



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

Thursday, October 13, 2022
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 PENDLETON S-3HM
47-051-02470-00-00

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: PENDLETON S-3HM
Farm Name: ALPINE FARM, LLC
U.S. WELL NUMBER: 47-051-02470-00-00
Horizontal 6A New Drill
Date Issued: 10/13/2022

Promoting a healthy environment.

10/14/2022

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.

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

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

2) Operator's Well Number: Pendleton S-3HM Well Pad Name: Pendleton

3) Farm Name/Surface Owner: Alpine Farm, LLC Public Road Access: Rines Ridge Road (County Route 76)

4) Elevation, current ground: 1,296' Elevation, proposed post-construction: 1,271.82'

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

Other _____

(b) If Gas Shallow X _____ Deep _____

Horizontal X _____

6) Existing Pad: Yes or No No

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

Marcellus is the target formation at a depth of 6,650' - 6,700', thickness of 50' and anticipated pressure of approx. 3800 psi.

8) Proposed Total Vertical Depth: 6,800'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 18,515'

11) Proposed Horizontal Leg Length: 10,083.16'

12) Approximate Fresh Water Strata Depths: 70; 914'

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

14) Approximate Saltwater Depths: 1,427'

15) Approximate Coal Seam Depths: Sewickley Coal - 816' and Pittsburgh Coal - 908'

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

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

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

*Shelby (Franklin)
STRADER LOWER
8/25/22*

18) CASING AND TUBING PROGRAM

| <u>TYPE</u> | <u>Size (in)</u> | <u>New or Used</u> | <u>Grade</u> | <u>Weight per ft. (lb/ft)</u> | <u>FOOTAGE: For Drilling (ft)</u> | <u>INTERVALS: Left in Well (ft)</u> | <u>CEMENT: Fill-up (Cu. Ft.)/CTS</u> |
|------------------|------------------|--------------------|--------------|-------------------------------|-----------------------------------|-------------------------------------|--------------------------------------|
| Conductor | 30" | NEW | BW | BW | 120' | 120' | 259FT^3(CTS) |
| Fresh Water/Coal | 13 3/8" | NEW | J55 | 54.5# | 1,040' | 1,040' | 1,073FT^3(CTS) |
| Intermediate | 9 5/8" | NEW | J55 | 36# | 2,920' | 2,920' | 966FT^3(CTS) |
| Production | 5 1/2" | NEW | P110 | 20# | 18,515' | 18,515' | 4,728FT^3(CTS) |
| Tubing | 2 3/8" | NEW | P110 | 4.7# | | 7,529' | |
| Liners | | | | | | | |

| <u>TYPE</u> | <u>Size (in)</u> | <u>Wellbore Diameter (in)</u> | <u>Wall Thickness (in)</u> | <u>Burst Pressure (psi)</u> | <u>Anticipated Max. Internal Pressure (psi)</u> | <u>Cement Type</u> | <u>Cement Yield (cu. ft./k)</u> |
|-------------------|------------------|-------------------------------|----------------------------|-----------------------------|---|--------------------|---------------------------------|
| Conductor | 30" | 36" | 1.0 | 2,333 | 1,866 | CLASS A | 1.2 |
| Fresh Water/ Coal | 13 3/8" | 17 1/2" | .38 | 2,740 | 2,192 | SEE #24 | 1.2 |
| Intermediate | 9 5/8" | 12 1/4" | .352 | 3,520 | 2,816 | SEE #24 | 1.19 |
| Production | 5 1/2" | 8 7/8" _ 8 3/4" | .361 | 12,640 | 10,112 | SEE #24 | 1.17/1.19 |
| Tubing | 2 3/8" | | .19 | 11,200 | 8,960 | | |
| Liners | | | | | | | |

PACKERS

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

Handwritten signature and date: 8/25/22

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

Drill through the Marcellus and TD Pilot Hole 100' into the Onondaga. Log vertical section and run a solid cement plug back to proposed KOP. Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

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

Well to be completed with approximately 25,300,000 lb proppant and 460,000 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 26.23 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.88 acres

23) Describe centralizer placement for each casing string:

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

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

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.

8/15/22

4705102470

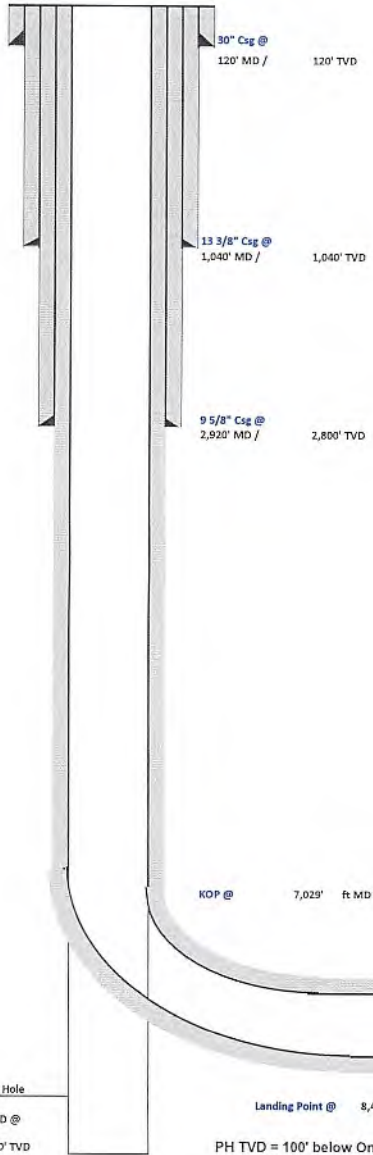


| | | | |
|---------------|-----------------|----------|----------|
| WELL NAME: | Pendleton S-3HM | | |
| STATE: | WV | COUNTY: | Marshall |
| DISTRICT: | Franklin | | |
| DF Elev: | 1,272' | GL Elev: | 1,272' |
| TD: | 18,515' | | |
| TH Latitude: | 39.75356 | | |
| TH Longitude: | -80.734184 | | |
| BH Latitude: | 39.738315 | | |
| BH Longitude: | -80.711918 | | |

| FORMATION TOPS | |
|---------------------|-----------|
| Formation | Depth TVD |
| Deepest Fresh Water | 914 |
| Sewickley Coal | 816 |
| Pittsburgh Coal | 908 |
| Big Lime | 2168 |
| Weir | 2469 |
| Berea | 2654 |
| Gordon | 2916 |
| Rhinestreet | 6011 |
| Genesee/Burkett | 6519 |
| Tully | 6550 |
| Hamilton | 6586 |
| Marcellus | 6650 |
| Landing Depth | 6683 |
| Onondaga | 6700 |
| Pilot Hole TD | 6800 |

| CASING SUMMARY | | | | | | | |
|----------------|----------------|---------------|------------|-------------|----------------|---------|---------------|
| Type | Hole Size (in) | Csg Size (in) | Depth (MD) | Depth (TVD) | Weight (lb/ft) | Grade | Top of Cement |
| Conductor | 36 | 30 | 120' | 120' | BW | BW | Surface |
| Surface | 17 1/2 | 13 3/8 | 1,040' | 1,040' | 54.5 | J55 | Surface |
| Intermediate 1 | 12 1/4 | 9 5/8 | 2,920' | 2,800' | 36 | J55 | Surface |
| Production | 8 7/8 x 8 3/4 | 5 1/2 | 18,515' | 6,859' | 20 | CYHP110 | Surface |

| CEMENT SUMMARY | | | | DRILLING DETAILS | |
|----------------|-------|-------|---------------|------------------|--|
| Type | Sacks | Class | Density (ppg) | Fluid Type | Centralizer Notes |
| Conductor | 338 | A | 15.6 | Air | None |
| Surface | 1,082 | A | 15.6 | Air | 3 Centralizers at equal distance |
| Intermediate 1 | 840 | A | 15 | Air | 1 Centralizer every other joint |
| Production | 4,113 | A | 14.5 | Air / SOBMM | 1 every other joint in lateral; 1 per joint in curve; 1 every other joint to surface |



Pilot Hole
PH TD @
6,800' TVD

Landing Point @ 8,434' MD / 6,683' TVD

PH TVD = 100' below Onondaga Top

Lateral TD @ 18,515' ft MD
6,859' ft TVD



Tug Hill Operating, LLC Casing and Cement Program

Pendleton S-3HM

Casing

| | String | Grade | Bit Size | Depth (Measured) | Cement Fill Up |
|--------------|---------|-------|----------------|------------------|----------------|
| Conductor | 30" | BW | 36" | 120' | CTS |
| Surface | 13 3/8" | J55 | 17 1/2" | 1,040' | CTS |
| Intermediate | 9 5/8" | J55 | 12 1/4" | 2,920' | CTS |
| Production | 5 1/2" | P110 | 8 7/8 x 8 3/4" | 18,515' | CTS |

Cement

Conductor: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2

Surface: Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2

Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15 ppg, Y=1.38

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 14.5 ppg, Y = 1.3



TUG HILL
OPERATING

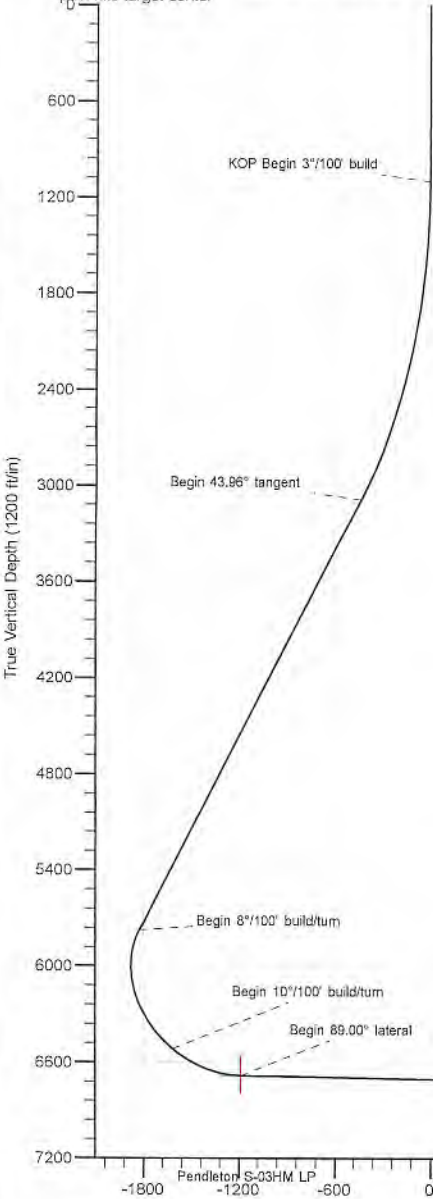
Well: Pendleton S-03 HM (slot K)
Site: Pendleton
Project: Marshall County, West Virginia NAD83 UTM 17N
Design: rev2
Rig:

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 | 1100.00 | 0.00 | 0.000 | 1100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | KOP Begin 3"/100' build |
| 3 | 3297.87 | 43.96 | 8.938 | 3088.52 | 792.81 | 124.68 | 2.00 | 8.94 | -430.70 | Begin 43.96° tangent |
| 4 | 7029.14 | 43.96 | 8.938 | 5774.49 | 3351.32 | 527.05 | 0.00 | 0.00 | -1820.63 | Begin 8"/100' build/turn |
| 5 | 7961.24 | 50.00 | 120.640 | 6517.52 | 3512.34 | 945.25 | 8.00 | 132.41 | -1613.38 | Begin 10"/100' build/turn |
| 6 | 8433.76 | 89.00 | 149.999 | 6683.00 | 3197.48 | 1235.74 | 10.00 | 41.88 | -1187.26 | Begin 89.00° lateral |
| 7 | 18515.09 | 89.00 | 149.999 | 6659.02 | -5531.76 | 6275.84 | 0.00 | 0.00 | 8365.80 | PBHL/TD 18515.09 MD 6859.02 |

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---------|----------|---------|--------------|-------------|--------------|---------------|
| Pendleton S-03HM LP | 6683.00 | 3197.48 | 1235.73 | 14440304.923 | 1716361.382 | 39.762331000 | -80.729753000 |
| - plan misses target center by 0.01ft at 8433.76ft MD (6683.00 TVD, 3197.48 N, 1235.73 E) | | | | | | | |
| Pendleton S-03HM BHL r2 | 6859.02 | -5531.76 | 6275.84 | 14431575.704 | 1721401.491 | 39.738315000 | -80.711918000 |
| - 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)

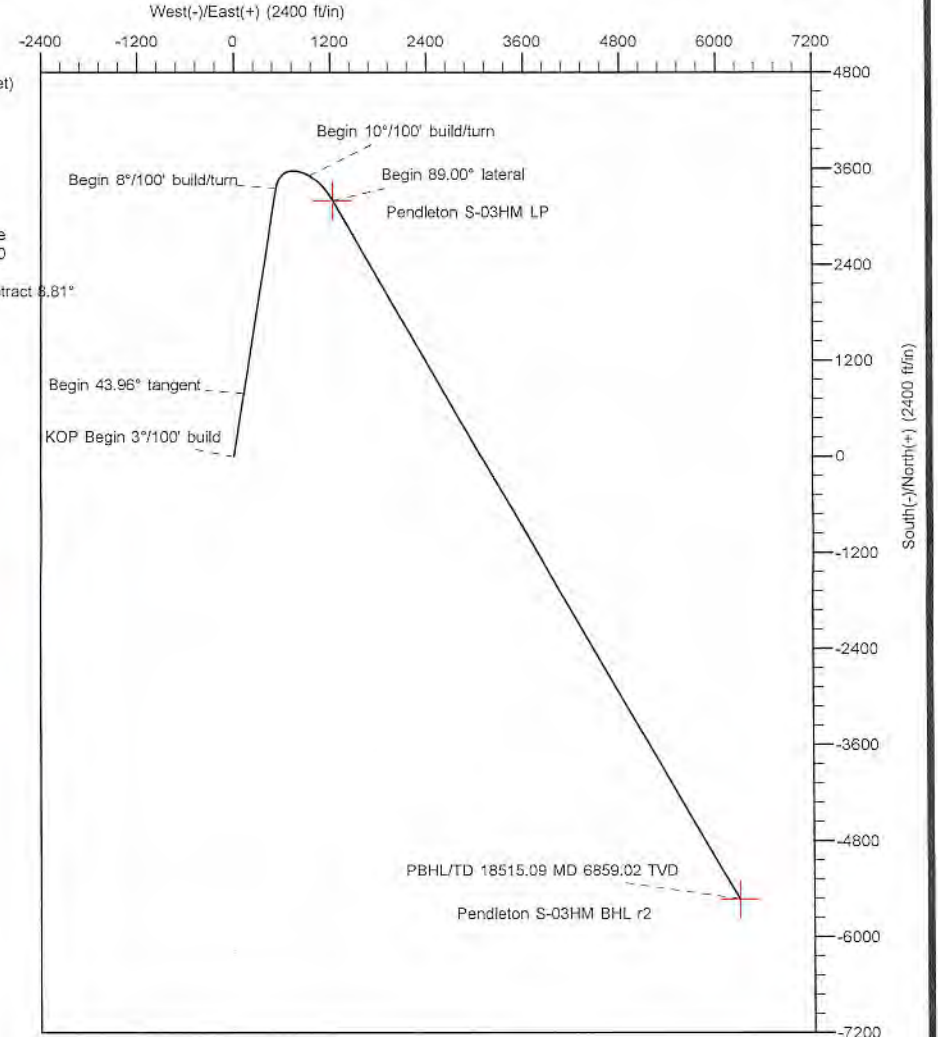
System Datum: Mean Sea Level
Depth Reference: GL @ 1272.00ft
Surface location
Northing: 14437107.449
Easting: 1715125.659
Latitude: 39.753560000
Longitude: -80.734184000

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.81°



Azimuths to Grid North
True North: -0.17°
Magnetic North: -8.81°

Magnetic Field
Strength: 51623.5nT
Dip Angle: 66.41°
Date: 7/5/2022
Model: IGRF2020



