extracting or producing any minerals under any WV County or State Routes in the area reflected on the Addison 4H well plat.

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 L. Miller
Permitting Specialist – Appalachia Region

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

Date of Notice Certification: 06/18/2020

API No. 47- 051 - 01574

Operator's Well No. Addison 4H

Well Pad Name: Addison

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:	West Virginia	UTM NAD 83	Easting:	521,688.82
County:	Marshall		Northing:	4,398,452.63
District:	Franklin	Public Road Access:	CR 29/5	
Quadrangle:	Wileyville 7.5'	Generally used farm name:	TH Exporation II, LLC	
Watershed:	Rocky Fork of Fish Creek (HUC-10)			

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.

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:

*PLEASE CHECK ALL THAT APPLY

- 1. NOTICE OF SEISMIC ACTIVITY or NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED
- 2. NOTICE OF ENTRY FOR PLAT SURVEY or NO PLAT SURVEY WAS CONDUCTED
- 3. NOTICE OF INTENT TO DRILL or NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)
- 4. NOTICE OF PLANNED OPERATION
- 5. PUBLIC NOTICE
- 6. NOTICE OF APPLICATION

OOG OFFICE USE ONLY

- RECEIVED/ NOT REQUIRED
- RECEIVED
- RECEIVED/ NOT REQUIRED
- RECEIVED
- RECEIVED
- RECEIVED

Required Attachments:

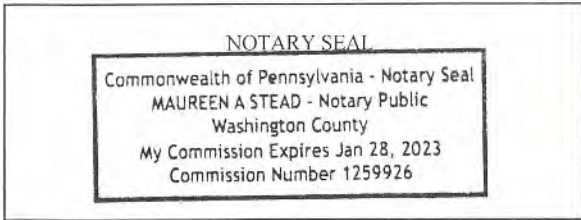
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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: Tug Hill Operating, LLC
By: Amy L. Miller *[Signature]*
Its: Permitting Specialist - Appalachia Region
Telephone: 724-749-8388

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-838-2030
Email: amiller@tug-hillop.com



Subscribed and sworn before me this 18 day of JUNE, 2020.
[Signature] Notary Public
My Commission Expires 1/28/23

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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API NO. 47-051 4-705101574
OPERATOR WELL NO. Addison 4H
Well Pad Name: Addison

**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: 6/17/2020 **Date Permit Application Filed:** 6/20/2020

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: TH Exploration II, LLC (Well Pad and Access Road)
Address: 1320 South University Drive, Suite 500
Fort Worth, TX 76107

Name: Atinum Marcellus I, LLC (Well Pad and Access Road)
Address: 33 Clay Street, Suite 700
Houston, TX 77002

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: _____
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE
Name: CONSOL Energy
Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

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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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.

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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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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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WW-6A
(8-13)

API NO. 47-051 **4705101574**
OPERATOR WELL NO. Addison 4H
Well Pad Name: Addison

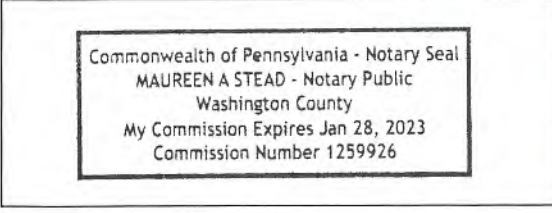
Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amiller@tug-hillop.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 17 day of JUNE, 2020.
Maureen A Stead Notary Public
My Commission Expires 1/28/23

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WW-6A

Supplement Pg. 1A

Tug Hill Operating, LLC
 380 Southpointe BLVD, Suite 200
 Canonsburg, PA 15317

WATER WELL REPORT

Well: ADDISON 4H
 District: Franklin
 County: Marshall
 State: WV

There appears to be Six (6) possible water source within 2,000 feet of the above referenced well location.

Topo Spot # 1 05-24-3.1 T.H. Exploration II, LLC. (Business) 800-912-9745 (B) 1320 South University Drive Suite 500 Fort Worth, TX 76107	Topo Spot # 2 05-24-3 Charles E. & Debra K. Bertrand 304-845-9541 (H) 1241 Cooper Ln. Proctor, WV 26055	Topo Spot # 3 05-24-3.3 Charles E. & Debra K. Bertrand 304-845-9541 (H) 1241 Cooper Ln. Proctor, WV 26055
Topo Spot # 4 05-25-2.3 Kelsey E. Klug 304-455-6572 (H) 969 Cooper Ln. Proctor, WV 26055	Topo Spot # 5 05-25-2.2 John G. Klug Sr., et ux 304-771-2563 (H) 768 Cooper Ln. Proctor, WV 26055	Topo Spot # 6 05-25-1.4 Samantha J. & Philip A. Namlik 304-233-4712 (H) 631 Cooper Ln. Proctor, WV 26055

