



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

Wednesday, August 29, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BOULEVARD, PLAZA II
SUITE 200
CANNONSBURG, PA 15317

Re: Permit approval for EVAD 1HM
47-051-02056-00-00

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: EVAD 1HM
Farm Name: LOUIS J. & PATRICIA ACCET.
U.S. WELL NUMBER: 47-051-02056-00-00
Horizontal 6A New Drill
Date Issued: 8/29/2018

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.



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Austin Caperton, Cabinet Secretary
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**ORDER
ISSUED UNDER
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 6A**

TO: Tug Hill Operating
380 Southpointe Boulevard, Plaza II, Suite 200
Cannonsburg, Pa 15317

DATE: August 21, 2018
ORDER NO.: 2018-W-6

INTRODUCTION

This Order (hereinafter “Order”) is issued by the Office of Oil and Gas (hereinafter “OOG”), by and through its Chief, pursuant to the authority of W. Va. Code §§ 22-1-1, 22-6-1 and 22-6A-1 *et seq.* to Tug Hill Operating (hereinafter “Tug Hill” or “Operator”), collectively the “Parties.”

FINDINGS OF THE CHIEF

In support of this Order, the Chief hereby finds the following:

1. OOG, an office within the West Virginia Department of Environmental Protection, is the agency with the duty and authority to execute and enforce W. Va. Code §22-6-1 and §22-6A-1 *et seq.*, and the rules and regulations promulgated thereunder.
2. Tug Hill is a “person” as defined by W. Va. Code §22-6-1(n), with a corporate address as 380 Southpointe Boulevard, Plaza II, Suite 200, Cannonsburg, Pa 15317
3. On June 5, 2018 Tug Hill submitted a well work permit application identified as API# 47-051-02051. Then on June 18, 2018 Tug Hill also submitted well work permits identified as API#s 47-051-02056, 47-051-02057, 47-051-02058, 47-051-02059 and 47-051-02060. The proposed wells are to be located on the Accettolo Pad in the Franklin District of Marshall County, West Virginia.
4. On August 16, 2018 Tug Hill requested a waiver for Wetland W1 and Wetland W3 outlined in Attachment 1, from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit applications identified as API# 47-051-02051, 47-051-02056, 47-051-02057, 47-051-02058, 47-051-02059 and 47-051-02060.

CONCLUSIONS OF LAW

1. West Virginia Code §22-1-6(d) requires, in part, that “in addition to other powers, duties and responsibilities granted and assigned to the secretary by this chapter, the secretary is authorized and empowered to... (3) Enter private lands to make surveys and inspections for environmental protection purposes; to investigate for violations of statutes or rules which the Office of Oil and Gas is charged with enforcing; to serve and execute warrants and processes; to make arrests; issue orders, which for the purposes of this chapter include consent agreements; and to otherwise enforce the statutes or rules which the Office of Oil and Gas is charged with enforcing.”
2. West Virginia Code §22-6A-2(a)(6) requires, in part, that “Concomitant with the broad powers to condition the issuance of well work permits, the secretary should also have broad authority to waive certain minimum requirements of this article when, in his or her discretion, such waiver is appropriate: *Provided*, That the secretary shall submit a written report of the number of waivers granted to the Legislature commencing January 1, 2013, and each year thereafter.”
3. West Virginia Code §22-6A-12(b) requires, in part, that “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 Office of Oil and Gas 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 Office of Oil and Gas 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.”

ORDER

West Virginia Code §22-6A-12(b) requires, in part, that “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. The Office of Oil and Gas grants the request for a waiver for Wetland W1 and Wetland W3 from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-051-02051, 47-051-02056, 47-051-02057, 47-051-02058, 47-051-02059 and 47-051-02060. The Office of Oil and Gas hereby **ORDERS** that Tug Hill shall meet the following site construction and operational requirements for the Accettolo Well Pad:

- a. A berm shall be constructed around the perimeter of the pad to contain any potential spills and storm water runoff. Berm is to be at least twenty-four inches (24”) in height;
- b. Erosion control blankets shall be installed on all slopes and down gradient locations of the pad as erosion and sediment controlling BMPs;
- c. Wetlands W1 and W3 shall be protected by twenty-four-inch (24”) compost filter sock and super silt fence. This along with temporary and permanent vegetative cover will prevent sediment from reaching the wetlands
- d. Disturbed areas not used for operations shall be seeded and mulched per the seeding tables in the WVDEP-OOG Erosion and Sediment Control Manual;
- e. Drill cuttings and associated drilling mud shall be disposed of in a permitted landfill;
- f. Waste generated by the flowback treatment systems shall be sent to offsite disposal at a permitted landfill;
- g. Weekly site inspections shall be conducted to monitor and maintain the integrity of the BMP storm water controls;
- h. Weekly storm water and spill prevention inspections shall be conducted focusing on storm water and spill prevention BMPs and maintenance of these BMPs;
- i. Inspections of the storm water and spill prevention measures shall be conducted after any major storm event defined as a half inch (½”) rain within any twenty-four (24) hour period;
- j. Pad inspections shall be conducted no less than once a week to identify and mitigate potential deficiencies;
- k. All records from inspections shall be maintained on site for the life of the project and be available upon request.

Thus ORDERED, the 21th day of August, 2018.

IN THE NAME OF THE STATE OF WEST VIRGINIA:

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

By:



JAMES A. MARTIN, CHIEF

Wetland and Perennial Stream Waiver Request

Well Operator: Tug Hill Operating, LLC

Well Number: 1HM

Well Pad Name: Accettolo Well Pad

County, District, Quadrangle of Well Location: Marshall, Franklin, New Martinsville

1. Describe the proposed project location, including unique identifying names of all wetlands, and the names of perennial streams for which the waiver is sought.

The Accettolo Well Pad is an existing pad located along County Route 29 (Burch Ridge) in Franklin District, Marshall County, WV. The proposed project location is along a ridge top. The proposed project location will be within 100' of two delineated wetlands. Exhibit A, current site conditions, will be attached and made part of this waiver request. Exhibit A shows the locations of Wetland W1 and Wetland W3.

Wetland W1: Wetland W1 is located within the existing site LOD. Wetland W1 is situated downslope of the existing well pad on the north side of the well pad. The proposed sump locations on the well pad are positioned to direct collected water flow around Wetland W1. Super silt fence and 24" compost filter sock shall be installed upslope of Wetland W1 to control perimeter run-off and also provide a physical barrier between the work area and protected area. Minimal upslope earthwork will take place above Wetland W1, with the primary activity being berm construction and sump/outlet construction. There is a proposed repair area to the southwest and upslope of the protected area. The proposed reworked material will be graded so that water is directed towards the west side of the repair area, away from the protected area.

Wetland W3: Wetland W3 is located within the existing site LOD. Wetland W3 is situated downslope of the existing well pad on the south side of the well pad. Super silt fence and 24" compost filter sock shall be installed upslope of Wetland W3 to control perimeter run-off and also provide a physical barrier between the work area and protected area. Minimal upslope earthwork will take place above Wetland W3, with the primary activity being berm construction and sump/outlet construction.

- 2. Justify the proposed activity by describing alternatives to the project that were considered.**
- a. Include a No-Action Alternative to show "the future without the project"**
 - b. Location Alternatives must be shown**
 - c. Must demonstrate why a one hundred buffer cannot be maintained**
 - d. Describe how the proposed project is the least environmentally damaging practicable alternative.**

3. Identify sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. This description should include all additional erosion and sediment control measures and devices that will be used.

Wetland W1 and W3 will be protected with super silt fence and 24" compost filter sock. The controls shall be installed upslope of the wetlands. In addition to the E&S controls, an orange construction fence shall be installed to provide a minimum 10' buffer around the existing wetlands. As an additional measure to the reduced amount of exposed soil upslope of the wetlands, a revised berm may be used instead of a traditional earthen berm if construction is to take place outside of optimal growing season. The revised berm will consist of 32" high concrete barriers ("Jersey Barriers") wrapped with 60 mil HDPE liner material to provide well pad containment without the need to disturb additional soil for berm installation. The existing slope vegetation will be maintained and any areas disturbed due to the installation of the upslope erosion and sedimentation controls shall be repaired and seeded. During drilling and completion operations, the well pad berm shall provide containment of the well pad which will further protect Wetland W1 and W3.

4. Provide mapping, plans, specifications and design analysis for the preferred alternative to the project.

4.a Specify in writing what additional controls, measures, devices, monitoring, etc. will be used to protect these wetlands and/or perennial streams for which the waiver is sought.

See Exhibit B, Proposed Design for the proposed site layout and protective control installation locations.

Vegetative Buffer: A minimum 10' vegetative buffer shall be maintained around both wetlands at all times during construction and operation. The minimum 10' buffer shall be designated with an orange construction fence.

Super Silt Fence: Super silt fence shall be installed at the upslope edge of the vegetative buffer for both wetlands. The super silt fence shall provide sedimentation control above the wetland to prevent sediments and other materials from being carried downslope into the wetlands. Should any large material, typically rock or stone, manage to roll down a slope, the chainlink fence of the super silt fence structure shall act as a net to capture the material before it can proceed further downslope towards the wetlands.

24" Compost Filter Sock: A 24" compost filter sock shall be installed 2' upslope of the super silt fence to provide additional sedimentation protection for the wetlands. The 24" compost filter sock will be the primary sediment filter protection for the wetland with the super silt fence being the secondary filter.

Permanent Seeding / Rolled Erosion Control Blankets: Permanent seeding of all disturbed areas upslope of the wetlands shall be performed as soon as practical. Earthwork above the wetlands shall be kept to a minimum to reduce the amount of disturbed area upslope of the wetlands and shall be vegetated as soon as construction permits. If construction activities upslope of the wetlands are completed at the end of the growing season, rolled erosion control blankets shall be installed to provide additional erosion control until permanent vegetation can be established.

API Number: _____
Operator's Well Number: 1HM

Well Pad Berm: Once installed, the well pad berm will provide well pad containment and prevent water from leaving the well pad except at the designated sump outlet locations (water from the sumps shall only be released in accordance with WVDEP requirements). The sump outlets shall have erosion controls to prevent erosion of the well pad slopes that may lead to sedimentation within the wetlands. The proposed well pad sump outlets shall be placed so that they do not discharge at or near the wetlands, providing additional protection to the wetlands.

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 Glen Easton 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Evad 1HM Well Pad Name: Accettolo

3) Farm Name/Surface Owner: Accettolo, Patricia & Louis Public Road Access: Burch Ridge Road - County Route 29

4) Elevation, current ground: 1290' Elevation, proposed post-construction: 1290'

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

Other

(b) If Gas Shallow x Deep

Horizontal X

6) Existing Pad: Yes or No Yes *See 4/16/18*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6493 - 6544' thickness of 51' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,644' ✓

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 15,811'

11) Proposed Horizontal Leg Length: 8,887'

12) Approximate Fresh Water Strata Depths: 70', 877' ✓

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

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickly Coal - 771' ✓ and Pittsburgh Coal - 871' ✓

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

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

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

Depth:

Seam:

Owner:

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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	13 3/8"	NEW	H40	48#	980'	980' ✓	1031ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	980'	980'	1031ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,800'	2,800' ✓	927ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	15,811'	15,811'	4034ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		6,832'	
Liners							

Joe
6/16/18

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	13 3/8"	17 1/2"	.33	1,730	1,384	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	1,730	1,384	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE#24	1.19
Production	5 1/2"	8 7/8_8 3/4	.361	12,640	9,000	SEE#24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

PACKERS

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

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WW-6B
(10/14)

4705102056
API NO. 47-051
OPERATOR WELL NO. Evad 1HM
Well Pad Name: Accettolo

June 1/18

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

Drill through the Marcellus and TD Pilot Hole 100' into the Onondaga. Log vertical section and run a solid cement plug back to proposed KOP. 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 22,217,750 lb proppant and 343,503 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 8.45 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.91 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 other joint. Production casing will have one centralizer every other joint in lateral, one centralizer every joint through curve, one centralizer every other 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

*Note: Attach additional sheets as needed.

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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 (05/24/2018) 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 - Evad 1HM

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
4705101502	Tug Hill Operating	6570' TVD 12433' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101503	Tug Hill Operating	6557' TVD 11319' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101504	Tug Hill Operating	6553' TVD 12000' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101505	Tug Hill Operating	6608' TVD 13102' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101507	Tug Hill Operating	6602' TVD 12348' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101508	Tug Hill Operating	6596' TVD 12543' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101521	Tug Hill Operating	6617' TVD 12620' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705170366	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705170365	Manufacturers Light & Heat	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705170217	Tri-State Oil & Gas Inc.	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by	State records are incomplete

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Page 1

Well: County = 51 Permit = 01504

WV Geological & Economic Survey

Location Information View Map

Table with columns: COUNTY, PERMIT, WELL, STATUS, DATE, etc.

Return Home Location Information

Table with columns: LEASE, UPR, STATUS, etc.

Owner Information

Table with columns: LEASE, UPR, STATUS, etc.

Completion Information

Table with columns: LEASE, UPR, STATUS, etc.

Pay/Status/View Information

Table with columns: LEASE, UPR, STATUS, etc.

Production Gas Information Columns in Feet

Table with columns: LEASE, UPR, STATUS, etc.

Production Oil Information Columns in Feet

Table with columns: LEASE, UPR, STATUS, etc.

Production H2O Information Columns in Feet

Table with columns: LEASE, UPR, STATUS, etc.

