

02/23/2023



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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Wednesday, February 1, 2023
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for HENDRICKSON S-13HU
47-051-02485-00-00

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: HENDRICKSON S-13HU
Farm Name: LINDA L PICKERING HENDRICKSON
U.S. WELL NUMBER: 47-051-02485-00-00
Horizontal 6A New Drill
Date Issued: 2/1/2023

Promoting a healthy environment.

02/03/2023

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.
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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west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

January 9, 2023

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

RE: Application for Deep Well Permit – API #47-051-02485

COMPANY: Tug Hill Operating, LLC

FARM: Linda L. Pickering Hendrickson Hendrickson S-13HU

COUNTY: Marshall DISTRICT: Franklin QUAD: Wileyville

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

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

1. Comments to Notice of Deviation filed? No.
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: **yes
4. Provided a plat showing that the productive interval of the well meets the requirements of the Rules of the Commission W. Va. C.S.R. § 39-1-4.2.

Sincerely,

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

Susan Rose
Administrator

**Corley N-10HU 47-051-01998; Corley N-9HU 47-051-01983; Hillrock S-13HU 47-051-02273; Hillrock S-14HU 47-051-02262; Hillrock S-15HU 47-051-02263; Pendleton N-10HU 47-051-02455; Pendleton N-11HU 47-051-02456; Pendleton N-8HU 47-051-02454; Pendleton N-16HU 47-051-02441; Pendleton S-12HU 47-051-02457; Pendleton S-13HU 47-051-02458; Pendleton S-14HU 47-051-02459; Pendleton S-15HU 47-051-02460; Simms U-5H 47-051-01731; Hendrickson N-7HU 47-051-02479; Hendrickson N-8HU 47-051-02480; Hendrickson N-9HU 47-051-02481; Hendrickson S-10HU 47-051-02482; Hendrickson S-11HU 47-051-02483; Hendrickson S-12HU 47-051-02484

02/03/2023



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
dep.wv.gov

**ORDER
ISSUED UNDER
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 6A**

TO: Tug Hill Operating, LLC
380 Southpointe Boulevard, Plaza II., Suite 200
Canonsburg, PA 15317

DATE: October 8, 2020
ORDER NO.: 2020-W-4

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, LLC (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, Canonsburg, PA 15317.
3. On June 24, 2020 Tug Hill submitted fracture permit applications for wells identified as API#s 47-51-01467, 47-51-01479, 47-51-01480, 47-51-01491 and 47-51-01492. The wells are located on the Hendrickson Pad in the Franklin District of Marshall County, West Virginia.
4. On June 24, 2020 Tug Hill requested a waiver for Wetland W02 as outlined in Attachment 1, from well location restriction requirements in W. Va. Code §22-6A-12(b) for the fracture permit applications for wells identified as API#s 47- 51-01467, 47-51-01479, 47-51-01480, 47-51-01491 and 47-51-01492.

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 W02 from well location restriction requirements in W. Va. Code §22-6A-12(b) for the fracture permit applications for wells identified as API#s 47- 51-01467, 47-51-01479, 47-51-01480, 47-51-01491 and 47-51-01492. The Office of Oil and Gas hereby **ORDERS** that Tug Hill shall meet the following site construction and operational requirements for the Hendrickson 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. Wetland W02 shall be protected by a layer of both Super Silt Fence and twenty four inch (24”) compost filter sock. 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.

02/23/2023

Thus ORDERED, the 8th day of October, 2020.

IN THE NAME OF THE STATE OF WEST VIRGINIA:

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

By: James Martin Digitally signed by James Martin
Date: 2020.10.08 08:41:00 -04'00'
JAMES A. MARTIN, CHIEF

02/03/2023

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

1) Well Operator: Tug Hill Operating, LLC 494510851 Marshall Franklin Wileyville 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Hendrickson S-13HU Well Pad Name: Hendrickson

3) Farm Name/Surface Owner: Linda L. Hendrickson Public Road Access: Co. Rte. 76

4) Elevation, current ground: 1,220.33' Elevation, proposed post-construction: 1,220.33'

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

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Point Pleasant is the target formation at a depth of 11,451' - 11,568', thickness of 117' and anticipated pressure of approx. 7,500 psi.

8) Proposed Total Vertical Depth: 11,718'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 17,321'

11) Proposed Horizontal Leg Length: 5,044.24'

12) Approximate Fresh Water Strata Depths: 70; 841'

13) Method to Determine Fresh Water Depths: Based on the depth of Pittsburgh Coal seam, per WGES mapping contours

14) Approximate Saltwater Depths: 1,368'

15) Approximate Coal Seam Depths: Sewickley Coal - 739' and Pittsburgh Coal - 835'

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

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

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Environmental Protection

Steve L. Adams
STRATA 60 WELLS
12-1-2022

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/Coal | 20" | NEW | J55 | 106.5# | 975' | 975' | 1,576ft^3(CTS) |
| Intermediate 1 | 13 3/8" | NEW | J55 | 54.5# | 2,700' | 2,700' | 1,905ft^3(CTS) |
| Intermediate 2 | 9 5/8" | NEW | HPP110 | 47# | 10,657' | 10,657' | 3,472ft^3(CTS) |
| Production | 5 1/2" | NEW | P110 | 23# | 17,321' | 17,321' | 4,149ft^3(CTS) |
| Tubing | 2 7/8" | NEW | P110 | 6.5# | | 11,384' | |
| Liners | | | | | | | |

| 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/Coa | 20" | 26" | .5 | 2,410 | 1,928 | SEE #24 | 1.2 |
| Intermediate 1 | 13 3/8" | 17 1/2" | .38 | 2,740 | 2,192 | SEE #24 | 1.2 |
| Intermediate 2 | 9 5/8" | 12 1/4" | .472 | 10,730 | 6,968 | SEE #24 | 1.33 |
| Production | 5 1/2" | 8 1/2" | .415 | 16,510 | 13,208 | SEE #24 | 1.17/1.19 |
| Tubing | 2 7/8" | | | 14,530 | 11,624 | | |
| Liners | | | | | | | |

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PACKERS

| | | | | |
|-------------|-----|--|--|---|
| Kind: | N/A | | | WV Department of Environmental Protection |
| Sizes: | N/A | | | |
| Depths Set: | N/A | | | |

*Steve G...
STRAPOL GENE...
12-1-2022*

WW-6B
(10/14)

4705102/23/2023
API NO. 47-051
OPERATOR WELL NO. Hendrickson S-13HU
Well Pad Name: Hendrickson

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP (10,884'). 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 19,500,000 lb. proppant and 355,000 bbl of water. Max rate = 80bpm; max psi = 9,000#.

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21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 30.63 acres

22) Area to be disturbed for well pad only, less access road (acres): 4.21 acres

23) Describe centralizer placement for each casing string:

Will run 3 centralizers on surface casing at equal distance. Intermediate strings 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:

Sfc - Premium NE-1 + 2% CaCl; Int1 - Premium NE-1 + 1.5% CaCl + Flake; Int2 - Lead: Premium NE-1 + 5% BA-90 + .85% R-3 + 3% KCl + .75 gals/100sk FP-13L + 1% MPA-170 Tail: Premium NE-1 + .1% R-3 + 5% KCl + 1% CD-32 + .4% FL-52 + .2% ASA-301 + .6% Sodium Metasilicate; Kick Plug - Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L; Prod - Lead: 50:50 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .75 gal/100sk FP-13L Tail: 25:75 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .375 gal/100sk FP-13L

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.

J. L. Lewis
STEPHEN G. W. GOR
12-1-2022
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Tug Hill Operating, LLC Casing and Cement Program

Hendrickson S-13HU

Casing

| | String | Grade | Bit Size | Depth (Measured) | Cement Fill Up |
|----------------|---------|--------|----------|------------------|----------------|
| Conductor | 30" | BW | 36" | 120' | CTS |
| Surface | 20" | J55 | 26" | 975' | CTS |
| Intermediate 1 | 13 3/8" | J55 | 17 1/2" | 2,700' | CTS |
| Intermediate 2 | 9 5/8" | HPP110 | 12 1/4" | 10,657' | CTS |
| Production | 5 1/2" | HCP110 | 8 1/2" | 17,321' | 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 1: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.2

Intermediate 2: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 14.5 ppg, Y=1.35

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 16.5 ppg, Y = 1.03

02/03/2023

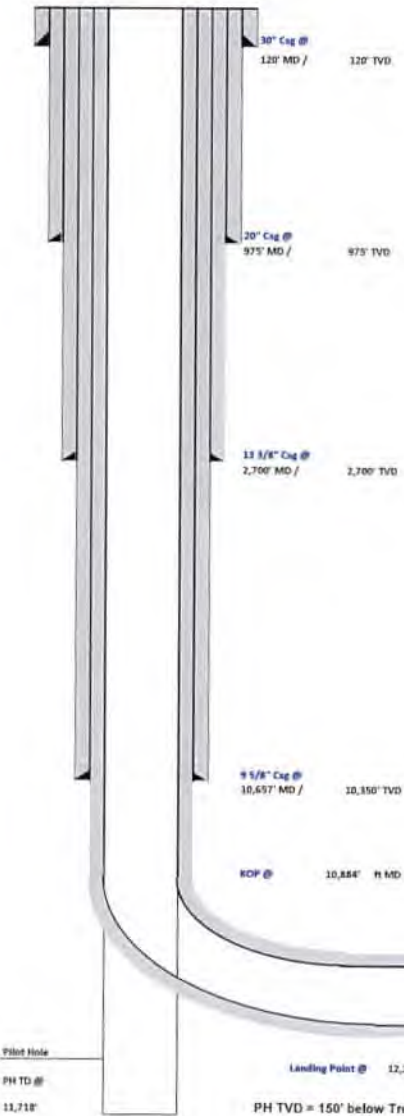


WELL NAME: Hendrickson S-13HU
 STATE: WV COUNTY: Marshall
 DISTRICT: Franklin
 DF Elev: 1,220' GL Elev: 1,220'
 TD: 17,321'
 TH Latitude: 39.74493669
 TH Longitude: -80.74792251
 BH Latitude: 39.735602
 BH Longitude: -80.731548

| FORMATION TOPS | |
|---------------------|-----------|
| Formation | Depth TVD |
| Deepest Fresh Water | 841' |
| Swickley Coal | 738' |
| Pittsburgh Coal | 835' |
| Big Lime | 2,077' |
| Berea | 2,562' |
| Tully | 6,458' |
| Marcellus | 6,558' |
| Onondaga | 6,608' |
| Salina | 7,320' |
| Lockport | 8,408' |
| Utica | 11,175' |
| Point Pleasant | 11,451' |
| Landing Depth | 11,501' |
| Trenton | 11,563' |
| Pilot Hole TD | 11,718' |

| CASING SUMMARY | | | | | | | |
|----------------|----------------|---------------|------------|-------------|----------------|--------|---------------|
| Type | Hole Size (in) | Csg Size (in) | Depth (MD) | Depth (TVD) | Weight (lb/ft) | Grade | Top of Cement |
| Conductor | 36 | 38 | 120' | 120' | 8W | 8W | Surface |
| Surface | 26 | 26 | 975' | 875' | 106.5 | J55 | Surface |
| Intermediate 1 | 17 1/2 | 13 3/8 | 2,700' | 2,700' | 54.5 | J55 | Surface |
| Intermediate 2 | 12 1/4 | 9 5/8 | 10,657' | 10,350' | 47 | HPP110 | Surface |
| Production | 8 1/2 | 5 1/2 | 17,321' | 11,589' | 23 | HCP110 | Surface |

| CEMENT SUMMARY | | | | DRILLING DETAILS | |
|----------------|-------|-------|---------------|------------------|--|
| Type | Sacks | Class | Density (ppg) | Fluid Type | Centralizer Notes |
| Conductor | 338 | A | 15.6 | Air | None |
| Surface | 1,699 | A | 15.6 | Air | 3 Centralizers at equal distance |
| Intermediate 1 | 2,064 | A | 15.6 | Air | 1 Centralizer every other joint |
| Intermediate 2 | 8,171 | A | 14.5 | Air | 1 Centralizer every other joint |
| Production | 4,181 | A | 16.5 | Air / SOBAM | 1 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface |



PH TVD = 150' below Trenton Top

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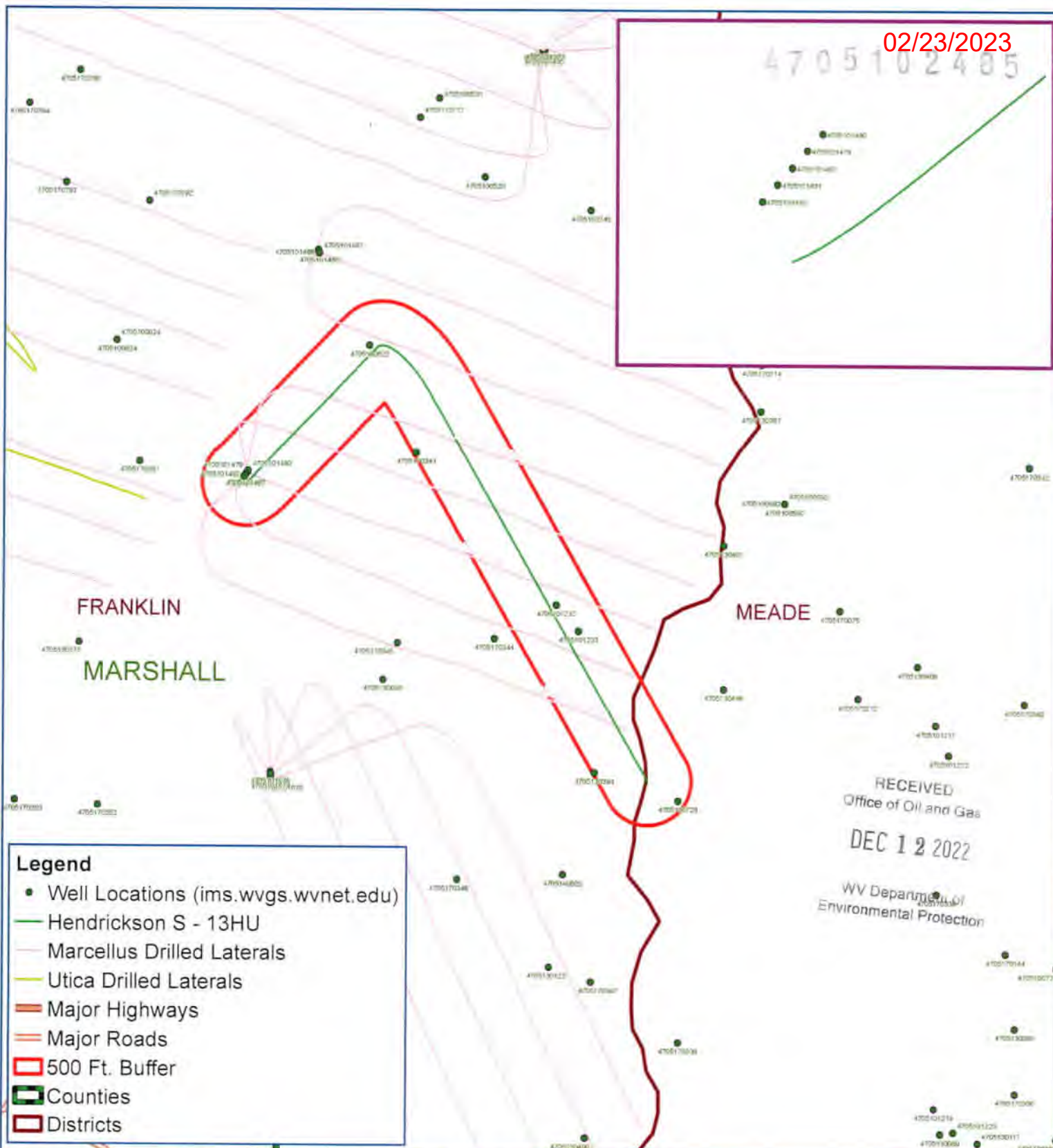
John L. Rivers
 STRAIGHT HOLE
 12-1-2022

4705102485

Lateral TD @ 17,321' R MD
 11,589' R TVD

02/23/2023

4705102485



Legend

- Well Locations (ims.wvgs.wvnet.edu)
- Hendrickson S - 13HU
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- Major Highways
- Major Roads
- 500 Ft. Buffer
- Counties
- Districts



Hendrickson S - 13HU

Franklin District

Marshall County, WV



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



Map Prepared by:

PS
LAND SERVICES

02/03/2023

Map Created: October 24, 2022
Map Current As Of: October 24, 2022

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. Enverus and RS Energy Group 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 Adam Picard 724-485-9331, apicard@dpslandservices.com, DPS GIS (10/12/2022) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it is the best publicly available. See attached map he provided.

Request maps for:

- 1. Wellbore with Enverus 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

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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

4705101480
02/23/2023

Wells within 500' Buffer

Note: Well spots depicted on Area of Review map 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 |
|------------|--------------------------|-------------------------|----------------|--------------------------------|---|--|
| 4705101467 | Tug Hill Operating, LLC. | 6670' TVD, 11434' MD | Marcellus | none | No, this is a producing well in the Marcellus. This well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation. | Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed well. |
| 4705101479 | Tug Hill Operating, LLC. | 6676' TVD, 11924' MD | Marcellus | none | No, this is a producing well in the Marcellus. This well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation. | Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed well. |
| 4705101480 | Tug Hill Operating, LLC. | 6692' TVD, 12395' MD | Marcellus | none | No, this is a producing well in the Marcellus. This well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation. | Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed well. |
| 4705101491 | Tug Hill Operating, LLC. | 6675' TVD, 11518' MD | Marcellus | none | No, this is a producing well in the Marcellus. This well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation. | Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed well. |

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| 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 |
|------------|--------------------------------|-------------|----------------|--------------------------------|---|-------------------------------|
| 4705100729 | Hope Natural Gas Company | unknown | unknown | unknown | Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Point Pleasant well. | State records are incomplete. |
| 4705130394 | Manufacturers Light & Heat Co. | unknown | unknown | unknown | Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Point Pleasant well. Well is plugged. | Well was plugged 7/14/1959. |

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| 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 |
|------------|--------------------------|----------------------|----------------|--------------------------------|---|--|
| 4705101492 | Tug Hill Operating, LLC. | 6672' TVD, 12410' MD | Marcellus | none | No, this is a producing well in the Marcellus. This well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation. | Producing Marcellus well, operated by Tug Hill Operating, LLC., located on same well pad as proposed well. |
| 4705100522 | Fruchtman, M. | 2895' TVD | Gordon | unknown | No, this well is not deep enough to be within the expected fracture propagation from the proposed Point Pleasant stimulation. Well is plugged. | Well was plugged 8/26/1966. |
| 4705170343 | unknown | unknown | unknown | unknown | Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Point Pleasant well. | State records are incomplete. |
| 4705101232 | CNX Gas Co. LLC (North). | unknown | unknown | unknown | Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Point Pleasant well. | State records are incomplete. |
| 4705101233 | CNX Gas Co. LLC (North). | unknown | unknown | unknown | Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be affected by fracturing of the proposed Point Pleasant well. | State records are incomplete. |

4705101492

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WV Geological & Economic Survey

Well: County = 51 Permit = 01479 [Link to all digital records for well](#)

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|-------------|-----------|-----------|------------|----------|-----------|
| 4705101479 | Marshall | 1479 | Franklin | Villeyville | Littleton | 39.745232 | -80.747884 | 521600.3 | 4399511.5 |

Bottom Hole Location Information:

| API | EP_FLAG | UTME | UTMN | LON_DD | LAT_DD |
|------------|---------------|----------|-----------|------------|-----------|
| 4705101479 | 1 As Proposed | 523164.4 | 4399128.2 | -80.729642 | 39.741738 |

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_AT |
|------------|-----------|----------------|-----------|---------------------|----------|--------|-------------|---|--------------------------------------|------------------|
| 4705101479 | 3/31/2012 | Dvtd Orgnl Loc | Completed | Hendrickson North | 2H | | Hendrickson | WV16-0065-0001-288082-001/WV16-0007-001 | Linda Louise & D R Hendrickson et al | Gastar Explorati |
| 4705101479 | -/- | Dvtd Wrkd Ovr | Permitted | Linda L Hendrickson | 2H | | Hendrickson | | L L Hendrickson | Tug Hill Operatr |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOD |
|------------|-----------|----------|------|--------------|----------------|--------------|--------------|------------------|------------------|-------------|--------|-----------|------|-------|---------|-----|
| 4705101479 | 3/31/2012 | 7/3/2011 | 1228 | Ground Level | Cameron-Garner | Marcellus Fm | Marcellus Fm | Development Well | Development Well | Oil and Gas | Rotary | Fractured | 6676 | 11924 | 11924 | |
| 4705101479 | -/- | -/- | 1220 | Ground Level | | | | | | | | | | | | |

Comment: 3/31/2012 Additional Lease Numbers: WV16-0007-002 thru 006

Production Gas Information: (Volumes in Mcf)

| API | PRODUCING_OPERATOR | PRD_YEAR | ANN_GAS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DCM |
|------------|------------------------------|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 4705101479 | Gastar Exploration USA, Inc. | 2012 | 430,820 | 0 | 0 | 0 | 45,973 | 59,174 | 67,759 | 49,372 | 50,131 | 33,221 | 49,459 | 46,631 | 28,900 |
| 4705101479 | Gastar Exploration USA, Inc. | 2013 | 389,949 | 7,887 | 12,179 | 44,293 | 44,372 | 45,821 | 37,393 | 36,995 | 31,298 | 36,141 | 33,293 | 30,540 | 29,737 |
| 4705101479 | Gastar Exploration USA, Inc. | 2014 | 324,454 | 28,349 | 27,379 | 31,963 | 25,702 | 32,616 | 30,315 | 30,878 | 26,653 | 24,809 | 20,436 | 21,580 | 23,774 |
| 4705101479 | Gastar Exploration Inc. | 2015 | 254,399 | 25,266 | 20,225 | 23,138 | 23,014 | 22,657 | 18,509 | 16,353 | 20,719 | 23,981 | 21,341 | 22,686 | 16,510 |
| 4705101479 | Tug Hill Operating, LLC | 2016 | 260,643 | 25,532 | 18,662 | 26,440 | 23,907 | 23,974 | 20,056 | 20,868 | 21,075 | 19,196 | 19,918 | 20,619 | 20,392 |
| 4705101479 | Tug Hill Operating, LLC | 2017 | 197,191 | 18,439 | 16,082 | 18,435 | 17,545 | 17,573 | 17,112 | 17,065 | 16,372 | 15,267 | 13,798 | 14,977 | 14,522 |
| 4705101479 | Tug Hill Operating, LLC | 2018 | 174,729 | 14,389 | 16,458 | 16,914 | 15,022 | 17,206 | 16,143 | 11,690 | 14,360 | 12,183 | 13,907 | 13,194 | 13,263 |
| 4705101479 | Tug Hill Operating, LLC | 2019 | 184,337 | 16,492 | 15,112 | 16,024 | 15,546 | 14,929 | 14,337 | 15,891 | 16,244 | 15,495 | 15,292 | 14,440 | 14,535 |
| 4705101479 | Tug Hill Operating, LLC | 2020 | 77,637 | 0 | 0 | 0 | 0 | 0 | 0 | 13,101 | 13,434 | 13,256 | 12,371 | 12,893 | 12,582 |
| 4705101479 | Tug Hill Operating, LLC | 2021 | 146,700 | 13,841 | 12,398 | 11,932 | 12,280 | 11,956 | 11,836 | 11,227 | 12,032 | 12,303 | 12,600 | 12,027 | 12,268 |