PBHL/TD 18515.09 MD 6859.02 TVD

Pendleton S-03HM BHL r2

Pendleton S-03HM BHL r2



| | | | |
|-----------|--|------------------------------|---------------------------------|
| Database: | DB_Feb2822 | Local Co-ordinate Reference: | Well Pendleton S-03 HM (slot K) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1272.00ft |
| Project: | Marshall County, West Virginia NAD83 UTM 17N | MD Reference: | GL @ 1272.00ft |
| Site: | Pendleton | North Reference: | Grid |
| Well: | Pendleton S-03 HM (slot K) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev2 | | |

| | | | |
|-------------|--|---------------|----------------|
| 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 | Pendleton | | | | |
| Site Position: | | Northing: | 14,437,088.243 usft | Latitude: | 39.753506850 |
| From: | Lat/Long | Easting: | 1,715,175.249 usft | Longitude: | -80.734007760 |
| Position Uncertainty: | 0.00 ft | Slot Radius: | 13-3/16 " | | |

| | | | | | | |
|----------------------|----------------------------|---------------------|-----------|---------------------|-------------|---------------|
| Well | Pendleton S-03 HM (slot K) | | | | | |
| Well Position | +N/-S | 0.00 ft | Northing: | 14,437,107.450 usft | Latitude: | 39.753560000 |
| | +E/-W | 0.00 ft | Easting: | 1,715,125.658 usft | Longitude: | -80.734184000 |
| Position Uncertainty | 0.00 ft | Wellhead Elevation: | ft | Ground Level: | 1,272.00 ft | |
| Grid Convergence: | | | | | | |

| Wellbore | Original Hole | | | | |
|-----------|---------------|-------------|-----------------|---------------|---------------------|
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2020 | 7/5/2022 | -8.64 | 66.41 | 51,623.52008450 |

| Design | rev2 | | | |
|-------------------|-----------------------|------------|---------------|---------------|
| Audit Notes: | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
| | 0.00 | 0.00 | 0.00 | 131.394 |

| Plan Survey Tool Program | Date | | | |
|--------------------------|---------------|-------------------|----------------------|---------|
| Depth From (ft) | Depth To (ft) | Survey (Wellbore) | Tool Name | Remarks |
| 1 | 0.00 | 18,515.09 | rev2 (Original Hole) | |

| 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 | |
| 1,100.00 | 0.00 | 0.000 | 1,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3,297.87 | 43.96 | 8.938 | 3,088.52 | 792.81 | 124.68 | 2.00 | 2.00 | 0.00 | 8.94 | |
| 7,029.14 | 43.96 | 8.938 | 5,774.49 | 3,351.32 | 527.05 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,961.24 | 50.00 | 120.640 | 6,517.52 | 3,512.34 | 945.25 | 8.00 | 0.65 | 11.98 | 132.41 | |
| 8,433.76 | 89.00 | 149.999 | 6,683.00 | 3,197.48 | 1,235.74 | 10.00 | 8.25 | 6.21 | 41.88 | |
| 18,515.09 | 89.00 | 149.999 | 6,859.02 | -5,531.76 | 6,275.84 | 0.00 | 0.00 | 0.00 | 0.00 | Pendleton S-03HM BI |



Planning Report - Geographic

4705102470

| | | | |
|-----------|---|------------------------------|---------------------------------|
| Database: | DB_Feb2822 | Local Co-ordinate Reference: | Well Pendleton S-03 HM (slot K) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1272.00ft |
| Project: | Marshall County, West Virginia NAD83 UTM 17N | MD Reference: | GL @ 1272.00ft |
| Site: | Pendleton | North Reference: | Grid |
| Well: | Pendleton S-03 HM (slot K) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev2 | | |

| 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 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 100.00 | 0.00 | 0.000 | 100.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 200.00 | 0.00 | 0.000 | 200.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 300.00 | 0.00 | 0.000 | 300.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 400.00 | 0.00 | 0.000 | 400.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 500.00 | 0.00 | 0.000 | 500.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 600.00 | 0.00 | 0.000 | 600.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 700.00 | 0.00 | 0.000 | 700.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 800.00 | 0.00 | 0.000 | 800.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 900.00 | 0.00 | 0.000 | 900.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 1,000.00 | 0.00 | 0.000 | 1,000.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| 1,100.00 | 0.00 | 0.000 | 1,100.00 | 0.00 | 0.00 | 14,437,107.450 | 1,715,125.658 | 39.753560000 | -80.734184000 | |
| KOP Begin 3°/100' build | | | | | | | | | | |
| 1,200.00 | 2.00 | 8.938 | 1,199.98 | 1.72 | 0.27 | 14,437,109.174 | 1,715,125.929 | 39.753564733 | -80.734183017 | |
| 1,300.00 | 4.00 | 8.938 | 1,299.84 | 6.89 | 1.08 | 14,437,114.343 | 1,715,126.742 | 39.753578924 | -80.734180070 | |
| 1,400.00 | 6.00 | 8.938 | 1,399.45 | 15.50 | 2.44 | 14,437,122.953 | 1,715,128.096 | 39.753602556 | -80.734175162 | |
| 1,500.00 | 8.00 | 8.938 | 1,498.70 | 27.54 | 4.33 | 14,437,134.991 | 1,715,129.989 | 39.753635601 | -80.734168299 | |
| 1,600.00 | 10.00 | 8.938 | 1,597.47 | 42.99 | 6.76 | 14,437,150.444 | 1,715,132.420 | 39.753678019 | -80.734159489 | |
| 1,700.00 | 12.00 | 8.938 | 1,695.62 | 61.84 | 9.73 | 14,437,169.292 | 1,715,135.384 | 39.753729757 | -80.734148743 | |
| 1,800.00 | 14.00 | 8.938 | 1,793.06 | 84.06 | 13.22 | 14,437,191.513 | 1,715,138.878 | 39.753790753 | -80.734136075 | |
| 1,900.00 | 16.00 | 8.938 | 1,889.64 | 109.63 | 17.24 | 14,437,217.079 | 1,715,142.899 | 39.753860933 | -80.734121499 | |
| 2,000.00 | 18.00 | 8.938 | 1,985.27 | 138.51 | 21.78 | 14,437,245.980 | 1,715,147.441 | 39.753940210 | -80.734105034 | |
| 2,100.00 | 20.00 | 8.938 | 2,079.82 | 170.67 | 26.84 | 14,437,278.119 | 1,715,152.499 | 39.754028489 | -80.734086699 | |
| 2,200.00 | 22.00 | 8.938 | 2,173.17 | 206.07 | 32.41 | 14,437,313.519 | 1,715,158.066 | 39.754125661 | -80.734066517 | |
| 2,300.00 | 24.00 | 8.938 | 2,265.21 | 244.67 | 38.48 | 14,437,352.116 | 1,715,164.136 | 39.754231609 | -80.734044512 | |
| 2,400.00 | 26.00 | 8.938 | 2,355.84 | 286.41 | 45.04 | 14,437,393.862 | 1,715,170.701 | 39.754346203 | -80.734020711 | |
| 2,500.00 | 28.00 | 8.938 | 2,444.94 | 331.26 | 52.10 | 14,437,438.708 | 1,715,177.754 | 39.754469304 | -80.733995144 | |
| 2,600.00 | 30.00 | 8.938 | 2,532.39 | 379.15 | 59.63 | 14,437,486.598 | 1,715,185.286 | 39.754600761 | -80.733967841 | |
| 2,700.00 | 32.00 | 8.938 | 2,618.11 | 430.02 | 67.63 | 14,437,537.473 | 1,715,193.287 | 39.754740415 | -80.733938835 | |
| 2,800.00 | 34.00 | 8.938 | 2,701.97 | 483.82 | 76.09 | 14,437,591.273 | 1,715,201.748 | 39.754888095 | -80.733908162 | |
| 2,900.00 | 36.00 | 8.938 | 2,783.88 | 540.48 | 85.00 | 14,437,647.931 | 1,715,210.658 | 39.755043622 | -80.733875859 | |
| 3,000.00 | 38.00 | 8.938 | 2,863.74 | 599.93 | 94.35 | 14,437,707.379 | 1,715,220.007 | 39.755206806 | -80.733841966 | |
| 3,100.00 | 40.00 | 8.938 | 2,941.45 | 662.10 | 104.13 | 14,437,769.544 | 1,715,229.784 | 39.755377448 | -80.733806523 | |
| 3,200.00 | 42.00 | 8.938 | 3,016.92 | 726.90 | 114.32 | 14,437,834.350 | 1,715,239.976 | 39.755555340 | -80.733769575 | |
| 3,297.87 | 43.96 | 8.938 | 3,088.52 | 792.81 | 124.68 | 14,437,900.258 | 1,715,250.341 | 39.755736257 | -80.733731997 | |
| Begin 43.96° tangent | | | | | | | | | | |
| 3,300.00 | 43.96 | 8.938 | 3,090.05 | 794.27 | 124.91 | 14,437,901.717 | 1,715,250.571 | 39.755740264 | -80.733731165 | |
| 3,400.00 | 43.96 | 8.938 | 3,162.04 | 862.84 | 135.70 | 14,437,970.287 | 1,715,261.354 | 39.755928486 | -80.733692070 | |
| 3,500.00 | 43.96 | 8.938 | 3,234.02 | 931.41 | 146.48 | 14,438,038.856 | 1,715,272.138 | 39.756116709 | -80.733652975 | |
| 3,600.00 | 43.96 | 8.938 | 3,306.01 | 999.98 | 157.26 | 14,438,107.426 | 1,715,282.922 | 39.756304932 | -80.733613880 | |
| 3,700.00 | 43.96 | 8.938 | 3,377.99 | 1,068.55 | 168.05 | 14,438,175.995 | 1,715,293.705 | 39.756493155 | -80.733574785 | |
| 3,800.00 | 43.96 | 8.938 | 3,449.98 | 1,137.12 | 178.83 | 14,438,244.564 | 1,715,304.489 | 39.756681378 | -80.733535689 | |
| 3,900.00 | 43.96 | 8.938 | 3,521.96 | 1,205.69 | 189.62 | 14,438,313.134 | 1,715,315.273 | 39.756869600 | -80.733496593 | |
| 4,000.00 | 43.96 | 8.938 | 3,593.95 | 1,274.26 | 200.40 | 14,438,381.703 | 1,715,326.057 | 39.757057823 | -80.733457497 | |
| 4,100.00 | 43.96 | 8.938 | 3,665.93 | 1,342.83 | 211.18 | 14,438,450.273 | 1,715,336.840 | 39.757246046 | -80.733418401 | |
| 4,200.00 | 43.96 | 8.938 | 3,737.92 | 1,411.40 | 221.97 | 14,438,518.842 | 1,715,347.624 | 39.757434269 | -80.733379304 | |
| 4,300.00 | 43.96 | 8.938 | 3,809.91 | 1,479.97 | 232.75 | 14,438,587.412 | 1,715,358.408 | 39.757622491 | -80.733340207 | |
| 4,400.00 | 43.96 | 8.938 | 3,881.89 | 1,548.53 | 243.53 | 14,438,655.981 | 1,715,369.192 | 39.757810714 | -80.733301111 | |
| 4,500.00 | 43.96 | 8.938 | 3,953.88 | 1,617.10 | 254.32 | 14,438,724.551 | 1,715,379.975 | 39.757998937 | -80.733262013 | |
| 4,600.00 | 43.96 | 8.938 | 4,025.86 | 1,685.67 | 265.10 | 14,438,793.120 | 1,715,390.759 | 39.758187159 | -80.733222916 | |
| 4,700.00 | 43.96 | 8.938 | 4,097.85 | 1,754.24 | 275.89 | 14,438,861.689 | 1,715,401.543 | 39.758375382 | -80.733183818 | |
| 4,800.00 | 43.96 | 8.938 | 4,169.83 | 1,822.81 | 286.67 | 14,438,930.259 | 1,715,412.327 | 39.758563604 | -80.733144721 | |
| 4,900.00 | 43.96 | 8.938 | 4,241.82 | 1,891.38 | 297.45 | 14,438,998.828 | 1,715,423.110 | 39.758751827 | -80.733105623 | |



Planning Report - Geographic

| | | | |
|-----------|---|------------------------------|---------------------------------|
| Database: | DB_Feb2822 | Local Co-ordinate Reference: | Well Pendleton S-03 HM (slot K) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1272.00ft |
| Project: | Marshall County, West Virginia NAD83 UTM 17N | MD Reference: | GL @ 1272.00ft |
| Site: | Pendleton | North Reference: | Grid |
| Well: | Pendleton S-03 HM (slot K) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev2 | | |

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|----------------------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|--------------|---------------|
| 5,000.00 | 43.96 | 8.938 | 4,313.81 | 1,959.95 | 308.24 | 14,439,067.398 | 1,715,433.894 | 39.758940049 | -80.733066524 |
| 5,100.00 | 43.96 | 8.938 | 4,385.79 | 2,028.52 | 319.02 | 14,439,135.967 | 1,715,444.678 | 39.759128272 | -80.733027426 |
| 5,200.00 | 43.96 | 8.938 | 4,457.78 | 2,097.09 | 329.80 | 14,439,204.537 | 1,715,455.462 | 39.759316494 | -80.732988327 |
| 5,300.00 | 43.96 | 8.938 | 4,529.76 | 2,165.66 | 340.59 | 14,439,273.106 | 1,715,466.245 | 39.759504717 | -80.732949228 |
| 5,400.00 | 43.96 | 8.938 | 4,601.75 | 2,234.23 | 351.37 | 14,439,341.676 | 1,715,477.029 | 39.759692939 | -80.732910129 |
| 5,500.00 | 43.96 | 8.938 | 4,673.73 | 2,302.80 | 362.16 | 14,439,410.245 | 1,715,487.813 | 39.759881162 | -80.732871030 |
| 5,600.00 | 43.96 | 8.938 | 4,745.72 | 2,371.37 | 372.94 | 14,439,478.814 | 1,715,498.597 | 39.760069384 | -80.732831930 |
| 5,700.00 | 43.96 | 8.938 | 4,817.70 | 2,439.94 | 383.72 | 14,439,547.384 | 1,715,509.380 | 39.760257607 | -80.732792831 |
| 5,800.00 | 43.96 | 8.938 | 4,889.69 | 2,508.51 | 394.51 | 14,439,615.953 | 1,715,520.164 | 39.760445828 | -80.732753731 |
| 5,900.00 | 43.96 | 8.938 | 4,961.68 | 2,577.08 | 405.29 | 14,439,684.523 | 1,715,530.948 | 39.760634050 | -80.732714630 |
| 6,000.00 | 43.96 | 8.938 | 5,033.66 | 2,645.65 | 416.07 | 14,439,753.092 | 1,715,541.732 | 39.760822273 | -80.732675530 |
| 6,100.00 | 43.96 | 8.938 | 5,105.65 | 2,714.22 | 426.86 | 14,439,821.662 | 1,715,552.515 | 39.761010495 | -80.732636429 |
| 6,200.00 | 43.96 | 8.938 | 5,177.63 | 2,782.79 | 437.64 | 14,439,890.231 | 1,715,563.299 | 39.761198717 | -80.732597328 |
| 6,300.00 | 43.96 | 8.938 | 5,249.62 | 2,851.36 | 448.43 | 14,439,958.801 | 1,715,574.083 | 39.761386940 | -80.732558227 |
| 6,400.00 | 43.96 | 8.938 | 5,321.60 | 2,919.93 | 459.21 | 14,440,027.370 | 1,715,584.867 | 39.761575162 | -80.732519126 |
| 6,500.00 | 43.96 | 8.938 | 5,393.59 | 2,988.50 | 469.99 | 14,440,095.939 | 1,715,595.650 | 39.761763384 | -80.732480025 |
| 6,600.00 | 43.96 | 8.938 | 5,465.57 | 3,057.07 | 480.78 | 14,440,164.509 | 1,715,606.434 | 39.761951606 | -80.732440923 |
| 6,700.00 | 43.96 | 8.938 | 5,537.56 | 3,125.64 | 491.56 | 14,440,233.078 | 1,715,617.218 | 39.762139828 | -80.732401821 |
| 6,800.00 | 43.96 | 8.938 | 5,609.55 | 3,194.20 | 502.34 | 14,440,301.648 | 1,715,628.002 | 39.762328051 | -80.732362719 |
| 6,900.00 | 43.96 | 8.938 | 5,681.53 | 3,262.77 | 513.13 | 14,440,370.217 | 1,715,638.785 | 39.762516273 | -80.732323617 |
| 7,000.00 | 43.96 | 8.938 | 5,753.52 | 3,331.34 | 523.91 | 14,440,438.787 | 1,715,649.569 | 39.762704495 | -80.732284514 |
| 7,029.14 | 43.96 | 8.938 | 5,774.49 | 3,351.32 | 527.05 | 14,440,458.767 | 1,715,652.711 | 39.762759342 | -80.732273120 |
| Begin 8°/100' build/turn | | | | | | | | | |
| 7,050.00 | 42.85 | 10.750 | 5,789.65 | 3,365.45 | 529.50 | 14,440,472.889 | 1,715,655.159 | 39.762798103 | -80.732264259 |
| 7,100.00 | 40.31 | 15.411 | 5,827.06 | 3,397.75 | 536.97 | 14,440,505.195 | 1,715,662.631 | 39.762886764 | -80.732237328 |
| 7,150.00 | 37.98 | 20.564 | 5,865.84 | 3,427.76 | 546.68 | 14,440,535.202 | 1,715,672.336 | 39.762969091 | -80.732202473 |
| 7,200.00 | 35.90 | 26.251 | 5,905.82 | 3,455.32 | 558.57 | 14,440,562.763 | 1,715,684.228 | 39.763044683 | -80.732159864 |
| 7,250.00 | 34.11 | 32.494 | 5,946.79 | 3,480.30 | 572.59 | 14,440,587.743 | 1,715,696.247 | 39.763113171 | -80.732109709 |
| 7,300.00 | 32.67 | 39.277 | 5,988.55 | 3,502.58 | 588.67 | 14,440,610.021 | 1,715,714.327 | 39.763174221 | -80.732052252 |
| 7,350.00 | 31.61 | 46.537 | 6,030.90 | 3,522.05 | 606.73 | 14,440,629.489 | 1,715,732.389 | 39.763227537 | -80.731987773 |
| 7,400.00 | 31.00 | 54.147 | 6,073.64 | 3,538.61 | 626.69 | 14,440,646.052 | 1,715,752.344 | 39.763272859 | -80.731916586 |
| 7,450.00 | 30.84 | 61.930 | 6,116.55 | 3,552.19 | 648.44 | 14,440,659.628 | 1,715,774.096 | 39.763309965 | -80.731839038 |
| 7,500.00 | 31.14 | 69.680 | 6,159.43 | 3,562.71 | 671.88 | 14,440,670.153 | 1,715,797.538 | 39.763338675 | -80.731755507 |
| 7,550.00 | 31.90 | 77.196 | 6,202.07 | 3,570.13 | 696.90 | 14,440,677.574 | 1,715,822.557 | 39.763358849 | -80.731666400 |
| 7,600.00 | 33.08 | 84.316 | 6,244.26 | 3,574.41 | 723.37 | 14,440,681.855 | 1,715,849.030 | 39.763370388 | -80.731572151 |
| 7,650.00 | 34.64 | 90.933 | 6,285.79 | 3,575.53 | 751.17 | 14,440,682.976 | 1,715,876.828 | 39.763373238 | -80.731473219 |
| 7,700.00 | 36.52 | 96.999 | 6,326.47 | 3,573.49 | 780.16 | 14,440,680.931 | 1,715,905.817 | 39.763367383 | -80.731370086 |
| 7,750.00 | 38.89 | 102.513 | 6,366.09 | 3,568.29 | 810.20 | 14,440,675.730 | 1,715,935.855 | 39.763352851 | -80.731263255 |
| 7,800.00 | 41.09 | 107.505 | 6,404.46 | 3,559.96 | 841.14 | 14,440,667.398 | 1,715,966.794 | 39.763329715 | -80.731153246 |
| 7,850.00 | 43.69 | 112.022 | 6,441.39 | 3,548.53 | 872.83 | 14,440,655.976 | 1,715,998.485 | 39.763298087 | -80.731040595 |
| 7,900.00 | 46.44 | 116.118 | 6,476.71 | 3,534.08 | 905.12 | 14,440,641.520 | 1,716,030.774 | 39.763258120 | -80.730925851 |
| 7,950.00 | 49.33 | 119.847 | 6,510.24 | 3,516.66 | 937.85 | 14,440,624.100 | 1,716,063.503 | 39.763210009 | -80.730809573 |
| 7,961.24 | 50.00 | 120.640 | 6,517.52 | 3,512.34 | 945.25 | 14,440,619.782 | 1,716,070.907 | 39.763198091 | -80.730783270 |
| Begin 10°/100' build/turn | | | | | | | | | |
| 8,000.00 | 52.93 | 123.882 | 6,541.67 | 3,496.15 | 970.87 | 14,440,603.591 | 1,716,096.525 | 39.763153415 | -80.730692283 |
| 8,050.00 | 56.83 | 127.708 | 6,570.43 | 3,472.21 | 1,004.01 | 14,440,579.656 | 1,716,129.663 | 39.763087408 | -80.730574619 |
| 8,100.00 | 60.84 | 131.203 | 6,596.30 | 3,445.02 | 1,037.01 | 14,440,552.458 | 1,716,162.665 | 39.763012443 | -80.730457471 |
| 8,150.00 | 64.93 | 134.433 | 6,619.09 | 3,414.76 | 1,069.63 | 14,440,522.205 | 1,716,195.282 | 39.762929088 | -80.730341730 |
| 8,200.00 | 69.09 | 137.452 | 6,638.62 | 3,381.68 | 1,101.61 | 14,440,489.126 | 1,716,227.264 | 39.762837980 | -80.730228278 |
| 8,250.00 | 73.30 | 140.308 | 6,654.74 | 3,346.03 | 1,132.71 | 14,440,453.473 | 1,716,258.368 | 39.762739811 | -80.730117977 |
| 8,300.00 | 77.54 | 143.039 | 6,667.33 | 3,308.08 | 1,162.70 | 14,440,415.518 | 1,716,288.358 | 39.762635327 | -80.730011667 |
| 8,350.00 | 81.81 | 145.682 | 6,676.29 | 3,268.11 | 1,191.35 | 14,440,375.549 | 1,716,317.005 | 39.762525326 | -80.729910158 |
| 8,400.00 | 86.10 | 148.269 | 6,681.55 | 3,226.43 | 1,218.43 | 14,440,333.872 | 1,716,344.091 | 39.762410643 | -80.729814221 |