Production Water Information Columns in Gallons

Table with columns: LEASE, UPR, STATUS, etc.

Sample/Well Information

Table with columns: LEASE, UPR, STATUS, etc.

Well: County = 51 Permit = 01505

WV Geological & Economic Survey

Location Information View Map

Table with columns: COUNTY, PERMIT, WELL, STATUS, DATE, etc.

Return Home Location Information

Table with columns: LEASE, UPR, STATUS, etc.

Owner Information

Table with columns: LEASE, UPR, STATUS, etc.

Completion Information

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Production Oil Information Columns in Feet

Table with columns: LEASE, UPR, STATUS, etc.

Production H2O Information Columns in Feet

Table with columns: LEASE, UPR, STATUS, etc.

Production Water Information Columns in Gallons

Table with columns: LEASE, UPR, STATUS, etc.

Sample/Well Information

Table with columns: LEASE, UPR, STATUS, etc.

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Location Information - View Map
COUNTY: PUTNAM DISTRICT: COALFIELD LOCALITY: LAUREL URBAN

System Hole Location Information
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Owner Information
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Completion Information
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Table with columns: WELL, DATE OF ACTIVITY, PRODUCT, SECTION, DEPTH, TOP, FLOOR, DEPTH, BOTTOM, PERMITS, SYSTEM, UEBP, SCAFF, UEBP, SCAFF, UEBP, SCAFF, UEBP, SCAFF, UEBP, SCAFF

Production Gas Information - Columns in M3
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Production Oil Information - Columns in Bbl
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Production Water Information - Columns in Gallons
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Test Log Information
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Location Information - View Map
COUNTY: PUTNAM DISTRICT: COALFIELD LOCALITY: LAUREL URBAN

System Hole Location Information
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Owner Information
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Completion Information
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Table with columns: WELL, DATE OF ACTIVITY, PRODUCT, SECTION, DEPTH, TOP, FLOOR, DEPTH, BOTTOM, PERMITS, SYSTEM, UEBP, SCAFF, UEBP, SCAFF, UEBP, SCAFF, UEBP, SCAFF, UEBP, SCAFF

Production Gas Information - Columns in M3
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Production Oil Information - Columns in Bbl
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Production Water Information - Columns in Gallons
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

Test Log Information
WELL: 51-2010-001 LOCALITY: LAUREL URBAN

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WV Geology & Economic Survey Well: County - 51 Permit - 01521

Location Information - View Map
 COUNTY PERMIT DISTRICT COUNTY STATE LAT DEG LONG DEG UTM X UTM Y
 500100143 Morgan 5121 Fraction Boone/Johnson New Martinsburg 39.7500 -82.1150 1563414 4130214

Bottom Hole Location Information
 RW 1160143 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143

Owner Information
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

Completion Information
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

ROW	DATE	TIME	DEPTH (FT)	DEPT (IN)	FINAL CLASS	TYPE	NO	CONC	TS	TRC	NEW	HIO	K	SEEP	C	SEP	C	WT	W	N	P	W
410210121	512121	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143	1160143

Production Gas Information (Volumes in MCF)
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

Production Oil Information (Volumes in BBL)
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

Production NGL Information (Volumes in BBL)
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

Production Water Information (Volumes in Gallons)
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

Stratigraphy Information
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

There is no Wellbore (E-Log) data for this well
 There is no Plugging data for this well
 There is no Sample data for this well

WV Geology & Economic Survey Well: County - 51 Permit - 70366

Location Information - View Map
 COUNTY PERMIT DISTRICT COUNTY STATE LAT DEG LONG DEG UTM X UTM Y
 500100143 Morgan 5121 Fraction Boone/Johnson New Martinsburg 39.7500 -82.1150 1563414 4130214

Bottom Hole Location Information
 RW 1160143 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143

Owner Information
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

Completion Information
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

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
 There is no Production NGL data for this well
 There is no Production Water data for this well
 There is no Stratigraphy data for this well
 There is no Wellbore (E-Log) data for this well
 There is no Plugging data for this well
 There is no Sample data for this well

WV Geology & Economic Survey Well: County - 51 Permit - 70017

Location Information - View Map
 COUNTY PERMIT DISTRICT COUNTY STATE LAT DEG LONG DEG UTM X UTM Y
 500100143 Morgan 5121 Fraction Boone/Johnson New Martinsburg 39.7500 -82.1150 1563414 4130214

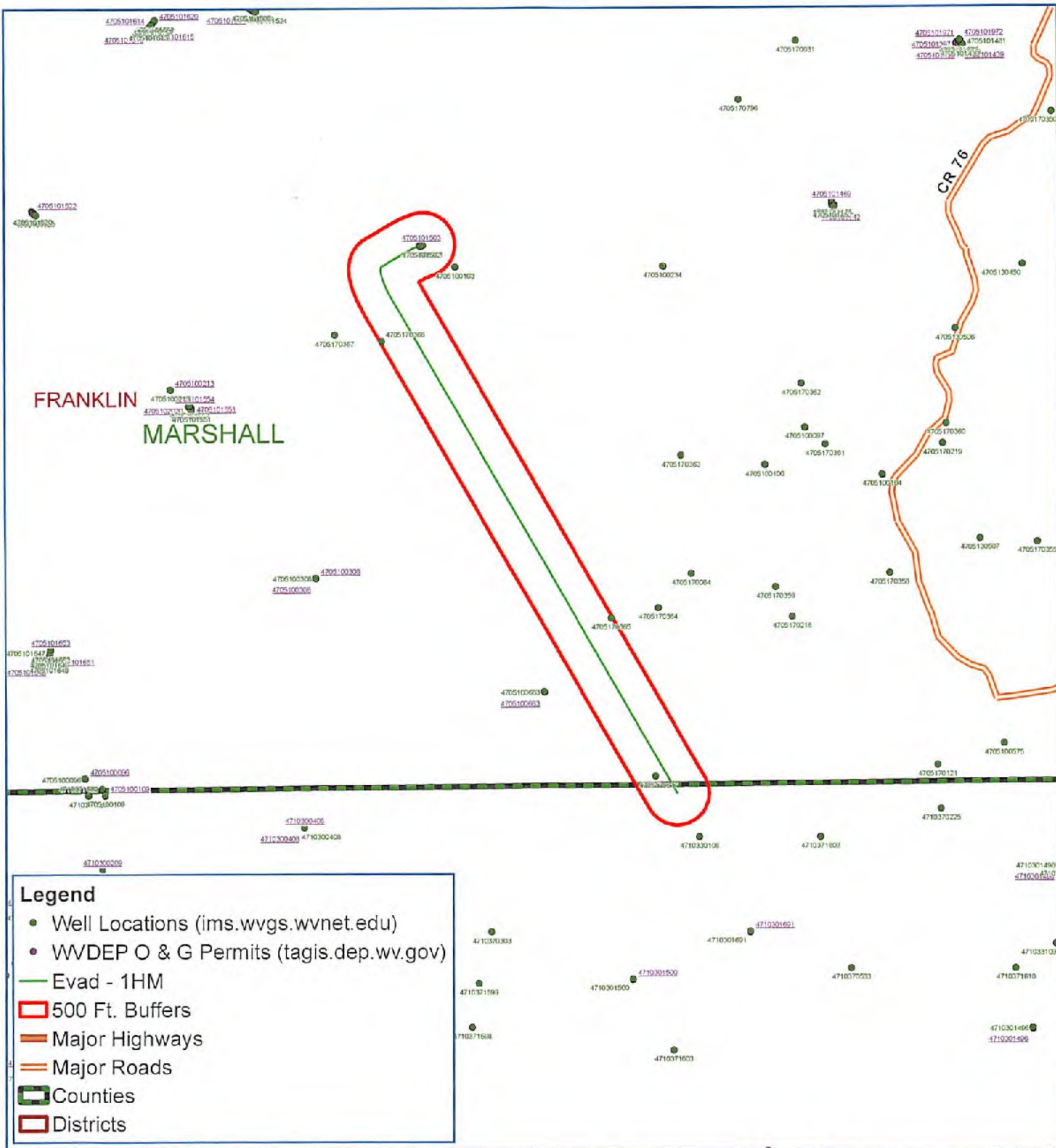
Bottom Hole Location Information
 RW 1160143 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143

Owner Information
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

Completion Information
 RW 1160143 512121 512121 512121 512121 512121 512121 512121 512121 512121
 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143 1160143

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
 There is no Production NGL data for this well
 There is no Production Water data for this well
 There is no Stratigraphy data for this well
 There is no Wellbore (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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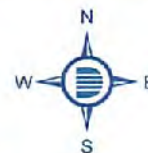


Evad - 1HM Franklin District Marshall County, WV



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

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Map Prepared by:
PS
LAND SERVICES

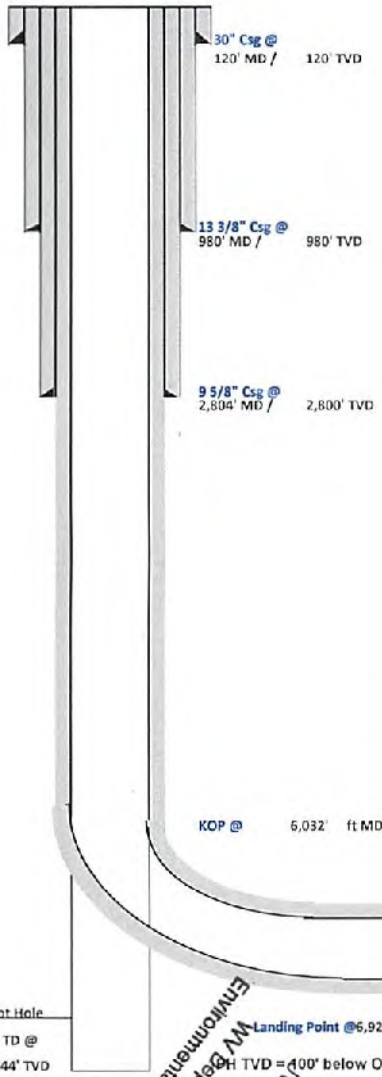


WELL NAME: Evad 1HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Franklin
 DF Elev: 1,291' GL Elev: 1,291'
 TD: 15,811'
 TH Latitude: 39.74438861
 TH Longitude: -80.7932792
 BH Latitude: 7
 BH Longitude: 80.7207982

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	877
Sewickley Coal	771
Pittsburgh Coal	871
Big Lime	2051
Weir	2407
Berea	2591
Gordon	2901
Rhinestreet	5895
Genesee/Burkett	6403
Tully	6426
Hamilton	6455
Marcellus	6493
Landing Depth	6528
Onondaga	6544
Pilot Hole Depth	6644

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	17.5	13 3/8	980'	980'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,804'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	15,811'	6,668'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,037	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	913	A	15	Air	1 Centralizer every other jt
Production	3,557	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



6/6/18

4705102056

Pilot Hole
PH TD @
6,644' TVD

Landing Point @ 6,924' MD / 6,528' TVD

Lateral TD @ 15,811' ft MD
6,668' ft TVD

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4705102056



Tug Hill Operating, LLC Casing and Cement Program

Evad 1HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	980'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,804'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	15,811'	CTS

Cement

- Conductor: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2
- Surface: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
- Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.19
- Kick Off Plug: Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug
- 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= 1.19

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TUG HILL
OPERATING

Well: Evad 01HM (G)
Site: Accetolo/Evad Pad
Project: Marshall County, West Virginia.
Design: rev0

SECTION DETAILS

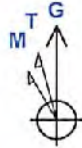
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	V Sect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2'100' build
3	1450.00	5.00	250.00	1449.68	-3.73	-10.24	2.00	250.00	-0.92	Begin 5.00' tangent
4	3106.62	5.00	250.00	3100.00	-53.11	-145.92	0.00	0.00	-13.14	Begin 2'100' build/turn
5	3456.15	11.87	240.24	3445.55	-76.19	-191.49	2.00	-16.65	-11.35	Begin 11.87' lateral
6	6032.13	11.87	240.24	5996.48	-339.16	-651.35	0.00	0.00	33.97	Begin 10'100' build/turn
7	5923.81	89.10	149.99	6528.00	-885.73	-469.75	10.00	-90.43	606.25	Begin 89.10' lateral
8	15810.91	89.10	149.99	6668.00	-8580.41	3974.68	0.00	0.00	9456.29	PBHL/TD 15810.91 MD/6668.00 TVD