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4705102405

WV Geological & Economic Survey

Well: County = 51 Permit = 01480 [Link to all digital records for well](#)

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|-----------|------------|----------|-----------|
| 4705101480 | Marshall | 1480 | Franklin | Wileyville | Littleton | 39.745277 | -80.747843 | 521603.8 | 4399516.5 |

Bottom Hole Location Information:

| API | EP_FLAG | UTME | UTMN | LON_DD | LAT_DD |
|------------|---------------|----------|-----------|------------|-----------|
| 4705101480 | 1 As Proposed | 523217.6 | 4399303.5 | -80.729015 | 39.743316 |

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_A |
|------------|-----------|----------------|-----------|---------------------|----------|--------|-------------|--|--------------------------------------|------------------|
| 4705101480 | 3/31/2012 | Dvtd Orgnl Loc | Completed | Hendrickson North | 4H | | Hendrickson | WV16-0065-000/1-288082-001/WV16-0007-001 | Linda Louise & D R Hendrickson et al | Gastar Explorat |
| 4705101480 | -/- | Dvtd Wrkd Ovr | Permitted | Linda L Hendrickson | 4H | | Hendrickson | | L L Hendrickson | Tug Hill Operati |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOD |
|------------|-----------|-----------|------|--------------|----------------|--------------|--------------|------------------|------------------|-------------|--------|-----------|------|-------|---------|-------|
| 4705101480 | 3/31/2012 | 7/22/2011 | 1228 | Ground Level | Cameron-Garner | Marcellus Fm | Marcellus Fm | Development Well | Development Well | Oil and Gas | Rotary | Fractured | 6692 | 12395 | | 12395 |
| 4705101480 | -/- | -/- | 1220 | Ground Level | | | | | | | | | | | | |

Comment: 3/31/2012 Additional Lease Numbers: WV16-0007-002 thru 006

Production Gas Information: (Volumes in Mcf)

| API | PRODUCING_OPERATOR | PRD_YEAR | ANN_GAS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DCM |
|------------|-----------------------------|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 4705101480 | Gastar Exploration USA, Inc | 2012 | 508,242 | 0 | 0 | 0 | 72,596 | 67,959 | 80,861 | 58,445 | 58,500 | 37,293 | 48,389 | 50,296 | 33,903 |
| 4705101480 | Gastar Exploration USA, Inc | 2013 | 421,951 | 3,657 | 15,042 | 47,289 | 47,821 | 48,390 | 39,225 | 43,415 | 39,361 | 33,977 | 35,730 | 34,038 | 34,006 |
| 4705101480 | Gastar Exploration USA, Inc | 2014 | 326,535 | 31,916 | 28,202 | 32,257 | 25,522 | 31,800 | 31,623 | 26,746 | 25,901 | 23,702 | 20,843 | 21,897 | 24,126 |
| 4705101480 | Gastar Exploration Inc | 2015 | 255,597 | 25,425 | 21,264 | 23,138 | 23,014 | 22,657 | 18,509 | 16,353 | 20,719 | 23,981 | 21,341 | 22,686 | 16,510 |
| 4705101480 | Tug Hill Operating, LLC | 2016 | 260,643 | 25,532 | 18,662 | 26,440 | 23,907 | 23,974 | 20,056 | 20,868 | 21,075 | 19,196 | 19,918 | 20,619 | 20,392 |
| 4705101480 | Tug Hill Operating, LLC | 2017 | 197,194 | 18,439 | 16,082 | 18,435 | 17,545 | 17,573 | 17,112 | 17,065 | 16,372 | 15,250 | 13,798 | 14,977 | 14,542 |
| 4705101480 | Tug Hill Operating, LLC | 2018 | 174,705 | 14,363 | 16,458 | 16,914 | 15,022 | 17,206 | 16,143 | 11,679 | 14,360 | 12,196 | 13,907 | 13,194 | 13,263 |
| 4705101480 | Tug Hill Operating, LLC | 2019 | 184,391 | 16,492 | 15,112 | 16,024 | 15,546 | 14,929 | 14,391 | 15,891 | 16,244 | 15,495 | 15,292 | 14,440 | 14,535 |
| 4705101480 | Tug Hill Operating, LLC | 2020 | 78,580 | 0 | 0 | 0 | 0 | 0 | 0 | 13,101 | 13,434 | 13,256 | 13,314 | 12,893 | 12,582 |
| 4705101480 | Tug Hill Operating, LLC | 2021 | 146,984 | 13,841 | 12,398 | 11,932 | 12,280 | 11,956 | 11,836 | 11,227 | 12,032 | 12,303 | 12,600 | 12,311 | 12,268 |

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4705102405

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Well: County = 51 Permit = 01491 [Link to all digital records for well](#)

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|-----------|------------|----------|-----------|
| 4705101491 | Marshall | 1491 | Franklin | Wileyville | Littleton | 39.745141 | -80.747963 | 521593.6 | 4399501.3 |

Bottom Hole Location Information:

| API | EP_FLAG | UTME | UTMN | LON_DD | LAT_DD |
|------------|---------------|----------|-----------|------------|-----------|
| 4705101491 | 1 As Proposed | 521753.5 | 4399254.4 | -80.746105 | 39.742912 |

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN |
|------------|-----------|----------------|-----------|---------------------|----------|--------|-------------------|--|---|
| 4705101491 | 3/31/2012 | Dvtd Orgnl Loc | Completed | Hendrickson South | 3H | | Hendrickson South | WV16-0065-000/1-306235-001/WV16-0007-001 | Linda Louise & Donald Ray Hendrickson et al |
| 4705101491 | -/- | Dvtd Wrkld Ovr | Permitted | Linda L Hendrickson | 3H | | Hendrickson | | L L Hendrickson |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOE |
|------------|-----------|----------|------|--------------|---------------|--------------|--------------|------------------|------------------|-------------|--------|-----------|------|-------|---------|-----|
| 4705101491 | 3/31/2012 | 8/3/2011 | 1228 | Ground Level | Cameron-Gamer | Marcellus Fm | Marcellus Fm | Development Well | Development Well | Oil and Gas | Rotary | Fractured | 6675 | 11518 | 11518 | |
| 4705101491 | -/- | -/- | 1220 | Ground Level | | | | | | | | | | | | |

Comment: 3/31/2012 Additional Lease Numbers: WV16-0007-004/WV16-0017-001/WV16-0007-002/WV16-0007-005/WV16-0007-003/WV16-0007-006/1288528

Production Gas Information: (Volumes in Mcf)

| API | PRODUCING_OPERATOR | PRD_YEAR | ANN_GAS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DCM |
|------------|------------------------------|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 4705101491 | Gastar Exploration USA, Inc. | 2012 | 358,323 | 0 | 0 | 0 | 44,497 | 51,759 | 54,013 | 40,957 | 43,126 | 27,187 | 39,379 | 34,644 | 22,761 |
| 4705101491 | Gastar Exploration USA, Inc. | 2013 | 337,131 | 6,878 | 16,294 | 33,227 | 33,928 | 36,108 | 31,243 | 32,691 | 25,609 | 34,605 | 31,909 | 26,408 | 26,031 |
| 4705101491 | Gastar Exploration USA, Inc. | 2014 | 269,427 | 25,905 | 22,353 | 25,857 | 21,055 | 26,810 | 24,074 | 24,069 | 21,139 | 20,259 | 17,021 | 19,869 | 21,016 |
| 4705101491 | Gastar Exploration Inc. | 2015 | 219,107 | 23,305 | 17,933 | 20,301 | 20,474 | 19,239 | 16,038 | 14,129 | 16,285 | 20,540 | 15,213 | 20,171 | 15,479 |
| 4705101491 | Tug Hill Operating, LLC | 2016 | 242,082 | 22,368 | 17,307 | 22,457 | 20,502 | 21,524 | 20,116 | 19,943 | 20,427 | 19,468 | 20,240 | 18,962 | 18,762 |
| 4705101491 | Tug Hill Operating, LLC | 2017 | 190,919 | 18,801 | 16,744 | 17,784 | 16,291 | 16,476 | 15,856 | 16,243 | 15,855 | 15,218 | 11,976 | 14,790 | 14,882 |
| 4705101491 | Tug Hill Operating, LLC | 2018 | 161,328 | 14,185 | 14,062 | 15,813 | 13,449 | 14,878 | 15,003 | 11,260 | 11,754 | 12,307 | 13,287 | 12,567 | 12,763 |
| 4705101491 | Tug Hill Operating, LLC | 2019 | 157,881 | 11,995 | 13,200 | 13,560 | 13,223 | 13,026 | 12,189 | 13,868 | 13,364 | 13,803 | 13,622 | 13,022 | 13,009 |
| 4705101491 | Tug Hill Operating, LLC | 2020 | 81,696 | 0 | 0 | 0 | 0 | 0 | 0 | 12,553 | 12,811 | 12,358 | 12,515 | 11,528 | 19,931 |
| 4705101491 | Tug Hill Operating, LLC | 2021 | 138,517 | 15,786 | 14,529 | 11,018 | 11,797 | 11,128 | 9,821 | 9,678 | 10,798 | 10,803 | 11,614 | 10,706 | 10,839 |

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4705101491

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Well: County = 51 Permit = 01467 [Link to all digital records for well](#)

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX | DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|----------|------------|-----------|---------|-----------|------------|----------|-----------|
| 4705101467 | Marshall | 1467 | Franklin | Wileyville | Littleton | | 39.745186 | -80.747924 | 521596.9 | 4399506.4 |

Bottom Hole Location Information:

| API | EP | FLAG | UTME | UTMN | LON_DD | LAT_DD |
|------------|----|-------------|----------|---------|------------|-----------|
| 4705101467 | 1 | As Proposed | 522994.4 | 4399994 | -80.731631 | 39.740533 |

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | O |
|------------|-----------|----------------|-----------|--|----------|--------|-------------|---|----------------------------|----|
| 4705101467 | 3/31/2012 | Dvtd Orign Loc | Completed | Linda L Pickering & Donald R Hendrickson | 1H | | Hendrickson | WV16-0065-000/WV16-0007-001/WV16-0007-004 | Donald R Hendrickson et al | G |
| 4705101467 | -- | Dvtd Wrkd Ovr | Permitted | Linda L Hendrickson | 1H | | Hendrickson | | LL Hendrickson | TL |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOD |
|------------|-----------|-----------|------|--------------|----------------|--------------|--------------|------------------|------------------|-------------|--------|-----------|------|-------|---------|-----|
| 4705101467 | 3/31/2012 | 8/27/2011 | 1228 | Ground Level | Cameron-Garner | Marcellus Fm | Marcellus Fm | Development Well | Development Well | Oil and Gas | Rotary | Fractured | 6670 | 11434 | 11434 | |
| 4705101467 | -- | -- | 1220 | Ground Level | | | | | | | | | | | | |

Comment: 3/31/2012 Lease Number: WV16-0007-002/WV16-0007-005/WV16-0007-003/WV16-0007-006

Pay/Show/Water Information:

| API | CMP_DT | ACTIVITY | PRODUCT | SECTION | DEPTH_TOP | FM_TOP | DEPTH_BOT | FM_BOT | G_BEF | G_AFT | O_BEF | O_AFT | WATER_QNTY |
|------------|-----------|----------|-------------|----------|-----------|--------------|-----------|----------------------|-------|-------|-------|-------|------------|
| 4705101467 | 3/31/2012 | Water | Fresh Water | Vertical | | | 60 | Pennsylvanian System | | | | | |
| 4705101467 | 3/31/2012 | Water | Salt Water | Vertical | | | 1600 | | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 6762 | Marcellus Fm | 6932 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 6972 | Marcellus Fm | 7182 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 7272 | Marcellus Fm | 7482 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 7572 | Marcellus Fm | 7782 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 7872 | Marcellus Fm | 8082 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 8172 | Marcellus Fm | 8382 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 8472 | Marcellus Fm | 8682 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 8772 | Marcellus Fm | 8982 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 9072 | Marcellus Fm | 9282 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 9372 | Marcellus Fm | 9582 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 9672 | Marcellus Fm | 9882 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 9972 | Marcellus Fm | 10182 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 10272 | Marcellus Fm | 10482 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 10572 | Marcellus Fm | 10782 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 10872 | Marcellus Fm | 11082 | Marcellus Fm | | | | | |
| 4705101467 | 3/31/2012 | Pay | Oil & Gas | Deviated | 11172 | Marcellus Fm | 11382 | Marcellus Fm | | | | | |

4705102403

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Well: County = 51 Permit = 01492 [Link to all digital records for well](#)

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|-----------|------------|----------|-----------|
| 4705101492 | Marshall | 1492 | Franklin | Wileyville | Littleton | 39.745096 | -80.748004 | 521590.1 | 4399496.3 |

Bottom Hole Location Information:

| API | EP_FLAG | UTME | UTMN | LON_DD | LAT_DD |
|------------|---------------|----------|-----------|------------|-----------|
| 4705101492 | 1 As Proposed | 521670.8 | 4399094.2 | -80.747075 | 39.741471 |

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN |
|------------|-----------|----------------|-----------|---------------------|----------|--------|-------------------|--|---|
| 4705101492 | 3/31/2012 | Dvtd Orgnl Loc | Completed | Hendrickson South | 5H | | Hendrickson South | WV16-0065-000/1-306235-001/WV16-0007-001 | Linda Louise & Donald Ray Hendrickson et al |
| 4705101492 | -/- | Dvtd Wrkd Ovr | Permitted | Linda L Hendrickson | 5H | | Hendrickson | | LL Hendrickson |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOC |
|------------|-----------|-----------|------|--------------|----------------|--------------|--------------|------------------|------------------|-------------|--------|-----------|------|-------|---------|-----|
| 4705101492 | 3/31/2012 | 10/5/2011 | 1228 | Ground Level | Cameron-Garner | Marcellus Fm | Marcellus Fm | Development Well | Development Well | Oil and Gas | Rotary | Fractured | 6672 | 12410 | 12410 | |
| 4705101492 | -/- | -/- | 1220 | Ground Level | | | | | | | | | | | | |

Comment: 3/31/2012 Additional Lease Numbers: WV16-0007-004/WV16-0017-001/WV16-0007-002/WV16-0007-005/WV16-0007-003/WV16-0007-006/1288528

Production Gas Information: (Volumes in Mcf)

| API | PRODUCING_OPERATOR | PRD_YEAR | ANN_GAS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DCM |
|------------|------------------------------|----------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 4705101492 | Gastar Exploration USA, Inc. | 2012 | 465,670 | 0 | 0 | 0 | 55,296 | 61,762 | 70,460 | 53,242 | 55,546 | 35,019 | 55,543 | 47,263 | 31,539 |
| 4705101492 | Gastar Exploration USA, Inc. | 2013 | 417,529 | 9,870 | 12,514 | 39,126 | 45,647 | 50,959 | 41,781 | 44,464 | 36,129 | 32,128 | 29,451 | 38,001 | 37,459 |
| 4705101492 | Gastar Exploration USA, Inc. | 2014 | 387,127 | 37,280 | 32,163 | 37,206 | 30,299 | 38,580 | 34,841 | 34,633 | 30,421 | 29,151 | 24,325 | 28,396 | 30,032 |
| 4705101492 | Gastar Exploration Inc. | 2015 | 314,899 | 33,306 | 25,625 | 29,218 | 29,465 | 27,681 | 23,079 | 20,325 | 23,440 | 29,558 | 21,894 | 29,029 | 22,279 |
| 4705101492 | Tug Hill Operating, LLC | 2016 | 348,364 | 32,189 | 24,906 | 32,316 | 29,503 | 30,974 | 28,950 | 28,698 | 29,395 | 28,015 | 29,126 | 27,287 | 26,999 |
| 4705101492 | Tug Hill Operating, LLC | 2017 | 274,758 | 27,055 | 24,095 | 25,591 | 23,443 | 23,709 | 22,817 | 23,374 | 22,816 | 21,899 | 17,235 | 21,304 | 21,415 |
| 4705101492 | Tug Hill Operating, LLC | 2018 | 232,154 | 20,392 | 20,236 | 22,755 | 19,353 | 21,410 | 21,589 | 16,223 | 16,914 | 17,710 | 19,121 | 18,084 | 18,367 |
| 4705101492 | Tug Hill Operating, LLC | 2019 | 227,021 | 17,214 | 18,995 | 19,513 | 19,029 | 18,745 | 17,413 | 19,957 | 19,231 | 19,863 | 19,602 | 18,739 | 18,720 |
| 4705101492 | Tug Hill Operating, LLC | 2020 | 118,083 | 0 | 0 | 0 | 0 | 0 | 0 | 18,064 | 18,435 | 17,783 | 18,010 | 16,590 | 29,201 |
| 4705101492 | Tug Hill Operating, LLC | 2021 | 199,314 | 22,717 | 20,907 | 15,855 | 16,961 | 16,013 | 14,133 | 13,926 | 15,539 | 15,546 | 16,713 | 15,407 | 15,597 |

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4705102805

WV Geological & Economic Survey

Well: County = 51 Permit = 00522 [Link to all digital records for well](#)

Report Time: Wednesday, October 12, 2022 2:37:05 PM

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|-----------|------------|----------|---------|
| 4705100522 | Marshall | 522 | Franklin | Wileyville | Littleton | 39.749208 | -80.742896 | 522026.4 | 4399954 |

There is no Bottom Hole Location data for this well

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_AT_COMPLETION | PROP_VD | PROP_TRGT_FM | TFM_EST_PR |
|------------|----------|--------------|-----------|---------------|----------|--------|-------|-----------|---------------|------------------------|---------|--------------|------------|
| 4705100522 | 5/2/1964 | Original Loc | Completed | Louis Goddard | 1 | | | | Louis Goddard | Fruchtman, M. | | | |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOD | G_BEF | G_AFT |
|------------|----------|-----------|------|--------------|----------------|------------|-------------|------------------|------------------|-----------------|---------|------------|------|-----|---------|-----|-------|-------|
| 4705100522 | 5/2/1964 | 3/25/1964 | 1248 | Ground Level | Cameron-Garner | Gordon | Gordon | Development Well | Development Well | Gas w/ Oil Show | Spudder | Nat/Open H | 2895 | | 2895 | | | 55 |

Pay/Show/Water Information:

| API | CMP_DT | ACTIVITY | PRODUCT | SECTION | DEPTH_TOP | FM_TOP | DEPTH_BOT | FM_BOT | G_BEF | G_AFT | O_BEF | O_AFT | WATER_QNTY |
|------------|----------|----------|---------|----------|-----------|--------|-----------|----------------------|-------|-------|-------|-------|------------|
| 4705100522 | 5/2/1964 | Show | Oil | Vertical | | | 1109 | Pennsylvanian System | 0 | 0 | | | |
| 4705100522 | 5/2/1964 | Show | Oil | Vertical | 1412 | | 1422 | Mahonig Ss/Big Dunk | 0 | 0 | | | |
| 4705100522 | 5/2/1964 | Pay | Gas | Vertical | 2848 | | 2851 | Gordon | 0 | 0 | | | |

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

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

Plugging Information:

| API | PLG_DT | DEPTH_PBT |
|------------|-----------|-----------|
| 4705100522 | 8/26/1966 | 0 |

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4705102405

WV Geological & Economic Survey

Well: County = 51 Permit = 70343 [Link to all digital records for well](#)

Report Time Wednesday, October 12, 2022 2:37:20 PM

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|-----------|------------|--------|-----------|
| 4705170343 | Marshall | 70343 | Franklin | Wileyville | Littleton | 39.745869 | -80.740988 | 522191 | 4399583.8 |

There is no Bottom Hole Location data for this well

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_AT_COMPLETION | PROP_VD | PROP_TRGT_FM | TFM_EST_PR |
|------------|--------|--------|---------|------------------------|----------|--------|-------|-----------|-------------|------------------------|---------|--------------|------------|
| 4705170343 | -/- | | unknown | Prpty Map William Yoho | | | | | | unknown | | | |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOD | G_BEF | G_AFT | O_BEF | O_AFT | I |
|------------|--------|---------|------|-------|-------|------------|-------------|---------------|--------------|---------------|---------|----------|-----|-----|---------|-----|-------|-------|-------|-------|---|
| 4705170343 | -/- | -/- | | | | | | unclassified | unclassified | not available | unknown | unknown | | | | | | | | | |

WV Geological & Economic Survey

Well: County = 51 Permit = 01232 [Link to all digital records for well](#)

Report Time Wednesday, October 12, 2022 2:37:31 PM

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|-----------|------------|----------|-----------|
| 4705101232 | Marshall | 1232 | Franklin | Wileyville | Littleton | 39.741117 | -80.735275 | 522681.9 | 4399057.9 |

There is no Bottom Hole Location data for this well

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_AT_COMPLETION | PROP_VD | PROP_TRGT_FM | TFM_EST_PR |
|------------|--------|--------|------------------------|-----------------|----------|--------|-------|-----------|-------------|-------------------------|---------|--------------|-----------------|
| 4705101232 | -/- | | Original Loc Cancelled | Roy Friend Yoho | | | MC73 | | | CNX Gas Co. LLC (North) | | 1080 | Pittsburgh coal |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOD | G_BEF | G_AFT | O_BEF | O_AFT | NGL_E |
|------------|--------|---------|------|-------|--------------|------------|-------------|---------------|-------------|------|-----|----------|-----|-----|---------|-----|-------|-------|-------|-------|-------|
| 4705101232 | -/- | -/- | | 1212 | Ground Level | | | | | | | | | | | | | | | | |

WV Geological & Economic Survey

Well: County = 51 Permit = 01233 [Link to all digital records for well](#)