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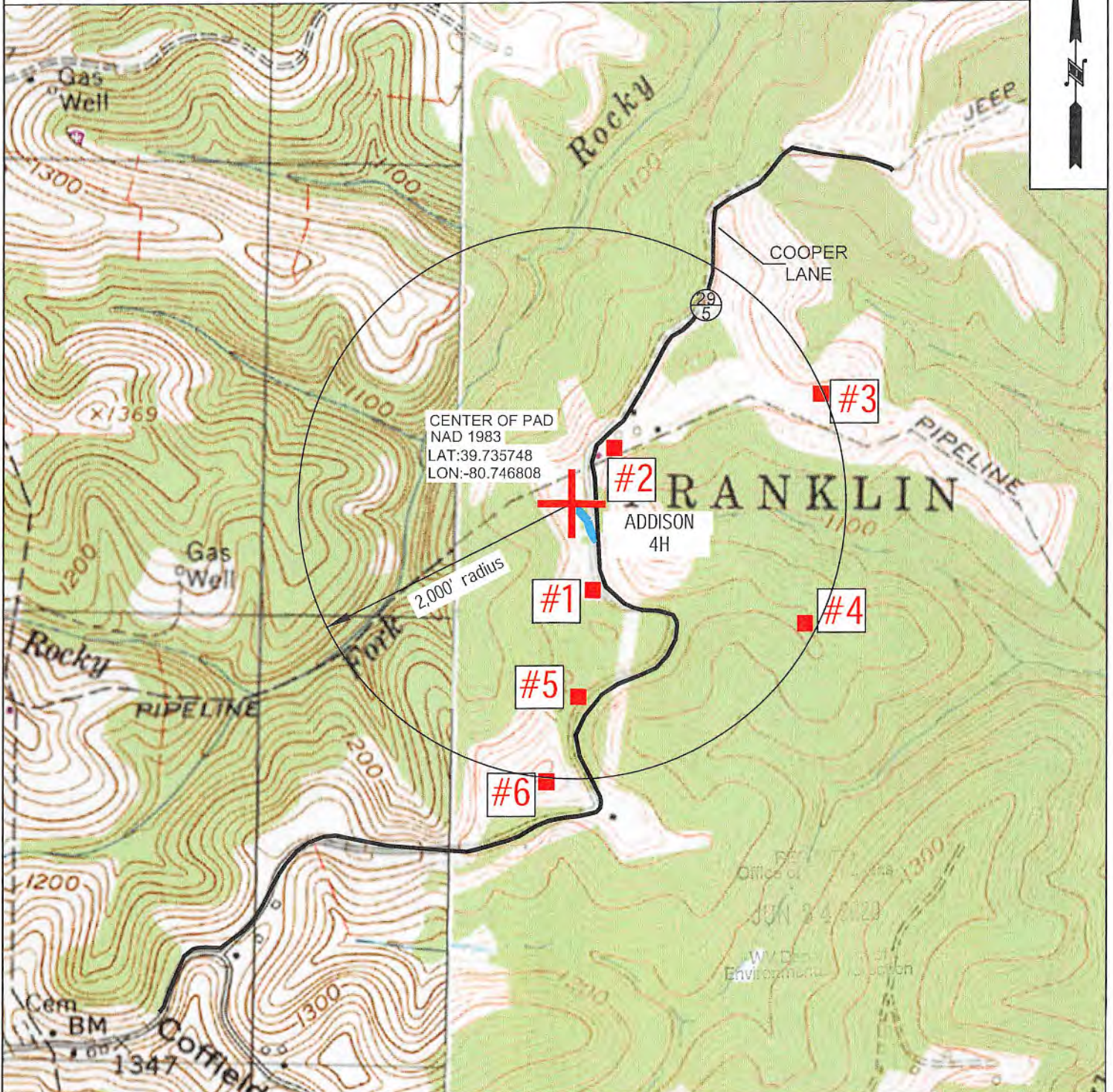
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PROPOSED ADDISON 4H

There appears to be six (6) possible water sources within 2,000'.