Planning Report - Geographic

4705102470

| | | | |
|-----------|---|------------------------------|---------------------------------|
| Database: | DB_Feb2922 | Local Co-ordinate Reference: | Well Pendleton S-03 HM (slot K) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1272.00ft |
| Project: | Marshall County, West Virginia NAD83 UTM 17N | MD Reference: | GL @ 1272.00ft |
| Site: | Pendleton | North Reference: | Grid |
| Well: | Pendleton S-03 HM (slot K) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev2 | | |

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|-----------------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|--------------|---------------|
| 8,433.76 | 89.00 | 149.999 | 6,683.00 | 3,197.48 | 1,235.74 | 14,440,304.924 | 1,716,361.392 | 39.762331002 | -80.729752968 |
| Begin 89.00° lateral | | | | | | | | | |
| 8,500.00 | 89.00 | 149.999 | 6,684.15 | 3,140.12 | 1,268.85 | 14,440,247.568 | 1,716,394.508 | 39.762173211 | -80.729635740 |
| 8,600.00 | 89.00 | 149.999 | 6,685.90 | 3,053.54 | 1,318.85 | 14,440,160.980 | 1,716,444.503 | 39.761935002 | -80.729458770 |
| 8,700.00 | 89.00 | 149.999 | 6,687.64 | 2,966.95 | 1,368.84 | 14,440,074.392 | 1,716,494.497 | 39.761696793 | -80.729281800 |
| 8,800.00 | 89.00 | 149.999 | 6,689.39 | 2,880.36 | 1,418.84 | 14,439,987.804 | 1,716,544.491 | 39.761458583 | -80.729104832 |
| 8,900.00 | 89.00 | 149.999 | 6,691.14 | 2,793.77 | 1,468.83 | 14,439,901.216 | 1,716,594.486 | 39.761220374 | -80.728927865 |
| 9,000.00 | 89.00 | 149.999 | 6,692.88 | 2,707.18 | 1,518.82 | 14,439,814.628 | 1,716,644.480 | 39.760982164 | -80.728750899 |
| 9,100.00 | 89.00 | 149.999 | 6,694.63 | 2,620.60 | 1,568.82 | 14,439,728.040 | 1,716,694.474 | 39.760743953 | -80.728573935 |
| 9,200.00 | 89.00 | 149.999 | 6,696.37 | 2,534.01 | 1,618.81 | 14,439,641.452 | 1,716,744.469 | 39.760505743 | -80.728396971 |
| 9,300.00 | 89.00 | 149.999 | 6,698.12 | 2,447.42 | 1,668.81 | 14,439,554.864 | 1,716,794.463 | 39.760267533 | -80.728220009 |
| 9,400.00 | 89.00 | 149.999 | 6,699.87 | 2,360.83 | 1,718.80 | 14,439,468.276 | 1,716,844.458 | 39.760029322 | -80.728043048 |
| 9,500.00 | 89.00 | 149.999 | 6,701.61 | 2,274.24 | 1,768.80 | 14,439,381.688 | 1,716,894.452 | 39.759791110 | -80.727866088 |
| 9,600.00 | 89.00 | 149.999 | 6,703.36 | 2,187.66 | 1,818.79 | 14,439,295.100 | 1,716,944.446 | 39.759552899 | -80.727689130 |
| 9,700.00 | 89.00 | 149.999 | 6,705.10 | 2,101.07 | 1,868.79 | 14,439,208.512 | 1,716,994.441 | 39.759314687 | -80.727512173 |
| 9,800.00 | 89.00 | 149.999 | 6,706.85 | 2,014.48 | 1,918.78 | 14,439,121.924 | 1,717,044.435 | 39.759076474 | -80.727335217 |
| 9,900.00 | 89.00 | 149.999 | 6,708.60 | 1,927.89 | 1,968.77 | 14,439,035.337 | 1,717,094.429 | 39.758838262 | -80.727158262 |
| 10,000.00 | 89.00 | 149.999 | 6,710.34 | 1,841.30 | 2,018.77 | 14,438,948.749 | 1,717,144.424 | 39.758600049 | -80.726981308 |
| 10,100.00 | 89.00 | 149.999 | 6,712.09 | 1,754.71 | 2,068.76 | 14,438,862.161 | 1,717,194.418 | 39.758361836 | -80.726804356 |
| 10,200.00 | 89.00 | 149.999 | 6,713.83 | 1,668.13 | 2,118.76 | 14,438,775.573 | 1,717,244.413 | 39.758123623 | -80.726627404 |
| 10,300.00 | 89.00 | 149.999 | 6,715.58 | 1,581.54 | 2,168.75 | 14,438,688.985 | 1,717,294.407 | 39.757885409 | -80.726450454 |
| 10,400.00 | 89.00 | 149.999 | 6,717.33 | 1,494.95 | 2,218.75 | 14,438,602.397 | 1,717,344.401 | 39.757647195 | -80.726273506 |
| 10,500.00 | 89.00 | 149.999 | 6,719.07 | 1,408.36 | 2,268.74 | 14,438,515.809 | 1,717,394.396 | 39.757408981 | -80.726096558 |
| 10,600.00 | 89.00 | 149.999 | 6,720.82 | 1,321.77 | 2,318.74 | 14,438,429.221 | 1,717,444.390 | 39.757170767 | -80.725919612 |
| 10,700.00 | 89.00 | 149.999 | 6,722.56 | 1,235.19 | 2,368.73 | 14,438,342.633 | 1,717,494.384 | 39.756932552 | -80.725742667 |
| 10,800.00 | 89.00 | 149.999 | 6,724.31 | 1,148.60 | 2,418.72 | 14,438,256.045 | 1,717,544.379 | 39.756694337 | -80.725565723 |
| 10,900.00 | 89.00 | 149.999 | 6,726.06 | 1,062.01 | 2,468.72 | 14,438,169.457 | 1,717,594.373 | 39.756456122 | -80.725388780 |
| 11,000.00 | 89.00 | 149.999 | 6,727.80 | 975.42 | 2,518.71 | 14,438,082.869 | 1,717,644.368 | 39.756217906 | -80.725211838 |
| 11,100.00 | 89.00 | 149.999 | 6,729.55 | 888.83 | 2,568.71 | 14,437,996.281 | 1,717,694.362 | 39.755979690 | -80.725034898 |
| 11,200.00 | 89.00 | 149.999 | 6,731.30 | 802.25 | 2,618.70 | 14,437,909.693 | 1,717,744.356 | 39.755741474 | -80.724857959 |
| 11,300.00 | 89.00 | 149.999 | 6,733.04 | 715.66 | 2,668.70 | 14,437,823.105 | 1,717,794.351 | 39.755503258 | -80.724681021 |
| 11,400.00 | 89.00 | 149.999 | 6,734.79 | 629.07 | 2,718.69 | 14,437,736.517 | 1,717,844.345 | 39.755265041 | -80.724504085 |
| 11,500.00 | 89.00 | 149.999 | 6,736.53 | 542.48 | 2,768.69 | 14,437,649.929 | 1,717,894.339 | 39.755026824 | -80.724327149 |
| 11,600.00 | 89.00 | 149.999 | 6,738.28 | 455.89 | 2,818.68 | 14,437,563.341 | 1,717,944.334 | 39.754788607 | -80.724150215 |
| 11,700.00 | 89.00 | 149.999 | 6,740.03 | 369.30 | 2,868.68 | 14,437,476.753 | 1,717,994.328 | 39.754550390 | -80.723973282 |
| 11,800.00 | 89.00 | 149.999 | 6,741.77 | 282.72 | 2,918.67 | 14,437,390.165 | 1,718,044.323 | 39.754312172 | -80.723796350 |
| 11,900.00 | 89.00 | 149.999 | 6,743.52 | 196.13 | 2,968.66 | 14,437,303.578 | 1,718,094.317 | 39.754073954 | -80.723619420 |
| 12,000.00 | 89.00 | 149.999 | 6,745.26 | 109.54 | 3,018.66 | 14,437,216.990 | 1,718,144.311 | 39.753835736 | -80.723442491 |
| 12,100.00 | 89.00 | 149.999 | 6,747.01 | 22.95 | 3,068.65 | 14,437,130.402 | 1,718,194.306 | 39.753597517 | -80.723265562 |
| 12,200.00 | 89.00 | 149.999 | 6,748.76 | -63.64 | 3,118.65 | 14,437,043.814 | 1,718,244.300 | 39.753359298 | -80.723088636 |
| 12,300.00 | 89.00 | 149.999 | 6,750.50 | -150.22 | 3,168.64 | 14,436,957.226 | 1,718,294.294 | 39.753121079 | -80.722911710 |
| 12,400.00 | 89.00 | 149.999 | 6,752.25 | -236.81 | 3,218.64 | 14,436,870.638 | 1,718,344.289 | 39.752882860 | -80.722734785 |
| 12,500.00 | 89.00 | 149.999 | 6,753.99 | -323.40 | 3,268.63 | 14,436,784.050 | 1,718,394.283 | 39.752644640 | -80.722557862 |
| 12,600.00 | 89.00 | 149.999 | 6,755.74 | -409.99 | 3,318.63 | 14,436,697.462 | 1,718,444.277 | 39.752406420 | -80.722380940 |
| 12,700.00 | 89.00 | 149.999 | 6,757.49 | -496.58 | 3,368.62 | 14,436,610.874 | 1,718,494.272 | 39.752168200 | -80.722204019 |
| 12,800.00 | 89.00 | 149.999 | 6,759.23 | -583.16 | 3,418.61 | 14,436,524.286 | 1,718,544.266 | 39.751929979 | -80.722027100 |
| 12,900.00 | 89.00 | 149.999 | 6,760.98 | -669.75 | 3,468.61 | 14,436,437.698 | 1,718,594.261 | 39.751691759 | -80.721850181 |
| 13,000.00 | 89.00 | 149.999 | 6,762.72 | -756.34 | 3,518.60 | 14,436,351.110 | 1,718,644.255 | 39.751453538 | -80.721673264 |
| 13,100.00 | 89.00 | 149.999 | 6,764.47 | -842.93 | 3,568.60 | 14,436,264.522 | 1,718,694.249 | 39.751215316 | -80.721496348 |
| 13,200.00 | 89.00 | 149.999 | 6,766.22 | -929.52 | 3,618.59 | 14,436,177.934 | 1,718,744.244 | 39.750977095 | -80.721319433 |
| 13,300.00 | 89.00 | 149.999 | 6,767.96 | -1,016.11 | 3,668.59 | 14,436,091.346 | 1,718,794.238 | 39.750738873 | -80.721142520 |
| 13,400.00 | 89.00 | 149.999 | 6,769.71 | -1,102.69 | 3,718.58 | 14,436,004.758 | 1,718,844.232 | 39.750500651 | -80.720965608 |
| 13,500.00 | 89.00 | 149.999 | 6,771.45 | -1,189.28 | 3,768.58 | 14,435,918.170 | 1,718,894.227 | 39.750262428 | -80.720788697 |
| 13,600.00 | 89.00 | 149.999 | 6,773.20 | -1,275.87 | 3,818.57 | 14,435,831.582 | 1,718,944.221 | 39.750024205 | -80.720611787 |

| | | | |
|------------------|---|-------------------------------------|---------------------------------|
| Database: | DB_Feb2822 | Local Co-ordinate Reference: | Well Pendleton S-03 HM (slot K) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1272.00ft |
| Project: | Marshall County, West Virginia NAD83 UTM 17N | MD Reference: | GL @ 1272.00ft |
| Site: | Pendleton | North Reference: | Grid |
| Well: | Pendleton S-03 HM (slot K) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev2 | | |