Geocetic 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 @ 1291.00ft

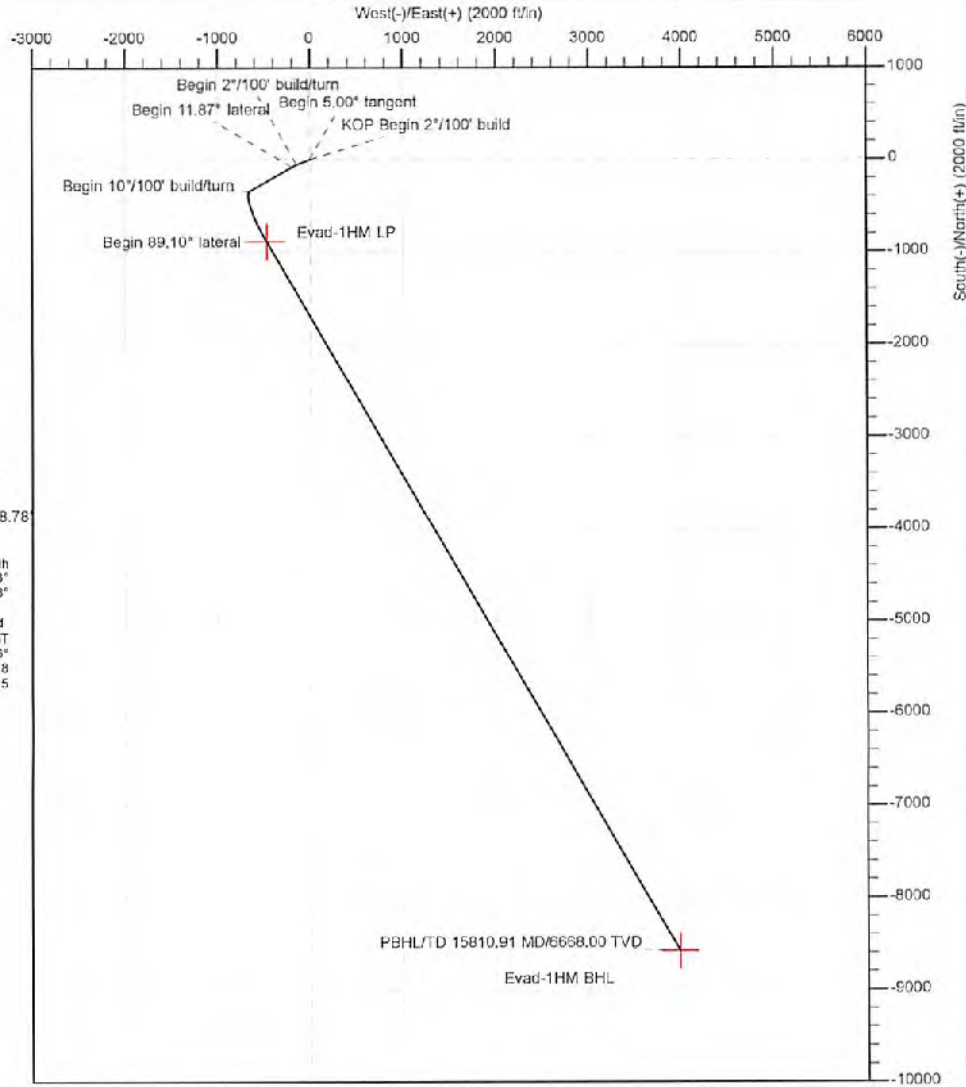
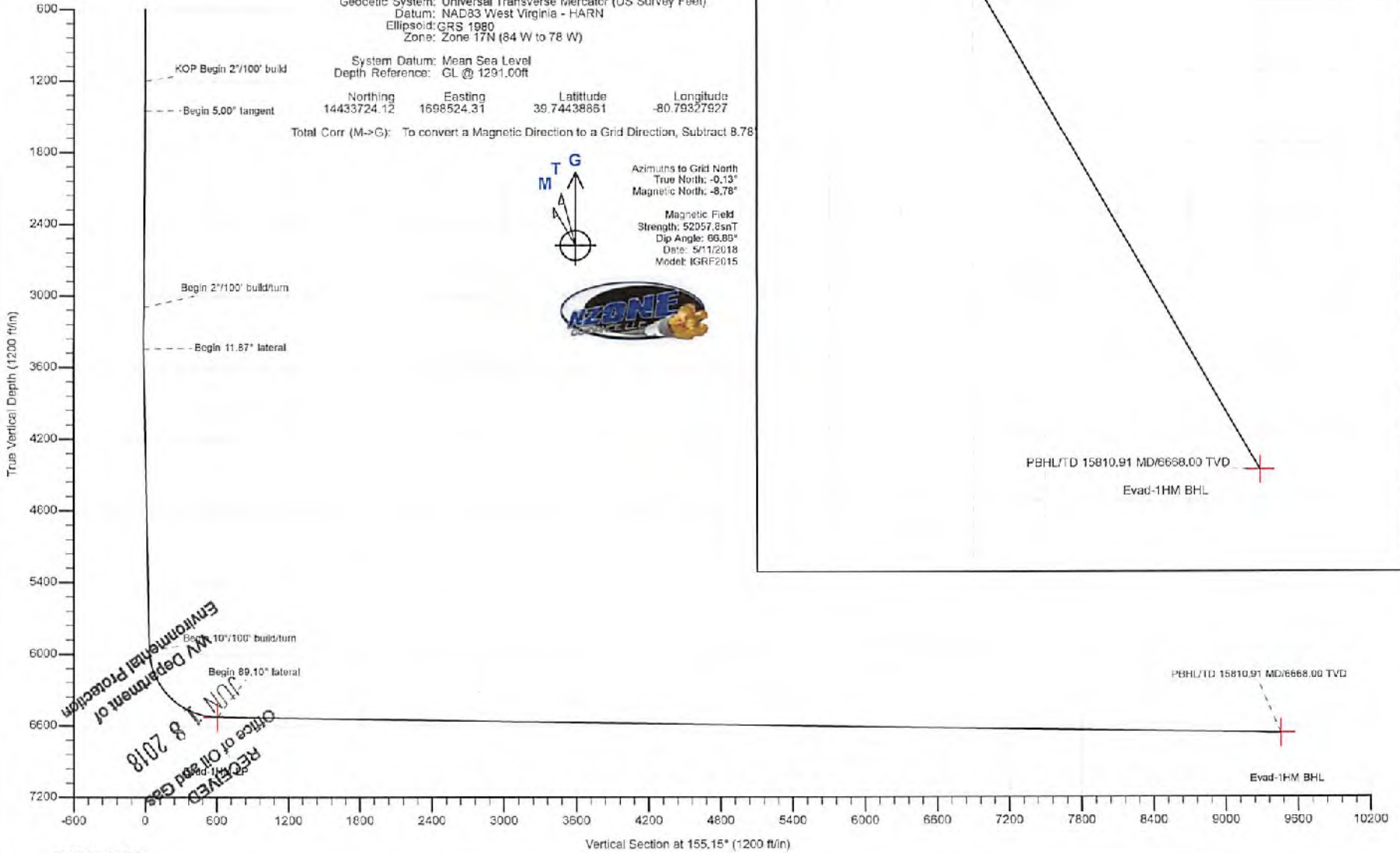
Northing	Easting	Latitude	Longitude
14433724.12	1698524.31	39.74438861	-80.79327927

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.78



Azimuths to Grid North
True North: -0.13°
Magnetic North: -8.78°

Magnetic Field
Strength: 52057.5nT
Dip Angle: 69.83°
Date: 5/11/2018
Model: IGRF2015



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Planning Report - Geographic

Database:	DB_Jul2218dt_v14	Local Co-ordinate Reference:	Well Evad 01HM (G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1291.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1291.00ft
Site:	Accettolo/Evad Pad	North Reference:	Grid
Well:	Evad 01HM (G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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	Accettolo/Evad Pad				
Site Position:		Northing:	14,433,724.12 usft	Latitude:	39.74438861
From:	Lat/Long	Easting:	1,698,524.31 usft	Longitude:	-80.79327927
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.13 °

Well	Evad 01HM (G)					
Well Position	+N-S	0.00 ft	Northing:	14,433,724.12 usft	Latitude:	39.74438861
	+E/-W	0.00 ft	Easting:	1,698,524.31 usft	Longitude:	-80.79327927
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	1,291.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/11/2018	-8.65	66.86	52,057.82643862

Design	rev0			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	155.15

Plan Survey Tool Program	Date	5/13/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	15,810.91 rev0 (Original Hole)	MWD	MWD - Standard

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,450.00	5.00	250.00	1,449.68	-3.73	-10.24	2.00	2.00	0.00	250.00	
3,106.62	5.00	250.00	3,100.00	-53.11	-145.92	0.00	0.00	0.00	0.00	
3,458.15	11.87	240.24	3,445.56	-76.19	-191.49	2.00	1.96	-2.79	-16.65	
6,032.13	11.87	240.24	5,986.48	-339.16	-651.35	0.00	0.00	0.00	0.00	
6,923.81	89.10	149.99	6,528.00	-885.73	-469.75	10.00	8.66	-10.12	-90.43	Evad-1HM LP
15,810.91	89.10	149.99	6,668.00	-8,580.41	3,974.68	0.00		0.00	0.00	Evad-1HM BHL

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Evad 01HM (G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1291.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1291.00ft
Site:	Accetolo/Evad Pad	North Reference:	Grid
Well:	Evad 01HM (G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
100.00	0.00	0.00	100.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
200.00	0.00	0.00	200.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
300.00	0.00	0.00	300.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
400.00	0.00	0.00	400.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
500.00	0.00	0.00	500.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
600.00	0.00	0.00	600.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
700.00	0.00	0.00	700.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
800.00	0.00	0.00	800.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
900.00	0.00	0.00	900.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,433,724.12	1,698,524.31	39.74438861	-80.79327927	
KOP Begin 2°/100° build										
1,300.00	2.00	250.00	1,299.98	-0.60	-1.64	14,433,723.52	1,698,522.67	39.74438698	-80.79328511	
1,400.00	4.00	250.00	1,399.84	-2.39	-6.56	14,433,721.73	1,698,517.75	39.74438210	-80.79330262	
1,450.00	5.00	250.00	1,449.68	-3.73	-10.24	14,433,720.39	1,698,514.06	39.74437844	-80.79331574	
Begin 5.00° tangent										
1,500.00	5.00	250.00	1,499.49	-5.22	-14.34	14,433,718.90	1,698,509.97	39.74437437	-80.79333032	
1,600.00	5.00	250.00	1,599.11	-8.20	-22.53	14,433,715.92	1,698,501.78	39.74436624	-80.79335949	
1,700.00	5.00	250.00	1,698.73	-11.18	-30.72	14,433,712.94	1,698,493.59	39.74435810	-80.79338865	
1,800.00	5.00	250.00	1,798.35	-14.16	-38.91	14,433,709.96	1,698,485.40	39.74434997	-80.79341781	
1,900.00	5.00	250.00	1,897.97	-17.14	-47.10	14,433,706.98	1,698,477.21	39.74434183	-80.79344697	
2,000.00	5.00	250.00	1,997.59	-20.12	-55.29	14,433,704.00	1,698,469.02	39.74433370	-80.79347613	
2,100.00	5.00	250.00	2,097.21	-23.10	-63.48	14,433,701.02	1,698,460.83	39.74432556	-80.79350529	
2,200.00	5.00	250.00	2,196.83	-26.08	-71.67	14,433,698.04	1,698,452.64	39.74431743	-80.79353445	
2,300.00	5.00	250.00	2,296.45	-29.07	-79.86	14,433,695.05	1,698,444.45	39.74430929	-80.79356361	
2,400.00	5.00	250.00	2,396.07	-32.05	-88.05	14,433,692.07	1,698,436.26	39.74430115	-80.79359277	
2,500.00	5.00	250.00	2,495.69	-35.03	-96.24	14,433,689.09	1,698,428.07	39.74429302	-80.79362193	
2,600.00	5.00	250.00	2,595.31	-38.01	-104.43	14,433,686.11	1,698,419.88	39.74428489	-80.79365109	
2,700.00	5.00	250.00	2,694.93	-40.99	-112.62	14,433,683.13	1,698,411.69	39.74427675	-80.79368025	
2,800.00	5.00	250.00	2,794.55	-43.97	-120.81	14,433,680.15	1,698,403.50	39.74426862	-80.79370941	
2,900.00	5.00	250.00	2,894.17	-46.95	-129.00	14,433,677.17	1,698,395.31	39.74426049	-80.79373857	
3,000.00	5.00	250.00	2,993.78	-49.93	-137.19	14,433,674.19	1,698,387.12	39.74425235	-80.79376773	
3,100.00	5.00	250.00	3,093.40	-52.91	-145.38	14,433,671.21	1,698,378.93	39.74424422	-80.79379689	
3,106.62	5.00	250.00	3,100.00	-53.11	-145.92	14,433,671.01	1,698,378.39	39.74424368	-80.79379882	
Begin 2°/100° build/turn										
3,200.00	6.81	245.48	3,192.88	-56.80	-154.78	14,433,667.32	1,698,369.53	39.74423360	-80.79383038	
3,300.00	8.78	242.72	3,291.95	-62.76	-166.96	14,433,661.36	1,698,357.35	39.74421732	-80.79387374	
3,400.00	10.75	240.97	3,390.50	-70.78	-181.90	14,433,653.34	1,698,342.41	39.74419538	-80.79392695	
3,456.15	11.87	240.24	3,445.56	-76.19	-191.49	14,433,647.93	1,698,332.82	39.74418058	-80.79396112	
Begin 11.87° lateral										
3,500.00	11.87	240.24	3,488.47	-80.67	-199.32	14,433,643.45	1,698,324.99	39.74416834	-80.79398900	
3,600.00	11.87	240.24	3,586.33	-90.87	-217.17	14,433,633.25	1,698,307.14	39.74414042	-80.79405260	
3,700.00	11.87	240.24	3,684.20	-101.08	-235.02	14,433,623.04	1,698,289.29	39.74411249	-80.79411619	
3,800.00	11.87	240.24	3,782.06	-111.29	-252.87	14,433,612.83	1,698,271.44	39.74408457	-80.79417978	
3,900.00	11.87	240.24	3,879.92	-121.50	-270.72	14,433,602.62	1,698,253.58	39.74405665	-80.79424337	
4,000.00	11.87	240.24	3,977.78	-131.71	-288.58	14,433,592.41	1,698,235.73	39.74402872	-80.79430696	
4,100.00	11.87	240.24	4,075.65	-141.92	-306.43	14,433,582.20	1,698,217.88	39.74400080	-80.79437055	
4,200.00	11.87	240.24	4,173.51	-152.13	-324.28	14,433,571.99	1,698,200.03	39.74397288	-80.79443414	
4,300.00	11.87	240.24	4,271.37	-162.34	-342.13	14,433,561.79	1,698,182.18	39.74394495	-80.79449773	
4,400.00	11.87	240.24	4,369.23	-172.54	-359.98	14,433,551.58	1,698,164.33	39.74391703	-80.79456132	
4,500.00	11.87	240.24	4,467.10	-182.75	-377.83	14,433,541.37	1,698,146.48	39.74388911	-80.79462491	
4,600.00	11.87	240.24	4,564.96	-192.96	-395.69	14,433,531.16	1,698,128.63	39.74386118	-80.79468850	