Report Time Wednesday, October 12, 2022 2:37:43 PM

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|---------|------------|----------|-----------|
| 4705101233 | Marshall | 1233 | Franklin | Wileyville | Littleton | 39.7403 | -80.734375 | 522759.3 | 4398967.5 |

There is no Bottom Hole Location data for this well

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_AT_COMPLETION | PROP_VD | PROP_TRGT_FM | TFM_EST_PR |
|------------|--------|--------|------------------------|-----------------|----------|--------|-------|-----------|-------------|-------------------------|---------|--------------|-----------------|
| 4705101233 | -/- | | Original Loc Cancelled | Roy Friend Yoho | | | MC73A | | | CNX Gas Co. LLC (North) | | 842 | Pittsburgh coal |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOD | G_BEF | G_AFT | O_BEF | O_AFT | NGL_E |
|------------|--------|---------|------|-------|--------------|------------|-------------|---------------|-------------|------|-----|----------|-----|-----|---------|-----|-------|-------|-------|-------|-------|
| 4705101233 | -/- | -/- | | 1222 | Ground Level | | | | | | | | | | | | | | | | |

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4705102405

WV Geological & Economic Survey:

Well: County = 51 Permit = 00729 [Link to all digital records for well](#)

Report Time: Wednesday, October 12, 2022 2:37:54 PM

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|-----------|------------|----------|---------|
| 4705100729 | Marshall | 729 | Meade | Wileyville | Littleton | 39 734998 | -80 730306 | 523109 8 | 4398380 |

There is no Bottom Hole Location data for this well

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_AT_COMPLETION | PROP_VD | PROP_TRGT_FM | TFM_EST_PR |
|------------|--------|--------|--------------|---------------|----------------------|--------|-------|-----------|-------------|--------------------------|---------|--------------|------------|
| 4705100729 | -/- | | Original Loc | Completed | Elizabeth Brinkmeier | | 468 | | | Hope Natural Gas Company | | | |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FTM | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOD | G_BEFO | G_AFT | O_BEFO | O_AFT |
|------------|--------|---------|------|--------------|-------|------------|-------------|---------------|--------------|---------------|---------|----------|-----|-----|---------|-----|--------|-------|--------|-------|
| 4705100729 | -/- | -/- | 895 | Sprint Level | | | | unclassified | unclassified | not available | unknown | unknown | | | | | | | | |

There is no Pay data for this well

Production Gas Information (Volumes in Mcf)

| API | PRODUCING_OPERATOR | PRD_YEAR | ANN_GAS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DCM |
|------------|---------------------------|----------|---------|-------|-------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|
| 4705100729 | Perkins Oil and Gas, Inc. | 1990 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4705100729 | Perkins Oil and Gas, Inc. | 1991 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4705100729 | Perkins Oil and Gas, Inc. | 1997 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4705100729 | Perkins Oil and Gas, Inc. | 1998 | 2,378 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 344 | 2,034 |
| 4705100729 | Perkins Oil and Gas, Inc. | 1999 | 23,135 | 2,021 | 2,089 | 2,002 | 1,829 | 1,576 | 248 | 1,327 | 3,875 | 2,668 | 2,017 | 1,833 | 1,650 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2001 | 8,249 | 636 | 625 | 518 | 565 | 648 | 650 | 634 | 651 | 588 | 936 | 1,182 | 616 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2002 | 6,589 | 507 | 707 | 717 | 700 | 632 | 283 | 574 | 329 | 466 | 731 | 352 | 591 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2003 | 6,296 | 470 | 384 | 462 | 545 | 673 | 614 | 377 | 736 | 794 | 760 | 0 | 481 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2004 | 8,137 | 806 | 499 | 639 | 686 | 708 | 662 | 781 | 668 | 751 | 775 | 706 | 436 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2005 | 1,633 | 66 | 130 | 251 | 120 | 111 | 0 | 161 | 137 | 113 | 101 | 199 | 244 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2006 | 1,292 | 41 | 25 | 74 | 6 | 170 | 175 | 165 | 180 | 149 | 148 | 48 | 111 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2007 | 1,950 | 85 | 79 | 195 | 177 | 204 | 226 | 171 | 218 | 204 | 193 | 193 | 3 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2008 | 5,836 | 367 | 292 | 438 | 564 | 605 | 634 | 643 | 597 | 514 | 635 | 330 | 217 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2009 | 4,225 | 223 | 238 | 307 | 402 | 420 | 447 | 472 | 479 | 320 | 322 | 363 | 232 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2010 | 1,757 | 134 | 161 | 146 | 233 | 217 | 178 | 160 | 117 | 76 | 159 | 118 | 58 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2011 | 854 | 20 | 0 | 0 | 137 | 35 | 65 | 27 | 149 | 73 | 114 | 102 | 132 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2012 | 1,450 | 268 | 56 | 51 | 19 | 112 | 39 | 297 | 227 | 60 | 188 | 64 | 69 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2013 | 1,544 | 193 | 0 | 54 | 135 | 257 | 0 | 122 | 248 | 240 | 96 | 64 | 135 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2014 | 1,111 | 0 | 84 | 132 | 0 | 160 | 143 | 128 | 49 | 75 | 119 | 65 | 136 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2015 | 1,182 | 373 | 397 | 0 | 0 | 0 | 165 | 146 | 0 | 9 | 29 | 63 | |
| 4705100729 | Perkins Oil and Gas, Inc. | 2016 | 1,605 | 265 | 79 | 244 | 298 | 188 | 141 | 231 | 129 | 0 | 9 | 12 | 9 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2017 | 1,516 | 96 | 230 | 226 | 156 | 138 | 68 | 118 | 16 | 50 | 42 | 58 | 318 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2018 | 3,990 | 197 | 2 | 165 | 0 | 258 | 449 | 667 | 793 | 325 | 303 | 479 | 352 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2019 | 3,896 | 40 | 374 | 161 | 769 | 591 | 0 | 178 | 422 | 224 | 554 | 270 | 313 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2020 | 5,756 | 377 | 348 | 406 | 485 | 565 | 589 | 634 | 511 | 500 | 622 | 403 | 316 |
| 4705100729 | Perkins Oil and Gas, Inc. | 2021 | 4,253 | 414 | 108 | 478 | 703 | 823 | 714 | 616 | 272 | 28 | 3 | 6 | 88 |

4705100729

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WV Geological & Economic Survey

Well: County = 51 Permit = 30394 [Link to all digital records for well](#)

Report Time: Wednesday, October 12, 2022 2:38:30

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|-----------|------------|----------|-----------|
| 4705130394 | Marshall | 30394 | Franklin | Wileyville | Littleton | 39.735867 | -80.733714 | 522817.4 | 4398475.7 |

There is no Bottom Hole Location data for this well

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_AT_COMPLETION | PROP_VD | PROP_TRGT_FM | TFM_EST_PR |
|------------|----------|--------|-------------------------|-----------------|----------|--------|-------|-----------|-------------|--------------------------------|---------|--------------|------------|
| 4705130394 | -/-/1930 | | Original Loc. Completed | Nicholas Cooper | 1 | 1257 | | 2851 | | Manufacturers Light & Heat Co. | | | |

Completion Information:

| API | CMP_DT | SPUD_DT | ELEV | DATUM | FIELD | DEEPEST_FM | DEEPEST_FMT | INITIAL_CLASS | FINAL_CLASS | TYPE | RIG | CMP_MTHD | TVD | TMD | NEW_FTG | KOD | G_BEF | G_AFT | O_BEF | O_ |
|------------|----------|---------|------|--------------|-------|------------|-------------|---------------|--------------|---------------|---------|----------|-----|-----|---------|-----|-------|-------|-------|----|
| 4705130394 | -/-/1930 | -/- | 1217 | Spirit Level | | | | unclassified | unclassified | not available | unknown | unknown | | | | | | | | |

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

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

Plugging Information

| API | PLG_DT | DEPTH_PBT |
|------------|-----------|-----------|
| 4705130394 | 7/14/1959 | 0 |

There is no Sample data for this well

4705102405

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Well: Hendrickson S-13 HU (slot G)
 Site: Hendrickson
 Project: Marshall County, West Virginia NAD83 UTM 17N
 Design: rev1
 Rig:



Azimuths to Grid North
 True North -0.16°
 Magnetic North -8.79°

Magnetic Field:
 Strength: 51591.3nT
 Dip Angle: 66.38°
 Date: 10/17/2022
 Model: IGRF2020



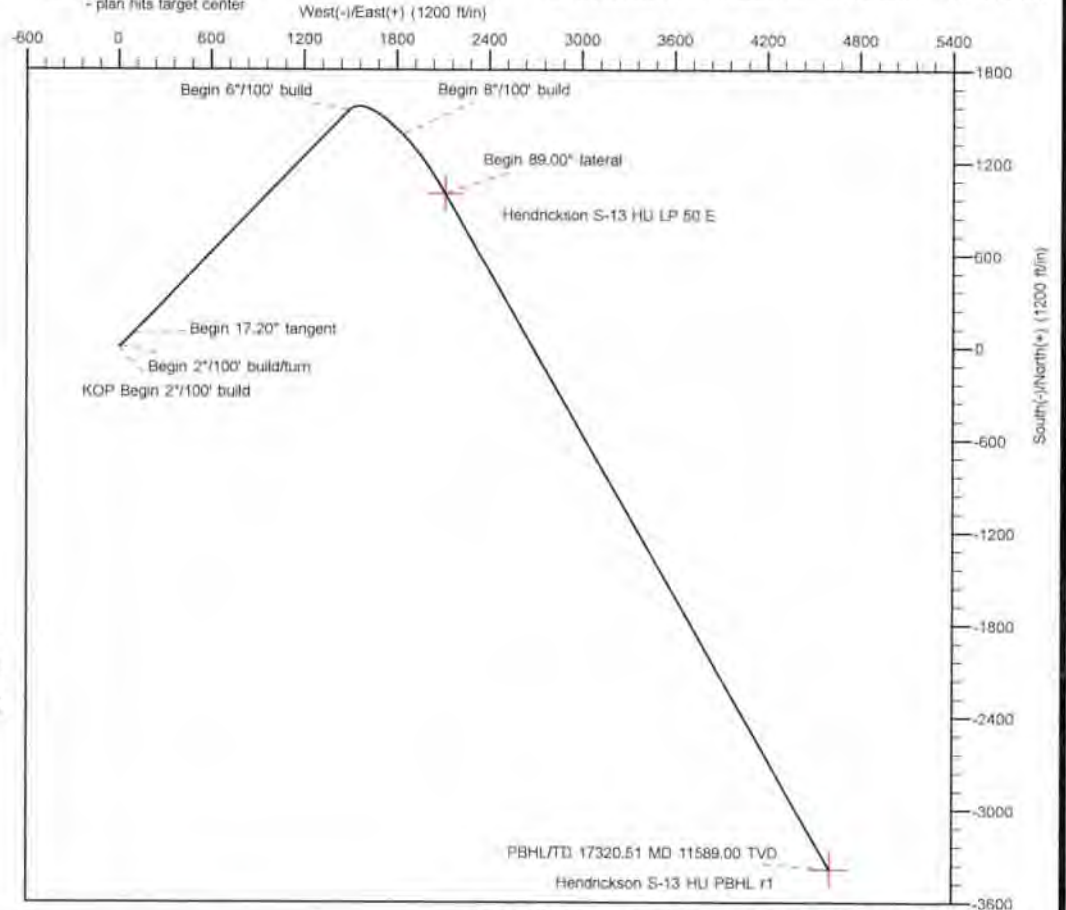
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 DEC 12 2022
 WV Department of
 Environmental Protection

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | Vsect | Annotation |
|-----|----------|-------|---------|----------|----------|---------|------|--------|---------|--------------------------|
| 1 | 0.00 | 0.00 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 3200.00 | 0.00 | 0.000 | 3200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | KOP Begin 2°/100' build |
| 3 | 3450.00 | 5.00 | 60.000 | 3449.68 | 5.45 | 9.44 | 2.00 | 60.00 | 4.39 | Begin 2°/100' build/turn |
| 4 | 4073.51 | 17.20 | 43.867 | 4060.48 | 85.81 | 97.20 | 2.00 | -22.36 | 27.59 | Begin 17.20° tangent |
| 5 | 10884.20 | 17.20 | 43.867 | 10566.65 | 1537.62 | 1492.71 | 0.00 | 0.00 | 293.59 | Begin 6°/100' build |
| 6 | 11763.92 | 50.00 | 136.199 | 11323.91 | 1376.64 | 1841.05 | 6.00 | 108.02 | 669.66 | Begin 8°/100' build |
| 7 | 12277.19 | 89.00 | 150.320 | 11501.00 | 995.35 | 2116.06 | 8.00 | 21.80 | 1116.96 | Begin 89.00° lateral |
| 8 | 17320.51 | 89.00 | 150.320 | 11589.00 | -3385.63 | 4612.91 | 0.00 | 0.00 | 5722.02 | PBHL/TD |

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|--|----------|----------|---------|-------------|-------------|--------------|---------------|
| Hendrickson S-13 HU LP 50 E | 11501.00 | 995.35 | 2116.06 | 4434951.670 | 1713389.252 | 39.747653602 | -80.740384330 |
| - plan misses target center by 0.01ft at 12277.19ft MD (11501.00 TVD, 995.35 N, 2116.06 E) | | | | | | | |
| Hendrickson S-13 HU PBHL r1 | 11589.00 | -3385.63 | 4612.91 | 4430570.700 | 1715886.110 | 39.735602000 | -80.731548000 |
| - plan hits target center | | | | | | | |

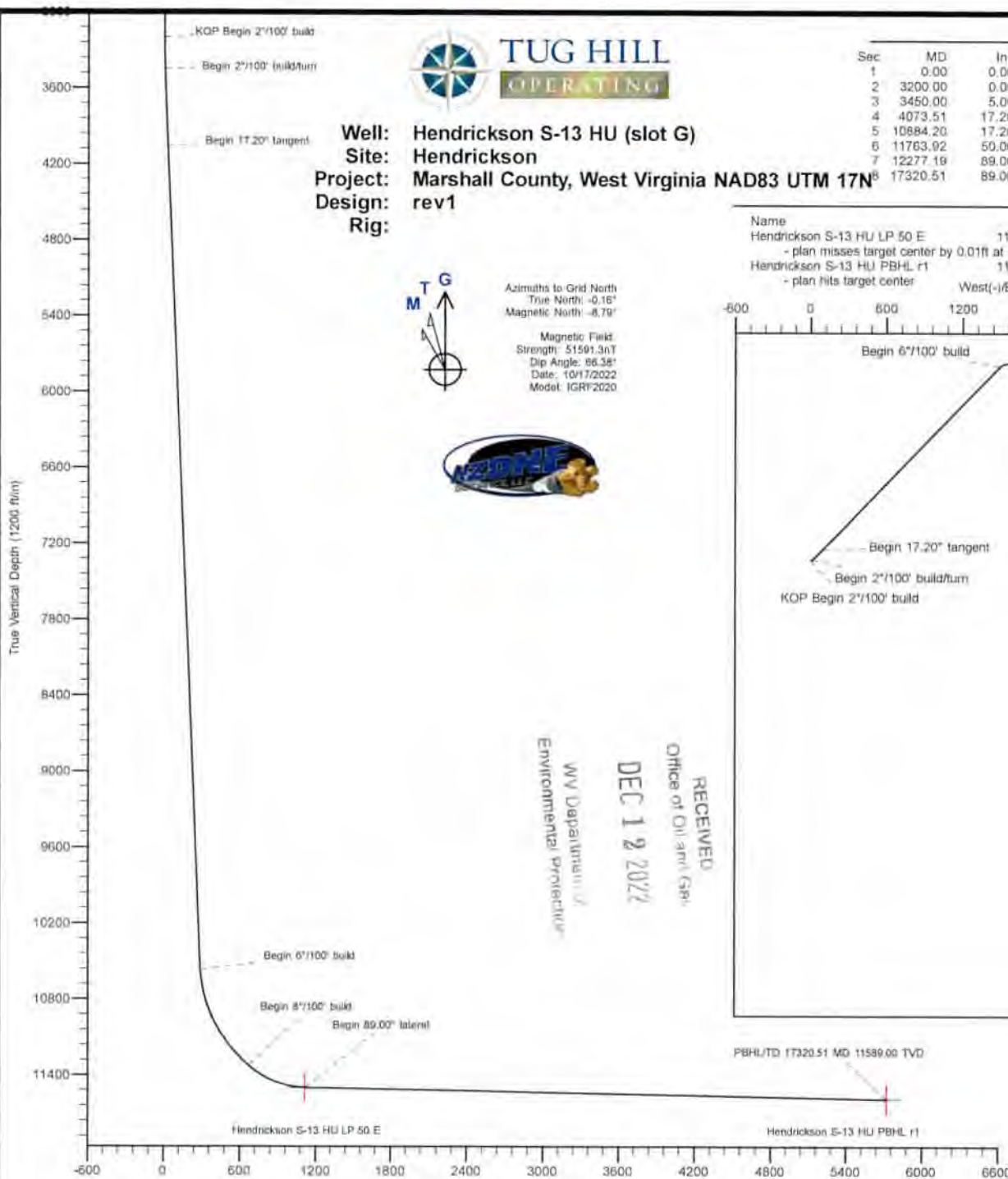


Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)

System Datum: Mean Sea Level
 Depth Reference: GL @ 1220.00ft

Northing: 14433956.324
 Easting: 1711273.206
 Latitude: 39.744936690
 Longitude: -80.747922510

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.79°



Vertical Section at 126.277° (1200 ft/in)

4705102459

4705102405

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Planning Report - Geographic

DEC 12 2022

| | | | |
|------------------|--|-------------------------------------|-----------------------------------|
| Database: | DB_Feb2822 | Local Co-ordinate Reference: | Well Hendrickson S-13 HU (slot G) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1220.00ft |
| Project: | Marshall County, West Virginia NAD83 UTM 17N | MD Reference: | GL @ 1220.00ft |
| Site: | Hendrickson | North Reference: | Grid |
| Well: | Hendrickson S-13 HU (slot G) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev1 | | |

| | | | |
|--------------------|--|----------------------|----------------|
| Project | Marshall County, West Virginia NAD83 UTM 17N | | |
| 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 | Hendrickson | | | | |
| Site Position: | | Northing: | 14,433,967.927 usft | Latitude: | 39.744968530 |
| From: | Lat/Long | Easting: | 1,711,276.257 usft | Longitude: | -80.747911540 |
| Position Uncertainty: | 0.00 ft | Slot Radius: | 13-3/16 " | | |

| | | | | | | |
|-----------------------------|------------------------------|---------|----------------------------|---------------------|----------------------|---------------|
| Well | Hendrickson S-13 HU (slot G) | | | | | |
| Well Position | +N/-S | 0.00 ft | Northing: | 14,433,956.325 usft | Latitude: | 39.744936690 |
| | +E/-W | 0.00 ft | Easting: | 1,711,273.206 usft | Longitude: | -80.747922510 |
| Position Uncertainty | 0.00 ft | | Wellhead Elevation: | ft | Ground Level: | 1,220.00 ft |
| Grid Convergence: | | | | | | |

| | | | | | |
|------------------|-------------------|--------------------|--------------------|------------------|-----------------------|
| Wellbore | Original Hole | | | | |
| Magnetics | Model Name | Sample Date | Declination | Dip Angle | Field Strength |
| | IGRF2020 | 10/17/2022 | (°) | (°) | (nT) |
| | | | -8.63 | 66.38 | 51,591.31316869 |

| | | | | | |
|--------------------------|-------------------------|--------------|--------------|----------------------|------|
| Design | rev1 | | | | |
| Audit Notes: | | | | | |
| Version: | Phase: | PLAN | | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) | +N/-S | +E/-W | Direction | |
| | (ft) | (ft) | (ft) | (°) | |
| | 0.00 | 0.00 | 0.00 | 126.277 | |

| | | | | | |
|---------------------------------|-----------------|--------------------------------|------------------|----------------|--|
| Plan Survey Tool Program | Date | | | | |
| Depth From | Depth To | Survey (Wellbore) | Tool Name | Remarks | |
| (ft) | (ft) | | | | |
| 1 | 0.00 | 17,320.49 rev1 (Original Hole) | | | |

| 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 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3,200.00 | 0.00 | 0.000 | 3,200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3,450.00 | 5.00 | 80.000 | 3,449.68 | 5.45 | 9.44 | 2.00 | 2.00 | 0.00 | 60.00 | |
| 4,073.51 | 17.20 | 43.867 | 4,060.48 | 85.81 | 97.20 | 2.00 | 1.96 | -2.59 | -22.36 | |
| 10,884.20 | 17.20 | 43.867 | 10,566.65 | 1,537.62 | 1,492.71 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 11,763.92 | 50.00 | 136.199 | 11,323.91 | 1,376.64 | 1,841.05 | 6.00 | 3.73 | 10.50 | 106.02 | |
| 12,277.19 | 89.00 | 150.320 | 11,501.00 | 995.35 | 2,116.05 | 8.00 | 7.60 | 2.75 | 21.80 | |
| 17,320.51 | 89.00 | 150.320 | 11,589.00 | -3,385.63 | 4,612.91 | 0.00 | 0.00 | 0.00 | 0.00 | Hendrickson S-13 HU |

02/03/2023



Planning Report - Geographic

4705102423 02/23/2023

DEC 12 2022

Database: DB_Feb2822
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia NAD83 UTM
 17N
 Site: Hendrickson
 Well: Hendrickson S-13 HU (slot G)
 Wellbore: Original Hole
 Design: rev1

Local Co-ordinate Reference: Well Hendrickson S-13 HU (slot G)
 TVD Reference: GL @ 1220.00ft
 MD Reference: GL @ 1220.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