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude |
|---------------------------|--------------------|----------------|---------------------------|---------------|---------------|---------------------------|--------------------------|--------------|---------------|
| 13,700.00 | 89.00 | 149.999 | 6,774.95 | -1,362.46 | 3,868.56 | 14,435,744.994 | 1,718,994.216 | 39.749785982 | -80.720434878 |
| 13,800.00 | 89.00 | 149.999 | 6,776.69 | -1,449.05 | 3,918.56 | 14,435,658.406 | 1,719,044.210 | 39.749547759 | -80.720257971 |
| 13,900.00 | 89.00 | 149.999 | 6,778.44 | -1,535.63 | 3,968.55 | 14,435,571.819 | 1,719,094.204 | 39.749309536 | -80.720081064 |
| 14,000.00 | 89.00 | 149.999 | 6,780.18 | -1,622.22 | 4,018.55 | 14,435,485.231 | 1,719,144.199 | 39.749071312 | -80.719904159 |
| 14,100.00 | 89.00 | 149.999 | 6,781.93 | -1,708.81 | 4,068.54 | 14,435,398.643 | 1,719,194.193 | 39.748833088 | -80.719727256 |
| 14,200.00 | 89.00 | 149.999 | 6,783.68 | -1,795.40 | 4,118.54 | 14,435,312.055 | 1,719,244.187 | 39.748594864 | -80.719550353 |
| 14,300.00 | 89.00 | 149.999 | 6,785.42 | -1,881.99 | 4,168.53 | 14,435,225.467 | 1,719,294.182 | 39.748356639 | -80.719373452 |
| 14,400.00 | 89.00 | 149.999 | 6,787.17 | -1,968.57 | 4,218.53 | 14,435,138.879 | 1,719,344.176 | 39.748118414 | -80.719196551 |
| 14,500.00 | 89.00 | 149.999 | 6,788.91 | -2,055.16 | 4,268.52 | 14,435,052.291 | 1,719,394.171 | 39.747880189 | -80.719019652 |
| 14,600.00 | 89.00 | 149.999 | 6,790.66 | -2,141.75 | 4,318.51 | 14,434,965.703 | 1,719,444.165 | 39.747641963 | -80.718842755 |
| 14,700.00 | 89.00 | 149.999 | 6,792.41 | -2,228.34 | 4,368.51 | 14,434,879.115 | 1,719,494.159 | 39.747403738 | -80.718665858 |
| 14,800.00 | 89.00 | 149.999 | 6,794.15 | -2,314.93 | 4,418.50 | 14,434,792.527 | 1,719,544.154 | 39.747165512 | -80.718488963 |
| 14,900.00 | 89.00 | 149.999 | 6,795.90 | -2,401.52 | 4,468.50 | 14,434,705.939 | 1,719,594.148 | 39.746927285 | -80.718312069 |
| 15,000.00 | 89.00 | 149.999 | 6,797.64 | -2,488.10 | 4,518.49 | 14,434,619.351 | 1,719,644.142 | 39.746689059 | -80.718135176 |
| 15,100.00 | 89.00 | 149.999 | 6,799.39 | -2,574.69 | 4,568.49 | 14,434,532.763 | 1,719,694.137 | 39.746450832 | -80.717958284 |
| 15,200.00 | 89.00 | 149.999 | 6,801.14 | -2,661.28 | 4,618.48 | 14,434,446.175 | 1,719,744.131 | 39.746212605 | -80.717781394 |
| 15,300.00 | 89.00 | 149.999 | 6,802.88 | -2,747.87 | 4,668.48 | 14,434,359.587 | 1,719,794.126 | 39.745974378 | -80.717604505 |
| 15,400.00 | 89.00 | 149.999 | 6,804.63 | -2,834.46 | 4,718.47 | 14,434,272.999 | 1,719,844.120 | 39.745736150 | -80.717427617 |
| 15,500.00 | 89.00 | 149.999 | 6,806.38 | -2,921.04 | 4,768.47 | 14,434,186.411 | 1,719,894.114 | 39.745497922 | -80.717250730 |
| 15,600.00 | 89.00 | 149.999 | 6,808.12 | -3,007.63 | 4,818.46 | 14,434,099.823 | 1,719,944.109 | 39.745259694 | -80.717073844 |
| 15,700.00 | 89.00 | 149.999 | 6,809.87 | -3,094.22 | 4,868.45 | 14,434,013.235 | 1,719,994.103 | 39.745021465 | -80.716896960 |
| 15,800.00 | 89.00 | 149.999 | 6,811.61 | -3,180.81 | 4,918.45 | 14,433,926.647 | 1,720,044.097 | 39.744783237 | -80.716720077 |
| 15,900.00 | 89.00 | 149.999 | 6,813.36 | -3,267.40 | 4,968.44 | 14,433,840.060 | 1,720,094.092 | 39.744545008 | -80.716543195 |
| 16,000.00 | 89.00 | 149.999 | 6,815.11 | -3,353.98 | 5,018.44 | 14,433,753.472 | 1,720,144.086 | 39.744306778 | -80.716366314 |
| 16,100.00 | 89.00 | 149.999 | 6,816.85 | -3,440.57 | 5,068.43 | 14,433,666.884 | 1,720,194.080 | 39.744068549 | -80.716189435 |
| 16,200.00 | 89.00 | 149.999 | 6,818.60 | -3,527.16 | 5,118.43 | 14,433,580.296 | 1,720,244.075 | 39.743830319 | -80.716012556 |
| 16,300.00 | 89.00 | 149.999 | 6,820.34 | -3,613.75 | 5,168.42 | 14,433,493.708 | 1,720,294.069 | 39.743592089 | -80.715835679 |
| 16,400.00 | 89.00 | 149.999 | 6,822.09 | -3,700.34 | 5,218.42 | 14,433,407.120 | 1,720,344.064 | 39.743353858 | -80.715658804 |
| 16,500.00 | 89.00 | 149.999 | 6,823.84 | -3,786.93 | 5,268.41 | 14,433,320.532 | 1,720,394.058 | 39.743115628 | -80.715481929 |
| 16,600.00 | 89.00 | 149.999 | 6,825.58 | -3,873.51 | 5,318.40 | 14,433,233.944 | 1,720,444.052 | 39.742877397 | -80.715305055 |
| 16,700.00 | 89.00 | 149.999 | 6,827.33 | -3,960.10 | 5,368.40 | 14,433,147.356 | 1,720,494.047 | 39.742639165 | -80.715128183 |
| 16,800.00 | 89.00 | 149.999 | 6,829.07 | -4,046.69 | 5,418.39 | 14,433,060.768 | 1,720,544.041 | 39.742400934 | -80.714951312 |
| 16,900.00 | 89.00 | 149.999 | 6,830.82 | -4,133.28 | 5,468.39 | 14,432,974.180 | 1,720,594.035 | 39.742162702 | -80.714774442 |
| 17,000.00 | 89.00 | 149.999 | 6,832.57 | -4,219.87 | 5,518.38 | 14,432,887.592 | 1,720,644.030 | 39.741924470 | -80.714597574 |
| 17,100.00 | 89.00 | 149.999 | 6,834.31 | -4,306.45 | 5,568.38 | 14,432,801.004 | 1,720,694.024 | 39.741686238 | -80.714420707 |
| 17,200.00 | 89.00 | 149.999 | 6,836.06 | -4,393.04 | 5,618.37 | 14,432,714.416 | 1,720,744.019 | 39.741448005 | -80.714243840 |
| 17,300.00 | 89.00 | 149.999 | 6,837.80 | -4,479.63 | 5,668.37 | 14,432,627.828 | 1,720,794.013 | 39.741209772 | -80.714066976 |
| 17,400.00 | 89.00 | 149.999 | 6,839.55 | -4,566.22 | 5,718.36 | 14,432,541.240 | 1,720,844.007 | 39.740971539 | -80.713890112 |
| 17,500.00 | 89.00 | 149.999 | 6,841.30 | -4,652.81 | 5,768.35 | 14,432,454.652 | 1,720,894.002 | 39.740733306 | -80.713713249 |
| 17,600.00 | 89.00 | 149.999 | 6,843.04 | -4,739.40 | 5,818.35 | 14,432,368.064 | 1,720,943.996 | 39.740495072 | -80.713536388 |
| 17,700.00 | 89.00 | 149.999 | 6,844.79 | -4,825.98 | 5,868.34 | 14,432,281.475 | 1,720,993.990 | 39.740256838 | -80.713359528 |
| 17,800.00 | 89.00 | 149.999 | 6,846.53 | -4,912.57 | 5,918.34 | 14,432,194.887 | 1,721,043.985 | 39.740018604 | -80.713182669 |
| 17,900.00 | 89.00 | 149.999 | 6,848.28 | -4,999.16 | 5,968.33 | 14,432,108.299 | 1,721,093.979 | 39.739780369 | -80.713005812 |
| 18,000.00 | 89.00 | 149.999 | 6,850.03 | -5,085.75 | 6,018.33 | 14,432,021.712 | 1,721,143.974 | 39.739542135 | -80.712828955 |
| 18,100.00 | 89.00 | 149.999 | 6,851.77 | -5,172.34 | 6,068.32 | 14,431,935.124 | 1,721,193.968 | 39.739303899 | -80.712652100 |
| 18,200.00 | 89.00 | 149.999 | 6,853.52 | -5,258.92 | 6,118.32 | 14,431,848.536 | 1,721,243.962 | 39.739065664 | -80.712475246 |
| 18,300.00 | 89.00 | 149.999 | 6,855.26 | -5,345.51 | 6,168.31 | 14,431,761.948 | 1,721,293.957 | 39.738827428 | -80.712298393 |
| 18,400.00 | 89.00 | 149.999 | 6,857.01 | -5,432.10 | 6,218.30 | 14,431,675.360 | 1,721,343.951 | 39.738589193 | -80.712121542 |
| 18,500.00 | 89.00 | 149.999 | 6,858.76 | -5,518.69 | 6,268.30 | 14,431,588.772 | 1,721,393.945 | 39.738350956 | -80.711944691 |
| 18,515.09 | 89.00 | 149.999 | 6,859.02 | -5,531.76 | 6,275.84 | 14,431,575.703 | 1,721,401.491 | 39.738315000 | -80.711918000 |

PBHL/TD 18515.09 MD 6859.02 TVD

| | | | |
|------------------|---|-------------------------------------|---------------------------------|
| Database: | DB_Feb2822 | Local Co-ordinate Reference: | Well Pendleton S-03 HM (slot K) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1272.00ft |
| Project: | Marshall County, West Virginia NAD83 UTM 17N | MD Reference: | GL @ 1272.00ft |
| Site: | Pendleton | North Reference: | Grid |
| Well: | Pendleton S-03 HM (slot K) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev2 | | |

Design Targets

| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|------------------|-----------------|-------------|---------------|---------------|--------------------|-------------------|--------------|---------------|
| Pendleton S-03HM LP - hit/miss target - Shape - Point | 0.00 | 0.000 | 6,683.00 | 3,197.48 | 1,235.73 | 14,440,304.923 | 1,716,361.382 | 39.762331000 | -80.729753000 |
| - plan misses target center by 0.01ft at 8433.76ft MD (6683.00 TVD, 3197.48 N, 1235.73 E) | | | | | | | | | |
| Pendleton S-03HM BHL - plan hits target center - Point | 0.00 | 0.000 | 6,859.02 | -5,531.76 | 6,275.84 | 14,431,575.703 | 1,721,401.491 | 39.738315000 | -80.711918000 |

Plan Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
|---------------------------|---------------------------|-------------------|---------------|---------------------------------|
| | | +N/-S (ft) | +E/-W (ft) | |
| 1,100.00 | 1,100.00 | 0.00 | 0.00 | KOP Begin 3°/100' build |
| 3,297.87 | 3,088.52 | 792.81 | 124.68 | Begin 43.96° tangent |
| 7,029.14 | 5,774.49 | 3,351.32 | 527.05 | Begin 8°/100' build/turn |
| 7,961.24 | 6,517.52 | 3,512.34 | 945.25 | Begin 10°/100' build/turn |
| 8,433.76 | 6,683.00 | 3,197.48 | 1,235.74 | Begin 89.00° lateral |
| 18,515.09 | 6,859.02 | -5,531.76 | 6,275.84 | PBHL/TD 18515.09 MD 6859.02 TVD |

WW-9
(4/16)

4705102470

API Number 47 - 051 - _____
Operator's Well No. Pendleton S-3HM

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

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

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

Will a pit be used? Yes No

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

Will a synthetic liner be used in the pit? Yes No If so, what ml.? ASTs with proper containment

Proposed Disposal Method For Treated Pit Wastes:

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

Will closed loop system be used? If so, describe: Yes - For vertical drilling

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

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

Additives to be used in drilling medium? _____

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

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

-Landfill or offsite name/permit number? Welzel County Sanitary Landfill (SWF 1021/WV01091165) and Westmoreland Sanitary Landfill, LLC (SAN1405/PADEP ECR1356426), Chestnut Valley Landfill (100419)

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

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

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

Company Official Signature James A Pancake

Company Official (Typed Name) James Pancake

Company Official Title Vice President - Geosciences

Subscribed and sworn before me this 23 day of August, 20 22

David Gabriel Delallo

Commonwealth of Pennsylvania - Notary Seal
David Gabriel Delallo, Notary Public
Washington County
My commission expires February 16, 2024
Commission number 1267492
Member, Pennsylvania Association of Notaries

[Signature]

My commission expires 2/16/24

10/14/2022

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 6.88 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

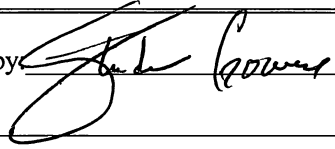
Seed Mixtures

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by  STRADER GOWER

Comments:

Title: Oil and Gas Inspector

Date: 8/25/22

Field Reviewed? () Yes () No

DRAWING NOT TO SCALE

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

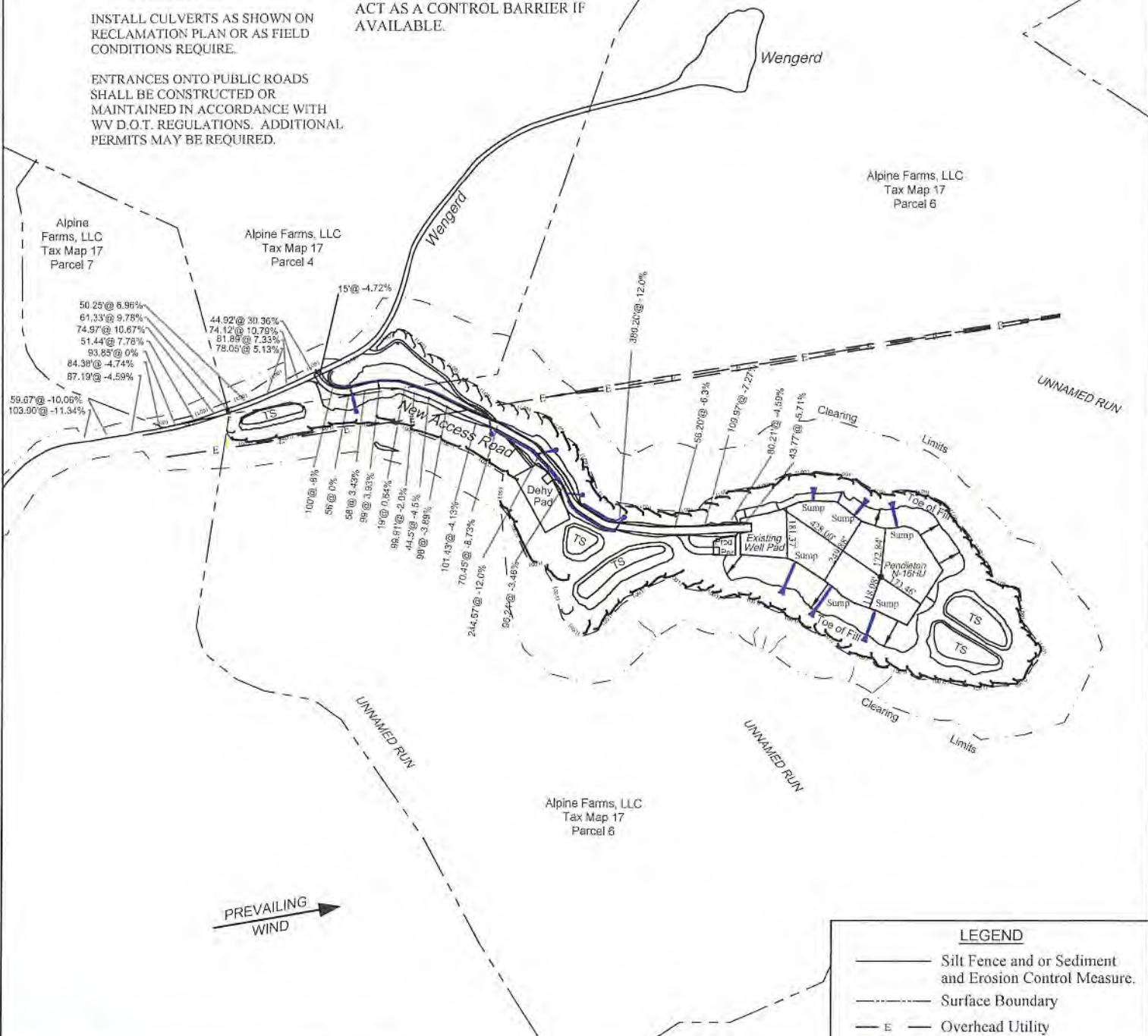
INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.