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Evad 01HM (G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1291.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1291.00ft
Site:	Accetolo/Evad Pad	North Reference:	Grid
Well:	Evad 01HM (G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,700.00	11.87	240.24	4,662.82	-203.17	-413.54	14,433,520.95	1,698,110.77	39.74383326	-80.79475209
4,800.00	11.87	240.24	4,760.68	-213.38	-431.39	14,433,510.74	1,698,092.92	39.74380534	-80.79481569
4,900.00	11.87	240.24	4,858.55	-223.59	-449.24	14,433,500.53	1,698,075.07	39.74377741	-80.79487928
5,000.00	11.87	240.24	4,956.41	-233.80	-467.09	14,433,490.33	1,698,057.22	39.74374949	-80.79494287
5,100.00	11.87	240.24	5,054.27	-244.00	-484.94	14,433,480.12	1,698,039.36	39.74372157	-80.79500646
5,200.00	11.87	240.24	5,152.14	-254.21	-502.80	14,433,469.91	1,698,021.51	39.74369364	-80.79507005
5,300.00	11.87	240.24	5,250.00	-264.42	-520.65	14,433,459.70	1,698,003.65	39.74366572	-80.79513364
5,400.00	11.87	240.24	5,347.86	-274.63	-538.50	14,433,449.49	1,697,985.81	39.74363779	-80.79519723
5,500.00	11.87	240.24	5,445.72	-284.84	-556.35	14,433,439.28	1,697,967.96	39.74360987	-80.79526082
5,600.00	11.87	240.24	5,543.59	-295.05	-574.20	14,433,429.07	1,697,950.11	39.74358195	-80.79532441
5,700.00	11.87	240.24	5,641.45	-305.26	-592.06	14,433,418.87	1,697,932.25	39.74355402	-80.79538800
5,800.00	11.87	240.24	5,739.31	-315.46	-609.91	14,433,408.66	1,697,914.40	39.74352610	-80.79545159
5,900.00	11.87	240.24	5,837.17	-325.67	-627.76	14,433,398.45	1,697,896.55	39.74349818	-80.79551518
6,000.00	11.87	240.24	5,935.04	-335.88	-645.61	14,433,388.24	1,697,878.70	39.74347025	-80.79557877
6,032.13	11.87	240.24	5,966.48	-339.16	-651.35	14,433,384.96	1,697,872.96	39.74346126	-80.79559920
Begin 10°/100° build/turn									
6,100.00	13.80	210.07	6,032.75	-349.54	-661.42	14,433,374.58	1,697,862.89	39.74343283	-80.79563510
6,200.00	20.39	184.23	6,128.46	-377.16	-668.61	14,433,346.96	1,697,855.70	39.74335703	-80.79566093
6,300.00	29.04	172.04	6,219.27	-418.67	-666.53	14,433,305.45	1,697,857.78	39.74324302	-80.79565387
6,400.00	38.31	165.22	6,302.43	-472.81	-655.24	14,433,251.31	1,697,869.07	39.74309425	-80.79561413
6,500.00	47.84	160.77	6,375.41	-537.95	-635.07	14,433,186.18	1,697,889.24	39.74291526	-80.79554292
6,600.00	57.50	157.49	6,435.99	-612.09	-606.65	14,433,112.03	1,697,917.66	39.74271147	-80.79544241
6,700.00	67.22	154.86	6,482.33	-692.98	-570.83	14,433,031.14	1,697,953.48	39.74248907	-80.79531565
6,800.00	76.99	152.58	6,513.03	-778.16	-526.71	14,432,945.94	1,697,995.60	39.74225484	-80.79516850
6,900.00	86.77	150.48	6,527.14	-865.08	-481.58	14,432,859.04	1,698,042.75	39.74201588	-80.79499948
6,923.81	89.10	149.99	6,528.00	-885.73	-469.75	14,432,838.39	1,698,054.56	39.74195909	-80.79495763
Begin 89.10° lateral									
7,000.00	89.10	149.99	6,529.20	-951.70	-431.65	14,432,772.42	1,698,092.66	39.74177768	-80.79482262
7,100.00	89.10	149.99	6,530.78	-1,038.29	-381.64	14,432,685.84	1,698,142.67	39.74153958	-80.79464542
7,200.00	89.10	149.99	6,532.35	-1,124.87	-331.63	14,432,599.25	1,698,192.68	39.74130149	-80.79446822
7,300.00	89.10	149.99	6,533.93	-1,211.45	-281.62	14,432,512.67	1,698,242.69	39.74106339	-80.79429102
7,400.00	89.10	149.99	6,535.50	-1,298.03	-231.61	14,432,426.09	1,698,292.70	39.74082529	-80.79411383
7,500.00	89.10	149.99	6,537.08	-1,384.62	-181.60	14,432,339.51	1,698,342.71	39.74058720	-80.79393664
7,600.00	89.10	149.99	6,538.65	-1,471.20	-131.59	14,432,252.92	1,698,392.72	39.74034910	-80.79375944
7,700.00	89.10	149.99	6,540.23	-1,557.78	-81.58	14,432,166.34	1,698,442.73	39.74011100	-80.79358225
7,800.00	89.10	149.99	6,541.80	-1,644.36	-31.57	14,432,079.76	1,698,492.74	39.73987291	-80.79340506
7,900.00	89.10	149.99	6,543.38	-1,730.95	18.44	14,431,993.18	1,698,542.75	39.73963481	-80.79322787
8,000.00	89.10	149.99	6,544.95	-1,817.53	68.45	14,431,906.59	1,698,592.76	39.73939671	-80.79305068
8,100.00	89.10	149.99	6,546.53	-1,904.11	118.46	14,431,820.01	1,698,642.77	39.73915861	-80.79287350
8,200.00	89.10	149.99	6,548.10	-1,990.69	168.47	14,431,733.43	1,698,692.78	39.73892051	-80.79269631
8,300.00	89.10	149.99	6,549.68	-2,077.28	218.48	14,431,646.85	1,698,742.79	39.73868241	-80.79251913
8,400.00	89.10	149.99	6,551.25	-2,163.86	268.49	14,431,560.27	1,698,792.80	39.73844432	-80.79234195
8,500.00	89.10	149.99	6,552.83	-2,250.44	318.50	14,431,473.68	1,698,842.81	39.73820622	-80.79216476
8,600.00	89.10	149.99	6,554.41	-2,337.02	368.51	14,431,387.10	1,698,892.82	39.73796812	-80.79198758
8,700.00	89.10	149.99	6,555.98	-2,423.61	418.52	14,431,300.52	1,698,942.83	39.73773002	-80.79181041
8,800.00	89.10	149.99	6,557.56	-2,510.19	468.53	14,431,213.94	1,698,992.84	39.73749192	-80.79163323
8,900.00	89.10	149.99	6,559.13	-2,596.77	518.54	14,431,127.35	1,699,042.85	39.73725382	-80.79145605
9,000.00	89.10	149.99	6,560.71	-2,683.35	568.55	14,431,040.77	1,699,092.86	39.73701571	-80.79127886
9,100.00	89.10	149.99	6,562.28	-2,769.94	618.56	14,430,954.19	1,699,142.87	39.73677761	-80.79110170
9,200.00	89.10	149.99	6,563.86	-2,856.52	668.57	14,430,867.61	1,699,192.88	39.73653951	-80.79092453
9,300.00	89.10	149.99	6,565.43	-2,943.10	718.58	14,430,781.02	1,699,242.89	39.73630141	-80.79074736
9,400.00	89.10	149.99	6,567.01	-3,029.68	768.59	14,430,694.44	1,699,292.90	39.73606331	-80.79057019
9,500.00	89.10	149.99	6,568.58	-3,116.27	818.60	14,430,607.85	1,699,342.91	39.73582521	-80.79039302
9,600.00	89.10	149.99	6,570.16	-3,202.85	868.61	14,430,521.28	1,699,392.92	39.73558710	-80.79021585

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Planning Report - Geographic

Database: DB_Jul2216dt_v14
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia.
Site: Accettolo/Evad Pad
Well: Evad 01HM (G)
Wellbore: Original Hole
Design: rev0

Local Co-ordinate Reference: Well Evad 01HM (G)
TVD Reference: GL @ 1291.00ft
MD Reference: GL @ 1291.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Table with 10 columns: Measured Depth (ft), Inclination (°), Azimuth (°), Vertical Depth (ft), +N-/S (ft), +E-/W (ft), Map Northing (usft), Map Easting (usft), Latitude, Longitude. Rows range from 9,700.00 to 15,100.00 depth.

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WV Department of Environmental Protection



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Evad 01HM (G)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1291.00ft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1291.00ft
Site:	Accetolo/Evad Pad	North Reference:	Grid
Well:	Evad 01HM (G)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,200.00	89.10	149.99	6,658.38	-8,051.47	3,669.16	14,425,672.67	1,702,193.46	39.72225293	-80.78029637
15,300.00	89.10	149.99	6,659.95	-8,138.05	3,719.17	14,425,586.08	1,702,243.47	39.72201481	-80.78011927
15,400.00	89.10	149.99	6,661.53	-8,224.64	3,769.18	14,425,499.50	1,702,293.48	39.72177669	-80.77994217
15,500.00	89.10	149.99	6,663.10	-8,311.22	3,819.19	14,425,412.92	1,702,343.49	39.72153857	-80.77976508
15,600.00	89.10	149.99	6,664.68	-8,397.80	3,869.20	14,425,326.34	1,702,393.50	39.72130045	-80.77958798
15,700.00	89.10	149.99	6,666.25	-8,484.38	3,919.21	14,425,239.75	1,702,443.51	39.72106233	-80.77941089
15,800.00	89.10	149.99	6,667.83	-8,570.97	3,969.22	14,425,153.17	1,702,493.52	39.72082421	-80.77923380
15,810.91	89.10	149.99	6,668.00	-8,580.41	3,974.68	14,425,143.73	1,702,498.98	39.72079824	-80.77921448

PBHL/TD 15810.91 MD/6668.00 TVD

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Evad-1HM LP - plan hits target center - Point	0.00	0.00	6,528.00	-885.73	-469.75	14,432,838.39	1,698,054.56	39.74195909	-80.79495763
Evad-1HM BHL - plan hits target center - Point	0.00	0.00	6,668.00	-8,580.41	3,974.68	14,425,143.73	1,702,498.98	39.72079824	-80.77921448

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,200.00	1,200.00	0.00	0.00	KOP Begin 2°/100' build
1,450.00	1,449.68	-3.73	-10.24	Begin 5.00° tangent
3,106.62	3,100.00	-53.11	-145.92	Begin 2°/100' build/turn
3,456.15	3,445.56	-76.19	-191.49	Begin 11.87° lateral
6,032.13	5,966.48	-339.16	-651.35	Begin 10°/100' build/turn
6,923.81	6,528.00	-885.73	-469.75	Begin 89.10° lateral
15,810.91	6,668.00	-8,580.41	3,974.68	PBHL/TD 15810.91 MD/6668.00 TVD

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WW-9
(4/16)

API Number 47 - 051 4705102056
Operator's Well No. Evad 1HM

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 New Martinsville 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? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP.EC#1385426)

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 Jim Pancake
Company Official (Typed Name) Jim Pancake
Company Official Title Vice President Geoscience

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WV Department of Environmental Protection

Subscribed and sworn before me this 6 day of JUNE, 2018

Maureen A Stead

Notary Public

My commission expires 1/29/19

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
MAUREEN A STEAD
Notary Public
CECIL TWP, WASHINGTON COUNTY
My Commission Expires Jan 28, 2019

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 8.45 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: *Jim McLeod*