West Virginia Department of Environmental Protection

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 | 0.000 | 0.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 100.00 | 0.00 | 0.000 | 100.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 200.00 | 0.00 | 0.000 | 200.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 300.00 | 0.00 | 0.000 | 300.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 400.00 | 0.00 | 0.000 | 400.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 500.00 | 0.00 | 0.000 | 500.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 600.00 | 0.00 | 0.000 | 600.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 700.00 | 0.00 | 0.000 | 700.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 800.00 | 0.00 | 0.000 | 800.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 900.00 | 0.00 | 0.000 | 900.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,100.00 | 0.00 | 0.000 | 1,100.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,200.00 | 0.00 | 0.000 | 1,200.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,300.00 | 0.00 | 0.000 | 1,300.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,400.00 | 0.00 | 0.000 | 1,400.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,500.00 | 0.00 | 0.000 | 1,500.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,600.00 | 0.00 | 0.000 | 1,600.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,700.00 | 0.00 | 0.000 | 1,700.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,800.00 | 0.00 | 0.000 | 1,800.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 1,900.00 | 0.00 | 0.000 | 1,900.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,000.00 | 0.00 | 0.000 | 2,000.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,100.00 | 0.00 | 0.000 | 2,100.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,200.00 | 0.00 | 0.000 | 2,200.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,300.00 | 0.00 | 0.000 | 2,300.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,400.00 | 0.00 | 0.000 | 2,400.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,500.00 | 0.00 | 0.000 | 2,500.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,600.00 | 0.00 | 0.000 | 2,600.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,700.00 | 0.00 | 0.000 | 2,700.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,800.00 | 0.00 | 0.000 | 2,800.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 2,900.00 | 0.00 | 0.000 | 2,900.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 3,000.00 | 0.00 | 0.000 | 3,000.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 3,100.00 | 0.00 | 0.000 | 3,100.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| 3,200.00 | 0.00 | 0.000 | 3,200.00 | 0.00 | 0.00 | 14,433,956.325 | 1,711,273.206 | 39.744936690 | -80.747922510 |
| KOP Begin 2°/100' build | | | | | | | | | |
| 3,300.00 | 2.00 | 60.000 | 3,299.98 | 0.87 | 1.51 | 14,433,957.197 | 1,711,274.717 | 39.744939075 | -80.747917124 |
| 3,400.00 | 4.00 | 60.000 | 3,399.84 | 3.49 | 6.04 | 14,433,959.814 | 1,711,279.250 | 39.744946226 | -80.747900975 |
| 3,450.00 | 5.00 | 60.000 | 3,449.68 | 5.45 | 9.44 | 14,433,961.776 | 1,711,282.647 | 39.744951586 | -80.747888869 |
| Begin 2°/100' build/turn | | | | | | | | | |
| 3,500.00 | 5.94 | 58.319 | 3,499.45 | 7.97 | 13.48 | 14,433,964.299 | 1,711,286.686 | 39.744958485 | -80.747874475 |
| 3,600.00 | 7.86 | 51.625 | 3,598.73 | 15.08 | 23.14 | 14,433,971.411 | 1,711,296.349 | 39.744977943 | -80.747840026 |
| 3,700.00 | 9.81 | 48.777 | 3,697.54 | 24.94 | 34.91 | 14,433,981.270 | 1,711,308.118 | 39.745004926 | -80.747798065 |
| 3,800.00 | 11.78 | 46.870 | 3,795.76 | 37.54 | 48.77 | 14,433,993.862 | 1,711,321.974 | 39.745039402 | -80.747748642 |
| 3,900.00 | 13.76 | 45.503 | 3,893.29 | 52.85 | 64.70 | 14,434,009.173 | 1,711,337.903 | 39.745081327 | -80.747691817 |
| 4,000.00 | 15.74 | 44.475 | 3,989.99 | 70.86 | 82.68 | 14,434,027.185 | 1,711,355.887 | 39.745135052 | -80.747627860 |
| 4,073.51 | 17.20 | 43.867 | 4,060.48 | 85.81 | 97.20 | 14,434,042.135 | 1,711,370.403 | 39.745171597 | -80.747575866 |
| Begin 17.20° tangent | | | | | | | | | |
| 4,100.00 | 17.20 | 43.867 | 4,085.79 | 91.46 | 102.62 | 14,434,047.781 | 1,711,375.831 | 39.745187061 | -80.747556502 |
| 4,200.00 | 17.20 | 43.867 | 4,181.32 | 112.77 | 123.11 | 14,434,069.097 | 1,711,396.321 | 39.745245444 | -80.747483394 |
| 4,300.00 | 17.20 | 43.867 | 4,276.84 | 134.09 | 143.60 | 14,434,090.414 | 1,711,416.811 | 39.745303827 | -80.747410286 |
| 4,400.00 | 17.20 | 43.867 | 4,372.37 | 155.41 | 164.09 | 14,434,111.731 | 1,711,437.301 | 39.745362210 | -80.747337178 |
| 4,500.00 | 17.20 | 43.867 | 4,467.90 | 176.72 | 184.58 | 14,434,133.047 | 1,711,457.791 | 39.745420593 | -80.747264069 |
| 4,600.00 | 17.20 | 43.867 | 4,563.43 | 198.04 | 205.07 | 14,434,154.364 | 1,711,478.281 | 39.745478976 | -80.747190961 |
| 4,700.00 | 17.20 | 43.867 | 4,658.96 | 219.36 | 225.56 | 14,434,175.681 | 1,711,498.771 | 39.745537359 | -80.747117852 |

02/03/2023

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02/23/2023
DEC 12 2022



Planning Report - Geographic

WV Department of Environmental Protection

Database: DB_Feb2822
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia NAD83 UTM 17N
Site: Hendrickson
Well: Hendrickson S-13 HU (slot G)
Wellbore: Original Hole
Design: rev1

Local Co-ordinate Reference: Wall Hendrickson S-13 HU (slot G)
TVD Reference: GL @ 1220.00ft
MD Reference: GL @ 1220.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|--------------|---------------|
| 4,800.00 | 17.20 | 43.867 | 4,754.49 | 240.67 | 246.05 | 14,434,196.997 | 1,711,519.260 | 39.745595741 | -80.747044744 |
| 4,900.00 | 17.20 | 43.867 | 4,850.02 | 261.99 | 266.54 | 14,434,218.314 | 1,711,539.750 | 39.745654124 | -80.746971635 |
| 5,000.00 | 17.20 | 43.867 | 4,945.55 | 283.31 | 287.03 | 14,434,239.630 | 1,711,560.240 | 39.745712507 | -80.746898526 |
| 5,100.00 | 17.20 | 43.867 | 5,041.07 | 304.62 | 307.52 | 14,434,260.947 | 1,711,580.730 | 39.745770889 | -80.746825417 |
| 5,200.00 | 17.20 | 43.867 | 5,136.60 | 325.94 | 328.01 | 14,434,282.264 | 1,711,601.220 | 39.745829272 | -80.746752308 |
| 5,300.00 | 17.20 | 43.867 | 5,232.13 | 347.26 | 348.50 | 14,434,303.580 | 1,711,621.710 | 39.745887655 | -80.746679189 |
| 5,400.00 | 17.20 | 43.867 | 5,327.66 | 368.57 | 368.99 | 14,434,324.897 | 1,711,642.200 | 39.745946037 | -80.746606089 |
| 5,500.00 | 17.20 | 43.867 | 5,423.19 | 389.89 | 389.48 | 14,434,346.214 | 1,711,662.690 | 39.746004419 | -80.746532980 |
| 5,600.00 | 17.20 | 43.867 | 5,518.72 | 411.21 | 409.97 | 14,434,367.530 | 1,711,683.180 | 39.746062802 | -80.746459870 |
| 5,700.00 | 17.20 | 43.867 | 5,614.25 | 432.52 | 430.46 | 14,434,388.847 | 1,711,703.670 | 39.746121184 | -80.746386761 |
| 5,800.00 | 17.20 | 43.867 | 5,709.78 | 453.84 | 450.95 | 14,434,410.163 | 1,711,724.160 | 39.746179566 | -80.746313651 |
| 5,900.00 | 17.20 | 43.867 | 5,805.31 | 475.16 | 471.44 | 14,434,431.480 | 1,711,744.650 | 39.746237949 | -80.746240541 |
| 6,000.00 | 17.20 | 43.867 | 5,900.83 | 496.47 | 491.93 | 14,434,452.797 | 1,711,765.140 | 39.746296331 | -80.746167431 |
| 6,100.00 | 17.20 | 43.867 | 5,996.36 | 517.79 | 512.42 | 14,434,474.113 | 1,711,785.630 | 39.746354713 | -80.746094320 |
| 6,200.00 | 17.20 | 43.867 | 6,091.89 | 539.11 | 532.91 | 14,434,495.430 | 1,711,806.120 | 39.746413095 | -80.746021210 |
| 6,300.00 | 17.20 | 43.867 | 6,187.42 | 560.42 | 553.40 | 14,434,516.747 | 1,711,826.610 | 39.746471477 | -80.745948099 |
| 6,400.00 | 17.20 | 43.867 | 6,282.95 | 581.74 | 573.89 | 14,434,538.063 | 1,711,847.100 | 39.746529869 | -80.745874989 |
| 6,500.00 | 17.20 | 43.867 | 6,378.48 | 603.08 | 584.36 | 14,434,559.380 | 1,711,867.590 | 39.746588241 | -80.745801878 |
| 6,600.00 | 17.20 | 43.867 | 6,474.01 | 624.37 | 614.88 | 14,434,580.696 | 1,711,888.080 | 39.746646623 | -80.745728767 |
| 6,700.00 | 17.20 | 43.867 | 6,569.54 | 645.69 | 635.37 | 14,434,602.013 | 1,711,908.570 | 39.746705005 | -80.745655656 |
| 6,800.00 | 17.20 | 43.867 | 6,665.06 | 667.01 | 655.86 | 14,434,623.330 | 1,711,929.060 | 39.746763387 | -80.745582545 |
| 6,900.00 | 17.20 | 43.867 | 6,760.59 | 688.32 | 676.35 | 14,434,644.646 | 1,711,949.550 | 39.746821769 | -80.745509434 |
| 7,000.00 | 17.20 | 43.867 | 6,856.12 | 709.64 | 696.84 | 14,434,665.963 | 1,711,970.040 | 39.746880150 | -80.745436323 |
| 7,100.00 | 17.20 | 43.867 | 6,951.65 | 730.96 | 717.33 | 14,434,687.280 | 1,711,990.530 | 39.746938532 | -80.745363211 |
| 7,200.00 | 17.20 | 43.867 | 7,047.18 | 752.27 | 737.82 | 14,434,708.596 | 1,712,011.020 | 39.746996914 | -80.745290099 |
| 7,300.00 | 17.20 | 43.867 | 7,142.71 | 773.59 | 758.31 | 14,434,729.913 | 1,712,031.510 | 39.747055295 | -80.745216988 |
| 7,400.00 | 17.20 | 43.867 | 7,238.24 | 794.91 | 778.80 | 14,434,751.229 | 1,712,052.000 | 39.747113677 | -80.745143876 |
| 7,500.00 | 17.20 | 43.867 | 7,333.77 | 816.22 | 799.29 | 14,434,772.546 | 1,712,072.490 | 39.747172058 | -80.745070764 |
| 7,600.00 | 17.20 | 43.867 | 7,429.30 | 837.54 | 819.78 | 14,434,793.863 | 1,712,092.979 | 39.747230440 | -80.744997652 |
| 7,700.00 | 17.20 | 43.867 | 7,524.82 | 858.85 | 840.27 | 14,434,815.179 | 1,712,113.469 | 39.747288821 | -80.744924540 |
| 7,800.00 | 17.20 | 43.867 | 7,620.35 | 880.17 | 860.76 | 14,434,836.496 | 1,712,133.959 | 39.747347202 | -80.744851427 |
| 7,900.00 | 17.20 | 43.867 | 7,715.88 | 901.49 | 881.25 | 14,434,857.813 | 1,712,154.449 | 39.747405584 | -80.744778315 |
| 8,000.00 | 17.20 | 43.867 | 7,811.41 | 922.81 | 901.74 | 14,434,879.129 | 1,712,174.939 | 39.747463965 | -80.744705202 |
| 8,100.00 | 17.20 | 43.867 | 7,906.94 | 944.12 | 922.23 | 14,434,900.446 | 1,712,195.429 | 39.747522346 | -80.744632090 |
| 8,200.00 | 17.20 | 43.867 | 8,002.47 | 965.44 | 942.72 | 14,434,921.762 | 1,712,215.919 | 39.747580727 | -80.744558977 |
| 8,300.00 | 17.20 | 43.867 | 8,098.00 | 986.76 | 963.21 | 14,434,943.079 | 1,712,236.409 | 39.747639109 | -80.744485864 |
| 8,400.00 | 17.20 | 43.867 | 8,193.53 | 1,008.07 | 983.70 | 14,434,964.396 | 1,712,256.899 | 39.747697490 | -80.744412751 |
| 8,500.00 | 17.20 | 43.867 | 8,289.06 | 1,029.39 | 1,004.19 | 14,434,985.712 | 1,712,277.389 | 39.747755871 | -80.744339637 |
| 8,600.00 | 17.20 | 43.867 | 8,384.58 | 1,050.71 | 1,024.68 | 14,435,007.029 | 1,712,297.879 | 39.747814252 | -80.744266524 |
| 8,700.00 | 17.20 | 43.867 | 8,480.11 | 1,072.02 | 1,045.17 | 14,435,028.346 | 1,712,318.369 | 39.747872633 | -80.744193411 |
| 8,800.00 | 17.20 | 43.867 | 8,575.64 | 1,093.34 | 1,065.66 | 14,435,049.662 | 1,712,338.859 | 39.747931013 | -80.744120297 |
| 8,900.00 | 17.20 | 43.867 | 8,671.17 | 1,114.66 | 1,086.15 | 14,435,070.979 | 1,712,359.349 | 39.747989394 | -80.744047183 |
| 9,000.00 | 17.20 | 43.867 | 8,766.70 | 1,135.97 | 1,106.64 | 14,435,092.295 | 1,712,379.839 | 39.748047775 | -80.743974070 |
| 9,100.00 | 17.20 | 43.867 | 8,862.23 | 1,157.29 | 1,127.13 | 14,435,113.612 | 1,712,400.329 | 39.748106156 | -80.743900958 |
| 9,200.00 | 17.20 | 43.867 | 8,957.76 | 1,178.61 | 1,147.62 | 14,435,134.929 | 1,712,420.819 | 39.748164536 | -80.743827844 |
| 9,300.00 | 17.20 | 43.867 | 9,053.29 | 1,199.92 | 1,168.11 | 14,435,156.245 | 1,712,441.309 | 39.748222917 | -80.743754727 |
| 9,400.00 | 17.20 | 43.867 | 9,148.81 | 1,221.24 | 1,188.60 | 14,435,177.562 | 1,712,461.799 | 39.748281298 | -80.743681613 |
| 9,500.00 | 17.20 | 43.867 | 9,244.34 | 1,242.56 | 1,209.09 | 14,435,198.879 | 1,712,482.289 | 39.748339678 | -80.743608499 |
| 9,600.00 | 17.20 | 43.867 | 9,339.87 | 1,263.87 | 1,229.58 | 14,435,220.195 | 1,712,502.779 | 39.748398059 | -80.743535384 |
| 9,700.00 | 17.20 | 43.867 | 9,435.40 | 1,285.19 | 1,250.07 | 14,435,241.512 | 1,712,523.269 | 39.748456439 | -80.743462269 |
| 9,800.00 | 17.20 | 43.867 | 9,530.93 | 1,306.51 | 1,270.56 | 14,435,262.828 | 1,712,543.759 | 39.748514820 | -80.743389155 |
| 9,900.00 | 17.20 | 43.867 | 9,626.46 | 1,327.82 | 1,291.05 | 14,435,284.145 | 1,712,564.249 | 39.748573200 | -80.743316040 |
| 10,000.00 | 17.20 | 43.867 | 9,721.99 | 1,349.14 | 1,311.54 | 14,435,305.462 | 1,712,584.739 | 39.748631580 | -80.743242925 |
| 10,100.00 | 17.20 | 43.867 | 9,817.52 | 1,370.46 | 1,332.03 | 14,435,326.778 | 1,712,605.229 | 39.748689961 | -80.743169809 |

02/03/2023



Planning Report - Geographic

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WV Department of
Environmental Protection

Database: DB_Feb2822
Company: Tug Hill Operating LLC
Project: Marshall County, West Virginia NAD83 UTM
17N
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Wellbore: Original Hole
Design: rev1

Local Co-ordinate Reference: Well Hendrickson S-13 HU (slot G)
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MD Reference: GL @ 1220.00ft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|-----------------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|--------------|---------------|
| 10,200.00 | 17.20 | 43.867 | 9,913.05 | 1,391.77 | 1,352.52 | 14,435,348.095 | 1,712,625.719 | 39.748748341 | -80.743096694 |
| 10,300.00 | 17.20 | 43.867 | 10,008.57 | 1,413.09 | 1,373.01 | 14,435,369.412 | 1,712,646.209 | 39.748806721 | -80.743023579 |
| 10,400.00 | 17.20 | 43.867 | 10,104.10 | 1,434.41 | 1,393.50 | 14,435,390.728 | 1,712,666.699 | 39.748865101 | -80.742950463 |
| 10,500.00 | 17.20 | 43.867 | 10,199.63 | 1,455.72 | 1,413.99 | 14,435,412.045 | 1,712,687.186 | 39.748923481 | -80.742877347 |
| 10,600.00 | 17.20 | 43.867 | 10,295.16 | 1,477.04 | 1,434.48 | 14,435,433.361 | 1,712,707.678 | 39.748981861 | -80.742804232 |
| 10,700.00 | 17.20 | 43.867 | 10,390.69 | 1,498.36 | 1,454.97 | 14,435,454.678 | 1,712,728.168 | 39.749040241 | -80.742731116 |
| 10,800.00 | 17.20 | 43.867 | 10,486.22 | 1,519.67 | 1,475.46 | 14,435,475.995 | 1,712,748.658 | 39.749098621 | -80.742658000 |
| 10,884.20 | 17.20 | 43.867 | 10,566.65 | 1,537.62 | 1,492.71 | 14,435,493.943 | 1,712,765.910 | 39.749147775 | -80.742596438 |
| Begin 6°/100' build | | | | | | | | | |
| 10,900.00 | 16.96 | 46.993 | 10,581.76 | 1,540.88 | 1,498.01 | 14,435,497.199 | 1,712,769.215 | 39.749156693 | -80.742584648 |
| 10,950.00 | 16.54 | 57.313 | 10,629.65 | 1,548.70 | 1,507.34 | 14,435,506.018 | 1,712,780.539 | 39.749180823 | -80.742544270 |
| 11,000.00 | 16.64 | 67.830 | 10,677.58 | 1,556.24 | 1,519.96 | 14,435,512.563 | 1,712,793.158 | 39.749198697 | -80.742499306 |
| 11,050.00 | 17.25 | 77.921 | 10,725.42 | 1,560.49 | 1,533.84 | 14,435,516.816 | 1,712,807.038 | 39.749210267 | -80.742449891 |
| 11,100.00 | 18.33 | 87.101 | 10,773.04 | 1,562.44 | 1,548.94 | 14,435,518.765 | 1,712,822.141 | 39.749215501 | -80.742396130 |
| 11,150.00 | 19.79 | 95.133 | 10,820.30 | 1,562.08 | 1,565.22 | 14,435,518.405 | 1,712,838.425 | 39.749214385 | -80.742338199 |
| 11,200.00 | 21.56 | 101.999 | 10,867.08 | 1,559.42 | 1,582.64 | 14,435,515.738 | 1,712,855.845 | 39.749206921 | -80.742276249 |
| 11,250.00 | 23.57 | 107.807 | 10,913.26 | 1,554.45 | 1,601.15 | 14,435,510.769 | 1,712,874.354 | 39.749193130 | -80.742210448 |
| 11,300.00 | 25.77 | 112.715 | 10,958.70 | 1,547.19 | 1,620.70 | 14,435,503.514 | 1,712,893.902 | 39.749173049 | -80.742140977 |
| 11,350.00 | 28.10 | 116.881 | 11,003.28 | 1,537.67 | 1,641.23 | 14,435,493.991 | 1,712,914.434 | 39.749146735 | -80.742068027 |
| 11,400.00 | 30.54 | 120.444 | 11,048.87 | 1,525.91 | 1,662.69 | 14,435,482.227 | 1,712,935.894 | 39.749114259 | -80.741991797 |
| 11,450.00 | 33.07 | 123.519 | 11,089.37 | 1,511.93 | 1,685.02 | 14,435,468.255 | 1,712,958.224 | 39.749075709 | -80.741912496 |
| 11,500.00 | 35.86 | 126.199 | 11,130.64 | 1,495.79 | 1,708.16 | 14,435,452.111 | 1,712,981.362 | 39.749031192 | -80.741830342 |
| 11,550.00 | 38.30 | 128.558 | 11,170.58 | 1,477.52 | 1,732.04 | 14,435,433.842 | 1,713,005.245 | 39.748980830 | -80.741745561 |
| 11,600.00 | 40.99 | 130.655 | 11,209.08 | 1,457.17 | 1,756.60 | 14,435,413.496 | 1,713,029.807 | 39.748924760 | -80.741658383 |
| 11,650.00 | 43.71 | 132.536 | 11,246.03 | 1,434.81 | 1,781.78 | 14,435,391.130 | 1,713,054.981 | 39.748863137 | -80.741569049 |
| 11,700.00 | 46.46 | 134.237 | 11,281.33 | 1,410.46 | 1,807.50 | 14,435,366.805 | 1,713,080.696 | 39.748796129 | -80.741477803 |
| 11,750.00 | 49.23 | 135.790 | 11,314.89 | 1,384.26 | 1,833.69 | 14,435,340.587 | 1,713,106.888 | 39.748723620 | -80.741384896 |
| 11,763.92 | 50.00 | 136.199 | 11,323.91 | 1,376.64 | 1,841.05 | 14,435,332.962 | 1,713,114.252 | 39.748702822 | -80.741358775 |
| Begin 8°/100' build | | | | | | | | | |
| 11,800.00 | 52.69 | 137.548 | 11,348.45 | 1,356.07 | 1,860.31 | 14,435,312.396 | 1,713,133.508 | 39.748648288 | -80.741290479 |
| 11,850.00 | 56.44 | 139.262 | 11,375.43 | 1,325.61 | 1,887.33 | 14,435,281.928 | 1,713,160.535 | 39.748562402 | -80.741194637 |
| 11,900.00 | 60.21 | 140.835 | 11,401.69 | 1,292.99 | 1,914.64 | 14,435,249.310 | 1,713,187.843 | 39.748472605 | -80.741097819 |
| 11,950.00 | 63.99 | 142.293 | 11,425.08 | 1,258.38 | 1,942.10 | 14,435,214.699 | 1,713,215.298 | 39.748377336 | -80.741000496 |
| 12,000.00 | 67.79 | 143.659 | 11,445.50 | 1,221.94 | 1,969.57 | 14,435,178.265 | 1,713,242.788 | 39.748277059 | -80.740903142 |
| 12,050.00 | 71.60 | 144.953 | 11,462.85 | 1,183.86 | 1,996.92 | 14,435,140.184 | 1,713,270.117 | 39.748172261 | -80.740806233 |
| 12,100.00 | 75.42 | 146.191 | 11,477.03 | 1,144.32 | 2,024.01 | 14,435,100.643 | 1,713,297.213 | 39.748063454 | -80.740710239 |
| 12,150.00 | 79.25 | 147.387 | 11,487.99 | 1,103.51 | 2,050.72 | 14,435,059.833 | 1,713,323.925 | 39.747951168 | -80.740615629 |
| 12,200.00 | 83.08 | 148.553 | 11,495.67 | 1,061.63 | 2,076.92 | 14,435,017.955 | 1,713,350.120 | 39.747835949 | -80.740522865 |
| 12,250.00 | 86.91 | 149.700 | 11,500.03 | 1,018.89 | 2,102.47 | 14,434,975.211 | 1,713,375.673 | 39.747718359 | -80.740432396 |
| 12,277.19 | 89.00 | 150.320 | 11,501.00 | 995.35 | 2,116.05 | 14,434,951.677 | 1,713,389.255 | 39.747653620 | -80.740394316 |
| Begin 89.00° lateral | | | | | | | | | |
| 12,300.00 | 89.00 | 150.320 | 11,501.39 | 975.54 | 2,127.35 | 14,434,931.863 | 1,713,400.547 | 39.747599117 | -80.740344348 |
| 12,400.00 | 89.00 | 150.320 | 11,503.14 | 889.67 | 2,176.85 | 14,434,844.996 | 1,713,450.056 | 39.747360161 | -80.740169111 |
| 12,500.00 | 89.00 | 150.320 | 11,504.88 | 801.81 | 2,226.36 | 14,434,758.130 | 1,713,499.564 | 39.747121205 | -80.739993874 |
| 12,600.00 | 89.00 | 150.320 | 11,506.63 | 714.94 | 2,275.87 | 14,434,671.263 | 1,713,549.072 | 39.746882250 | -80.739818638 |
| 12,700.00 | 89.00 | 150.320 | 11,508.37 | 628.07 | 2,325.38 | 14,434,584.396 | 1,713,598.580 | 39.746643293 | -80.739643404 |
| 12,800.00 | 89.00 | 150.320 | 11,510.12 | 541.21 | 2,374.89 | 14,434,497.529 | 1,713,648.088 | 39.746404337 | -80.739468171 |
| 12,900.00 | 89.00 | 150.320 | 11,511.86 | 454.34 | 2,424.40 | 14,434,410.662 | 1,713,697.596 | 39.746165380 | -80.739292939 |
| 13,000.00 | 89.00 | 150.320 | 11,513.61 | 367.47 | 2,473.90 | 14,434,323.795 | 1,713,747.104 | 39.745926423 | -80.739117708 |
| 13,100.00 | 89.00 | 150.320 | 11,515.35 | 280.60 | 2,523.41 | 14,434,236.928 | 1,713,796.613 | 39.745687466 | -80.738942479 |
| 13,200.00 | 89.00 | 150.320 | 11,517.10 | 193.74 | 2,572.92 | 14,434,150.061 | 1,713,846.121 | 39.745448508 | -80.738767251 |
| 13,300.00 | 89.00 | 150.320 | 11,518.84 | 106.87 | 2,622.43 | 14,434,063.194 | 1,713,895.629 | 39.745209550 | -80.738592024 |
| 13,400.00 | 89.00 | 150.320 | 11,520.59 | 20.00 | 2,671.94 | 14,433,976.327 | 1,713,945.137 | 39.744970592 | -80.738416798 |