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

TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

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

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



| LEGEND | |
|--------|---|
| | Silt Fence and or Sediment and Erosion Control Measure. |
| | Surface Boundary |
| | Overhead Utility |
| | Topsoil Stockpile |

Jackson Surveying Inc.
 2413 E. Pike St.
 Clarksburg, WV 26301
 Phone: 504-623-6861

| TOPO SECTION: | |
|------------------|-----------|
| GLEN EASTON 7.5" | |
| COUNTY | DISTRICT |
| MARSHALL | FRANKLIN |
| DRAWN BY | JOB NO |
| J.D.C | 494510851 |

| OPERATOR: | |
|--|-------|
| PREPARED FOR: | |
| TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317 | |
| DATE | SCALE |
| 03-16-2022 | NONE |

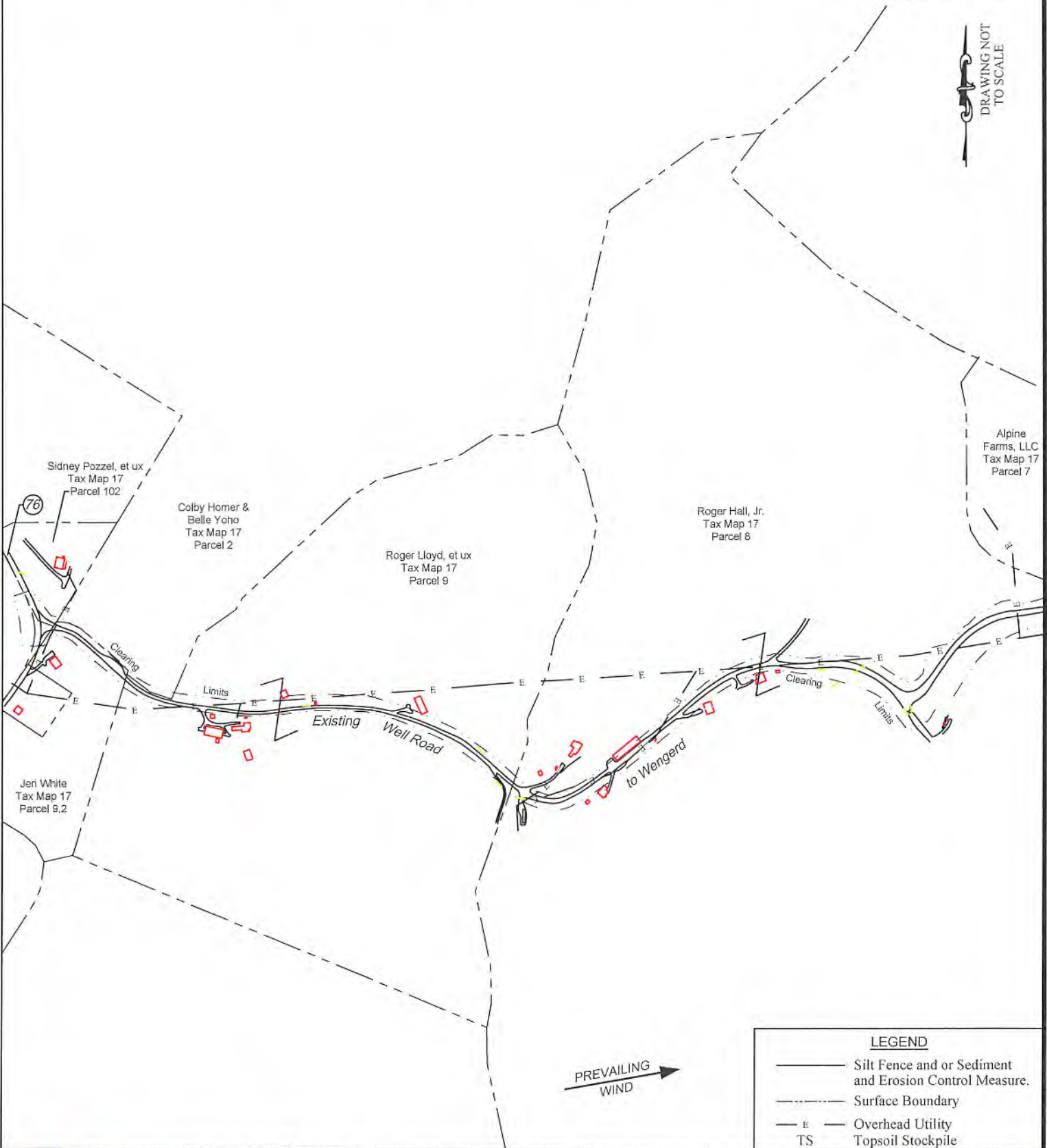
TUG HILL OPERATING
 10/14/2022

PROPOSED PENDLETON

Exhibit 1


Page 2 of 2

DRAWING NOT TO SCALE



| LEGEND | |
|--------|---|
| | Silt Fence and or Sediment and Erosion Control Measure. |
| | Surface Boundary |
| | Overhead Utility |
| | Topsoil Stockpile |

Jackson Surveying Inc.
 2418 E. Pike St.
 Clarksburg, WV 26301
 Phone: 304-623-5851



| TOPO SECTION: | |
|------------------|-----------|
| GLEN EASTON 7.5' | |
| COUNTY | DISTRICT |
| MARSHALL | FRANKLIN |
| DRAWN BY | JOB NO. |
| J.D.C | 494510851 |

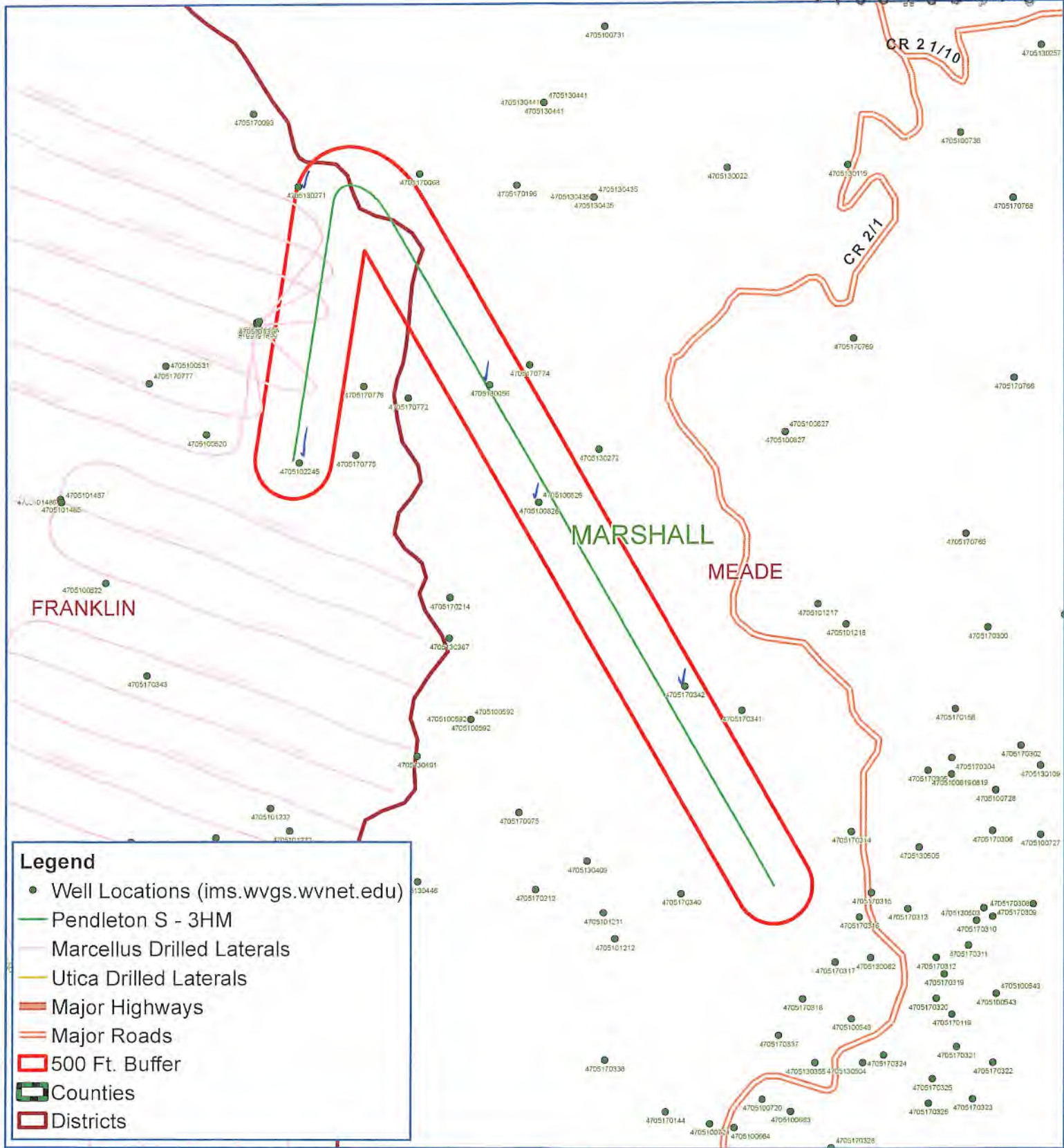
| OPERATOR: | |
|--|-------|
| PREPARED FOR: | |
| TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317 | |
| DATE | SCALE |
| 03-16-2022 | NONE |



TUG HILL
 OPERATING

10/14/2022

4705102470



Legend

- Well Locations (ims.wvgs.wvnet.edu)
- Pendleton S - 3HM
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- Major Highways
- Major Roads
- 500 Ft. Buffer
- ▭ Counties
- ▭ Districts



Pendleton S - 3HM Franklin District Marshall County, WV



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

Map Prepared by:

DPS
LAND SERVICES
10/14/2022

Map Created: July 6, 2022
Map Current As Of: July 6, 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 (7/08/2022) 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

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

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 |
|--------------|--------------------------------|-----------------------|----------------|--------------------------------|---|---|
| ✓ 4705102245 | Tug Hill Operating, LLC. | 11787' TVD (proposed) | none | none | No, this well will not be drilled to the proposed depth or perforated. This is a canceled permit. | Permit canceled by Tug Hill Operating, LLC. |
| ✓ 4705130271 | Manufacturers Light & Heat Co. | 2458' TVD | Gordon | unknown | No, this well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation. Well is plugged. | Well plugged 8/25/1947. |
| ✓ 4705100826 | Perkins Oil and Gas, Inc. | 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 Marcellus well. | State records are incomplete. |
| ✓ 4705130056 | Manufacturers Light & Heat Co. | 2895' TVD | Gordon | unknown | No, this well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation. Well is plugged. | Well plugged in 1935. |

| 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 |
|--------------|---------------|-------------|----------------|--------------------------------|---|-------------------------------|
| ✓ 4705170342 | 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 Marcellus well. | State records are incomplete. |

WV Geological & Economic Survey:

Well: County = 51 Permit = 02245

Report Time: Wednesday, January 26, 2022 1:15:15 PM

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|-------------|---------|-----------|------------|----------|-----------|
| 4705102245 | Marshall | 2245 | Franklin | Glen Easton | Cameron | 39.753455 | -80.733897 | 522795.9 | 4400427.6 |

Bottom Hole Location Information:

| API | EP_FLAG | UTME | UTMN | LON_DD | LAT_DD |
|------------|---------------|----------|-----------|------------|-----------|
| 4705102245 | 1 As Proposed | 520896.4 | 4403611.2 | -80.755969 | 39.782188 |

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 |
|------------|--------|----------------|-----------|-----------------|----------|--------|-----------|-----------|----------------------------------|-------------------------|---------|----------------|
| 4705102245 | -/- | Dvtd Orgnl Loc | Cancelled | Alpine Farm LLC | | N-9HU | Pendleton | | Eli A & Fannie Mae Wengerd et al | Tug Hill Operating, LLC | 11787 | Pt Pleasant Fm |

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_A |
|------------|--------|---------|------|--------------|-------|------------|-------------|---------------|-------------|------|-----|----------|-----|-----|---------|-----|-------|-------|-------|-----|
| 4705102245 | -/- | -/- | 1272 | Ground Level | | | | | | | | | | | | | | | | |

WV Geological & Economic Survey:

Well: County = 51 Permit = 30271

Report Time: Wednesday, January 26, 2022 1:15:42 PM

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LONG_DD | UTME | UTMN |
|------------|----------|--------|--------------|-------------|---------|-----------|------------|----------|-----------|
| 4705130271 | Marshall | 30271 | Franklin | Glen Easton | Cameron | 39.763323 | -80.733884 | 522793.8 | 4401522.8 |

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_ES |
|------------|------------|--------------|-----------|----------------|----------|--------|----------------|-----------|-------------------|--------------------------------|---------|--------------|--------|
| 4705130271 | 11/13/1903 | Original Loc | Completed | RG Dakan et al | 1 | 1261 | Frank Anderson | 2850 | Mirs Lt & Heat Co | 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 |
|------------|------------|----------|------|--------------|----------------|------------|-------------|---------------|------------------|------------------|-----|------------|---------|------|---------|------|
| 4705130271 | 11/13/1903 | 9/6/1903 | 794 | Ground Level | Cameron-Garner | UDev undf | Ber/LoHURN | Gordon | Development Well | Development Well | Gas | Cable Tool | unknown | 2458 | | 2458 |

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 |
|------------|------------|----------|---------|----------|-----------|--------|-----------|--------|-------|-------|-------|-------|------------|
| 4705130271 | 11/13/1903 | Pay | Gas | Vertical | | | 2397 | 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

Stratigraphy Information:

| API | SUFFIX | FM | FM_QUALITY | DEPTH_TOP | DEPTH_QUALITY | THICKNESS | THICKNESS_QUALITY | ELEV | DATUM |
|------------|--------------|---------------------|-------------|-----------|---------------|-----------|-------------------|------|--------------|
| 4705130271 | Original Loc | Sewickley coal | Well Record | 304 | Reasonable | 5 | Reasonable | 794 | Ground Level |
| 4705130271 | Original Loc | Pittsburgh coal | Well Record | 394 | Reasonable | 6 | Reasonable | 794 | Ground Level |
| 4705130271 | Original Loc | Mahonig Ss/Big Dunk | Well Record | 889 | Reasonable | 161 | Reasonable | 794 | Ground Level |
| 4705130271 | Original Loc | Salt Sands (undiff) | Well Record | 1159 | Reasonable | 141 | Reasonable | 794 | Ground Level |
| 4705130271 | Original Loc | Big Lime | Well Record | 1445 | Reasonable | 65 | Reasonable | 794 | Ground Level |
| 4705130271 | Original Loc | Big Injun (undiff) | Well Record | 1510 | Reasonable | 335 | Reasonable | 794 | Ground Level |
| 4705130271 | Original Loc | Berea Ss | Well Record | 2125 | Reasonable | 269 | Reasonable | 794 | Ground Level |
| 4705130271 | Original Loc | Gordon | Well Record | 2394 | Reasonable | 10 | Reasonable | 794 | Ground Level |

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

Plugging Information:

| API | PLG_DT | DEPTH_PBT |
|------------|-----------|-----------|
| 4705130271 | 8/25/1947 | 0 |

WV Geological & Economic Survey:

Well: County = 51 Permit = 30056

Report Time: Wednesday, January 26, 2022 1:16:19 PM

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_16 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|-------------|---------|-----------|------------|----------|-----------|
| 4705130056 | Marshall | 30056 | Meade | Glen Easton | Cameron | 39.756218 | -80.725051 | 523552.8 | 4400736.5 |

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 |
|------------|--------|--------|--------------|---------------|--------------|--------|-------|-----------|-------------|--------------------------------|---------|--------------|------------|
| 4705130056 | -/- | | Original Loc | Completed | John Shutler | 1 | 1275 | | M L & H Co | 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 |
|------------|--------|---------|------|-------|---------|----------------------|-------------|---------------|--------------|------|------------|----------|------|-----|---------|-----|-------|-------|
| 4705130056 | -/- | -/- | | | Unnamed | UDev undf.Ber/LoHURN | Gordon | unclassified | unclassified | Gas | Cable Tool | unknown | 2895 | | 2895 | | 0 | 0 |

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 |
|------------|--------|----------|---------|----------|-----------|--------|-----------|--------|-------|-------|-------|-------|------------|
| 4705130056 | -/- | Pay | Gas | Vertical | | Gordon | 2882 | 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 Stratigraphy data for this well

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

Plugging Information:

| API | PLG_DT | DEPTH_PBT |
|------------|---------|-----------|
| 4705130056 | -/-1935 | 0 |

WV Geological & Economic Survey:

Well: County = 51 Permit = 00826

Report Time: Wednesday, January 26, 2022 1:17:25 PM

Well Reassignment Information: Reassigned From

| OLD_COUNTY | OLD_PERMIT | NEW_COUNTY | NEW_PERMIT |
|------------|------------|------------|------------|
| 51 | 70771 | 51 | 826 |

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|-------------|---------|-----------|------------|----------|-----------|
| 4705100826 | Marshall | 826 | Meade | Glen Easton | Cameron | 39.752013 | -80.722796 | 523747.4 | 4400270.4 |