Comments: _____

Title: Oil and Gas Inspector

Date: 6/6/18

Field Reviewed? Yes No

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Environmental Protection

WW-9

**PROPOSED EVAD
1HM**

SUPPLEMENT PG 1

DRAWING NOT
TO SCALE

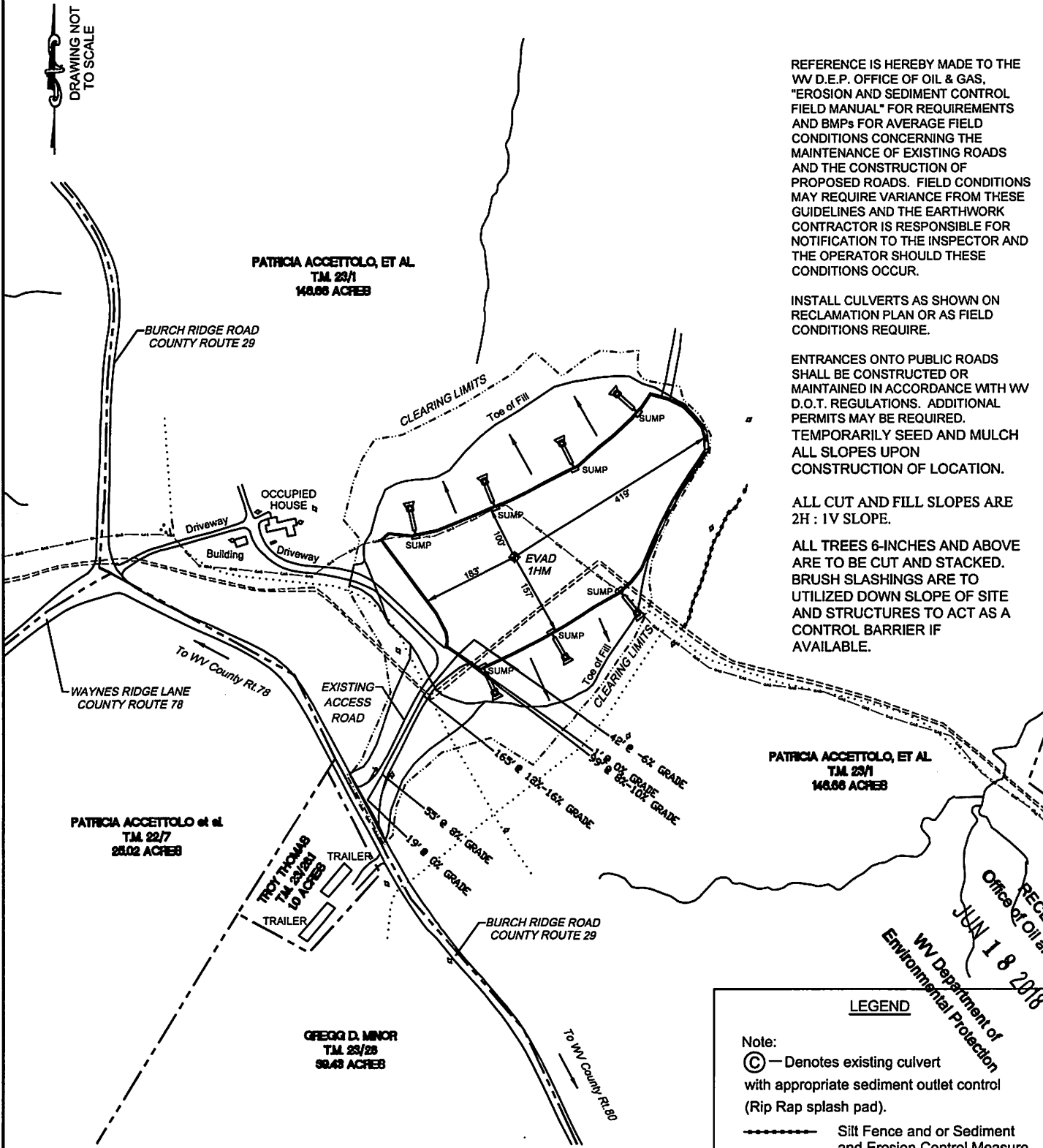
REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES 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 SLASHTINGS ARE TO UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.



PATRICIA ACCETTOLO, ET AL
T.M. 23/1
148.86 ACRES

PATRICIA ACCETTOLO et al
T.M. 22/7
28.02 ACRES

TRAY THOMAS
T.M. 23/28A
10 ACRES

GREGG D. MINOR
T.M. 23/28
89.43 ACRES

LEGEND

- Note:
- ⊙ — Denotes existing culvert with appropriate sediment outlet control (Rip Rap splash pad).
 - Silt Fence and or Sediment and Erosion Control Measure.
 - Surface Boundary

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Well Site Safety Plan

Tug Hill Operating, LLC

Handwritten signature and date: 6/6/18

Well Name: Evad 1HM

Pad Location: Accetollo Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,399,407.91

Easting: 517,711.25

June 2018

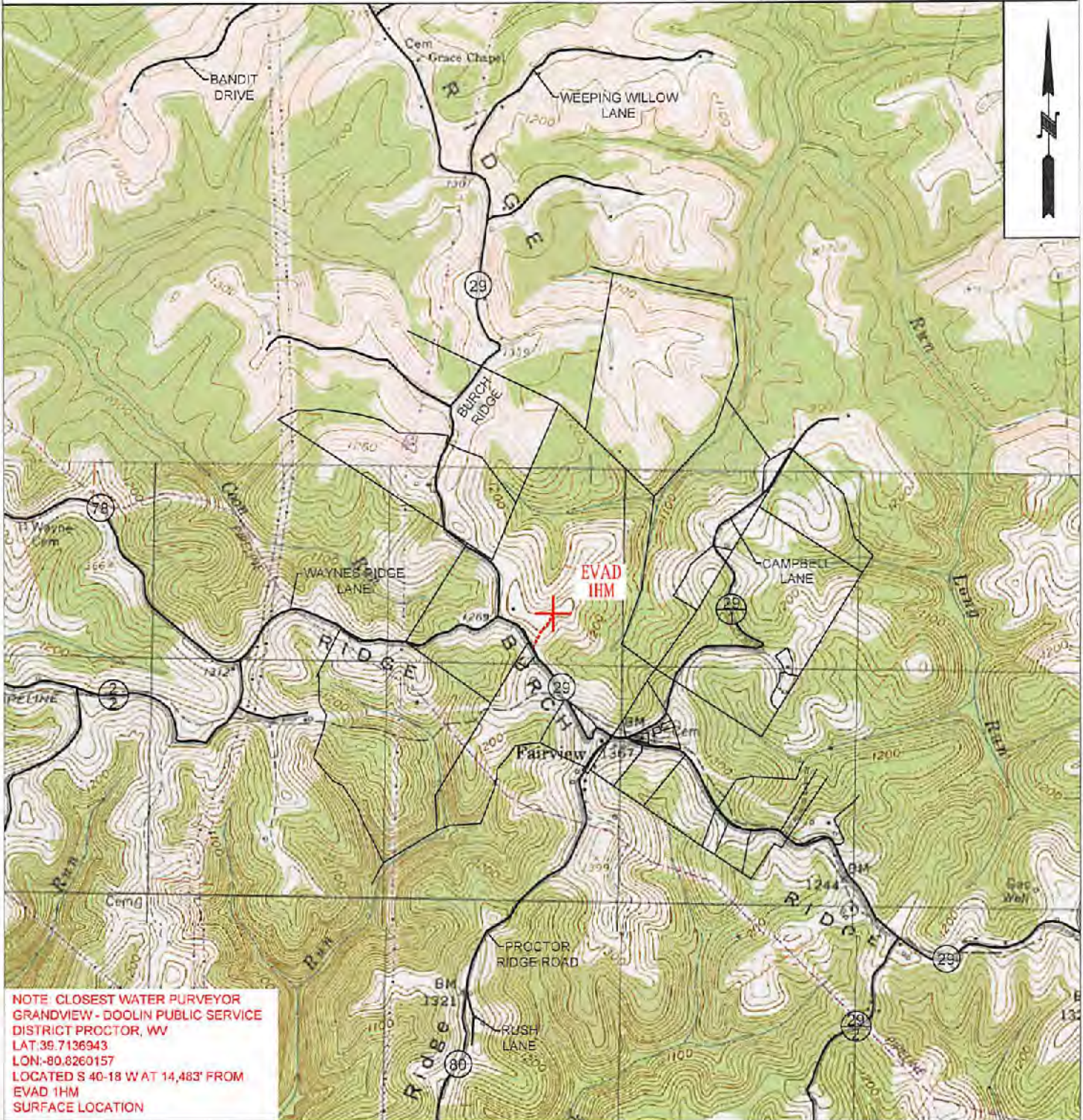
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WW-9

PROPOSED EVAD 1HM

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SUPPLEMENT PG 2



NOTE CLOSEST WATER PURVEYOR
 GRANDVIEW - DOOLIN PUBLIC SERVICE
 DISTRICT PROCTOR, WV
 LAT: 39.7136943
 LON: -80.8260157
 LOCATED S 40-18 W AT 14,483' FROM
 EVAD 1HM
 SURFACE LOCATION



TUG HILL
OPERATING

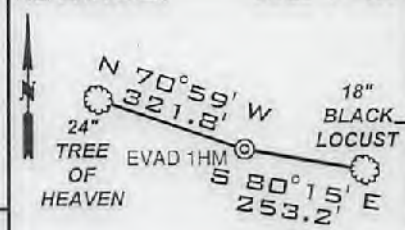
OPERATOR	494510851	TOPO SECTION	LEASE NAME
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		NEW MARTINSVILLE 7.5'	EVAD
		SCALE:	DATE:
		1" = 2000'	DATE: 05-30-2018

**EVAD LEASE
WELL 1HM
708.59± ACRES**

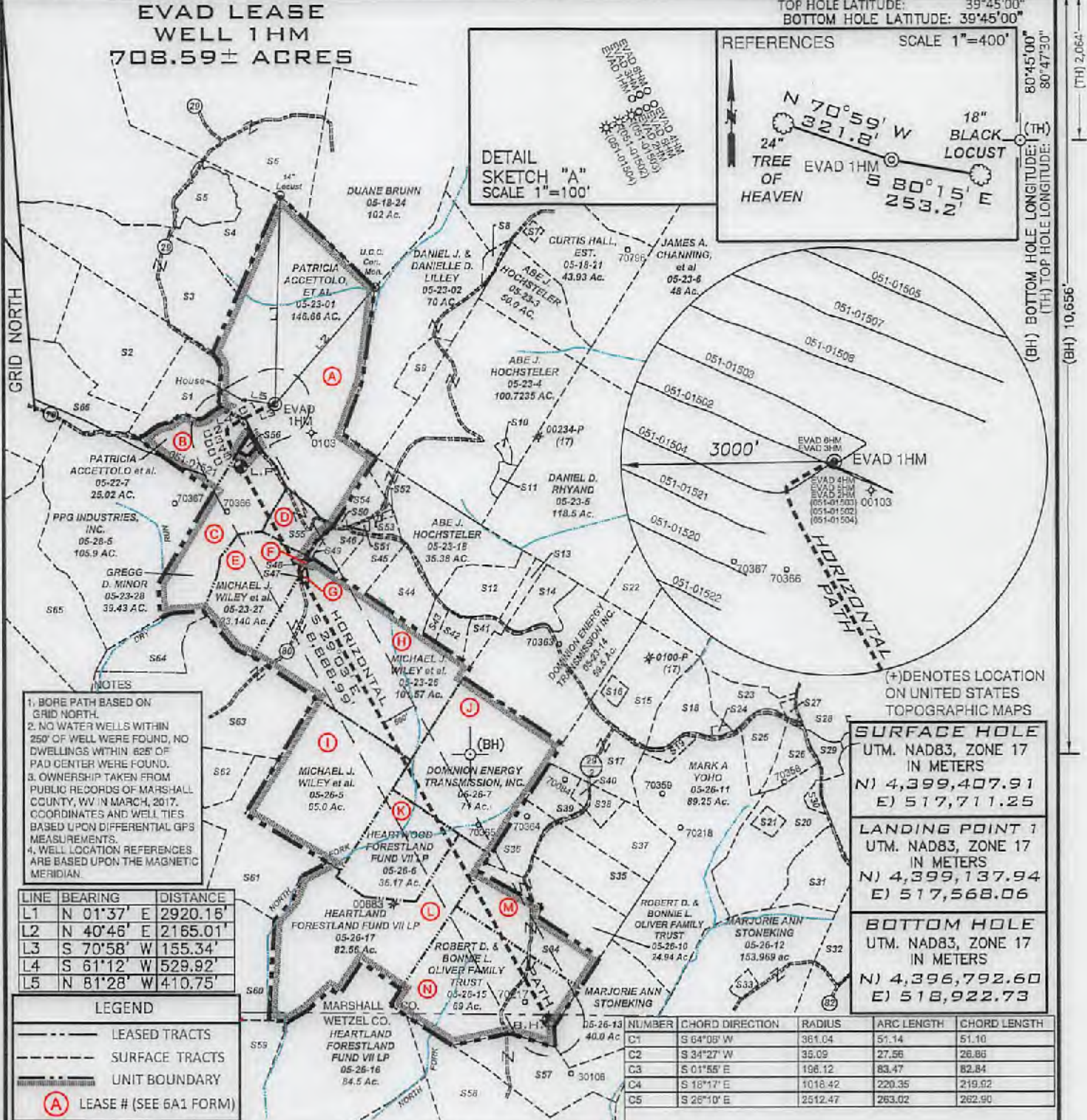
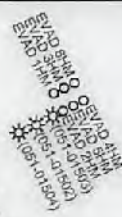
TOP HOLE LATITUDE: 39°45'00"
BOTTOM HOLE LATITUDE: 39°45'00"

REFERENCES

SCALE 1"=400'



DETAIL SKETCH "A"
SCALE 1"=100'



- NOTES**
1. BORE PATH BASED ON GRID NORTH.
 2. NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 3. OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2017. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 4. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.