02/03/2023



Planning Report - Geographic

1705102405

| | | | |
|------------------|---|-------------------------------------|-----------------------------------|
| Database: | DB_Feb2822 | Local Co-ordinate Reference: | Well Hendrickson S-13 HU (slot G) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1220.00ft |
| Project: | Marshall County, West Virginia NAD83 UTM 17N | MD Reference: | GL @ 1220.00ft |
| Site: | Hendrickson | North Reference: | Grid |
| Well: | Hendrickson S-13 HU (slot G) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev1 | | |

| Planned Survey | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|--------------|---------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
| 13,500.00 | 89.00 | 150.320 | 11,522.33 | -66.86 | 2,721.44 | 14,433,889.461 | 1,713,994.645 | 39.744731634 | -80.738241573 |
| 13,600.00 | 89.00 | 150.320 | 11,524.08 | -153.73 | 2,770.95 | 14,433,802.594 | 1,714,044.153 | 39.744492675 | -80.738068350 |
| 13,700.00 | 89.00 | 150.320 | 11,525.82 | -240.60 | 2,820.46 | 14,433,715.727 | 1,714,093.661 | 39.744253716 | -80.737891128 |
| 13,800.00 | 89.00 | 150.320 | 11,527.57 | -327.47 | 2,869.97 | 14,433,628.860 | 1,714,143.170 | 39.744014757 | -80.737715906 |
| 13,900.00 | 89.00 | 150.320 | 11,529.31 | -414.33 | 2,919.48 | 14,433,541.993 | 1,714,192.678 | 39.743775798 | -80.737540687 |
| 14,000.00 | 89.00 | 150.320 | 11,531.06 | -501.20 | 2,968.99 | 14,433,455.126 | 1,714,242.186 | 39.743536838 | -80.737365468 |
| 14,100.00 | 89.00 | 150.320 | 11,532.80 | -588.07 | 3,018.49 | 14,433,368.259 | 1,714,291.694 | 39.743297878 | -80.737190251 |
| 14,200.00 | 89.00 | 150.320 | 11,534.55 | -674.93 | 3,068.00 | 14,433,281.392 | 1,714,341.202 | 39.743058918 | -80.737015035 |
| 14,300.00 | 89.00 | 150.320 | 11,536.29 | -761.80 | 3,117.51 | 14,433,194.525 | 1,714,390.710 | 39.742819957 | -80.736839820 |
| 14,400.00 | 89.00 | 150.320 | 11,538.04 | -848.67 | 3,167.02 | 14,433,107.658 | 1,714,440.218 | 39.742580996 | -80.736664606 |
| 14,500.00 | 89.00 | 150.320 | 11,539.78 | -935.54 | 3,216.53 | 14,433,020.792 | 1,714,489.727 | 39.742342035 | -80.736489393 |
| 14,600.00 | 89.00 | 150.320 | 11,541.53 | -1,022.40 | 3,266.04 | 14,432,933.925 | 1,714,539.235 | 39.742103074 | -80.736314182 |
| 14,700.00 | 89.00 | 150.320 | 11,543.27 | -1,109.27 | 3,315.54 | 14,432,847.058 | 1,714,588.743 | 39.741864112 | -80.736138972 |
| 14,800.00 | 89.00 | 150.320 | 11,545.02 | -1,196.14 | 3,365.05 | 14,432,760.191 | 1,714,638.251 | 39.741625150 | -80.735963763 |
| 14,900.00 | 89.00 | 150.320 | 11,546.76 | -1,283.00 | 3,414.56 | 14,432,673.324 | 1,714,687.759 | 39.741386188 | -80.735788555 |
| 15,000.00 | 89.00 | 150.320 | 11,548.51 | -1,369.87 | 3,464.07 | 14,432,586.457 | 1,714,737.267 | 39.741147226 | -80.735613349 |
| 15,100.00 | 89.00 | 150.320 | 11,550.25 | -1,456.74 | 3,513.58 | 14,432,499.590 | 1,714,786.775 | 39.740908263 | -80.735438143 |
| 15,200.00 | 89.00 | 150.320 | 11,552.00 | -1,543.60 | 3,563.08 | 14,432,412.723 | 1,714,836.284 | 39.740669300 | -80.735262939 |
| 15,300.00 | 89.00 | 150.320 | 11,553.74 | -1,630.47 | 3,612.59 | 14,432,325.855 | 1,714,885.792 | 39.740430337 | -80.735087736 |
| 15,400.00 | 89.00 | 150.320 | 11,555.49 | -1,717.34 | 3,662.10 | 14,432,238.988 | 1,714,935.300 | 39.740191373 | -80.734912534 |
| 15,500.00 | 89.00 | 150.320 | 11,557.23 | -1,804.21 | 3,711.61 | 14,432,152.122 | 1,714,984.808 | 39.739952410 | -80.734737334 |
| 15,600.00 | 89.00 | 150.320 | 11,558.98 | -1,891.07 | 3,761.12 | 14,432,065.255 | 1,715,034.316 | 39.739713446 | -80.734562135 |
| 15,700.00 | 89.00 | 150.320 | 11,560.72 | -1,977.94 | 3,810.63 | 14,431,978.388 | 1,715,083.824 | 39.739474481 | -80.734386937 |
| 15,800.00 | 89.00 | 150.320 | 11,562.47 | -2,064.81 | 3,860.13 | 14,431,891.521 | 1,715,133.332 | 39.739235517 | -80.734211740 |
| 15,900.00 | 89.00 | 150.320 | 11,564.21 | -2,151.67 | 3,909.64 | 14,431,804.654 | 1,715,182.841 | 39.738996552 | -80.734036544 |
| 16,000.00 | 89.00 | 150.320 | 11,565.96 | -2,238.54 | 3,959.15 | 14,431,717.787 | 1,715,232.349 | 39.738757587 | -80.733861350 |
| 16,100.00 | 89.00 | 150.320 | 11,567.70 | -2,325.41 | 4,008.66 | 14,431,630.920 | 1,715,281.857 | 39.738518621 | -80.733686156 |
| 16,200.00 | 89.00 | 150.320 | 11,569.45 | -2,412.28 | 4,058.17 | 14,431,544.053 | 1,715,331.365 | 39.738279656 | -80.733510964 |
| 16,300.00 | 89.00 | 150.320 | 11,571.19 | -2,499.14 | 4,107.68 | 14,431,457.186 | 1,715,380.873 | 39.738040690 | -80.733335774 |
| 16,400.00 | 89.00 | 150.320 | 11,572.94 | -2,586.01 | 4,157.18 | 14,431,370.320 | 1,715,430.381 | 39.737801724 | -80.733160584 |
| 16,500.00 | 89.00 | 150.320 | 11,574.68 | -2,672.88 | 4,206.69 | 14,431,283.453 | 1,715,479.890 | 39.737562757 | -80.732985395 |
| 16,600.00 | 89.00 | 150.320 | 11,576.43 | -2,759.74 | 4,256.20 | 14,431,196.586 | 1,715,529.398 | 39.737323790 | -80.732810208 |
| 16,700.00 | 89.00 | 150.320 | 11,578.17 | -2,846.61 | 4,305.71 | 14,431,109.719 | 1,715,578.906 | 39.737084823 | -80.732635022 |
| 16,800.00 | 89.00 | 150.320 | 11,579.92 | -2,933.48 | 4,355.22 | 14,431,022.852 | 1,715,628.414 | 39.736845856 | -80.732459837 |
| 16,900.00 | 89.00 | 150.320 | 11,581.66 | -3,020.35 | 4,404.73 | 14,430,935.985 | 1,715,677.922 | 39.736606888 | -80.732284654 |
| 17,000.00 | 89.00 | 150.320 | 11,583.41 | -3,107.21 | 4,454.23 | 14,430,849.118 | 1,715,727.430 | 39.736367921 | -80.732109472 |
| 17,100.00 | 89.00 | 150.320 | 11,585.15 | -3,194.08 | 4,503.74 | 14,430,762.251 | 1,715,776.938 | 39.736128954 | -80.731934290 |
| 17,200.00 | 89.00 | 150.320 | 11,586.90 | -3,280.95 | 4,553.25 | 14,430,675.384 | 1,715,826.447 | 39.735889984 | -80.731759110 |
| 17,300.00 | 89.00 | 150.320 | 11,588.64 | -3,367.81 | 4,602.76 | 14,430,588.517 | 1,715,875.955 | 39.735651015 | -80.731583932 |
| 17,320.51 | 89.00 | 150.320 | 11,589.00 | -3,385.63 | 4,612.91 | 14,430,570.700 | 1,715,886.110 | 39.735602000 | -80.731548000 |

PBHL/TD 17320.51 MD 11589.00 TVD

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Planning Report - Geographic

| | | | |
|------------------|--|-------------------------------------|-----------------------------------|
| Database: | DB_Feb2822 | Local Co-ordinate Reference: | Well Hendrickson S-13 HU (slot G) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1220.00ft |
| Project: | Marshall County, West Virginia NAD83 UTM 17N | MD Reference: | GL @ 1220.00ft |
| Site: | Hendrickson | North Reference: | Grid |
| Well: | Hendrickson S-13 HU (slot G) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev1 | | |

| Design Targets | | | | | | | | | |
|---|-----------|----------|-----------|-----------|----------|----------------|---------------|--------------|---------------|
| Target Name | Dip Angle | Dip Dir. | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
| - hit/miss target | (°) | (°) | (ft) | (ft) | (ft) | (usft) | (usft) | | |
| - Shape | | | | | | | | | |
| Hendrickson S-13 HU LF - plan misses target center by 0.01ft at 12277.19ft MD (11501.00 TVD, 995.35 N, 2116.06 E) - Point | 0.00 | 0.000 | 11,501.00 | 995.35 | 2,116.05 | 14,434,951.670 | 1,713,389.252 | 39.747653602 | -80.740384331 |
| Hendrickson S-13 HU PI - plan hits target center - Point | 0.00 | 0.000 | 11,589.00 | -3,385.63 | 4,612.91 | 14,430,570.700 | 1,715,886.110 | 39.735602000 | -80.731548000 |

| Plan Annotations | | | | | |
|------------------|----------------|-------------------|----------|----------------------------------|--|
| Measured Depth | Vertical Depth | Local Coordinates | | Comment | |
| (ft) | (ft) | +N/-S | +E/-W | | |
| | | (ft) | (ft) | | |
| 3,200.00 | 3,200.00 | 0.00 | 0.00 | KOP Begin 2°/100' build | |
| 3,450.00 | 3,449.68 | 5.45 | 9.44 | Begin 2°/100' build/turn | |
| 4,073.51 | 4,060.48 | 85.81 | 97.20 | Begin 17.20° tangent | |
| 10,884.20 | 10,566.65 | 1,537.62 | 1,492.71 | Begin 6°/100' build | |
| 11,763.92 | 11,323.91 | 1,376.64 | 1,841.05 | Begin 8°/100' build | |
| 12,277.19 | 11,501.00 | 995.35 | 2,116.05 | Begin 89.00° lateral | |
| 17,320.51 | 11,589.00 | -3,385.63 | 4,612.91 | PBHL/TD 17320.51 MD 11589.00 TVD | |

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Environmental Protection

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 4.21 acres 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

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DEC 12 2022

WV Department of
Environmental Protection

Seed Mixtures

Temporary

Permanent

| Seed Type | lbs/acre |
|-----------------|----------|
| Annual Ryegrass | 40 |
| Spring Oats | 96 |

| Seed Type | lbs/acre |
|---------------|----------|
| Orchard Grass | 12 |
| Ladino | 3 |
| White Clover | 2 |

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [Signature] STRAPER GOWEN

Comments: _____

Title: Oil and Gas Inspector Date: 12-1-2022

Field Reviewed? () Yes () No

WW-9

Page 1 of 3

PROPOSED HENDRICKSON PAD

SUPPLEMENT PG 1

REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.

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

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

TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION

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

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

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Office of Oil and Gas

DEC 12 2022

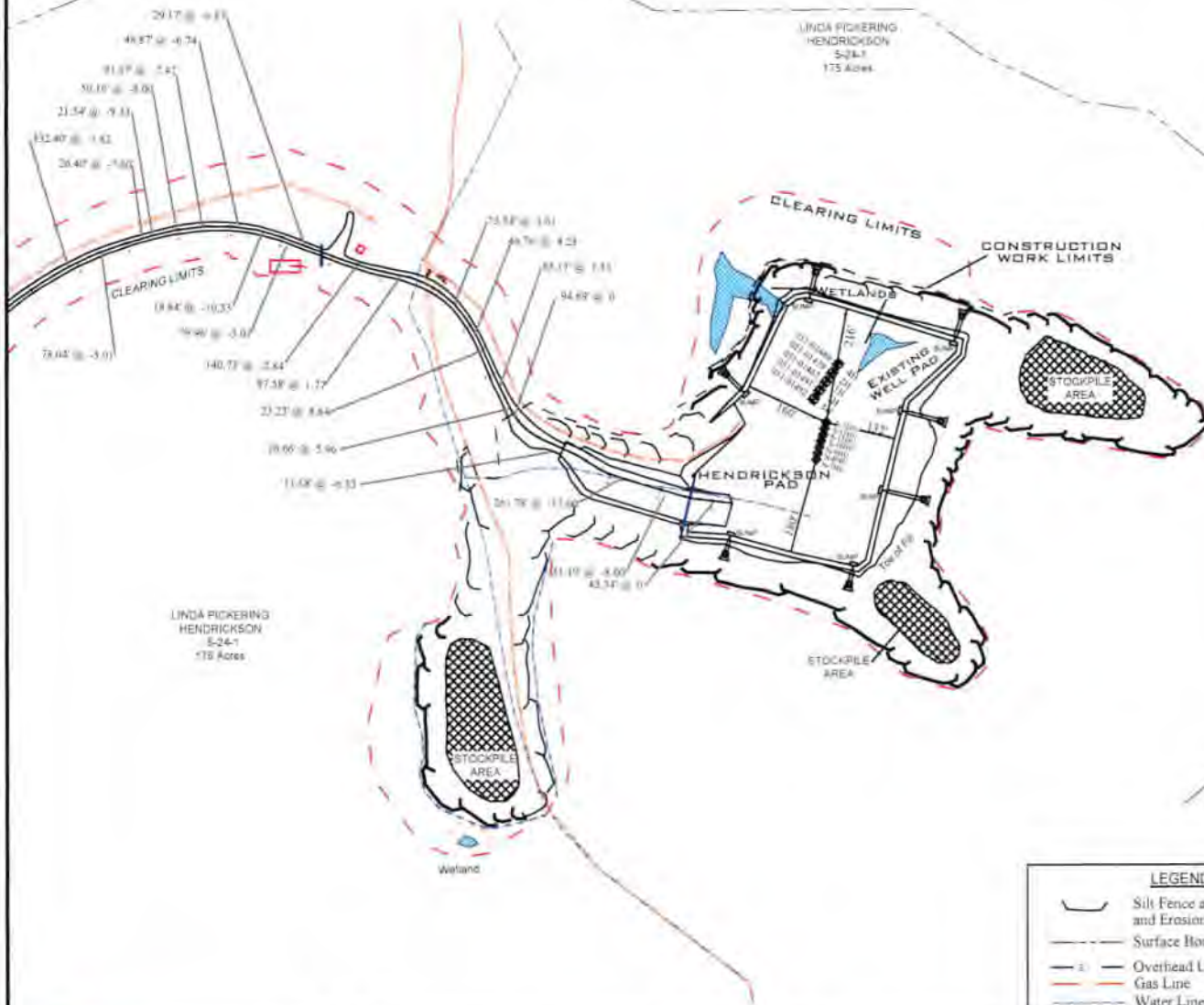
WV Department of
Environmental Protection



ROGER H HALL JR
S-17-3
257.50 Acres

LINDA PICKERING
HENDRICKSON
S-24-1
175 Acres

LINDA PICKERING
HENDRICKSON
S-24-1
175 Acres



| LEGEND | |
|--------|--|
| | Silt Fence and/or Sediment and Erosion Control Measure |
| | Surface Boundary |
| | Overhead Utility |
| | Gas Line |
| | Water Line |



Jackson Surveying Inc.
413 E. Pike St.
Box 112
Clarksburg, WV 26301
Phone: 304-823-0851

| TOPO SECTION | |
|---------------|-----------|
| WILEYVILLE T5 | |
| COUNTY | DISTRICT |
| MARSHALL | FRANKLIN |
| DRAWN BY | JOB NO. |
| J.D.E. | 494510851 |

| OPERATOR | |
|---|-------|
| PREPARED FOR: | |
| TUG HILL OPERATING, L.L.C. 380 SOUTHPOINTE BLVD SUITE 200 LANHANSBURG, PA. 15317 | |
| DATE | SCALE |
| 11-03-2022 | NONE |



4700100175 02/23/2023

WW-9

PROPOSED HENDRICKSON PAD

SUPPLEMENT PG 1

Page 2 of 3

REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.

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

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

TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

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

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

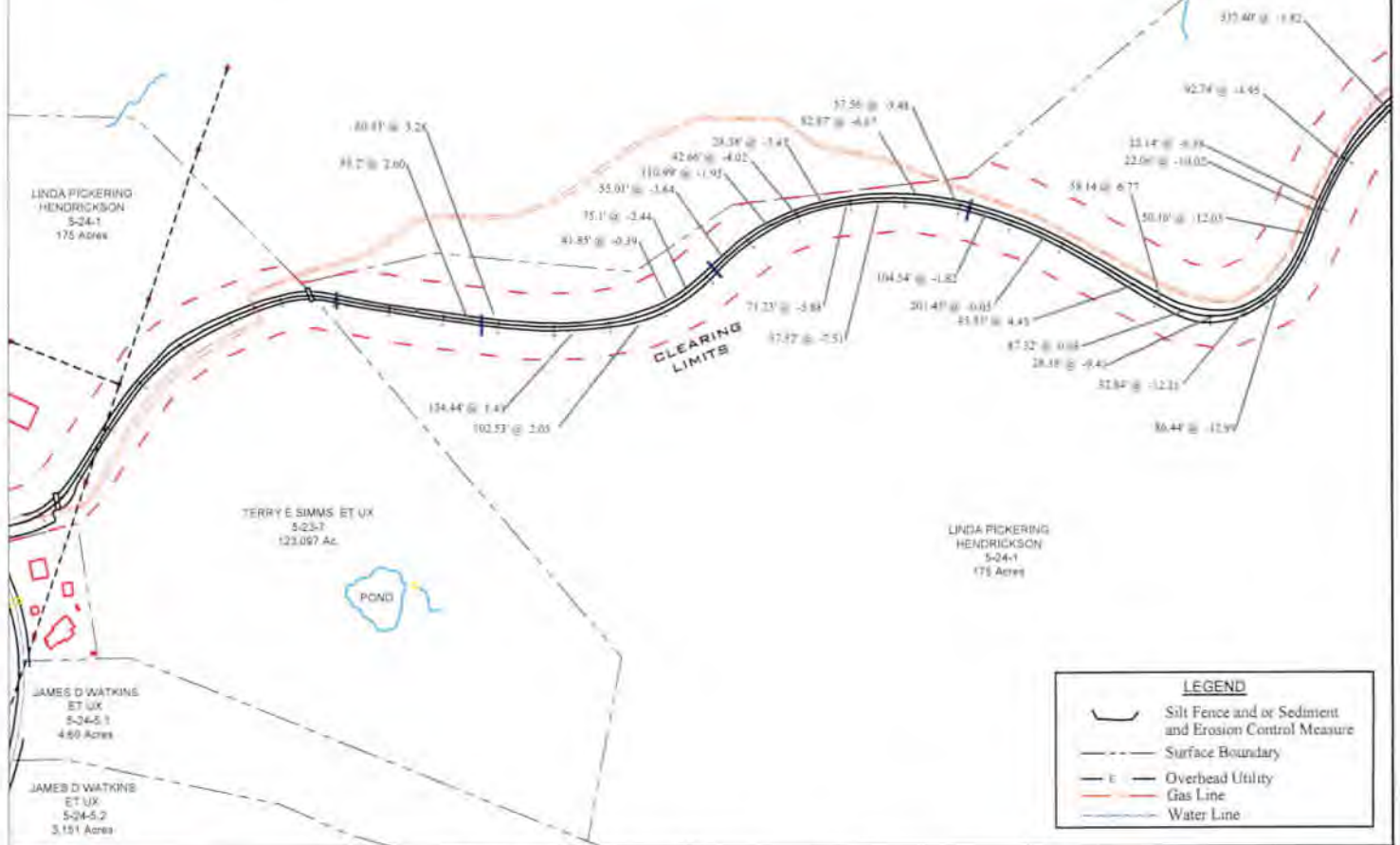


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DEC 12 2022

WICKI BOWEN
5-17-94
WV Department of
Environmental Protection

RANDY W FRANCIS
ET UX
5-13-11.1
67 Ac.