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 |
|------------|--------|--------------|-----------|---------------|----------|--------|-------|-----------|-------------|---------------------------|---------|--------------|------------|
| 4705100826 | -/- | unknown | Prpty Map | James Messey | | 1244 | | | | Perkins Oil and Gas, Inc. | | | |
| 4705100826 | -/- | Original Loc | Completed | James Messey | | 1244 | | | | ----- 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_A |
|------------|--------|---------|----------------------|-------|------------|-------------|---------------|--------------|---------------|---------|----------|-----|-----|---------|-----|-------|-----|
| 4705100826 | -/- | -/- | 1100 Topo Estimation | | | | unclassified | unclassified | Gas | unknown | unknown | | | | | | |
| 4705100826 | -/- | -/- | | | | | 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 |
|------------|---------------------------|----------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 4705100826 | Perkins Oil and Gas, Inc. | 1999 | 317 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 122 | 110 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2001 | 817 | 66 | 44 | 42 | 69 | 83 | 82 | 80 | 72 | 70 | 68 | 83 | 58 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2002 | 620 | 86 | 59 | 74 | 51 | 40 | 59 | 60 | 16 | 15 | 20 | 42 | 98 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2003 | 629 | 77 | 73 | 68 | 51 | 61 | 82 | 34 | 28 | 47 | 70 | 0 | 38 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2004 | 788 | 73 | 56 | 98 | 81 | 90 | 50 | 59 | 28 | 13 | 64 | 96 | 80 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2005 | 938 | 25 | 59 | 95 | 89 | 85 | 87 | 70 | 92 | 84 | 82 | 93 | 77 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2006 | 815 | 22 | 54 | 69 | 63 | 85 | 80 | 82 | 87 | 81 | 70 | 63 | 59 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2007 | 435 | 26 | 10 | 36 | 38 | 72 | 48 | 32 | 41 | 30 | 36 | 48 | 18 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2008 | 603 | 46 | 39 | 44 | 34 | 56 | 37 | 62 | 65 | 49 | 71 | 52 | 48 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2009 | 1,005 | 66 | 63 | 77 | 69 | 95 | 97 | 99 | 81 | 94 | 91 | 76 | |
| 4705100826 | Perkins Oil and Gas, Inc. | 2010 | 829 | 61 | 69 | 58 | 78 | 61 | 65 | 70 | 68 | 62 | 100 | 81 | 56 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2011 | 1,043 | 73 | 72 | 96 | 90 | 105 | 94 | 82 | 74 | 81 | 87 | 79 | 110 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2012 | 1,295 | 93 | 106 | 103 | 196 | 92 | 100 | 88 | 75 | 109 | 119 | 109 | 105 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2013 | 1,196 | 111 | 68 | 86 | 93 | 102 | 92 | 79 | 115 | 108 | 122 | 112 | 108 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2014 | 1,229 | 90 | 94 | 74 | 111 | 116 | 114 | 112 | 98 | 106 | 106 | 101 | 108 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2015 | 1,199 | 125 | 95 | 39 | 81 | 73 | 63 | 117 | 154 | 102 | 119 | 116 | 115 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2016 | 1,231 | 93 | 92 | 102 | 95 | 113 | 84 | 100 | 99 | 108 | 115 | 112 | 116 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2017 | 2,130 | 214 | 102 | 166 | 168 | 174 | 170 | 226 | 186 | 206 | 216 | 210 | 92 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2018 | 1,026 | 27 | 53 | 79 | 77 | 89 | 95 | 105 | 101 | 105 | 88 | 102 | 105 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2019 | 985 | 0 | 42 | 101 | 95 | 99 | 105 | 97 | 102 | 90 | 92 | 63 | 99 |
| 4705100826 | Perkins Oil and Gas, Inc. | 2020 | 1,119 | 99 | 93 | 64 | 93 | 95 | 94 | 104 | 101 | 97 | 99 | 80 | 100 |

WV Geological & Economic Survey:

Well: County = 51 Permit = 70342

Report Time: Wednesday, January 26, 2022 1:16:31 PM

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LON_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------|-----------|-----------|------------|----------|-----------|
| 4705170342 | Marshall | 70342 | Meade | Wileyville | Littleton | 39.745434 | -80.716026 | 524329.7 | 4399542.1 |

There is no Bottom Hole Location data for this well

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_AT_COMPLETION | PROP_VD | PROP_TRGT_FM | TFM_EST_PR |
|------------|--------|---------|-----------|---------------|----------|--------|-------|-----------|-------------|------------------------|---------|--------------|------------|
| 4705170342 | -/- | unknown | Prpty Map | Charles Blatt | | | | | | ----- 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 |
|------------|--------|---------|------|-------|-------|------------|-------------|---------------|--------------|---------------|---------|----------|-----|-----|---------|-----|-------|-------|-------|
| 4705170342 | -/- | -/- | | | | | | unclassified | unclassified | not available | unknown | unknown | | | | | | | |



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

Well Name: Pendleton S-3HM

Pad Name: Pendleton

County: Marshall

UTM (meters), NAD83, Zone 17

Northing: 4,400,439.15

Easting: 522,771.39

**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

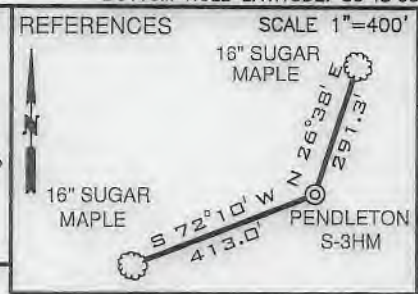
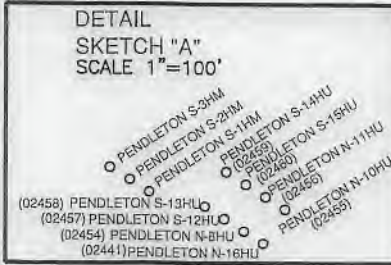
(800) 921-9745

*John C. ...
STRADER GOWER
8/15/22*

10/14/2022

GRID NORTH

PENDLETON LEASE WELL S-3HM 1,051.733± ACRES



(TH) 7,311' (BH) 1,050'

TOP HOLE LATITUDE: 39°47'30"
BOTTOM HOLE LATITUDE: 39°45'00"

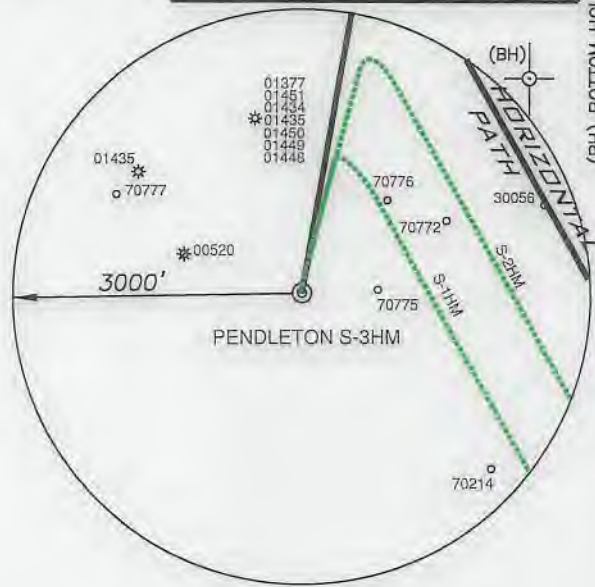
80°42'30" (BH) BOTTOM HOLE LONGITUDE: 80°42'30" (TH) TOP HOLE LONGITUDE: 80°42'30"

| LINE | BEARING | DISTANCE |
|------|------------|-----------|
| L1 | N 03°07' E | 2,809.91' |
| L2 | N 77°01' W | 2,287.23' |
| L3 | N 09°54' E | 3,393.64' |

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,400,439.15
E) 522,771.39

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,401,413.74
E) 523,148.00

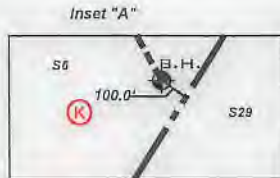
BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,398,753.07
E) 524,684.22



(TH) 13,897'

NOTES

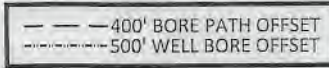
- BORE PATH BASED ON GRID NORTH.
- NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
- OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MAY 2022. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
- WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
- BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCCAMEY & CHILCOTE, P.C. FILE 0058904.0401147



| CURVE | CHORD BEARING | CHORD LENGTH | RADIUS | ARC LENGTH |
|-------|---------------|--------------|----------|------------|
| C1 | N 17°49' E | 108.70' | 367.37' | 109.10' |
| C2 | N 40°14' E | 107.63' | 221.78' | 108.72' |
| C3 | N 70°38' E | 103.14' | 195.98' | 104.37' |
| C4 | S 82°03' E | 118.69' | 295.82' | 119.50' |
| C5 | S 62°51' E | 144.62' | 522.45' | 145.09' |
| C6 | S 47°50' E | 173.82' | 742.20' | 174.22' |
| C7 | S 35°06' E | 227.94' | 1046.42' | 228.40' |



(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS



LEGEND

- LEASED TRACTS
- SURFACE TRACTS
- WELL LATERAL
- MARCELLUS LEGS
- UNIT BOUNDARY
- LEASE # (SEE 6A1 FORM)

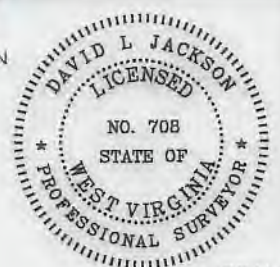
FILE NUMBER _____
DRAWING NUMBER: PENDLETON S-3HM REV 2
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING
GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.S. 708

David L Jackson

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



SEAL

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

DATE: AUGUST 23, 2022
OPERATORS WELL NO.: PENDLETON S-3HM
API WELL NO.: 47-051-02470
STATE COUNTY PERMIT

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

LOCATION ELEVATION 1271.82' WATERSHED (HUC 10) FISH CREEK
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE GLEN EASTON 7.5' LEASE NUMBER SEE WW-6A1 Form

SURFACE OWNER ALPINE FARM, LLC ACREAGE 249.07
OIL & GAS ROYALTY OWNER ELI A. & FANNIE MAE WENGERD, ET AL LEASE ACREAGE 249.07
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE (SPECIFY) _____

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD: 6,800' TMD: 18,515'

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

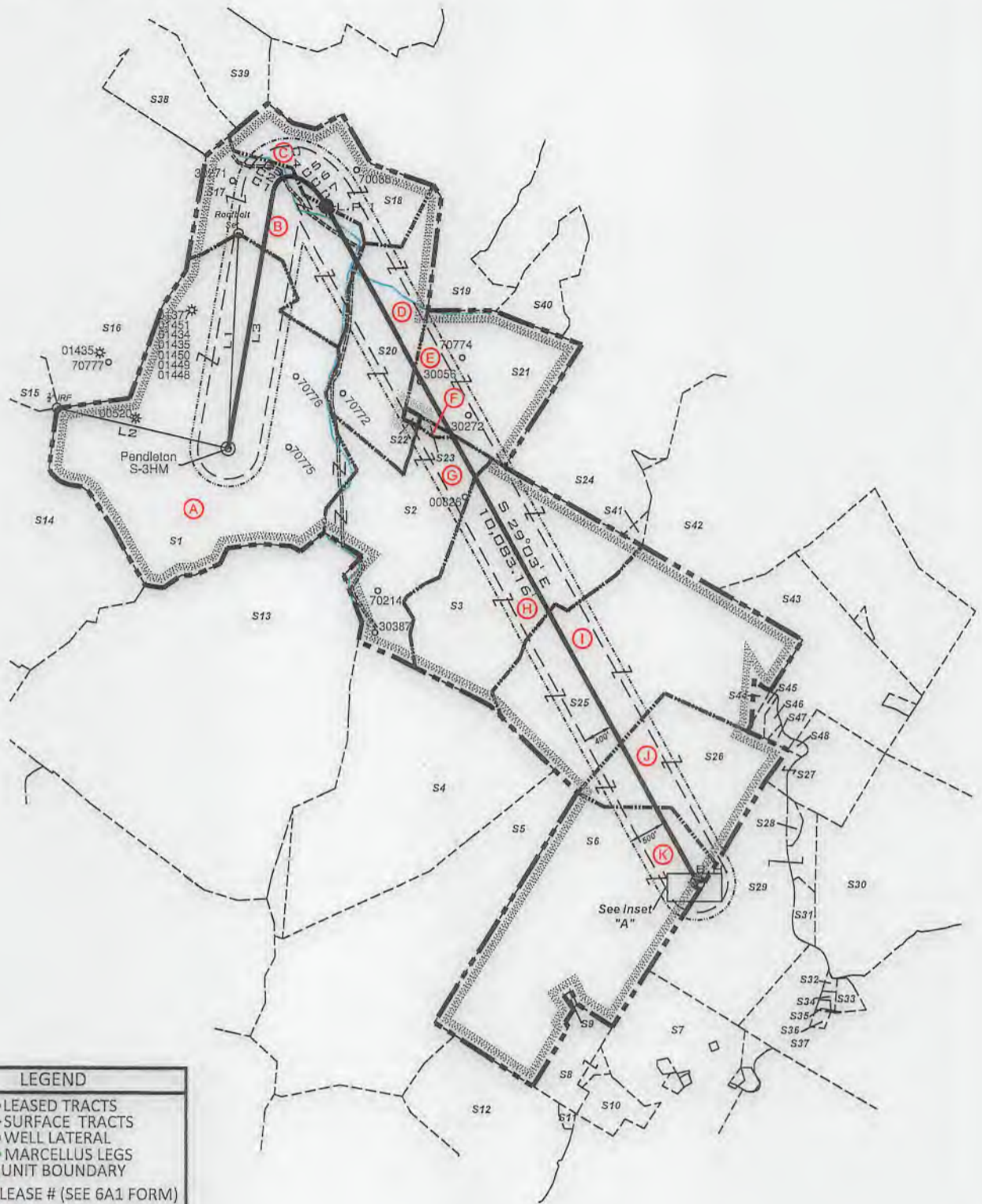
10/14/2022

COUNTY NAME PERMIT

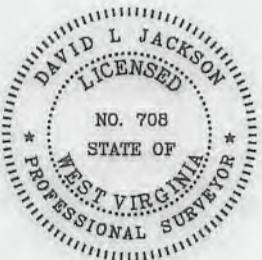
form ww6

GRID NORTH

PENDLETON LEASE WELL S-3HM 1,051.733± ACRES



| LEGEND | |
|--------|------------------------|
| | LEASED TRACTS |
| | SURFACE TRACTS |
| | WELL LATERAL |
| | MARCELLUS LEGS |
| | UNIT BOUNDARY |
| | LEASE # (SEE 6A1 FORM) |
| | 400' BORE PATH OFFSET |
| | 500' WELL BORE OFFSET |



P.S.
708

David L Jackson

10/14/2022



TUG HILL

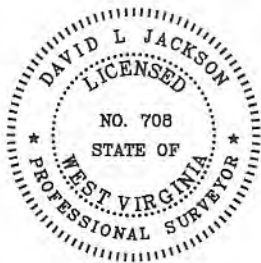
OPERATING

OPERATOR'S
 WELL #: PENDLETON S-3HM
 DISTRICT: Franklin
 COUNTY: Marshall
 STATE: WV

WELL PLAT
 PAGE 2 OF 3
 DATE: 08/23/2022

**PENDLETON LEASE
WELL S-3HM
1,051.733± ACRES**

| Parcels within Unit Boundary | | | | |
|-----------------------------------|--------|-----------------|---|---------|
| Tags | Number | Tax Map -Parcel | Surface Owner | Acres |
| A | S1 | 05-17-06 | ALPINE FARM LLC | 249.07 |
| B | S17 | 05-17-05 | ALPINE FARM LLC | 76.96 |
| C | S18 | 09-16-02 | ROBERT M & NANCY R MCCARDLE | 53.4 |
| D | S20 | 09-16-03 | BERTHA L KLUG | 71 |
| E | S21 | 09-16-04 | BERTHA L KLUG | 73.39 |
| F | S23 | 09-18-03 | BERTHA L KLUG | 1.33 |
| G | S2 | 09-18-01 | THERESA MAE LONG THOMAS ET AL | 58.66 |
| H | S3 | 09-18-02 | BRIAN T KLUG | 85.0 |
| I | S25 | 09-18-18 | JAMES D FROHNAPFEL ET UX | 154.03 |
| J | S26 | 09-20-06 | KEITH & KRISTY FERRELL REVOCABLE LIVING TRUST | 64.75 |
| K | S6 | 09-20-05 | GERALD A FROHNAPFEL ET UX - TRUST | 164.143 |
| Adjoining Parcels Ownership Table | | | | |
| Tags | Number | Tax Map -Parcel | Surface Owner | Acres |
| | S4 | 09-20-02 | MICHAEL JAMES PEKULA ET UX | 138.0 |
| | S5 | 09-20-04 | SHELLIE J PEKULA | 171 |
| | S7 | 09-20-22 | JOAN L KLUG ET AL | 70.2398 |
| | S8 | 09-22-04 | WHEELING CATHOLIC DIOCESE | 20 |
| | S9 | 09-20-5.2 | WHEELING CATHOLIC DIOCESE | 0.447 |
| | S10 | 09-22-5.1 | HILARY G MILLER EST | 10.62 |
| | S11 | 09-22-3.1 | MARGARET ANN MYSLIWIEC -LIFE | 1.1 |
| | S12 | 09-22-3.2 | MARK H MILLER | 75 |
| | S13 | 05-24-02 | ROY FRIEND YOHO | 316.8 |
| | S14 | 05-17-08 | ROGER H HALL JR | 257.5 |
| | S15 | 05-17-07 | ALPINE FARM LLC | 10.8 |
| | S16 | 05-17-04 | ALPINE FARM LLC | 212 |
| | S19 | 09-16-05 | ROBERT M & NANCY R MCCARDLE | 133 |
| | S22 | 09-18-04 | BERTHA L KLUG | 1 |
| | S24 | 09-18-05 | BERTHA L KLUG | 122.437 |
| | S27 | 09-18-15 | KEITH & KRISTY FERRELL REVOCABLE LIVING TRUST | 29.5 |
| | S28 | 09-20-7.2 | MICKEY R DULANEY JR | 2.24 |
| | S29 | 09-20-07 | SONNY M & LINDA L TAGG | 72.828 |
| | S30 | 09-20-11 | PATRICK A FROHNAPFEL, ET UX | 139.88 |
| | S31 | 09-20-7.1 | DAVID PAUL FROHNAPFEL | 4.93 |
| | S32 | 09-20-9.5 | JAMES MILLER ET UX | 0.666 |
| | S33 | 09-20-9.6 | JAMES MILLER ET UX | 2.919 |
| | S34 | 09-20-9.3 | JAMES MILLER ET UX | 0.804 |
| | S35 | 09-20-10 | JAMES MILLER ET UX | 0.5 |
| | S36 | 09-20-9.4 | HELEN B SHUTLER - LIFE | 0.78 |
| | S37 | 09-20-9 | JOHN G WEIGAND JR & MARILYN S WEIGAND | 48.131 |
| | S38 | 05-16-13 | DAVID ALAN RUBCICH ET AL | 33.31 |
| | S39 | 09-16-01 | ROBERT M & NANCY R MCCARDLE | 46.80 |
| | S40 | 09-16-07 | BERTHA L KLUG | 26.105 |
| | S41 | 09-18-5.1 | LOUIS FOX | 1.583 |
| | S42 | 09-18-6 | LOUIS FOX | 141.75 |
| | S43 | 09-18-16 | ROBERT F VILLERS | 62.893 |
| | S44 | 09-18-18.1 | JOHN F WAYMAN EST | 1.1 |
| | S45 | 09-18-16.2 | JOHN F WAYMAN EST | 2.17 |
| | S46 | 09-18-16.3 | BERNARD A KLUG ET UX | 1.818 |
| | S47 | 09-18-16.1 | NICHOLAS C FROHNAPFEL ET UX | 1.50 |
| | S48 | 09-18-15.1 | NICHOLAS FROHNAPFEL ET UX | 0.68 |