LINE	BEARING	DISTANCE
L1	N 01°37' E	2920.18'
L2	N 40°46' E	2165.01'
L3	S 70°58' W	155.34'
L4	S 61°12' W	529.92'
L5	N 81°28' W	410.75'

LEGEND

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

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,407.91
E) 517,711.25

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,137.94
E) 517,568.06

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,396,792.60
E) 518,922.73

NUMBER	CHORD DIRECTION	RADIUS	ARC LENGTH	CHORD LENGTH
C1	S 64°08' W	361.04	51.14	51.10
C2	S 34°27' W	35.09	27.56	26.86
C3	S 01°55' E	106.12	83.47	82.84
C4	S 18°17' E	1018.42	220.35	219.02
C5	S 26°10' E	2512.47	263.02	262.90

FILE NUMBER _____

DRAWING NUMBER EVAD_WP_1HM

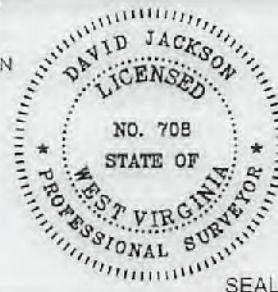
SCALE 1" = 2000'

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

David L Jackson



JACKSON SURVEYING INC.
P.O. Box 1460
Clarksburg, WV 26302
304-623-6651



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

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

DATE: June 4, 2018

OPERATORS WELL NO. EVAD 1HM

API WELL NO. 47-051-02056

STATE COUNTY PERMIT

LOCATION ELEVATION 1290.0' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER

DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE NEW MARTINSVILLE 7.5' LEASE NUMBER SEE WW-6A1 Form

SURFACE OWNER LOUIS J. & PATRICIA ACCETOLO ET AL ACREAGE 146.66

OIL & GAS ROYALTY OWNER SEE WW-6A1 Form LEASE ACREAGE 146.66

PROPOSED WORK: DRILL X 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 6,644' TMD: 15,811'

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

**EVAD LEASE
WELL 1HM
708.59± ACRES**

Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S1	05-22-7.1	The Exploration II LLC & Aninum Marcellus I LLC	20.68
S2	05-22-8	PPG Industries Inc.	48.44
S3	05-22-6	CNX RCPC LLC	64.7
S4	05-22-5	CNX RCPC LLC	134.425
S5	05-22-5.1	Williams Ohio Valley Midstream LLC	12.875
S6	05-19-18	Mark E. Yoho Et Ux	55.948
S7	05-18-21.2	David P. Lissan Et Ux - Life	1.0
S8	05-23-2.1	William L. & Janice M. Wayne	2.364
S9	05-23-2.2	Jessica N. & Andrew L. Jones	7.636
S10	05-23-4.2	James S. & Jeanne B. Hall	1.169
S11	05-23-4.1	James S. & Jeanna B. Hall	2.1575
S12	05-23-16	Roy Friend Yoho Sr.	18.03
S13	05-23-16.1	Doanld B. Henry	1.97
S14	05-23-15	Henry Virginia Ethel Est.	15.5
S15	05-23-9.2	Linda D. Greathouse	25.58
S16	05-23-9.4	Jackson R. Davis Sr. & Deanna L. Davis	2.087
S17	05-23-9.1	John W. Van Orden Et Ux	23.376
S18	05-23-13	Linda D. Greathouse	14.24
S19	05-23-12	Mark A. Yoho	3.05
S20	05-25-18	Joseph Johnson Et Ux - Life	37.746
S21	05-25-18.1	Pamela Joan Ferrel Et Vir	2.491
S22	05-23-8	Carl David & Suzanne L. Guseman	29.5
S23	05-23-18	Abe J. Hochstetler	35.382
S24	05-23-13.1	James R. & Pamela J. Ferrel	0.7625
S25	05-23-11.3	Colin R. Yoho	11.29
S26	05-23-11.5	Zachary R. Stevey	9.25
S27	05-23-11.2	Evelyn Hudson	1.154
S28	05-23-11	Roy F. Yoho	5.28
S29	05-25-20.3	James A. & Jo C. Estep	4.49
S30	05-25-19	Joseph Johnson Et Ux - Life	1.973
S31	05-25-17	Emily Jones Irrevocable Trust	22.79
S32	05-25-16	Emily Jones Irrevocable Trust	23.5
S33	05-26-12.1	Alvin F. Stoneking Jr. & Kristen R. Stoneking	2.011
S34	05-26-14	Robert D. & Bonnie L. Oliver Family Trust	27.56
S35	05-26-9	Robert D. & Bonnie L. Oliver Family Trust	21.75
S36	05-26-23	Richard Joseph Otte Et Ux	11.34
S37	05-26-8	Richard Joseph Otte Et Ux	18.27
S38	05-26-20	Doanld Lee Anderson Et Al	4.2
S39	05-26-22	Richard Joseph Otte Et Ux	8.3
S40	05-26-21	Richard Josphe Otte Et Ux	1.25
S41	05-23-17.3	William & Catherine Flewelling	5.018
S42	05-23-17	Thomas E. & Tammy Brown	4.62
S43	05-23-17.4	Tammy D. Meadows	2.605
S44	05-23-17.2	Dick Rowan Jr & Cerol J. Rowan	14.92
S45	05-23-17.1	Curtis E. Hall Et Ux	10.051
S46	05-23-22	Daniel D. Rhyand & Laurel R. Greene	6.25
S47	05-23-25	Arthur A. Wiley	0.43
S48	05-23-24	Michael J. Wiley Et Al	0.25
S49	05-23-23	Michael J. Wiley Et Al	1.0
S50	05-23-29	James Wiley	0.25
S51	05-23-21	Mark A. & Mark E. Yoho	0.588
S52	05-23-19	Doty Cemetary	1.0
S53	05-23-20	Christian Church	0.17
S54	05-23-18.1	Mark A. Yoho	7.8
S55	05-23-28.2	Mark W. & Carolyn L. Tennant	10.8
S56	05-23-28.1	Troy W. & Erin M. Thomas	1.0
S57	12-02-06	Clifford W. & Alberta B. Johnson	36.0
S58	12-02-05	Clifford W. & Alberta B. Johnson	75.96
S59	12-02-24	Mark Booth, et al	13.1
S60	05-26-18	Eric Jay Booth	94.0
S61	05-26-4.4	Otis F. & Glenda M. Rush	39.435
S62	05-26-4.6	Otis F. Rush, Jr.	12.268
S63	05-26-02	Edwin Booth Anderson & Mark Booth	67.50
S64	05-26-01	Edwin Booth Anderson & Mark Booth	12.94
S65	05-26-05	Ula F. Nelson	70.0
S66	05-26-09	PPG Industries, Inc.	63.44



P.S. 708 *David L Jackson*



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: EVAD 1HM
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

WELL PLAT
PAGE 2 OF 2
DATE: 06/04/2018

WW-6A1
(5/13)

Operator's Well No. Evad 1HM

**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

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**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 *Amy L Miller*
 Its: Permit Specialist - Appalachia

WW-6A1 Supplement

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment
10*14129	A	5-23-1	LOUIS J ACCETTOLO AND PATRICIA	GASTAR EXPLORATION USA, INC	1/8+	703	283	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14128	B	5-22-7	LOUIS J ACCETTOLO AND PATRICIA	GASTAR EXPLORATION USA, INC	1/8+	703	280	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*21218	C	5-23-28	GREGG D MINOR	TH EXPLORATION, LLC	1/8+	952	647	NA	NA	NA	NA	NA
10*17190	D	5-23-28.2	MARK W. TENNANT CAROLYN L. TENNANT	CHESAPEAKE APPALACHIA LLC	1/8+	715	570	29/325 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*14710	E	5-23-27	ROBERT L FRIEDLY	GASTAR EXPLORATION USA, INC	1/8+	800	408	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*18322	E	5-23-27	SHARON LYNN ANDERSON	TH EXPLORATION, LLC	1/8+	931	242	NA	NA	NA	NA	NA
10*19421	E	5-23-27	CAYCE DAVENPORT FRIEDLY	TH EXPLORATION, LLC	1/8+	940	262	NA	NA	NA	NA	NA
10*19721	E	5-23-27	MARK FRIEDLY AND ANNA FRIEDLY	TH EXPLORATION, LLC	1/8+	944	579	NA	NA	NA	NA	NA
10*22019	E	5-23-27	BARBARIE HILL	TH EXPLORATION, LLC	1/8+	960	548	NA	NA	NA	NA	NA
10*22444	E	5-23-27	MICHELLE E BAKER	TH EXPLORATION, LLC	1/8+	963	642	NA	NA	NA	NA	NA

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment
10*22445	E	5-23-27	MICHAEL J WILEY	TH EXPLORATION, LLC	1/8+	963	640	NA	NA	NA	NA	NA
10*22558	E	5-23-27	JOLINE FRIEDLY REINHART	TH EXPLORATION, LLC	1/8+	965	608	NA	NA	NA	NA	NA
10*17716	F	5-23-24	MICHAEL J AND BARBARA L WILEY	TH EXPLORATION, LLC	1/8+	919	638	NA	NA	NA	NA	NA
10*17777	F	5-23-24	MICHELLE E AND ROBERT T BAKER	TH EXPLORATION, LLC	1/8+	921	128	NA	NA	NA	NA	NA
10*18322	F	5-23-24	SHARON LYNN ANDERSON	TH EXPLORATION, LLC	1/8+	931	242	NA	NA	NA	NA	NA
10*19421	F	5-23-24	CAYCE DAVENPORT FRIEDLY	TH EXPLORATION, LLC	1/8+	940	262	NA	NA	NA	NA	NA
10*19855	F	5-23-24	MARK FRIEDLY AND ANNA FRIEDLY	TH EXPLORATION, LLC	1/8+	946	27	NA	NA	NA	NA	NA
10*22019	F	5-23-24	BARBARIE HILL	TH EXPLORATION, LLC	1/8+	960	548	NA	NA	NA	NA	NA
10*22588	F	5-23-24	JOLINE FRIEDLY REINHART	TH EXPLORATION, LLC	1/8+	965	606	NA	NA	NA	NA	NA
10*14742	G	5-23-25	SUSAN GORE	GASTAR EXPLORATION USA, INC	1/8+	790	505	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment
10*14744	G	5-23-25	THE SAMUEL MILTON SHEETS TRUST	GASTAR EXPLORATION USA, INC	1/8+	791	637	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14745	G	5-23-25	RALPH B. TAYLOR	GASTAR EXPLORATION USA, INC	1/8+	794	485	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*17716	G	5-23-25	MICHAEL J AND BARBARA L WILEY	TH EXPLORATION, LLC	1/8+	919	638	NA	NA	NA	NA	NA
10*17777	G	5-23-25	MICHELLE E AND ROBERT T BAKER	TH EXPLORATION, LLC	1/8+	921	128	NA	NA	NA	NA	NA
10*21420	G	5-23-25	DAVID D BURKETT	TH EXPLORATION, LLC	1/8+	957	3	NA	NA	NA	NA	NA
10*21421	G	5-23-25	BRYANNA FLYNN RANKIN	TH EXPLORATION, LLC	1/8+	957	5	NA	NA	NA	NA	NA
10*21437	G	5-23-25	REBECCA MCMILLAN AND ROBERT MCMILLAN	TH EXPLORATION, LLC	1/8+	957	1	NA	NA	NA	NA	NA
10*21821	G	5-23-25	LINDA K TAYLOR AND RAY P MAGEE	TH EXPLORATION, LLC	1/8+	951	631	NA	NA	NA	NA	NA
10*14742	H	5-23-26	SUSAN GORE	GASTAR EXPLORATION USA, INC	1/8+	790	505	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14744	H	5-23-26	THE SAMUEL MILTON SHEETS TRUST	GASTAR EXPLORATION USA, INC	1/8+	791	637	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	
10*14745	H	5-23-26	RALPH B. TAYLOR	GASTAR EXPLORATION USA, INC	1/8+	794	485	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14746	H	5-23-26	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	542	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*17716	H	5-23-26	MICHAEL J AND BARBARA L WILEY	TH EXPLORATION, LLC	1/8+	919	638	NA	NA	NA	NA	NA
10*17777	H	5-23-26	MICHELLE E AND ROBERT T BAKER	TH EXPLORATION, LLC	1/8+	921	128	NA	NA	NA	NA	NA
10*21420	H	5-23-26	DAVID D BURKETT	TH EXPLORATION, LLC	1/8+	957	3	NA	NA	NA	NA	NA
10*21421	H	5-23-26	BRYANNA FLYNN RANKIN	TH EXPLORATION, LLC	1/8+	957	5	NA	NA	NA	NA	NA
10*21437	H	5-23-26	REBECCA MCMILLAN AND ROBERT MCMILLAN	TH EXPLORATION, LLC	1/8+	957	1	NA	NA	NA	NA	NA
10*21821	H	5-23-26	LINDA K TAYLOR AND RAY P MAGEE	TH EXPLORATION, LLC	1/8+	951	631	NA	NA	NA	NA	NA
10*14742	I	5-26-5	SUSAN GORE	GASTAR EXPLORATION USA, INC	1/8+	790	505	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14744	I	5-26-5	THE SAMUEL MILTON SHEETS TRUST	GASTAR EXPLORATION USA, INC	1/8+	791	637	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment
10*14745	I	5-26-5	RALPH B. TAYLOR	GASTAR EXPLORATION USA, INC	1/8+	794	485	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14746	I	5-26-5	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	542	NA	RECEIVED Office of Oil and Gas JUN 18 2018 WV Department of Environmental Protection	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*17716	I	5-26-5	MICHAEL J AND BARBARA L WILEY	TH EXPLORATION, LLC	1/8+	919	638	NA	NA	NA	NA	NA
10*17777	I	5-26-5	MICHELLE E AND ROBERT T BAKER	TH EXPLORATION, LLC	1/8+	921	128	NA	NA	NA	NA	NA
10*21420	I	5-26-5	DAVID D BURKETT	TH EXPLORATION, LLC	1/8+	957	3	NA	NA	NA	NA	NA
10*21421	I	5-26-5	BRYANNA FLYNN RANKIN	TH EXPLORATION, LLC	1/8+	957	5	NA	NA	NA	NA	NA
10*21437	I	5-26-5	REBECCA MCMILLAN AND ROBERT MCMILLAN	TH EXPLORATION, LLC	1/8+	957	1	NA	NA	NA	NA	NA
10*18343	J	5-26-7	DOMINION ENERGY TRANSMISSION INC	TH EXPLORATION, LLC	1/8+	936	79	NA	NA	NA	NA	NA
10*22286	K	5-26-6	VENABLE ROYALTY LTD A TEXAS LIMITED PARTNERSHIP	AMERICAN PETROLEUM PARTNERS LLC	1/8+	926	133	NA	NA	NA	NA	41/380 American Petroleum Partners Operating, LLC to TH Exploration, LLC
10*22286	L	5-26-17	VENABLE ROYALTY LTD A TEXAS LIMITED PARTNERSHIP	AMERICAN PETROLEUM PARTNERS LLC	1/8+	926	133	NA	NA	NA	NA	41/380 American Petroleum Partners Operating, LLC to TH Exploration, LLC