CLEARING LIMITS

| LEGEND | |
|--------|--|
| | Silt Fence and or Sediment and Erosion Control Measure |
| | Surface Boundary |
| | Overhead Utility |
| | Gas Line |
| | Water Line |

Jackson Surveying Inc.
3418 E. Pike St.
Sta. 112
Canonsburg, WV 26021
Phone: 304-623-5001

| TOPO SECTION | |
|----------------|----------|
| WILEYVILLE 7.5 | |
| COUNTY | DISTRICT |
| MARSHALL | FRANKLIN |
| DRAWN BY | JOB NO. |
| JGC | 45450851 |

| OPERATOR | |
|--|-------|
| PREPARED FOR: | |
| TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 300 CANONSBURG, PA 15317 | |
| DATE | SCALE |
| 11-03-2022 | NONE |

**TUG HILL
OPERATING**

02/03/2023

PROPOSED HENDRICKSON PAD

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.

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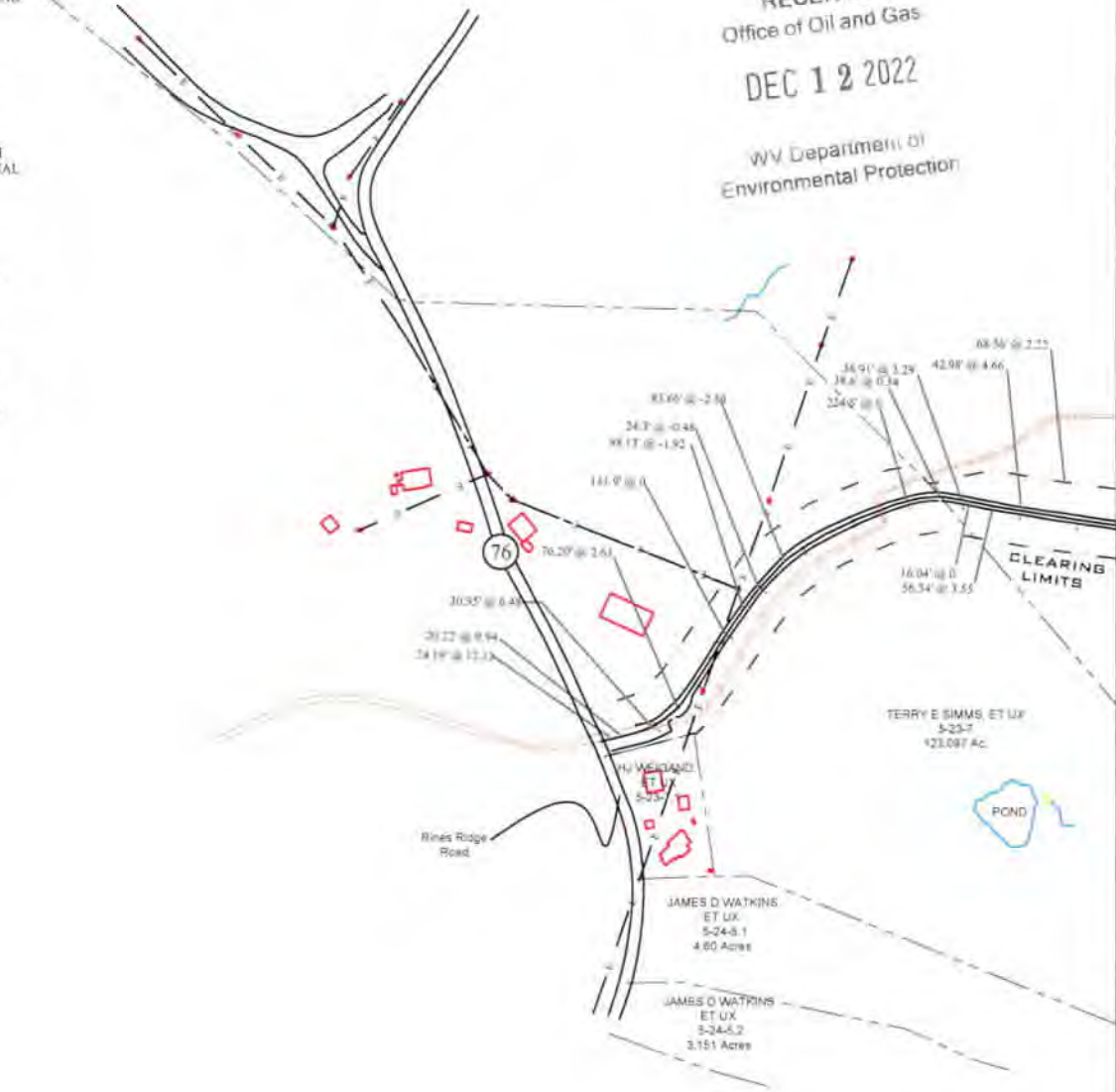
TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

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

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



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DEC 12 2022
WV Department of
Environmental Protection



| LEGEND | |
|--------|--|
| | Silt Fence and or Sediment and Erosion Control Measure |
| | Surface Boundary |
| | Overhead Utility |
| | Gas Line |
| | Water Line |



Jackson Surveying Inc.
2418 E. Pike St.
Ste. 112
Charleston, WV 25301
Phone: 304-523-5851

| TOPO SECTION: | |
|---------------------|-----------|
| POWHATAN POINT 7.5' | |
| COUNTY | DISTRICT |
| MARSHALL | FRANKLIN |
| DRAWN BY | JOB NO. |
| JJC | 494510851 |

| OPERATOR: | |
|--|-------|
| PREPARED FOR: | |
| TUG HILL OPERATING, L.L.C. 389 SOUTHPOINTE BLVD SUITE 204 LANDSBURG, PA 15317 | |
| DATE | SCALE |
| 11-03-2022 | NONE |





TUG HILL
OPERATING

Well Site Safety Plan
Part A – Site Specific Data and Figures

Well Name: Hendrickson S-13HU

Pad Name: Hendrickson

County: Marshall

UTM (meters), NAD83, Zone 17

Northing: 4,399,478.69

Easting: 521,597.12

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Office of Oil and Gas

DEC 12 2022

WV Department of
Environmental Protection

**KEY CONTACT FOR WELL SITE SAFETY PLAN
DEVELOPMENT AND MAINTENANCE**

Jerry V. DeRosa, Director EH&S Affairs

(724) 338-2029 (office)

(412) 736-5767 (cellular)

24-HOUR EMERGENCY PHONE NUMBER

(800) 921-9745

[Handwritten signature]
12-1-2022

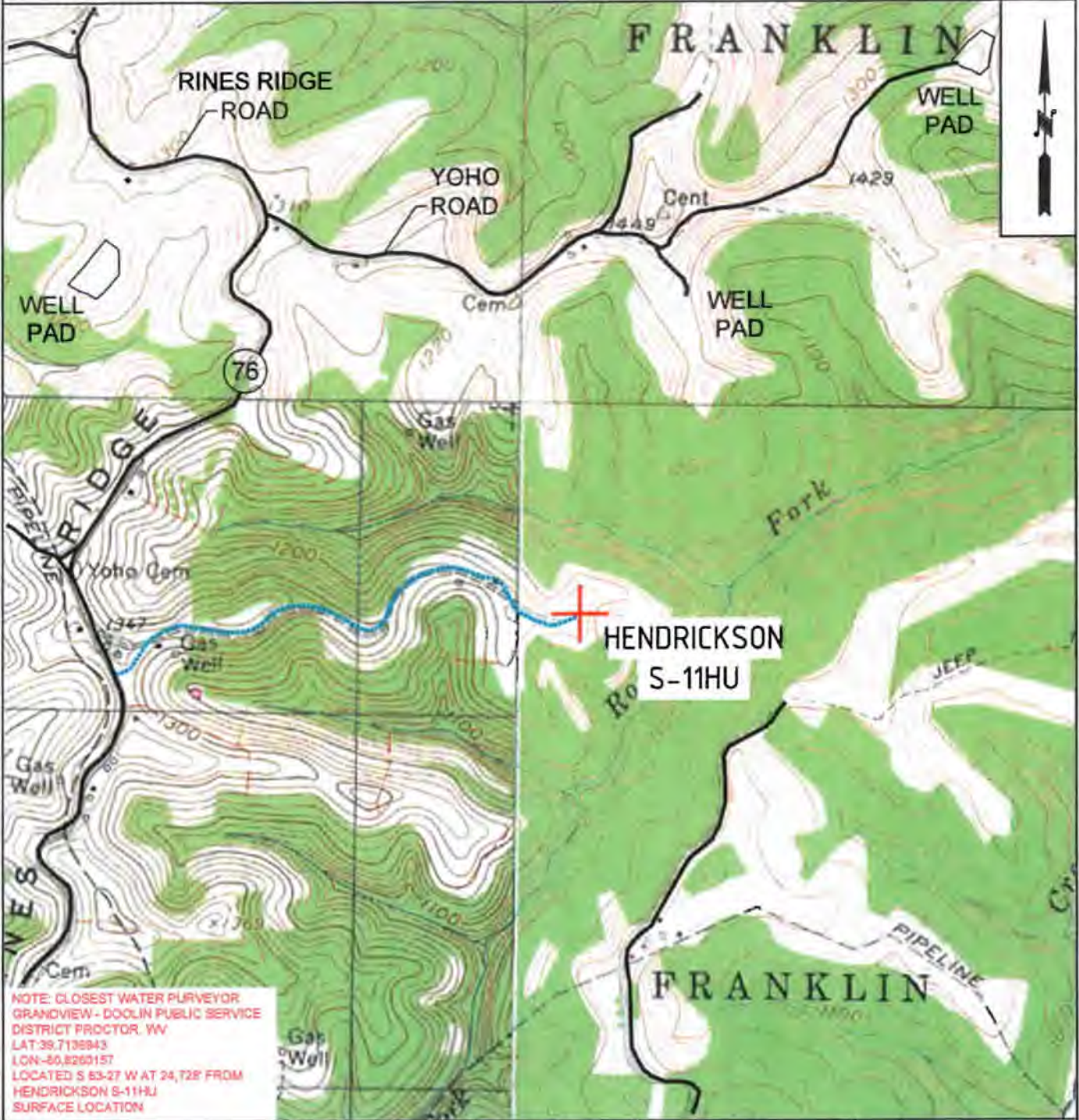
WW-9

**PROPOSED
HENDRICKSON S-11HU**

DEC 12 2022

SUPPLEMENT PG 2

WV Department of
Environmental Protection



NOTE: CLOSEST WATER PURVEYOR:
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT: 39.7139943
LON: -80.8260157
LOCATED S 63-27° W AT 24,728' FROM
HENDRICKSON S-11HU
SURFACE LOCATION



**TUG HILL
OPERATING**

| | | | |
|--|-----------|---------------------|-------------------|
| OPERATOR | 494510851 | TOPO SECTION | LEASE NAME |
| TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317 | | WILEYVILLE 7.5' | HENDRICKSON |
| | | SCALE: | DATE: |
| | | 1" = 2000' | DATE: 11-03-2022 |

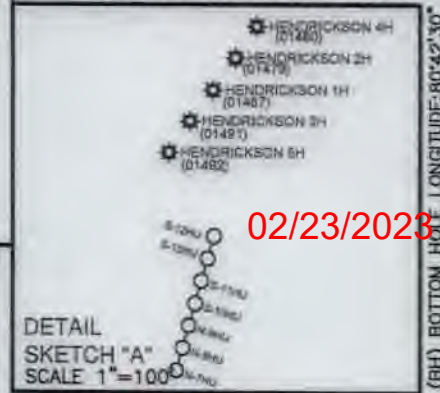
HENDRICKSON LEASE WELL S-13HU 365.9921 ± ACRES



REFERENCES
SCALE 1"=200'

(+) DENOTES LOCATION
ON UNITED STATES
TOPOGRAPHIC MAPS

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



02/23/2023

DETAIL
SKETCH "A"
SCALE 1"=100'

GRID NORTH

| |
|--|
| SURFACE HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,399,478.69 E) 521,597.12 |
| LANDING POINT 1 UTM. NAD83, ZONE 17 IN METERS N) 4,399,782.07 E) 522,242.09 |
| BOTTOM HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,398,446.75 E) 523,003.13 |



- NOTES
- BORE PATH BASED ON GRID NORTH.
 - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND. NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 - OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN SEPTEMBER, 2022. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 - BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCCAMEY & CHILCOTE, P.C. FILE 0058304.0401147
 - ALL DEEP WELLS ARE SHOWN ON THIS PLAT. THERE ARE NO PERMITTED DEEP WELLS WITHIN 2400' OF PROPOSED WELL'S SURFACE LOCATION AND/OR 500' OF THE WELL LATERAL.

LEGEND

- LEASE TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- UNIT BOUNDARY
- (A) LEASE # (SEE BA1 FORM)
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- (FTF) PROPOSED FIRST TAKE POINT
- (LTF) PROPOSED LAST TAKE POINT
- FORCED POOL TRACT

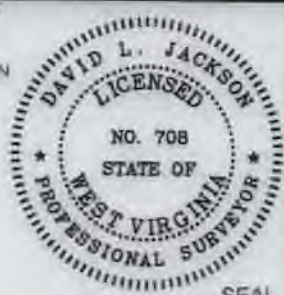
| Lease ID | TMP | Tag | Grantor, Lessor, Etc. | Dead Book/Page |
|----------|----------|-----|---|----------------|
| 10*14138 | S-24-1 | A | LINDA AND DONALD HENDRICKSON | 886 528 |
| 10*14480 | S-17-8 | B | GERTRUD GODDARD, H G WELLS AIF, ET AL | 735 515 |
| 10*14024 | S-24-2 | C | ROY FRENCH YDHO AND DARLENE J YDHO, ET AL | 685 508 |
| 10*14452 | S-24-4 | D | JERRY ELDON RICHMOND, ET AL | 744 37 |
| 10*14068 | S-24-3.2 | E | ROHN JEAN MARTIN, ET AL | 666 552 |
| 10*14068 | S-24-3.3 | F | ROHN JEAN MARTIN, ET AL | 666 552 |
| 10*39561 | S-20-1 | G | SHELLIE J PEKULA AND MICHAEL PEKULA | 1126 542 |
| 10*39561 | S-20-2 | H | SHELLIE J PEKULA AND MICHAEL PEKULA | 1126 542 |
| 10*14525 | S-25-2 | I | IMA LEE YDHO | 757 182 |
| 10*14524 | S-25-3 | J | IMA LEE YDHO | 757 194 |

| LINE | BEARING | DISTANCE | CURVE | CHORD BEARING | CHORD LENGTH | RADIAL | ARC LENGTH |
|------|------------|-----------|-------|---------------|--------------|----------|------------|
| L1 | N 87°10' W | 2,304.21' | C1 | N 53°22' E | 61.56' | 195.17' | 61.82' |
| L2 | S 50°39' W | 1,941.75' | C2 | N 88°47' E | 57.17' | 61.80' | 58.40' |
| L3 | N 44°52' E | 2,087.46' | C3 | S 77°02' E | 73.39' | 166.42' | 74.00' |
| | | | C4 | S 57°00' E | 131.39' | 464.62' | 131.83' |
| | | | C5 | S 43°44' E | 259.69' | 1167.18' | 260.21' |
| | | | C6 | S 33°08' E | 359.50' | 2202.19' | 359.90' |

FILE NUMBER _____
DRAWING NUMBER HENDRICKSON_S-13HU_REV1
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 1490
Clarksburg, WV 26302
304-623-5851

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

DATE: DECEMBER 07, 2022

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP X SHALLOW ___
OPERATORS WELL NO HENDRICKSON S-13HU
API WELL NO. 47-051-02495 Deep

LOCATION ELEVATION 1220.33' WATERSHED (HUC 10) Rocky Fork of Fish Creek (HUC-10)
DISTRICT Franklin COUNTY Marshall
QUADRANGLE Wileyville 7.5' LEASE NUMBER SEE WW-BA1 Form

SURFACE OWNER LINDA L. PICKERING HENDRICKSON ACREAGE 175.0
OIL & GAS ROYALTY OWNER LINDA L. PICKERING HENDRICKSON LEASE ACREAGE 175.0
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 POINT PLEASANT PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DARREN BROWN, CT CORP
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 FORT WORTH, TX 76107 ADDRESS 5098 WASHINGTON STREET WEST, SUITE 407 CHARLESTON, WV 25313-1561

02/03/2023

COUNTY NAME
PERMIT

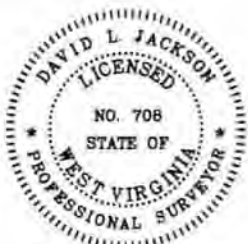
form ww6

**HENDRICKSON LEASE
WELL S-13HU
365.9921 ± ACRES**

| Parcels within Unit Boundary | | | | |
|-----------------------------------|--------|-----------------|---|---------|
| Tags | Number | Tax Map -Parcel | Surface Owner | Acres |
| A | S1 | 05-24-1 | LINDA L PICKERING HENDRICKSON | 175 |
| B | S38 | 05-17-8 | ROGER H HALL, JR | 257.50 |
| C | S39 | 05-24-2 | ROY FRIEND YOHO | 316.80 |
| D | S4 | 05-24-4 | TERRY E SIMMS, ET UX | 84.05 |
| E | S5 | 05-24-3.2 | TH EXPLORATION II, LLC | 49 |
| F | S40 | 05-24-3.3 | CHARLES E & DEBRA K BERTRAND | 120.43 |
| G | S51 | 09-20-1 | MICHAEL JAMES PEKULA | 120.23 |
| H | S52 | 09-20-2 | MICHAEL JAMES PEKULA | 138 |
| I | S9 | 05-25-2 | JAMES W KLUG | 122.3 |
| J | S10 | 05-25-3 | SD & SUSAN SMITH FERTITTA | 181.548 |
| Adjoining Parcels Ownership Table | | | | |
| | Number | Tax Map -Parcel | Surface Owner | Acres |
| | S2 | 05-24-5 | ROBERT C FRANCIS ET UX (LIFE) | 145.78 |
| | S3 | 05-25-21 | TERRY E SIMMS, ET UX | 7 |
| | S6 | 05-24-3 | CHARLES E & DEBRA K BERTRAND | 30.914 |
| | S7 | 05-24-3.1 | TH EXPLORATION II, LLC | 5.50 |
| | S8 | 05-25-2.2 | JOHN G KLUG, SR | 10 |
| | S11 | 05-25-2.3 | KELSEY E KLUG | 5 |
| | S12 | 05-25-3.1 | SD & SUSAN SMITH FERTITTA | 3.022 |
| | S13 | 05-25-5 | TERRY L & TAMMY J KIRKLAND AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST | 1.12 |
| | S14 | 05-25-06 | TERRY L & TAMMY J KIRKLAND AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST | 3 |
| | S15 | 12-3-41.1 | TERRY L & TAMMY J KIRKLAND AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST | 74.138 |
| | S16 | 05-25-4 | TERRY L & TAMMY J KIRKLAND AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST | 5 |
| | S17 | 05-10-18 | JOHN HART | 2 |
| | S18 | 05-25-10.1 | TERRY L & TAMMY J KIRKLAND AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST | 5.250 |
| | S19 | 05-25-10 | TERRY L & TAMMY J KIRKLAND AS TRUSTEES OF THE TERRY & TAMMY KIRKLAND LIVING TRUST | 18.75 |
| | S20 | 05-25-12 | MARION PARSONS JR, ET AL | 85.16 |
| | S21 | 05-25-12.1 | KENT & BETTY MASON | 15 |
| | S22 | 05-25-13.3 | WILLIAM M SR & CYNTHIA A FERDA | 17.21 |
| | S23 | 05-25-2.1 | NANCY JACKSON | 1 |
| | S24 | 05-25-1.4 | SAMANTHA J & PHILIP A NAMUK | 24.44 |
| | S25 | 05-25-1.3 | PHILIP A & SAMANTHA K NAMUK | 26.20 |
| | S26 | 05-25-1.2 | WILLIAM JR & ANDREA J DUBIEL | 20.10 |
| | S27 | 05-25-1.5 | RYAN J BRATTON | 21.35 |
| | S28 | 05-25-13 | WILLIAM M FERDA JR & STEPHANIE L PALUCKA | 16.014 |
| | S29 | 05-25-1 | MICHAEL L MASON | 35.43 |
| | S30 | 05-25-1.1 | RYAN A & JAQUELINE E LAYMAN | 9.79 |
| | S31 | 05-24-4 | TERRY E SIMMS, ET UX | 84.05 |
| | S32 | 05-24-6 | TERRY E SIMMS, ET UX | 42.84 |
| | S33 | 05-24-5.2 | JAMES D WATKINS ET UX | 3.151 |
| | S34 | 05-24-5.1 | JAMES D WATKINS ET UX | 4.60 |
| | S35 | 05-23-7 | TERRY E SIMMS, ET UX | 123.097 |
| | S36 | 05-17-11.1 | RANDY W FRANCIS ET UX | 67 |
| | S37 | 05-17-9.4 | VICKI L BOWEN | 60.3 |
| | S41 | 05-24-3.4 | CHARLES E & DEBRA K BERTRAND | 1.27 |
| | S42 | 09-22-1.1 | CNG TRANSMISSION CO | 1.43 |
| | S43 | 09-20-4 | SHELLIE J PEKULA, HRS | 171 |
| | S44 | 9-22-1 | LOUIS T FOX | 124.57 |
| | S45 | 05-25-3.2 | CONSOL ENERGY HOLDINGS, LLC | 1.43 |
| | S46 | 09-22-02 | MARK HJ MILLER, ET AL | 124.80 |
| | S47 | 05-17-9 | LLOYD RICHARD OLIVER, ET UX | 61.6 |
| | S48 | 05-17-7 | ALPINE FARM, LLC | 10.8 |
| | S49 | 05-17-6 | ALPINE FARM, LLC | 249.07 |
| | S50 | 09-18-1 | THERESA MAE LONG THOMAS ET AL | 58.66 |
| | S53 | 09-18-2 | BRIAN T KLUG | 85 |
| | S54 | 09-18-18 | JAMES D FROHNAPFEL ET UX | 154.03 |
| | S55 | 09-20-6 | KEITH & KRISTY FERRELL REVOCABLE LIVING TRUST | 64.75 |
| | S56 | 09-20-5 | GERALD A FROHNAPFEL ET UX - ESTATES TRUST | 164.143 |
| | S57 | 09-22-3.2 | MARK H MILLER | 75 |
| | S58 | 09-22-3 | MARK HILARY MILLER | 63.73 |