P.S. 708 *David L Jackson*

10/14/2022



TUG HILL
OPERATING

OPERATOR'S
WELL #: PENDLETON S-3HM
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

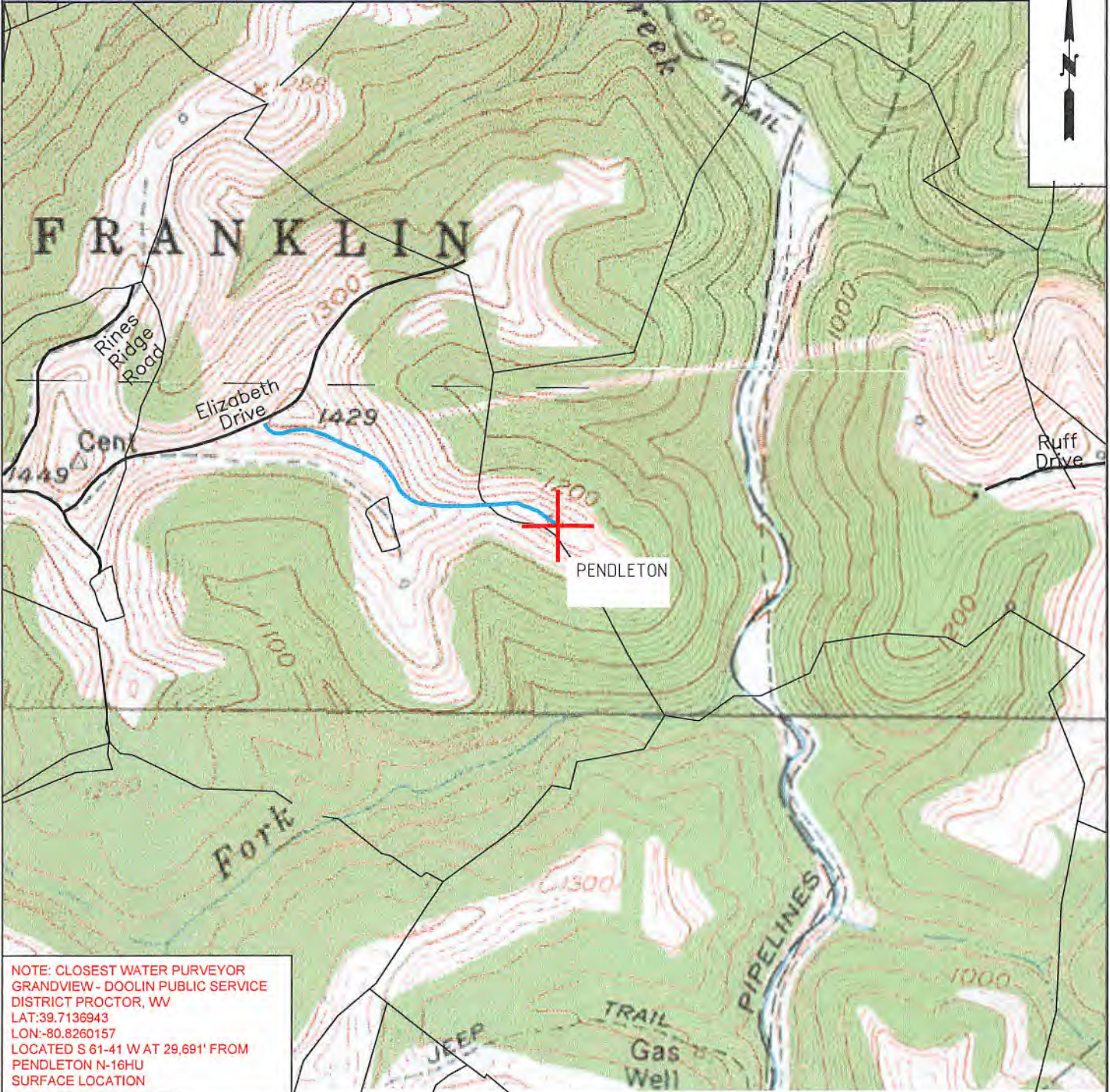
WELL PLAT
PAGE 3 OF 3
DATE: 08/23/2022

WW-9


SUPPLEMENT PG. 2

Pendleton Pad

THERE APPEAR TO BE NO (0) RESIDENCES WITHIN 2,000'.



NOTE: CLOSEST WATER PURVEYOR
 GRANDVIEW - DOOLIN PUBLIC SERVICE
 DISTRICT PROCTOR, WV
 LAT: 39.7136943
 LON: -80.8260157
 LOCATED S 61-41 W AT 29,691' FROM
 PENDLETON N-16HU
 SURFACE LOCATION

| | | | | |
|--|--|-----------|------------------|------------------|
|  TUG HILL OPERATING | OPERATOR | 494510851 | TOPO SECTION | LEASE NAME |
| | TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317 | | GLEN EASTON 7.5' | PENDLETON |
| | | | SCALE: | DATE: |
| | | | 1" = 1000' | DATE: 03-16-2022 |

10/14/2022

Handwritten signature/initials

WW-6A1
(5/13)

Operator's Well No. Pendleton S-3HM

**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

***Co-tenancy utilization – At least 7 mineral owners in tract. At least 75% of the royalty owners have executed a lease on the tract. The interests of the remaining co-tenants were acquired pursuant to the Co-tenancy Modernization and Majority Protection Act.**

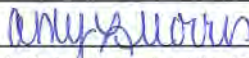
**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

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 

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*14114 | 5-17-6 | A | ELI & FANNIE MAE WENGERD | GASTAR EXPLORATION USA INC | 1/8+ | 671 323 | N/A | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Merger of Gastar Exploration Inc & Gastar Exploration USA Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |
| 10*14114 | 5-17-5 | B | ELI & FANNIE MAE WENGERD | GASTAR EXPLORATION USA INC | 1/8+ | 671 323 | N/A | N/A | N/A | N/A | N/A | N/A | Gastar Exploration USA Inc to Atinum Marcellus I LLC: 23/353 | Merger of Gastar Exploration Inc & Gastar Exploration USA Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |
| 10*19845 | 5-17-5 | B | MICHAEL WESLEY HALL DNU | TH EXPLORATION LLC | 1/8+ | 946 5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*19846 | 5-17-5 | B | SHARON L SCHULER AND JOSEPH A SCHULER | TH EXPLORATION LLC | 1/8+ | 946 7 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1287845-001 | 5-17-5 | B | KENNETH EUGENE DAKAN AKA GENE & MARGARET E. DAKAN | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 192 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 22/646 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 | |
| 1287845-002 | 5-17-5 | B | DOROTHY SEDOSKY | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 156 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 22/646 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 | |
| 1287845-003 | 5-17-5 | B | DOLLYE LEE GUZEK A/K/A DOLLY GUZEK | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 153 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 22/646 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 | |
| 1287845-004 | 5-17-5 | B | GEORGE WILLIAM MCCAIN | CHESAPEAKE APPALACHIA LLC | 1/8+ | 692 342 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 | |
| 1287845-005 | 5-17-5 | B | RITA RAE STEPHENS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 229 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 | |

WW - 6A1 Supplement

| | | | | | | | | | | | | | | | | |
|-------------|--------|---|--------------------------------------|---------------------------|------|-----|-----|--|---|---|--|---|--|--|---|--|
| 1287845-006 | 5-17-5 | B | MICHAEL EARL RICHARDS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 | 257 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |
| 1287845-007 | 5-17-5 | B | VIRGINIA MAE SELMON | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 | 239 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |
| 1287845-008 | 5-17-5 | B | LESTER M. MERCER AND HELEN J. MERCER | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 | 220 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |
| 1287845-009 | 5-17-5 | B | LEROY EUGENE RICHARDS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 | 254 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |
| 1287845-010 | 5-17-5 | B | BETTY ANN STROSNIER | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 | 147 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |
| 1287845-011 | 5-17-5 | B | HILDA IOLA MCCAIN | CHESAPEAKE APPALACHIA LLC | 1/8+ | 692 | 369 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/intro SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |

| | | | | | | | | | | | | | | | | |
|-------------|--------|---|---------------------------|---------------------------|------|-----|-----|--|---|---|--|--|--|--|---|--|
| 1287845-012 | 5-17-5 | B | VICTORIA MURPHY | CHESAPEAKE APPALACHIA LLC | 1/8+ | 692 | 310 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/into SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |
| 1287845-013 | 5-17-5 | B | HELEN LOUISE MCCAIN GATTS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 | 180 | Chesapeake Appalachia LLC to Statoilhydro USA Onshore Properties Inc: 24/338 | Memorandum of Operating Agreement & Financial Statement between Gastar Exploration USA Inc, Atinum Marcellus I, LLC & Chesapeake Appalachia, LLC: 740/394 | Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110 | Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424 | SWN Exchange Titleholder LLC merged with/into SWN Production Company LLC: 19/624 | Statoil USA Onshore Properties Inc changed name to Equinor USA Onshore Properties Inc: 2/427 | Merger of Gastar Exploration USA Inc with and into Gastar Exploration Inc: 21/41 | Gastar Exploration Inc to TH Exploration II LLC: 36/9 | Atinum Marcellus I LLC to TH Exploration II LLC: 48/67 |
| 10*19083 | 9-16-2 | C | RITA RAE STEPHENS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 683 | 302 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/26 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19084 | 9-16-2 | C | GEORGE WILLIAM MCCAIN | CHESAPEAKE APPALACHIA LLC | 1/8+ | 683 | 308 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/26 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19085 | 9-16-2 | C | LESTER M MERCER | CHESAPEAKE APPALACHIA LLC | 1/8+ | 683 | 305 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/26 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19086 | 9-16-2 | C | HILDA IOLA MCCAIN | CHESAPEAKE APPALACHIA LLC | 1/8+ | 684 | 151 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/26 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19087 | 9-16-2 | C | BECKY ANN ROSS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 684 | 126 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/26 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19088 | 9-16-2 | C | CHRISTY JO ROSS WHITE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 685 | 613 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/26 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |

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|----------|--------|---|--------------------------------|---------------------------|------|-----|-----|-----|-----|-----|-----|-----|---|---|--|---|
| 10*19090 | 9-16-2 | C | JENNIFER M. FOSTER | CHESAPEAKE APPALACHIA LLC | 1/8+ | 683 | 314 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/481 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19091 | 9-16-2 | C | HELEN LOUISE MCCAIN GATTS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 685 | 618 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/481 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19093 | 9-16-2 | C | LEROY EUGENE RICHARDS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 685 | 621 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/481 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19094 | 9-16-2 | C | MICHAEL EARL RICHARDS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 685 | 630 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/481 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19096 | 9-16-2 | C | RONNIE CUSANO | CHESAPEAKE APPALACHIA LLC | 1/8+ | 683 | 326 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/481 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19112 | 9-16-2 | C | CHARLES E FOOCE AND MARY FOOCE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 695 | 539 | N/A | N/A | N/A | N/A | N/A | N/A | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19113 | 9-16-2 | C | GEORGE DAVID FOOCE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 695 | 543 | N/A | N/A | N/A | N/A | N/A | N/A | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19114 | 9-16-2 | C | LARRY WAYNE FOOCE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 694 | 371 | N/A | N/A | N/A | N/A | N/A | N/A | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19115 | 9-16-2 | C | KATHY WILLIAMS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 694 | 522 | N/A | N/A | N/A | N/A | N/A | N/A | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19119 | 9-16-2 | C | MICHAEL WESLEY HALL | CHESAPEAKE APPALACHIA LLC | 1/8+ | 694 | 366 | N/A | N/A | N/A | N/A | N/A | N/A | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |

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|----------|--------|---|---|---------------------------|------|------|-----|-----|-----|-----|-----|-----|---|---|--|---|
| 10*19120 | 9-16-2 | C | SHARON L SCHULER AND JOSEPH A SCHULER | CHESAPEAKE APPALACHIA LLC | 1/8+ | 694 | 503 | N/A | N/A | N/A | N/A | N/A | N/A | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19122 | 9-16-2 | C | JAMES L. FOOCE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 696 | 631 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/84 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19123 | 9-16-2 | C | TAMMY SUE FOOCE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 696 | 635 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/84 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19124 | 9-16-2 | C | JENNIFER LYNN FOOCE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 696 | 627 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/84 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*19125 | 9-16-2 | C | MARK A. FOOCE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 694 | 344 | N/A | N/A | N/A | N/A | N/A | Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/479 | Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427 | Chesapeake Appalachia LLC to Chevron USA Inc: 30/461 | Chevron USA Inc to TH Exploration LLC: 40/127 |
| 10*21082 | 9-16-2 | C | HUBERT C AND JANE E OTTE | TH EXPLORATION LLC | 1/8+ | 951 | 618 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*21119 | 9-16-2 | C | MICHAEL WESLEY HALL DNU | TH EXPLORATION LLC | 1/8+ | 952 | 199 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*21120 | 9-16-2 | C | SHARON L SCHULER AND JOSEPH A SCHULER | TH EXPLORATION LLC | 1/8+ | 952 | 201 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*21131 | 9-16-2 | C | ROBERT M MCCARDLE & NANCY R MCCARDLE | TH EXPLORATION LLC | 1/8+ | 951 | 621 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*22498 | 9-16-2 | C | H3 LLC MICHAEL E HOEFT MANAGING MEMBER | TH EXPLORATION LLC | 1/8+ | 1028 | 556 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*26679 | 9-16-2 | C | GARNET GAS CORP | TH EXPLORATION LLC | 1/8+ | 1045 | 424 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*19638 | 9-16-3 | D | GREGORY J HALL | TH EXPLORATION LLC | 1/8+ | 944 | 461 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*19639 | 9-16-3 | D | RANDALL S HALL | TH EXPLORATION LLC | 1/8+ | 944 | 459 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*27393 | 9-16-3 | D | VICTOR LEWIS LANHAM | TH EXPLORATION LLC | 1/8+ | 1058 | 404 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*27520 | 9-16-3 | D | MICHAEL L HALL JR AND DIANNE HALL | TH EXPLORATION LLC | 1/8+ | 1060 | 194 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*27558 | 9-16-3 | D | CRYSTAL L CUNNINGHAM AND TIMOTHY CUNNINGHAM | TH EXPLORATION LLC | 1/8+ | 1060 | 476 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*27570 | 9-16-3 | D | ENOCH R HYDE AND ELIZABETH HYDE | TH EXPLORATION LLC | 1/8+ | 1060 | 478 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*27572 | 9-16-3 | D | JOHN W HYDE AND ALYCE F HYDE | TH EXPLORATION LLC | 1/8+ | 1060 | 481 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*27573 | 9-16-3 | D | RUSSELL H HATCHER AND ELIZABETH HATCHER | TH EXPLORATION LLC | 1/8+ | 1061 | 258 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*27833 | 9-16-3 | D | TIMOTHY A HOLLEY AND DEBRA J HOLLEY | TH EXPLORATION LLC | 1/8+ | 1063 | 256 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*29086 | 9-16-3 | D | BETTY L COX | TH EXPLORATION LLC | 1/8+ | 1084 | 197 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*29514 | 9-16-3 | D | NANCY M HYDE | TH EXPLORATION LLC | 1/8+ | 1097 | 509 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*29685 | 9-16-3 | D | FAMILY TREE CORPORATION | TH EXPLORATION LLC | 1/8+ | 1100 | 252 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*29724 | 9-16-3 | D | JANICE GUMP DEBOLT* | TH EXPLORATION LLC | 1/8+ | 1100 | 73 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18038 | 9-16-4 | E | JEANETTE A SHUTLER DAVIS AND ROY J DAVIS | TH EXPLORATION LLC | 1/8+ | 927 | 84 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18039 | 9-16-4 | E | CLEMENT R SHUTLER AND NANCY L SHUTLER | TH EXPLORATION LLC | 1/8+ | 927 | 82 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18337 | 9-16-4 | E | VIRIGNIA LEA SHUTLER | TH EXPLORATION LLC | 1/8+ | 929 | 552 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18338 | 9-16-4 | E | MARY MARGARET SHUTLER | TH EXPLORATION LLC | 1/8+ | 929 | 554 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18439 | 9-16-4 | E | MARTIN E FAHEY AND PAMELA S FAHEY | TH EXPLORATION LLC | 1/8+ | 933 | 85 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18440 | 9-16-4 | E | JOHN M FAHEY AND SANDY Y FAHEY | TH EXPLORATION LLC | 1/8+ | 933 | 87 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18538 | 9-16-4 | E | KRIS & JULIE BECKER | TH EXPLORATION LLC | 1/8+ | 933 | 644 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18667 | 9-16-4 | E | DONNA K FAHEY | TH EXPLORATION LLC | 1/8+ | 936 | 81 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18668 | 9-16-4 | E | THOMAS M FAHEY AND PATRICIA FAHEY | TH EXPLORATION LLC | 1/8+ | 936 | 85 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18669 | 9-16-4 | E | ANDREW E POWELL AND MARIE C POWELL | TH EXPLORATION LLC | 1/8+ | 936 | 139 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