WW-6A1 Supplement

Operator's Well No. Evad - 1HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment
953928	L	5-26-17	APPALACHIAN BASIN MINERALS, LP	CHEVRON USA INC	1/8+	950	128	NA	RECEIVED Office of Oil and Gas JUN 18 2018 WV Department of Environmental Protection	NA	NA	41/411 Chevron U.S.A. Inc. to TH Exploration, LLC
953931	L	5-26-17	MARCELLUS TX MINERAL PARTNERS LTD	CHEVRON USA INC	1/8+	950	131	NA	NA	NA	NA	41/411 Chevron U.S.A. Inc. to TH Exploration, LLC
953930	L	5-26-17	MCCROW ENERGY PARTNERS II LLC	CHEVRON USA INC	1/8+	950	122	NA	NA	NA	NA	41/411 Chevron U.S.A. Inc. to TH Exploration, LLC
953929	L	5-26-17	PENN MARC RESOURCES II LP	CHEVRON USA INC	1/8+	950	137	NA	NA	NA	NA	41/411 Chevron U.S.A. Inc. to TH Exploration, LLC
953913	L	5-26-17	PURPLEBURGH VENTURES LLC	CHEVRON USA INC	1/8+	950	125	NA	NA	NA	NA	41/411 Chevron U.S.A. Inc. to TH Exploration, LLC
953927	L	5-26-17	WILDES MINERAL INTERESTS, LLC	CHEVRON USA INC	1/8+	950	134	NA	NA	NA	NA	41/411 Chevron U.S.A. Inc. to TH Exploration, LLC
10*14725	M	5-26-14	HERBERT D MINOR	TRIENERGY HOLDINGS LLC	1/8+	724	198	25/463 TriEnergy Holdings, LLC to NPAR, LLC	26/269 NPAR, LLC to Chevron USA Inc	756/307 NPAR, LLC to Chevron USA Inc	32/355 Chevron USA Inc to Gastar Exploration Inc and Atinum Marcellus I LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14797	M	5-26-14	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	29/157 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	806/1 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14816	M	5-26-14	DWG OIL AND GAS ACQUISITIONS L	STONE ENERGY CORPORATION	1/8+	787	49	NA	NA	NA	31/113 Stone Energy Corporation to Gastar Exploration Inc and Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*18681	M	5-26-14	RICHARD WHITE II & GLORIA J WHITE	TH EXPLORATION, LLC	1/8+	936	133	NA	NA	NA	NA	NA

WW-6A1 Supplement

Operator's Well No. Evad - 1HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment
10*18757	M	5-26-14	CLAUDIA R SCHEEHLE	TH EXPLORATION, LLC	1/8+	938	464	NA	NA	NA	NA	NA
10*18758	M	5-26-14	SHIRLEY M DORSEY AND WILLIAM DORSEY	TH EXPLORATION, LLC	1/8+	938	468	NA	NA	NA	NA	NA
10*18759	M	5-26-14	SHARON E YOHO	TH EXPLORATION, LLC	1/8+	938	472	NA	NA	NA	NA	NA
10*18947	M	5-26-14	CHARLES ROBERT MYERS	TH EXPLORATION, LLC	1/8+	940	129	NA	NA	NA	NA	NA
10*19658	M	5-26-14	CHESTNUT HOLDINGS INC	TH EXPLORATION, LLC	1/8+	949	315	NA	NA	NA	NA	NA
10*19719	M	5-26-14	SHIRLEY K WHITE	TH EXPLORATION, LLC	1/8+	944	581	NA	NA	NA	NA	NA
10*22410	M	5-26-14	STONE HILL MINERALS HOLDINGS, LLC	TH EXPLORATION, LLC	1/8+	TBR	TBR	NA	NA	NA	NA	NA
10*22341	N	5-26-15	THERESA A WALTON	TH EXPLORATION, LLC	1/8+	965	488	NA	NA	NA	NA	NA

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AFFIDAVIT

STATE OF TEXAS §
 § SS
COUNTY OF TARRANT §

On this 18th day of October, 2016, before me, the undersigned authority, personally appeared David D. Kalish ("Affiant") who being first duly sworn under oath, deposes and saith:

1. TH Exploration, LLC, TH Exploration II, LLC and TH Exploration III, LLC are wholly owned subsidiaries of THQ Appalachia I, LLC.
2. Tug Hill Operating, LLC provides oil and gas operations services to THQ Appalachia I, LLC under an Operating Services Agreement dated July 23, 2014.
3. David D. Kalish, the Affiant, is the Vice President of Tug Hill Operating, LLC, THQ Appalachia I, LLC, TH Exploration, LLC, TH Exploration II, LLC and TH Exploration III, LLC, and;
3. Tug Hill Operating, LLC is authorized to operate and maintain the assets owned by THQ Appalachia I, LLC, including, as referenced above, TH Exploration, LLC, TH Exploration II, LLC, and TH Exploration III, LLC, including oil and gas leases, wells, pipelines, surface facilities, and other all other assets that support the business of THQ Appalachia I, LLC, and;
4. Specifically, Tug Hill Operating, LLC is authorized to submit and obtain well work permits and carry out all activities pursuant to such work permits for assets owned by TH Exploration, LLC, TH Exploration II, LLC, TH Exploration III, LLC, and TH Exploration III, LLC.

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FURTHER, AFFIANT SAITH NOT.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this 18th day of October, 2016.

David D. Kalish
Affiant: David D. Kalish

JURAT

Jan Pest
MARSHALL County 03:44:28 PM
Instrument No 1416299
Date Recorded 10/19/2016
Document Type MIS
Pages Recorded 1
Book-Page 28-62
Recording Fee \$5.00
Additional \$6.00

STATE OF TEXAS §
 § SS
COUNTY OF TARRANT §

Sworn and subscribed to (or affirmed) before me on this, the 18th day of October, 2016, by David D. Kalish

IN WITNESS WHEREOF, I hereunto set my hand and official seal.



My Commission Expires: 10-05-2020
Signature/Notary Public: Robin Bock
Name/Notary Public (Print): Robin Bock

Jan Pest
MARSHALL County 01:22:38 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 §
COUNTY OF MARSHALL § KNOW ALL MEN BY THESE PRESENTS:
§

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, Wetzell, 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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ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from SWN PRODUCTION COMPANY, LLC, a Texas limited liability company ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on December 18, 2017 (the "*Effective Date*"). Assignor and Assignee may be referred to herein collectively as the "*Parties*," or individually as a "*Party*." Capitalized terms used herein but not otherwise defined herein (including in Section 3.7) shall have the meanings given such terms in that certain Acreage Trade Agreement between the Assignor and the Assignee dated August 24, 2017 (the "*Acreage Trade Agreement*").

ARTICLE 1 ASSIGNMENT OF ASSETS

Section 1.1 Assignment. For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby GRANTS, BARGAINS, ASSIGNS, CONVEYS AND TRANSFERS unto Assignee all of Assignor's right, title and interest in and to (i) the oil and gas leases described in more detail on Exhibit A attached hereto (the "*Leases*") INsofar AND ONLY INsofar as they cover those lands described on Exhibit A (the "*Leasehold Rights*") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "*Conveyed Assets*").

TO HAVE AND TO HOLD the Conveyed Assets, together with all and singular the rights, privileges, contracts and appurtenances, in any way appertaining or belonging thereto, unto Assignee, its successors and assigns, forever, subject, to the terms and conditions of this Assignment.

Section 1.2 Assignment Subject to Acreage Trade Agreement. This Assignment is made in accordance with and is subject to the terms, covenants and conditions contained in that certain Acreage Trade Agreement. In the event of a conflict between the provisions of the Acreage Trade Agreement and this Assignment, the provisions of the Acreage Trade Agreement shall control. The execution and delivery of this Assignment by Assignor, and the execution and acceptance of this Assignment by Assignee, shall not operate to release or impair any surviving rights or obligations of either Party with respect to the other under the Acreage Trade Agreement.

ARTICLE 2 SPECIAL WARRANTY OF TITLE AND DISCLAIMERS

Section 2.1 Special Warranty of Title. Assignor hereby agrees to warrant and defend Defensible Title to the Leases unto Assignee, its successors and assigns, against every Person whomsoever lawfully claiming or to claim the same or any part thereof by, through or under Assignor or any of its Affiliates, but not otherwise.

Section 2.2 Disclaimers of Warranties and Representations.

(a) EXCEPT AS EXPRESSLY REPRESENTED OTHERWISE IN SECTION VI OF THE ACREAGE TRADE AGREEMENT OR THIS ASSIGNMENT, ASSIGNOR MAKES NO, AND HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATION OR

STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

Marshall County
Jan Pest, Clerk
Instrument 1438635
04/06/2018 @ 12:17:52 PM
ASSIGNMENTS
Book 41 @ Page 380
Pages Recorded 7
Recording Cost \$ 13.00

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 5th day of April, 2018, and made effective December 12, 2017 (the "Effective Date"), by and between AMERICAN PETROLEUM PARTNERS OPERATING, LLC, (hereinafter "Assignor") and TH EXPLORATION, LLC (hereinafter "Assignee") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated December 12, 2017 (the "Acreage Trade Agreement"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to those certain Oil and Gas Leases situated in Marshall County, West Virginia, as described in Exhibit "A", attached hereto and made a part hereof (hereinafter the "Leases"); and

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases as described below.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and subject to the limited warranties, restrictions and conditions hereinafter mentioned, the parties hereto, intending to be legally bound, do covenant and agree as follows:

1. Assignment. Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, all of Assignor's right, title and interest in and to the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon.

TO HAVE AND TO HOLD such right, title and interest in and to the Leases unto Assignee or its designee, and their respective successors and assigns, forever, in accordance with the provisions of this Assignment.

2. Special Warranty. Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered (other than Permitted Encumbrances) its interest in the

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STATE OF WEST VIRGINIA §
§
COUNTY OF MARSHALL §

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 7th day of February, 2018 (the "Effective Date"), by and between CHEVRON U.S.A. INC. (hereinafter "Assignor") and TH EXPLORATION, LLC (hereinafter "Assignee") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated August 1, 2018 (the "Acreage Trade Agreement"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to those certain Oil and Gas Leases situated in Marshall County, West Virginia, as described in Exhibit "A", attached hereto and made a part hereof (hereinafter the "Leases"); and

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases as described below.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and subject to the limited warranties, restrictions and conditions hereinafter mentioned, the parties hereto, intending to be legally bound, do covenant and agree as follows:

1. Assignment. Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, all of Assignor's right, title and interest in and to the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon, and that Assignor excepts and reserves from this Assignment the Chevron ORRI previously conveyed to Assignor and as described in that certain Memorandum of Assignment of Oil and Gas Lease Interests dated November 6, 2012 by and between Cornell Holdings Incorporated and Chevron U.S.A. Inc., which is recorded at Book 0028, Page 0239 in the Office of the County Clerk of Marshall County, West Virginia.

TO HAVE AND TO HOLD such right, title and interest in and to the Leases unto Assignee or its designee, and their respective successors and assigns, forever, in accordance with the provisions of this Assignment.

2. Special Warranty. Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered (other than Permitted Encumbrances) its interest in the Leases since the time that Assignor obtained its interests in the Leases. Assignor does covenant, promise and agree, to and with the Assignee, its respective successors and assigns, to forever specially warrant and defend the title to the Leases or portions thereof included under this Assignment, unto the Assignee and its respective successors and assigns, against the lawful claims of Assignor, and all persons claiming, or to claim, the same or any part thereof, by, through or under Assignor.