02/23/2023

02/03/2023



P.S. 708

David L Jackson



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: Hendrickson S-13HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 47-051-02445

WELL PLAT
PAGE 3 OF 3
DATE: 12/07/2022

1707102433
02/23/2023

**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

RECEIVED
Office of Oil and Gas
DEC 12 2022
WV Department of Environmental Protection

**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. Morris *Amy L. Morris*
 Its: Permitting Specialist - Appalachia Region

| Lease ID | TMP | Tag | Grantor, Lessor, Etc. | Grantee, Lessee, Etc. | Royalty | Deed Book/Page | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment |
|-------------|--------|-----|--------------------------------------|----------------------------|---------|----------------|--|--|--|--|---|---|---|--|---|
| 10*14138 | 5-24-1 | A | LINDA AND DONALD HENDRICKSON | TRIENERGY, INC. | 1/8+ | 666 528 | N/A | 20/348 TriEnergy Inc to AB Resources LLC | 21/491 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership | 685/643 Chief Expl & Development LLC and Radler 2000 Ltd Partnership to Enerplus Resources (USA) Corporation | 24/39 AB Resources, LLC, Chief Expl & Development, LLC and Radler 2000 to Gastar Exploration USA, Inc. & Atinum Marcellus I LLC | 21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II, LLC | 40/552 TH Exploration II, LLC to TH Exploration, LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14460 | 5-17-8 | B | GERTRUD GODDARD, H G WELLS AIF, ETAL | GASTAR EXPLORATION USA INC | 1/8+ | 735 515 | N/A | N/A | N/A | N/A | N/A | 26/183 Gastar Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-001 | 5-17-8 | B | RONALD GODDARD | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 611 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intlo SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-002 | 5-17-8 | B | FRANCIS R GODDARD | CHESAPEAKE APPALACHIA LLC | 1/8+ | 689 175 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intlo SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-003 | 5-17-8 | B | WAYNE GODDARD | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 610 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intlo SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-004 | 5-17-8 | B | MARTHA BAILEY | CHESAPEAKE APPALACHIA LLC | 1/8+ | 695 366 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intlo SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-005 | 5-17-8 | B | PAULETTE F PARKER | CHESAPEAKE APPALACHIA LLC | 1/8+ | 695 368 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intlo SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-006 | 5-17-8 | B | JUDY PROCK | CHESAPEAKE APPALACHIA LLC | 1/8+ | 722 339 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intlo SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |

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| Lease ID | TMP | Tag | Grantor, Lessor, Etc. | Grantee, Lessee, Etc. | Royalty | Deed Book/Page | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment |
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| 1288082-007 | 5-17-8 | B | BRUCE GODDARD, SR. | CHESAPEAKE APPALACHIA LLC | 1/8+ | 732 489 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-008 | 5-17-8 | B | RONALD W. GODDARD | CHESAPEAKE APPALACHIA LLC | 1/8+ | 695 223 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-009 | 5-17-8 | B | CLIFFORD GODDARD | CHESAPEAKE APPALACHIA LLC | 1/8+ | 694 473 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-010 | 5-17-8 | B | WANDA SUE SAYERS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 695 531 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-011 | 5-17-8 | B | LINDA LEE COX | CHESAPEAKE APPALACHIA LLC | 1/8+ | 696 613 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-012 | 5-17-8 | B | KENNETH ALAN GODDARD | CHESAPEAKE APPALACHIA LLC | 1/8+ | 696 611 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-013 | 5-17-8 | B | HARRY C CRONE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 696 607 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |

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|-------------|--------|-----|-----------------------|---------------------------|---------|----------------|-----|--|--|--|---|--|---|---|--|---|
| 1288082-014 | 5-17-8 | B | JERRY J CRONE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 696 | 621 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-015 | 5-17-8 | B | DONALD P CRONE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 698 | 216 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-016 | 5-17-8 | B | RICHARD P CRONE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 696 | 596 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-017 | 5-17-8 | B | BRIAN D CRONE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 696 | 609 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-018 | 5-17-8 | B | PAUL D CRONE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 698 | 234 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-019 | 5-17-8 | B | BOBBY D CRONE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 698 | 232 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 1288082-020 | 5-17-8 | B | KAREN L CAMPBELL | CHESAPEAKE APPALACHIA LLC | 1/8+ | 698 | 609 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ Gastar Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/intro SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |

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|-------------|----------|-----|---|----------------------------|---------|----------------|--|--|--|---|---|---|---|---|---|
| 1288082-021 | 5-17-8 | B | EDWARD F SOLTIS REVOCABLE TRUST | CHESAPEAKE APPALACHIA LLC | 1/8+ | 700 325 | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 740/394 Memo of Operating Agrmt & Fin Stmt bet/ GASTAR Exploration USA Inc, Atinum Marcellus I, LLC, Chesapeake Appalachia, LLC & 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 merged with/into SWN Production Company LLC | 2/427 Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc | 21/41 Merger of GASTAR Exploration USA Inc with and into GASTAR Exploration Inc | 36/9 GASTAR Exploration Inc to TH Exploration II LLC | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14024 | 5-24-2 | C | ROY FRIEND YOHO AND DARLENE J YOHO, ET AL | GASTAR EXPLORATION USA INC | 1/8+ | 665 508 | N/A | N/A | N/A | N/A | N/A | GASTAR Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - GASTAR Exploration USA Inc to GASTAR Exploration Inc: 21/41 | GASTAR Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14025 | 5-24-2 | C | NANCY CAROL GIBSON | GASTAR EXPLORATION USA INC | 1/8+ | 697 87 | N/A | N/A | N/A | N/A | N/A | GASTAR Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - GASTAR Exploration USA Inc to GASTAR Exploration Inc: 21/41 | GASTAR Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14026 | 5-24-2 | C | CONRAD S YEATER | GASTAR EXPLORATION USA INC | 1/8+ | 697 91 | N/A | N/A | N/A | N/A | N/A | GASTAR Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - GASTAR Exploration USA Inc to GASTAR Exploration Inc: 21/41 | GASTAR Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14027 | 5-24-2 | C | HILDA R CONNER RUNYAN | GASTAR EXPLORATION USA INC | 1/8+ | 697 89 | N/A | N/A | N/A | N/A | N/A | GASTAR Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - GASTAR Exploration USA Inc to GASTAR Exploration Inc: 21/41 | GASTAR Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14028 | 5-24-2 | C | WILDA L CLARK | GASTAR EXPLORATION USA INC | 1/8+ | 697 83 | N/A | N/A | N/A | N/A | N/A | GASTAR Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - GASTAR Exploration USA Inc to GASTAR Exploration Inc: 21/41 | GASTAR Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14029 | 5-24-2 | C | MARY MAXINE CLARKE | GASTAR EXPLORATION USA INC | 1/8+ | 697 85 | N/A | N/A | N/A | N/A | N/A | GASTAR Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - GASTAR Exploration USA Inc to GASTAR Exploration Inc: 21/41 | GASTAR Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14068 | 5-24-3.3 | F | ROHN JEAN MARTIN, ET AL | GASTAR EXPLORATION USA INC | 1/8+ | 666 552 | N/A | N/A | N/A | N/A | N/A | GASTAR Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - GASTAR Exploration USA Inc to GASTAR Exploration Inc: 21/41 | GASTAR Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14069 | 5-24-3.3 | F | SHARON E YOHO | GASTAR EXPLORATION USA INC | 1/8+ | 708 193 | N/A | N/A | N/A | N/A | N/A | GASTAR Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - GASTAR Exploration USA Inc to GASTAR Exploration Inc: 21/41 | GASTAR Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |

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|----------|----------|-----|---|----------------------------|---------|----------------|------------|------------|------------|------------|------------|---|---|---|---|
| 10*14070 | 5-24-3.3 | F | CLAUDIA R SCHEEHLE | GASTAR EXPLORATION USA INC | 1/8+ | 708 197 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14071 | 5-24-3.3 | F | SHIRLEY M DORSEY AND WILLIAM DORSEY | GASTAR EXPLORATION USA INC | 1/8+ | 708 187 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14072 | 5-24-3.3 | F | CHARLES ROBERT MYERS | GASTAR EXPLORATION USA INC | 1/8+ | 708 189 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14073 | 5-24-3.3 | F | RICHARD WHITE II & GLORIA J WHITE | GASTAR EXPLORATION USA INC | 1/8+ | 708 195 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14074 | 5-24-3.3 | F | JANE N FISHER AND LEX FISHER | GASTAR EXPLORATION USA INC | 1/8+ | 710 604 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14075 | 5-24-3.3 | F | SHIRLEY K WHITE | GASTAR EXPLORATION USA INC | 1/8+ | 708 201 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 24/335 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14076 | 5-24-3.3 | F | PATRICIA CROW AGENT & AIF FOR VERLA SHUTLER | GASTAR EXPLORATION USA INC | 1/8+ | 710 63 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 24/335 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14077 | 5-24-3.3 | F | WILLIAM FRANK TORRES | GASTAR EXPLORATION USA INC | 1/8+ | 710 72 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 24/335 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14078 | 5-24-3.3 | F | CAROL VASS | GASTAR EXPLORATION USA INC | 1/8+ | 710 74 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 24/335 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |

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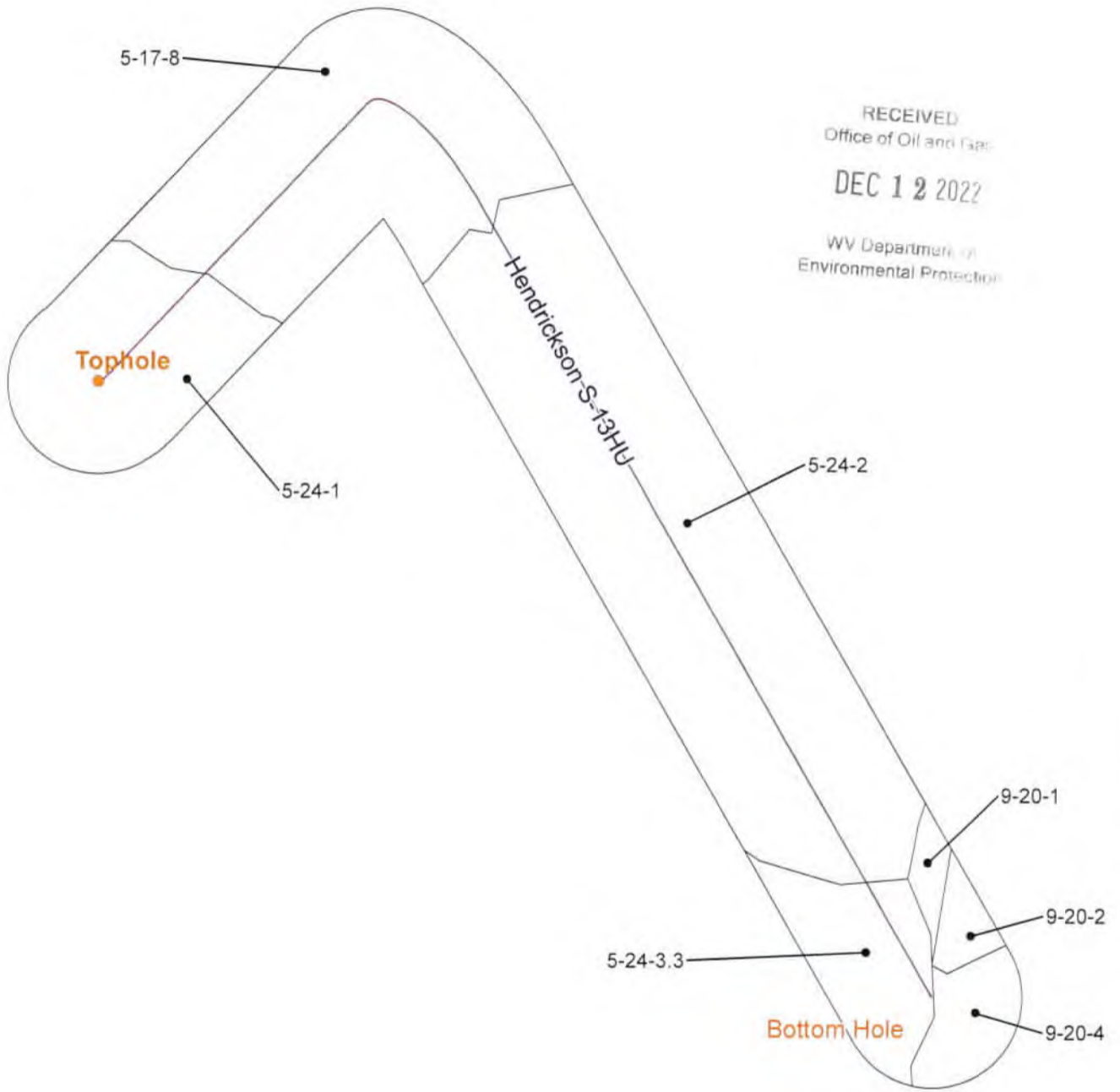
| Lease ID | TMP | Tag | Grantor, Lessor, Etc. | Grantee, Lessee, Etc. | Royalty | Deed Book/Page | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | |
|----------|----------|-----|---|----------------------------|---------|----------------|------------|------------|------------|------------|------------|---|---|---|---|
| 10*14079 | 5-24-3.3 | F | JON NEWMAN & SUSAN NEWMAN | GASTAR EXPLORATION USA INC | 1/8+ | 710 76 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 24/335 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14080 | 5-24-3.3 | F | EDITH OBLINGER | GASTAR EXPLORATION USA INC | 1/8+ | 714 133 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14081 | 5-24-3.3 | F | STEVEN L & CAROL J NEWMAN | GASTAR EXPLORATION USA INC | 1/8+ | 724 50 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 735/263 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14082 | 5-24-3.3 | F | PAUL E & LYNN E BARCUS JR | GASTAR EXPLORATION USA INC | 1/8+ | 734 455 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/183 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14083 | 5-24-3.3 | F | JAN L O'DONNELL | GASTAR EXPLORATION USA INC | 1/8+ | 739 415 | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/183 | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | 48/67 Atinum Marcellus I LLC to TH Exploration II LLC |
| 10*14084 | 5-24-3.3 | F | ROGER A & LAURA J MAY | GASTAR EXPLORATION USA INC | 1/8+ | 741 643 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 |
| 10*14085 | 5-24-3.3 | F | BRAD EYNON | GASTAR EXPLORATION USA INC | 1/8+ | 741 645 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 |
| 10*14086 | 5-24-3.3 | F | BRUCE BAILEY | GASTAR EXPLORATION USA INC | 1/8+ | 741 647 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 |
| 10*14090 | 5-24-3.3 | F | CATHERINE R KLUG PAUL FOX - POWER OF ATTORNEY | GASTAR EXPLORATION USA INC | 1/8+ | 762 454 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 |

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| Lease ID | TMP | Tag | Grantor, Lessor, Etc. | Grantee, Lessee, Etc. | Royalty | Deed Book/Page | | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | |
|----------|----------|-----|-----------------------------------|----------------------------|---------|----------------|-----|------------|------------|------------|------------|------------|------------|------------|---|---|
| 10*14091 | 5-24-3.3 | F | AGNES C KLUG | GASTAR EXPLORATION USA INC | 1/8+ | 762 | 456 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Certificate of Merger - Gastar Exploration USA Inc to Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 |
| 10*14094 | 5-24-3.3 | F | GASPARE A INGRASSSELLINO | GASTAR EXPLORATION INC | 1/8+ | 839 | 528 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | Gastar Exploration Inc to TH Exploration II LLC: 36/9 |
| 10*23467 | 5-24-3.3 | F | STONE HILL MINERALS HOLDINGS LLC | TH EXPLORATION LLC | 1/8+ | 1010 | 228 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*25630 | 5-24-3.3 | F | CHESTNUT HOLDINGS INC | TH EXPLORATION LLC | 1/8+ | 1034 | 544 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*28464 | 5-24-3.3 | F | GERALD H COOPER | TH EXPLORATION LLC | 1/8+ | 1073 | 397 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*28465 | 5-24-3.3 | F | GREGORY T COOPER AND SUSAN COOPER | TH EXPLORATION LLC | 1/8+ | 1073 | 395 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

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02/23/2023






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Coordinate System: NAD 83 UTM Zone 17N
 Horizontal Units: Meter
 Vertical Units: Meter
 Paper Scale: 1:62,500
 Paper Contour: 10000
 Contour Interval: 4000
 Date of Issue: 11/16/2022
 Date of Update: 11/16/2022

CONFIDENTIAL

0 16,000 32,000 64,000 Feet

TUG HILL OPERATING

-  Utica Well
-  Force Pool
-  500' Buffer

Hendrickson S-13HU
 Operators within 500 Feet of Well Borehole



| Offset Operators within 500' Hendrickson S - 13HU | | | | |
|--|----------|----------|---------------------------------------|---|
| COUNTY | DISTRICT | TMP | OWNER | ADDRESS |
| Marshall | Franklin | 5-17-8 | TH EXPLORATION II, LLC | 1320 S. University Blvd. Suite 500 Fort Worth, TX 76107 |
| Marshall | Franklin | 5-17-8 | SOUTHWESTERN ENERGY COMPANY | 10000 Energy Drive Spring, TX 77389 |
| Marshall | Franklin | 5-17-8 | EQUINOR USA ONSHORE PROPERTIES INC | 2107 Citywest Blvd. Suite 100 Houston, TX 77042 |
| Marshall | Franklin | 5-24-1 | TH EXPLORATION II, LLC | 1320 S. University Blvd. Suite 500 Fort Worth, TX 76107 |
| Marshall | Franklin | 5-24-2 | TH EXPLORATION II, LLC | 1320 S. University Blvd. Suite 500 Fort Worth, TX 76107 |
| Marshall | Franklin | 5-24-3.3 | TH EXPLORATION II, LLC | 1320 S. University Blvd. Suite 500 Fort Worth, TX 76107 |
| Marshall | Franklin | 5-24-3.3 | TH EXPLORATION, LLC | 1320 S. University Blvd. Suite 500 Fort Worth, TX 76107 |
| Marshall | Meade | 9-20-1 | TH EXPLORATION, LLC | 1320 S. University Blvd. Suite 500 Fort Worth, TX 76107 |
| Marshall | Meade | 9-20-2 | TH EXPLORATION, LLC | 1320 S. University Blvd. Suite 500 Fort Worth, TX 76107 |
| Marshall | Meade | 9-20-4 | TH EXPLORATION, LLC | 1320 S. University Blvd. Suite 500 Fort Worth, TX 76107 |

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02/23/2023

CERTIFICATE OF CONSENT AND EASEMENT

I, the undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being all the owners of the surface of that certain lot, tract or parcel of land located in Franklin District, Marshall County, State of West Virginia, shown on the attached plat or survey, or hereby consent and grant an easement, pursuant to West Virginia Code, Section 22C-9-7(b)(4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to FH Exploration, LLC, its successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Executed this 28 day of Dec., 2018.

Linda L. Hendrickson
Linda L. Hendrickson

Donald R. Hendrickson
Donald R. Hendrickson

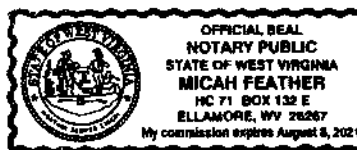
ACKNOWLEDGMENT

STATE OF WEST VIRGINIA §
§ SS:
COUNTY OF Brooke §

On this the 28 day of December 2018, before me, a notary public, the undersigned authority, personally appeared Linda L. Hendrickson, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he/she executed the same for the purposes therein contained.

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

My Commission Expires: August 8, 2021
Signature/Notary Public: Micah Feather
Name/Notary Public (print): Micah Feather



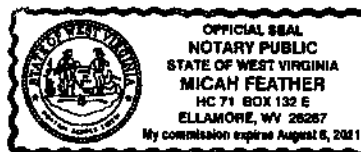
ACKNOWLEDGMENT

STATE OF WEST VIRGINIA §
§ SS:
COUNTY OF Brooke §

On this the 28 day of December 2018, before me, a notary public, the undersigned authority, personally appeared Donald R. Hendrickson, known to me (or satisfactorily proven) to be the person whose name is subscribed to the within instrument, and acknowledged that he/she executed the same for the purposes therein contained.