**TUG HILL
OPERATING**

OPERATOR 494510851
TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD
SUITE 200
CANONSBURG, PA 15317

TOPO SECTION
WILEYVILLE 7.5'
SCALE:
1" = 1000'

LEASE NAME
ADDISON
DATE:
DATE: 5-22-2020

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: 6/10/2020 **Date of Planned Entry:** 6/15/2020

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: TH Exploration II, LLC (Well Pad and Access Road)
 Address: 1320 South University Drive, Suite 500
Fort Worth, TX 76107

Name: Atinum Marcellus I, LLC (Well Pad and Access Road)
 Address: 33 Clay Street, Suite 700
Houston, TX 77002

Name: _____
 Address: _____

COAL OWNER OR LESSEE

Name: CONSOL Energy
 Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: Scott K. Richter (see attached list)
 Address: 20 Rosary Road
New Martinsville, WV 26155

*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: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>39.73574779; -80.74680821</u>
County: <u>Marshall</u>	Public Road Access: <u>County Route 2/2 (Cooper's Lane)</u>
District: <u>Franklin</u>	Watershed: <u>Rocky Fork of Fish Creek (HUC-10)</u>
Quadrangle: <u>Wileyville 7.5'</u>	Generally used farm name: <u>TH Exploration II, LLC</u>

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

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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.

Additional Parties to Notice (WW-6A3)

Addison Pad

Mineral Owners

Remnants, LLC 9200 NW 73rd Street Tamarac, FL 33321	Guy J. Ingrassellino 3700 E Grant Street Orlando, FL 32812
Laura J. May 2527 Westminister Terrace Oviedo, FL 32765	Brad Eynon 3016 Troy Drive Orlando, FL 32806
Carol Vass 109 Senaca Road Huntington, WV 25705	Steven L. Newman 100 Thompson Trail Bastrop, TX 78602
Lynn Ellen Barcus 133 Paddock Green Drive New Martinsville, WV 26155	Jan Lea O'Donnell 10600 Aquilla Trail Waco, TX 76708
Marcellus Mineral Group LLC PO Box 978 McMurray, PA 15317	Jon Newman 958 Patton Farm Road Stuarts Draft, VA 24477
Patricia Louise Crow 1738 Greenfield Road Cameron, WV 26033	Nancy Rae McCardle 1081 Shutler Lane Proctor, WV 26055
Paul G. Fox 5761 St. Joseph Road Proctor, WV 26055	Gregory T. Cooper 7755 Bellaire Drive Fort Worth, TX 76132
Gerald H. Cooper 832 Stone Bridge Springs Drive Chesterfield, MO 63005	Stone Hill Mineral Holdings, LLC PO Box 470426 Forth Worth TX 76147
Melissa Jan Bailey Painter 300 Felton Place Cranberry Township, PA 16066	Chestnut Holdings, Inc. 65 Mountain Park Drive Fairmont, WV 26554
William Franklin Torres 7746 W. Long Cast Drive Tucson, AZ 85757	Sharon Ester (Wood) Yoho 221 Grant Avenue Moundsville, WV 26041
Shirley Mae (Wood) Dorsey 107 Boone Avenue Palatka, FL 32177	Charles R. Myers 2306 8th Avenue Vienna, WV 26105
Shirley K. White 2701 Bluefield Boulevard SW Roanoke, VA 24015	Richard S. White, II PO Box 98 Linwood, KS 66052

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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: 06/17/2020 **Date Permit Application Filed:** 06/19/2020

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: TH Exploration II, LLC
Address: 1320 South University Drive, Suite 500
Fort Worth, TX 76107

Name: Alinum Marcellus I, LLC
Address: 33 Clay Street, Suite 700
Houston, TX 77002

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>521,688.82</u>
County:	<u>Marshall</u>		Northing:	<u>4,398,452.63</u>
District:	<u>Franklin</u>	Public Road Access:	<u>CR 29/5</u>	
Quadrangle:	<u>Wileyville 7.5'</u>	Generally used farm name:	<u>TH Exploration II, LLC</u>	
Watershed:	<u>Rocky Fork of 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
Telephone: 724-749-8388
Email: amiller@tug-hilltop.com

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 depprivacyofficer@wv.gov.

Office of Oil and Gas
JUN 24 2020
West Virginia Department of
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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

June 22, 2020

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 Addison Pad, Marshall County
Addison 4H Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2012-0421 which has been issued to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 29/5 SLS.

This operator is in compliance with §22-6A-20 of the WV Code. Operator has signed a STATEWIDE 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,

A handwritten signature in blue ink that reads "Gary K. Clayton".

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

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



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Addison 4H

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

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