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June 14, 2018

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

RE: Evad 1HM

Subject: Marshall County Route 29/2, 80 and 29 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 29/2, 80 and 29 in the area reflected on the Evad 1HM 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-hillop.com.

Sincerely,

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

Amy L. Miller
Permitting Specialist – Appalachia Region

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WW-6AC
(1/12)

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

Date of Notice Certification: 06/07/2018

API No. 47- 051 -
Operator's Well No. Evad 1HM
Well Pad Name: Accetolo

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>517,711.25</u>
County: <u>Marshall</u>	Northing: <u>4,399,407.91</u>
District: <u>Franklin</u>	Public Road Access: <u>Burch Ridge Road - County Route 29</u>
Quadrangle: <u>New Martinsville 7.5'</u>	Generally used farm name: <u>Accetolo, Patricia & Louis</u>
Watershed: <u>French Creek - Ohio River (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: 40px;"><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>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><input type="checkbox"/> RECEIVED</p> <p><input 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.

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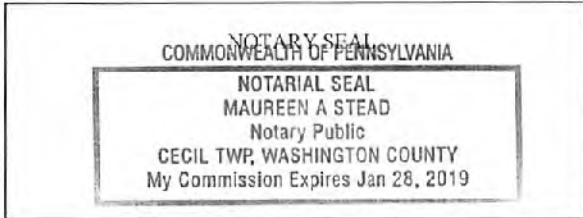
WV Department of
Environmental Protection

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 *Amy L Miller*
Its: Permitting Specialist
Telephone: 724-749-8388

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-338-2030
Email: amiller@tug-hillop.com



Subscribed and sworn before me this 7 day of JUNE 2018.
Maureen A Stead Notary Public
My Commission Expires 1/28/19

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.

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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: 6/7/2018 Date Permit Application Filed: 6/8/2018

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: Louis J. and Patricia Accettolo (Access Road and Well Pad)
Address: 1103 Traubert Place
Folansbee, WV 26037

Name: Jesse P. McHenry (Access Road and Well Pad)
Address: 12 Cedarcrest Drive
Wheeling, WV 26003

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

Name: Wilbur L. McHenry
Address: 13820 Mtcalf Avenue #11313
Overland Park, KS 66223

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: Appalachian Power Company
Address: 1068 US-60
Milton, WV 25541

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 a well 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

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. 47-05102056
OPERATOR WELL NO. Evad 1HM
Well Pad Name: Accettolo

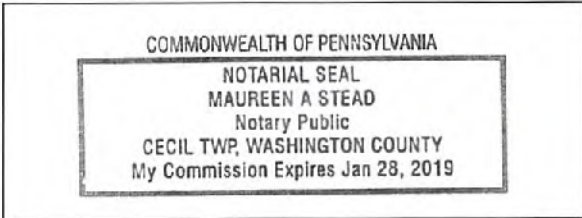
Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8388
Email: amiller@tug-hilltop.com *any 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 7 day of JUNE 2018.
Maureen A Stead Notary Public
My Commission Expires 1/28/19

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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: EVAD 1HM
 District: Franklin
 County: Marshall
 State: WV

There appears to be Seven (7) possible water sources within 2,000 feet of the above referenced well location.

Topo Spot #1 TM 23 Par.21 Mark A. Yoho & Mark E. Yoho 304-455-4282(H) 3998 Burch Ridge Rd. Proctor, WV 26055	Topo Spot #2 TM 23 Par. 22 (Abandoned House) Daniel D. Rhyand & Laurel R. Greene 216-906-1717 6145 Denison Blvd. Parma Heights, OH 44130	Topo Spot #3 TM 23 Par.28.2 Mark W. & Carolyn L. Tennant 304-337-9844(H) 13 Proctor Ridge Rd. Proctor, WV 26055
Topo Spot #4 TM 23 Par.28 Gregg D. Minor 304-455-6159(H) 5257 Burch Ridge Rd. Proctor, WV 26055	Topo spot #5 TM 23 Par.28.1 (Trailer) Troy W. & Erin M. Thomas 304-455-2729(H) 5123 Burch Ridge Rd. Proctor, WV 26055	Topo spot #6 TM 23 Par.28.1 (Trailer) Troy W. & Erin M. Thomas 304-455-2729(H) 5123 Burch Ridge Rd. Proctor, WV 26055
Topo spot #7 TM 23 Par.1 Patricia Accettolo, et al 304-527-0428(H) 1103 Traubert Pl. Follansbee, WV 26037		

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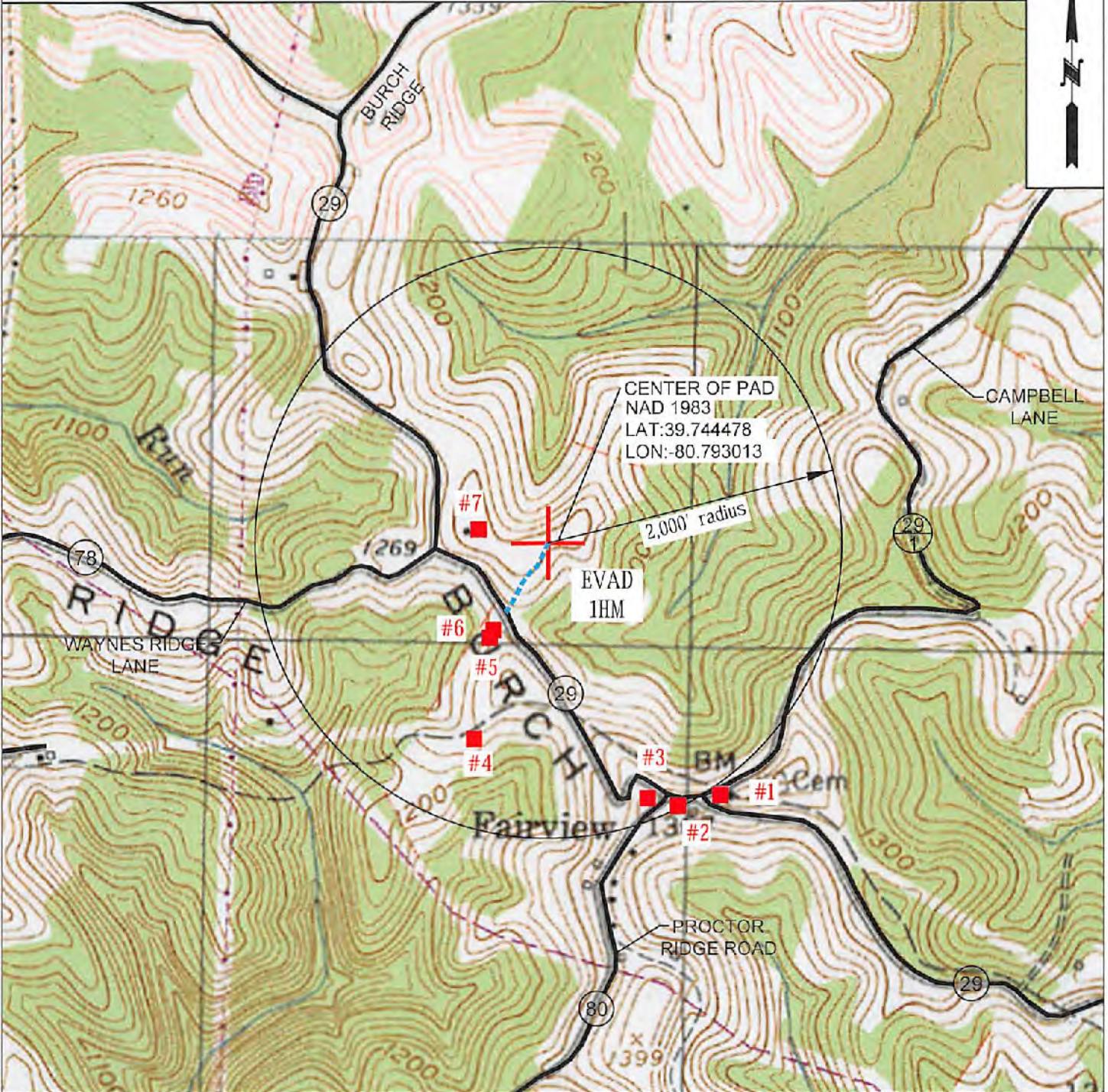
WW-6A

PROPOSED EVAD 1HM

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SUPPLEMENT PG 1

There appears to be Seven (7) 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
 NEW MARTINSVILLE 7.5'
 SCALE:
 1" = 1000'

LEASE NAME
 EVAD
 DATE:
 DATE: 05-30-2018

WW-6A3
(1/12)

Operator Well No. Evad 1HM

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: 5/2/2018 **Date of Planned Entry:** 5/9/2018

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: Louis J. and Patricia Accetollo (Access Road and Well Pad) ✓
Address: 1103 Traubert Place
Folansbee, WV 26037

Name: Jesse P. McHenry (Access Road and Well Pad) ✓
Address: 12 Cedarcrest Drive
Wheeling, WV 26003

Name: Wilbur L. McHenry ✓
Address: 13820 Mccalf Avenue #11313
Overland Park, KS 66223

COAL OWNER OR LESSEE

Name: Appalachian Power Company
Address: 1058 US-60
Milton, WV 25541

MINERAL OWNER(S)

Name: Louis J. and Patricia Accetollo *See attached list
Address: 1103 Traubert Place
Folansbee, WV 26037

*please attach additional forms if necessary

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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: Franklin
Quadrangle: New Martinsville 7.5'

Approx. Latitude & Longitude: 39.7443056; -80.7933469
Public Road Access: Burch Ridge Road (County Route 29)
Watershed: Fish Creek (HUC 10)
Generally used farm name: Accetollo, Patricia and Lous J.

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-hill-op.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Cancsburg, 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.

WW-6A3.....Notice of Entry for Plat Survey

EVAD 1HM, EVAD 2HM, EVAD 3HM, EVAD 4HM, EVAD 5HM, EVAD 6HM

Additional Mineral Owners

Jesse P. McHenry
12 Cedarcrest Drive
Wheeling, WV 26003

Wilbur L. McHenry
13820 Mtcalf Avenue #11313
Overland Park, KS 66223

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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: 06/07/2018 **Date Permit Application Filed:** 06/08/2018

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: Louis J. and Patricia Accetollo
Address: 1103 Traubert Place
Folansbee, WV 26037

Name: Jesse P. McHenry (See attachment)
Address: 12 Cedarcrest Drive
Wheeling, WV 26003

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>517,711.25</u>
County:	<u>Marshall</u>		Northing:	<u>4,399,407.91</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Burch Ridge Road (County Route 29)</u>	
Quadrangle:	<u>Naw Martinsville 7.5'</u>	Generally used farm name:	<u>Accetollo, Patricia and Louis J.</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
Telephone: 724-749-8388
Email: amiller@tug-hillcop.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.

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WW-6A5 NOTICE OF PLANNED OPERATION.....EVAD 1HM

SURFACE OWNER

Wilbur L. McHenry
13820 Mtcalf Avenue #11313
Overland Park, KS 66223

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4705102056

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

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

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

May 7, 2018

Jill M. Newman
Deputy Commissioner

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

Subject: DOH Permits for the Evad Well Pad, Marshall County

Evad 1HM

Dear Mr. Martin,

This well site will be accessed from Permit #06-2011-0593 transferred to Tug Hill Operating for access to the State Road for a well site located off of Marshall County Route 29 SLS.

The 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 January 3, 2012.

Very Truly Yours,

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

Cc: Jonathan White
Tug Hill Operating
CH, OM, D-6
File

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PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Evad 1HM

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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WEST VIRGINIA COUNTY MAP



APPROVED W/DEP OOG

7/2/18 M 23 2018

Accetolo Well Site

Site Design, Construction Plan, & Erosion and Sediment Control Plans

Tug Hill Operating
Marshall County
Franklin District

Latitude 39.74447766°
Longitude -80.79301320°
Lower Fish Creek Watershed

Pertinent Site Information

Accetolo Well Site
Emergency Number: 304-845-1921
Franklin District, Marshall County, WV
Watershed: Lower Fish Creek Watershed
Tug Hill Conflict Number: 1-817-632-3400

Table with 4 columns: Property Owner Information - Accetolo Well Site, Property Name, Address, City, State, Zip.

Table with 2 columns: Access Road, Project Name, Access Road, City, State, Zip.

Table with 2 columns: Disturbance Area, Area (Acres), Erosion Control, Sediment Control, Total Disturbance Area.

Table with 2 columns: Accetolo Well Site Characteristics, Property Name, Address, City, State, Zip, Project Name, Access Road, City, State, Zip.

Exhibit A: Final Design: Issue for Permitting



Tables containing project details: Project Name, Project Location, Project Description, Project Contacts, and other administrative information.



Tables for Site Location (SAB 27) and Site Location (SAB 81) with columns for Township, Range, and Section.

Approach Routes

From the intersection of SR 21 and WV 26...
From the intersection of SR 21 and WV 26...



2018 Erosion Database

- 2018 Erosion Database - 2018 Erosion Database...
2018 Erosion Database - 2018 Erosion Database...

2018 Erosion Database

2018 Erosion Database - 2018 Erosion Database...



Table with 2 columns: Sheet, Description. Lists sheets 1 through 11 and their corresponding descriptions.

TUG HILL OPERATING



PREPARED FOR TUG HILL OPERATING

K&S SURVEYING

Accetolo Well Site
Franklin District
Marshall County, WV

Scale: 1" = 400'