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

My Commission Expires: August 8, 2021
Signature/Notary Public: Micah Feather
Name/Notary Public (print): Micah Feather

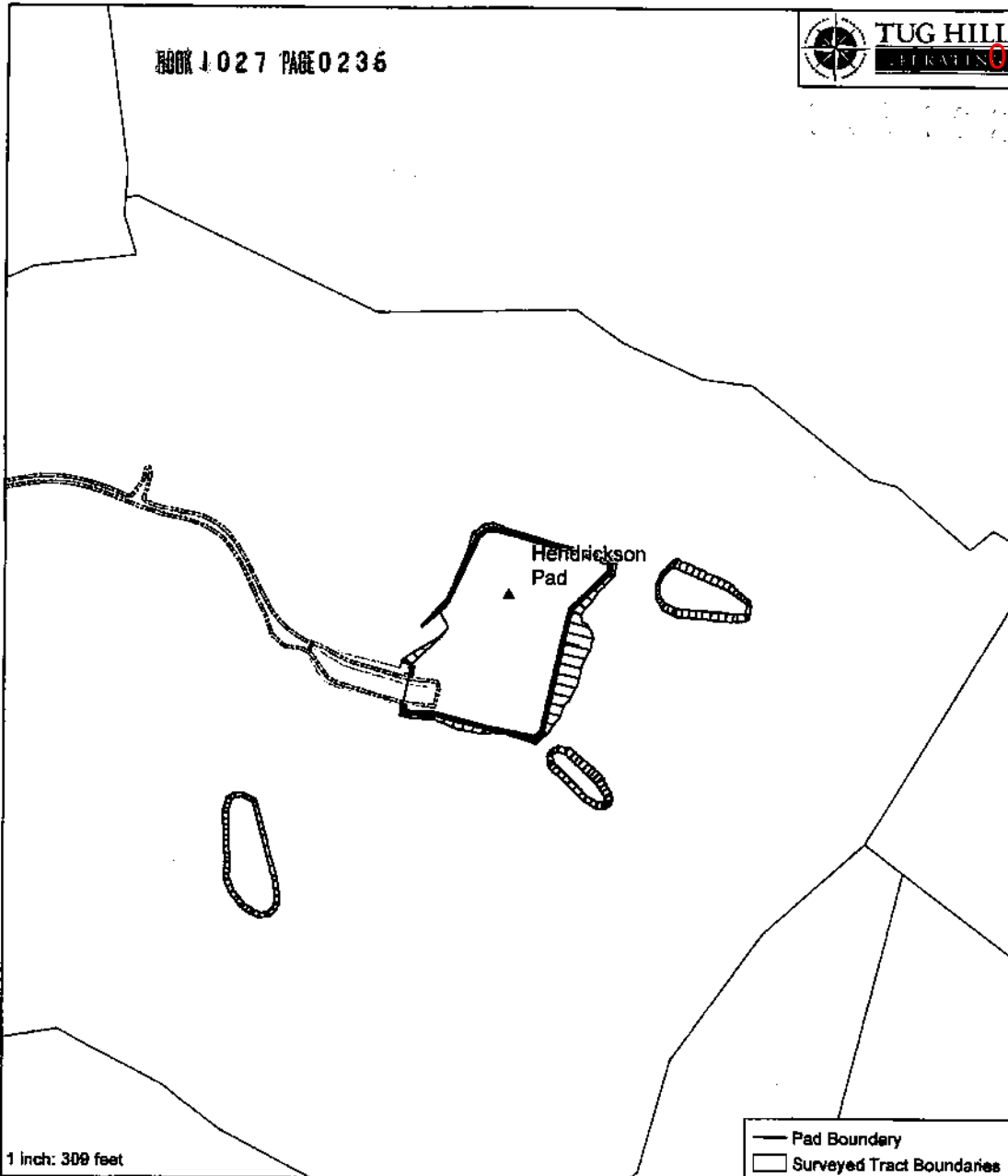


This instrument prepared by:
WV Oil and Gas Conservation Commission
601 57th Street
Charleston, WV 25304

02/03/2023



02/23/2023



1 inch: 300 feet

— Pad Boundary
□ Surveyed Tract Boundaries

0 50 100 200 Feet
N
Date: 12/01/2018
PC: NAD 1983 UTM Zone 17N Foot US

"Plat"
Hendrickson
Marshall County, WV

Date: December 28, 2018
Name: Donald H. Hendrickson
Name: Linda Hendrickson



Marshall County
Jan Pest, Clerk
Instrument 1449438
01/04/2019 @ 03:31:23 PM
RIGHT OF WAY W/O CONSIDERATION
Book 1027 @ Page 235
Pages Recorded 2
Recording Cost \$ 11.00

STATE OF WEST VIRGINIA, MARSHALL COUNTY, SCT.:

I, JAN PEST, Clerk of the County Commission of said County, do hereby certify that the annexed writing, bearing date on the 28th day of December, 2018, was presented for and by me, admitted to record in my office upon the above certificate as to the parties therein named this 4th day of January, 2019 at 3:31 o'clock P. M.

TESTE: Jan Pest Clerk

02/03/2023



TUG HILL

02/23/2023

4705102405

December 8, 2022

WV Department of Environmental Protection
Office of Oil & Gas
601 57th Street, SE
Charleston, WV 25304
Attention: Charles T. Brewer

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Office of Oil and Gas

DEC 12 2022

WV Department of
Environmental Protection

RE: Hendrickson S-13HU

Subject: Road Crossing Letter

Dear Taylor:

Tug Hill Operating, LLC will not be drilling, extracting or producing any minerals under any WV County or State Routes in the area reflected on the Hendrickson S-13HU well plat.

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

Sincerely,

Amy L. Morris
Permitting Specialist – Appalachia Region

02/03/2023

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION
DEC 12 2022

WV Department of
Environmental Protection

Date of Notice Certification: 12/08/2022

API No. 47- 051
Operator's Well No. Hendrickson S-13HU
Well Pad Name: Hendrickson

Notice has been given:

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

| | | | | |
|-------------|----------------------------|---------------------------|-----------|----------------------|
| State: | West Virginia | UTM NAD 83 | Easting: | 521,597.12 |
| County: | Marshall | | Northing: | 4,399,478.69 |
| District: | Franklin | Public Road Access: | | CR 76 |
| Quadrangle: | Wileyville 7.5' | Generally used farm name: | | Linda L. Hendrickson |
| Watershed: | HUC 10 - Middle Fish Creek | | | |

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

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:

*PLEASE CHECK ALL THAT APPLY

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

OOG OFFICE USE ONLY

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

Required Attachments:

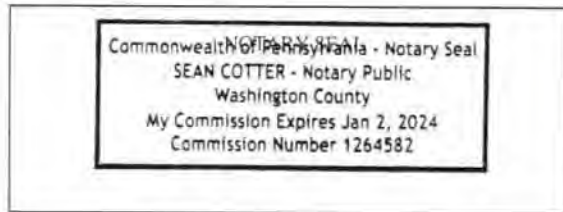
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

12/08/2022

Certification of Notice is hereby given:

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

| | | | |
|----------------|---|------------|---|
| Well Operator: | <u>Tug Hill Operating, LLC</u> | Address: | <u>380 Southpointe Boulevard, Plaza II, Suite 200</u> |
| By: | <u>Amy L. Morris <i>Amy L. Morris</i></u> | | <u>Canonsburg, PA 15317</u> |
| Its: | <u>Permitting Specialist - Appalachia</u> | Facsimile: | <u></u> |
| Telephone: | <u>304-376-0111</u> | Email: | <u>amorris@tug-hillop.com</u> |



Subscribed and sworn before me this 8 day of December.

[Signature] Notary Public

My Commission Expires 1/2/2024

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 of your personal information, please contact DEP's Chief Privacy Officer at deprivacyofficer@wv.gov.

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DEC 12 2022
WV Department of
Environmental Protection

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: 12/7/2022 **Date Permit Application Filed:** 12/8/2022

RECEIVED
Office of Oil and Gas

Notice of:

DEC 12 2022

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

WV Department of
Environmental Protection

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: Linda L. Pickering Hendrickson & Donald Ray Hendrickson
Address: 10 Susquehanna Road (Access Road and Well Pad)
Wellsburg, WV 26070

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: CONSOL Energy Attn: Casey Saunders
Address: 275 Technology Drive, Suite 101
Canonsburg, PA 15317-9565

COAL OPERATOR

Name: _____
Address: _____

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

Name: Terry E. Simms & Deborah L. Simms
Address: 7175 Rines Ridge Road
Proctor, WV 26055

Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: none within 2000'
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

*Please attach additional forms if necessary

DEC 12 2022

WV Department of
Environmental Protection

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

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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.**

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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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Environmental Protection

WW-6A
(8-13)

4705108125
API NO. 47-051 - **02/23/2023**
OPERATOR WELL NO. Hendrickson S-13HU
Well Pad Name: Hendrickson

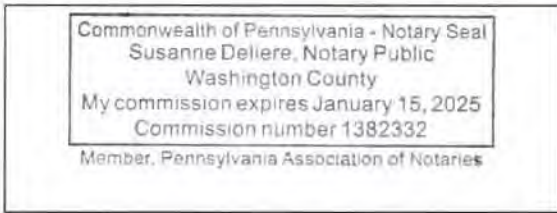
Notice is hereby given by:

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

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: _____

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.



Subscribed and sworn before me this 7th day of December, 2022
Susanne Deliere Notary Public
My Commission Expires 1/15/2025

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02/03/2023

02/23/2023

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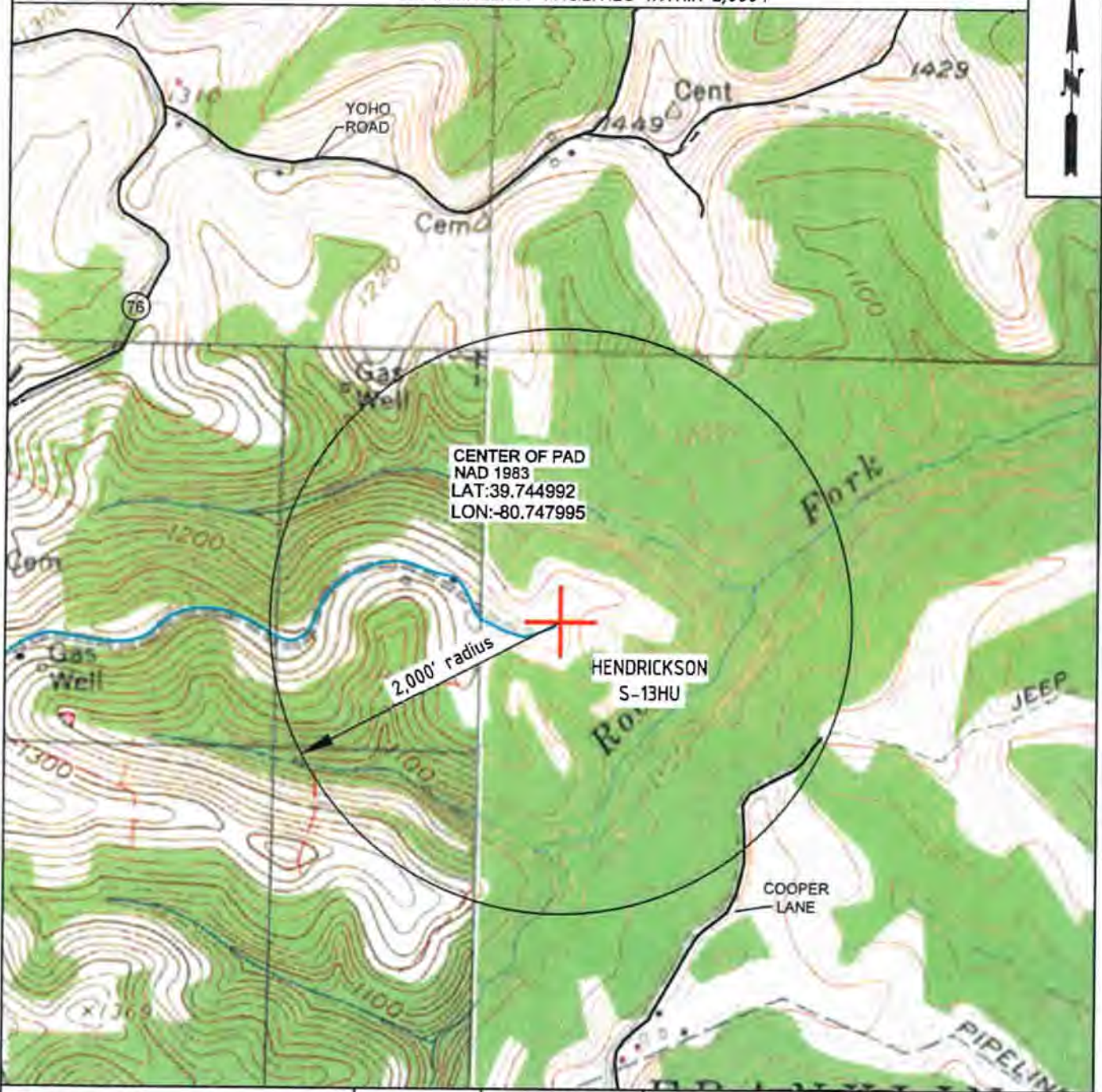
SUPPLEMENT PG 1

WW-6A

PROPOSED HENDRICKSON S-13HU

WV Department of
Environmental Protection

THERE APPEAR TO BE NO (O) RESIDENCES, BUSINESSES, CHURCHES, SCHOOLS,
OR EMERGENCY FACILITIES WITHIN 2,000'.



TUG HILL
OPERATING

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

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

LEASE NAME
HENDRICKSON
DATE:
DATE: 11-30-2022

02/03/2023

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least TEN (10) days prior to filing a permit application. **RECEIVED**
Date of Notice: 10/12/2022 **Date Permit Application Filed:** 11/01/2022 Office of Oil and Gas

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

DEC 12 2022

HAND DELIVERY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

WV Department of
Environmental Protection

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Linda L. Pickering Hendrickson & Donald Ray Hendrickson
Address: 10 Susquahanna Road (Access Road and Well Pad)
Wallsburg, WV 26070

Name: Terry E. Simms & Deborah L. Simms (Access Road)
Address: 7175 Rines Ridge Road
Proctor, WV 26055

Notice is hereby given:

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

| | | | | |
|-------------|---------------------------------|---------------------------|-----------------------------|---------------------|
| State: | <u>West Virginia</u> | UTM NAD 83 | Easting: | <u>521,597.12</u> |
| County: | <u>Marshall</u> | | Northing: | <u>4,399,478.69</u> |
| District: | <u>Franklin</u> | Public Road Access: | <u>Co. Rt. 75</u> | |
| Quadrangle: | <u>Wileyville 7.5'</u> | Generally used farm name: | <u>Linda L. Hendrickson</u> | |
| Watershed: | <u>Rocky Fork of Fish Creek</u> | | | |

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. 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.

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Telephone: 724-749-8388
Email: amorris@tug-hill-op.com
Facsimile: _____

Authorized Representative: Darren Brown
Address: 5098 Washington Street W, Suite 407
Charleston, WV 25313-1561
Telephone: 877-467-3525
Email: ct-statecommunications@wollerskluwer.com
Facsimile: _____

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.

**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: 12/07/2022 **Date Permit Application Filed:** 12/08/2022

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DEC 12 2022

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

- CERTIFIED MAIL HAND
- RETURN RECEIPT REQUESTED DELIVERY

WV Department of
Environmental Protection

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: Linda L. Pickering Hendrickson & Donald Ray Hendrickson
Address: 10 Susquehanna Road (Access Road and Well Pad)
Wellburg, WV 26070

Name: Terry E. Simms & Deborah L. Simms (Access Road)
Address: 7175 Rines Ridge Road
Proctor, WV 26055

Notice is hereby given:

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

| | | | | |
|-------------|---------------------------------|---------------------------|-----------------------------|---------------------|
| State: | <u>West Virginia</u> | UTM NAD 83 | Easting: | <u>521,597.12</u> |
| County: | <u>Marshall</u> | | Northing: | <u>4,399,478.69</u> |
| District: | <u>Franklin</u> | Public Road Access: | <u>Co. Rte. 76</u> | |
| Quadrangle: | <u>Willeyville 7.5'</u> | Generally used farm name: | <u>Linda L. Hendrickson</u> | |
| Watershed: | <u>HUC-10 Middle Fish Creek</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: amorris@tug-hill-op.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: _____

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.



02/23/2023

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

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

D. Alan Reed, P.E.
State Highway Engineer

Jimmy Wriston, P. E.
Secretary of Transportation
Commissioner of Highways

December 8, 2022

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

Subject: DOH Permit for the Hendrickson Pad, Marshall County
Hendrickson S-13HU Well Site

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WV Department of
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Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2011-0175 which has been issued to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 76 SLS MP 0.93.

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

Very Truly Yours,

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

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

02/03/2023

OPERATOR: Tug Hill Operating, LLC WELL NO: Hendrickson S-13HU

PAD NAME: Hendrickson

REVIEWED BY: Amy L. Morris SIGNATURE: *Amy Morris*

WELL RESTRICTIONS CHECKLIST

HORIZONTAL 6A WELL

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Well Restrictions

- At Least 100 Feet from Pad and LOD (including any E&S Control Feature) to any Perennial Stream, Lake, Pond, Reservoir or Wetland; OR
 - DEP Waiver and Permit Conditions
- At Least 300 Feet from Pad and LOD (including any E&S Control Feature) to any Naturally Producing Trout Stream; OR
 - DEP Waiver and Permit Conditions
- At Least 1000 Feet from Pad and LOD (including any E&S Control Feature) to any Groundwater Intake or Public Water Supply; OR
 - DEP Waiver and Permit Conditions
- At Least 250 Feet from an Existing Water Well or Developed Spring to Well Being Drilled; OR
 - Surface Owner Waiver and Recorded with County Clerk, OR
 - DEP Variance and Permit Conditions
- At Least 625 Feet from an Occupied Dwelling Structure to Center of the Pad; OR
 - Surface Owner Waiver and Recorded with County Clerk, OR
 - DEP Variance and Permit Conditions
- At Least 625 Feet from Agricultural Buildings Larger than 2500 Square Feet to the Center of the Pad; OR
 - Surface Owner Waiver and Recorded with County Clerk, OR
 - DEP Variance and Permit Conditions

Hendrickson Well Site

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

Tug Hill Operating
Marshall County
Franklin District

Latitude 39.74499217°

Longitude -80.74799480°

Middle Fish Creek Watershed

Pertinent Site Information

Hendrickson Site
Emergency Number: 304-545-1933
Franklin District, Marshall County, WV
Watershed: Middle Fish Creek Watershed
Tug Hill Contact Number: 1-817-615-1450

Property Owner Information - Hendrickson Well Site

| Year | Acres | Value | Owner | Address | City | State | Zip |
|------|-------|---------|--------------------|-----------------|----------|-------|-------|
| 2018 | 1.00 | 100,000 | TUG HILL OPERATING | 1000 W. 1000 S. | FRANKLIN | WV | 26035 |

Access Road

| Access Road | Width | Surface | Notes |
|-------------|-------|---------|---------------|
| Access Road | 10' | Gravel | See Site Plan |

Statistical Area

| Statistical Area | Value |
|------------------|-------|
| Area | 1.00 |
| Perimeter | 1.00 |
| Volume | 1.00 |
| Surface Area | 1.00 |
| Volume | 1.00 |
| Surface Area | 1.00 |
| Volume | 1.00 |

Hendrickson Well Site Overview

| Item | Value | Unit |
|--------------|-------|--------|
| Area | 1.00 | Acres |
| Perimeter | 1.00 | Feet |
| Volume | 1.00 | Cu Yds |
| Surface Area | 1.00 | Sq Ft |
| Volume | 1.00 | Cu Yds |
| Surface Area | 1.00 | Sq Ft |

Estimated Volume Required (Linear Feet)

| Item | Value | Unit |
|--------------|-------|--------|
| Area | 1.00 | Acres |
| Perimeter | 1.00 | Feet |
| Volume | 1.00 | Cu Yds |
| Surface Area | 1.00 | Sq Ft |
| Volume | 1.00 | Cu Yds |
| Surface Area | 1.00 | Sq Ft |

Wellhead Support Structure

| Item | Value | Unit |
|--------------|-------|--------|
| Area | 1.00 | Acres |
| Perimeter | 1.00 | Feet |
| Volume | 1.00 | Cu Yds |
| Surface Area | 1.00 | Sq Ft |
| Volume | 1.00 | Cu Yds |
| Surface Area | 1.00 | Sq Ft |

WEST VIRGINIA
COUNTY MAP



PROJECT LOCATION

Exhibit A: Final Design: Issue for Permitting



1:2500 1" Graphical Watershed Middle Fish Creek

| Site Location (NAD 83) | Site Location (NAD 83) |
|------------------------|------------------------|
| Station | Station |
| 1000.00 | 1000.00 |
| 1000.00 | 1000.00 |

Approach Road

From the intersection of WV Rt. 1 and OH Rt. 100
Marshall County, WV. Travel North on WV Rt. 1 for 1.0 mi. Turn
Right onto Co. Rd. 1 (Wells Hill Rd). Follow Co. Rd. 1 for 2.3 mi.
Turn Right onto Co. Rd. 10 (Chapman Ridge Rd). Follow Co. Rd.
10 for 0.5 mi. Turn Right onto Co. Rd. 17 (Hick Ridge Rd).
Follow Co. Rd. 17 for 0.5 mi. Turn Left onto Co. Rd. 10 (Chapman
Ridge Rd). Follow Co. Rd. 10 for 0.5 mi. The site entrance is
on the Right (East) side of the road.



Notes

- 1. All dimensions are in feet unless otherwise noted.
- 2. All dimensions are in feet unless otherwise noted.
- 3. All dimensions are in feet unless otherwise noted.
- 4. All dimensions are in feet unless otherwise noted.
- 5. All dimensions are in feet unless otherwise noted.
- 6. All dimensions are in feet unless otherwise noted.
- 7. All dimensions are in feet unless otherwise noted.
- 8. All dimensions are in feet unless otherwise noted.
- 9. All dimensions are in feet unless otherwise noted.
- 10. All dimensions are in feet unless otherwise noted.



APPROVED
WVDEP OOG
10/8/2020

Project Contacts

Client
Tug Hill Operating
1000 W. 1000 S.
Franklin, WV 26035

Design
Tug Hill Operating
1000 W. 1000 S.
Franklin, WV 26035

Permitting
Marshall County
1000 W. 1000 S.
Franklin, WV 26035

Construction
Tug Hill Operating
1000 W. 1000 S.
Franklin, WV 26035

Inspection
Marshall County
1000 W. 1000 S.
Franklin, WV 26035

WVDEP
1000 W. 1000 S.
Franklin, WV 26035

Site Conditions

Site Location (NAD 83)
Station 1000.00
Station 1000.00

Site Location (NAD 83)
Station 1000.00
Station 1000.00

Site Location (NAD 83)
Station 1000.00
Station 1000.00

Site Location (NAD 83)
Station 1000.00
Station 1000.00

Site Location (NAD 83)
Station 1000.00
Station 1000.00

Site Location (NAD 83)
Station 1000.00
Station 1000.00

TUG HILL
OPERATING



THIS DOCUMENT
PREPARED FOR
TUG HILL
OPERATING



Hendrickson Well Site
Franklin District
Marshall County, WV

Date: 10/8/2020
Drawn By: JCS
Checked By: JCS
Sheet 1 of 11