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| 10*22384 | 9-16-4 | E | VIVIAN SHUTLER | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 916 | 642 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | American Petroleum Partners Operating LLC to TH Exploration LLC: 42/109 |
| 10*22429 | 9-16-4 | E | DENNIS E BOGER AND MARY BETH BOGER | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 921 | 19 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | American Petroleum Partners Operating LLC to TH Exploration LLC: 42/109 |
| 10*22477 | 9-16-4 | E | NANCY E MCFARLAND AND SHAWN B MCFARLAND | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 921 | 24 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | American Petroleum Partners Operating LLC to TH Exploration LLC: 42/109 |
| 10*22478 | 9-16-4 | E | URBAN SHUTLER AIF KEVIN C SHUTLER | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 921 | 29 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | American Petroleum Partners Operating LLC to TH Exploration LLC: 42/109 |
| 10*22479 | 9-16-4 | E | KEVIN SHUTLER | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 920 | 115 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | American Petroleum Partners Operating LLC to TH Exploration LLC: 42/109 |
| 10*22482 | 9-16-4 | E | MICHAEL J SHUTLER & PATRICIA SHUTLER | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 930 | 193 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | American Petroleum Partners Operating LLC to TH Exploration LLC: 42/109 |
| 10*22484 | 9-16-4 | E | TERRENCE A SHUTLER AND DAWN I SHUTLER | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 928 | 28 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | American Petroleum Partners Operating LLC to TH Exploration LLC: 42/109 |
| 10*22945 | 9-16-4 | E | MARTHA J SHUTLER | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 917 | 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | American Petroleum Partners Operating LLC to TH Exploration LLC: 42/109 |
| 10*29412 | 9-16-4 | E | JANA K PARRY | TH EXPLORATION LLC | 1/8+ | 1096 | 321 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*29645 | 9-16-4 | E | RED STONE RESOURCES LLC | TH EXPLORATION LLC | 1/8+ | 1100 | 67 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*28262 | 9-18-3 | F | JAMES W MESSEY ET AL | ECLIPSE OIL COMPANY | 1/8+ | 67 | 487 | N/A | Eclipse Oil Company to C.H. Stolzebach: DB 68/507 | Wheeling Natural Gas Company to Manufacturers Light & Heat Company: DB 148/389 | The Manufacturers Light & Heat Company to A.M. Snider & Duane M Snider dba Hundred Gas Company: AB 4/489 | AM Snider, Duane M Snider & Kathleen Rinehart dba Hundred Gas Company to Hundred Gas Company: DB 256/189 | Hundred Gas Company to Carl D Perkins: DB 451/132 | Amendment - Hundred Gas Company to Carl D Perkins: DB 451/418 | Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72 | Perkins Oil & Gas Inc to TH Exploration LLC: AB 45/87 |

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|----------------|---------|---|---|---------------------|------|-----|-----|-----|---|--|--|--|---|---|--|---|
| 10*28262 | 9-18-1 | G | JAMES W MESSEY ET AL | ECLIPSE OIL COMPANY | 1/8+ | 67 | 487 | N/A | Eclipse Oil Company to C.H. Stolzebach: DB 68/507 | Wheeling Natural Gas Company to Manufacturers Light & Heat Company: DB 148/389 | The Manufacturers Light & Heat Company to A.M. Snider & Duane M Snider dba Hundred Gas Company: AB 4/489 | AM Snider, Duane M Snider & Kathleen Rinehart dba Hundred Gas Company to Hundred Gas Company: DB 256/189 | Hundred Gas Company to Carl D Perkins: DB 451/132 | Amendment - Hundred Gas Company to Carl D Perkins: DB 451/418 | Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72 | Perkins Oil & Gas Inc to TH Exploration LLC: AB 45/87 |
| 10*28262 | 9-18-2 | H | JAMES W MESSEY ET AL | ECLIPSE OIL COMPANY | 1/8+ | 67 | 487 | N/A | Eclipse Oil Company to C.H. Stolzebach: DB 68/507 | Wheeling Natural Gas Company to Manufacturers Light & Heat Company: DB 148/389 | The Manufacturers Light & Heat Company to A.M. Snider & Duane M Snider dba Hundred Gas Company: AB 4/489 | AM Snider, Duane M Snider & Kathleen Rinehart dba Hundred Gas Company to Hundred Gas Company: DB 256/189 | Hundred Gas Company to Carl D Perkins: DB 451/132 | Amendment - Hundred Gas Company to Carl D Perkins: DB 451/418 | Carl D Perkins to Perkins Oil and Gas Inc: DB 583/72 | Perkins Oil & Gas Inc to TH Exploration LLC: AB 45/87 |
| 10*47051.047.1 | 9-18-18 | I | JAMES E BLATT | TH EXPLORATION LLC | 1/8+ | 869 | 587 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*47051.047.2 | 9-18-18 | I | JOHN WILLIAM BLATT | TH EXPLORATION LLC | 1/8+ | 869 | 590 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*47051.047.3 | 9-18-18 | I | CAROL LEE BURNSIDE | TH EXPLORATION LLC | 1/8+ | 869 | 593 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*47051.047.4 | 9-18-18 | I | LOIS JEAN CECIL | TH EXPLORATION LLC | 1/8+ | 869 | 596 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*17899 | 9-20-6 | J | JOHN CALVERT | TH EXPLORATION LLC | 1/8+ | 924 | 608 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*17900 | 9-20-6 | J | DELORES J MYERS | TH EXPLORATION LLC | 1/8+ | 924 | 606 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*17989 | 9-20-6 | J | JANET F HIGGINS | TH EXPLORATION LLC | 1/8+ | 925 | 445 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*17990 | 9-20-6 | J | EDWARD TYLA AND MARY TYLA | TH EXPLORATION LLC | 1/8+ | 925 | 385 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*17994 | 9-20-6 | J | ELAINE BEAL | TH EXPLORATION LLC | 1/8+ | 943 | 528 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*17995 | 9-20-6 | J | THOMAS E BEAL AND LOIS BEAL | TH EXPLORATION LLC | 1/8+ | 925 | 383 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18116 | 9-20-6 | J | SUSANNE KRENTZ | TH EXPLORATION LLC | 1/8+ | 927 | 80 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18277 | 9-20-6 | J | JOHN J ZAGORSKI AND PAMELA L WOODHULL | TH EXPLORATION LLC | 1/8+ | 929 | 110 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18279 | 9-20-6 | J | ELAINE BOBINCHECK | TH EXPLORATION LLC | 1/8+ | 929 | 56 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18282 | 9-20-6 | J | ROBERT G TAYLOR AND JUDITH B TAYLOR | TH EXPLORATION LLC | 1/8+ | 929 | 112 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18328 | 9-20-6 | J | ROBERT E BEIFUSS AND PATRICIA J BEIFUSS | TH EXPLORATION LLC | 1/8+ | 929 | 558 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18365 | 9-20-6 | J | JEAN M JONES | TH EXPLORATION LLC | 1/8+ | 931 | 309 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18372 | 9-20-6 | J | JAMES RIDER | TH EXPLORATION LLC | 1/8+ | 931 | 455 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18380 | 9-20-6 | J | LEROY SUMMERHILL AND JUNE E SUMMERHILL | TH EXPLORATION LLC | 1/8+ | 932 | 443 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18382 | 9-20-6 | J | GAIL V RYBA | TH EXPLORATION LLC | 1/8+ | 932 | 445 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18383 | 9-20-6 | J | WILLIAM MATUSINEC AND CAROL A MATUSINEC | TH EXPLORATION LLC | 1/8+ | 932 | 488 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18384 | 9-20-6 | J | GEORGE S AUGUSTIN | TH EXPLORATION LLC | 1/8+ | 932 | 490 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18431 | 9-20-6 | J | DARYL W ERRICHIELLO AND CATHERINE L ERRICHIELLO | TH EXPLORATION LLC | 1/8+ | 941 | 631 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18435 | 9-20-6 | J | JOSEPH E BORK AND SUSAN A BORK | TH EXPLORATION LLC | 1/8+ | 933 | 75 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18441 | 9-20-6 | J | HAROLD SHELDON JR AND ANNETTE M SHELDON | TH EXPLORATION LLC | 1/8+ | 933 | 89 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18442 | 9-20-6 | J | ARTHUR J OCHSNER JR AND SANDRA J OCHSNER | TH EXPLORATION LLC | 1/8+ | 933 | 91 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18489 | 9-20-6 | J | MARJORIE E KRAUSE | TH EXPLORATION LLC | 1/8+ | 933 | 73 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*18814 | 9-20-6 | J | BEATRICE WAYMAN | TH EXPLORATION LLC | 1/8+ | 938 | 28 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*19556 | 9-20-6 | J | KEITH A FERRELL AND KRISTY J FERRELL | TH EXPLORATION LLC | 1/8+ | 936 | 544 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*21827 | 9-20-6 | J | JANET PUCCI AND JOHN PUCCI | TH EXPLORATION LLC | 1/8+ | 960 | 218 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*21829 | 9-20-6 | J | RONALD ROSE & BARBARA ROSE | TH EXPLORATION LLC | 1/8+ | 960 | 185 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*22591 | 9-20-6 | J | MICHAEL ZAMAGIAS AND ELIZABETH ZAMAGIAS | TH EXPLORATION LLC | 1/8+ | 966 | 478 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*22595 | 9-20-6 | J | DUANE WOLLANT | TH EXPLORATION LLC | 1/8+ | 984 | 511 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*22596 | 9-20-6 | J | DOUGLAS WOLLANT AND LISA M STOEFFLER | TH EXPLORATION LLC | 1/8+ | 966 | 480 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 10*19555 | 9-20-5 | K | MARY JEAN FROHNAPFEL | TH EXPLORATION LLC | 1/8+ | 936 | 525 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

*Co-tenancy utilization – At least 7 mineral owners in tract. At least 75% of the royalty owners have executed a lease on the tract. The interests of the remaining co-tenants were acquired pursuant to the Co-tenancy Modernization and Majority Protection Act.

STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

ASSIGNMENT, BILL OF SALE AND CONVEYANCE

THIS ASSIGNMENT, BILL OF SALE AND CONVEYANCE (this "*Assignment*"), dated effective as of 7:00 A.M., local time, where the respective Assets are located, on July 1, 2020 (the "*Effective Time*"), is between **Atinum Marcellus I, LLC**, a Delaware limited liability company ("*Assignor*"), whose mailing address is One Riverway, Suite 710, Houston, TX 77056-1988, and **TH Exploration II, LLC**, a Texas limited liability company, whose mailing address is 1320 S. University Drive, Suite 500, Fort Worth, Texas 76107 ("*Assignee*"). Assignor and Assignee are each, individually, referred to herein as a "*Party*" and, collectively, as the "*Parties*."

Capitalized terms used but not defined herein shall have the respective meanings set forth in that certain Asset Purchase Agreement dated as of November 13, 2020, by and among Assignor and Assignee (the "*Purchase Agreement*").

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

For Ten Dollars (\$10.00) and other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged), Assignor does hereby forever GRANT, BARGAIN, SELL, CONVEY, ASSIGN, TRANSFER, SET OVER AND DELIVER unto Assignee, and Assignee does hereby acquire, the undivided interests in the Leases (as defined below) set forth on Exhibit A-1, and all other of Assignor's right, title and interest in and to the interests and properties described in subsections (a) through (k) of this Section 1 (without duplication) (such right, title and interest, less and except the Excluded Assets, collectively, the "*Assets*");

(a) The oil and gas leases, mineral leases and Royalties located in the Covered Counties (which Covered Counties include, for the avoidance of doubt, the county in which this Assignment is filed of record), including those described on Exhibit A-1 together with any and all other right, title and interest in and to the leasehold estates created thereby, subject to the terms, conditions, covenants and obligations set forth in such leases or other instrument creating such rights or interests or on Exhibit A-1 (such leases, Royalties, and mineral interests, collectively, the "*Leases*"), together with any related interest in the lands covered by the Leases or lands unitized, pooled, communitized or consolidated therewith (the "*Lands*");

(b) All of the oil and/or gas wells identified on Exhibit A-2 hereto (the "*Wells*"), and any other oil, gas, or other wells located on any of the Leases or the Lands, in each case, whether producing, non-producing, shut-in, temporarily or permanently abandoned or otherwise;

(c) All rights, titles and interests arising under any unitization, pooling and/or communitization agreements, declarations or designations for drilling, spacing and/or production units related to any of the Leases, Wells or Lands, including the units described on Exhibit A-4;

MEMORANDUM OF PARTIAL ASSIGNMENT OF OIL AND GAS LEASES

STATE OF WEST VIRGINIA §
§
COUNTY OF MARSHALL §

This MEMORANDUM OF PARTIAL ASSIGNMENT OF OIL AND GAS LEASES (hereinafter, the "Memorandum") has been executed by and between PERKINS OIL & GAS, INC., a West Virginia corporation, whose address is 2966 Northwest Turnpike, Pennsboro, West Virginia 26415 (hereinafter the "Assignor"), and TH EXPLORATION, LLC, a Texas limited liability company (hereinafter the "Assignee") whose address is 1320 South University Drive, Suite 500, Fort Worth, Texas 76107. Assignor and Assignee are sometimes referred to herein, collectively, as the "Parties" and, individually, as a "Party." This Memorandum is being executed for the purpose of providing notice to third parties of the execution of a certain Partial Assignment of Oil and Gas Leases (hereinafter, the "Assignment"), by and between the Parties.

WHEREAS, Assignor is the current owner and lessee of certain oil and gas leases located in Marshall County, West Virginia, covering specific parcels and being more particularly described on Exhibit "A" attached hereto and made a part hereof (collectively, the "Oil and Gas Leases").

In the Assignment dated, effective as of the 21st day of January, 2020 (hereinafter, the "Effective Date") and this Memorandum, Assignor does hereby GRANT, BARGAIN, SELL, CONVEY, TRANSFER and ASSIGN unto Assignee, all right, title and interest in and to the Oil and Gas Leases INsofar AND ONLY INsofar as each lease and parcel covers those formations lying between two hundred (200) feet above and two hundred (200) feet below the formations commonly known to as the Utica/Point Pleasant Shale formations, or the stratigraphic equivalent thereof (such depths and formations being referred to as the "Assigned Formations"). The Assigned Formations are included with and part of the Assigned Rights as defined in the Assignment.

EXCLUDING THEREFROM AND EXCEPTING AND RESERVING UNTO THE ASSIGNOR, ITS SUCCESSORS AND ASSIGNS, THE OVERRIDING ROYALTY INTEREST, as defined in the Assignment.

The Assignment contains various other terms, provisions and conditions, all of which are incorporated herein by reference, and made a part hereof in all respects as though the same were fully set forth herein. To the extent that there are any inconsistencies between this Memorandum and the Assignment, the terms and provisions of the Assignment shall prevail.

Assignor does hereby bind itself and its successors and assigns to warrant and forever defend all and singular title to the Assigned Formations unto Assignee and Assignee's successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, by through, or under Assignor, but not otherwise.

This Memorandum is made expressly subject to the terms and conditions of the Purchase and Sale Agreement dated September 23, 2019, by and between the Parties, all of which are fully incorporated herein by reference (the "Purchase Agreement").

This Memorandum may be executed in multiple counterparts, each of which shall be deemed an original instrument, but all such counterparts together shall constitute but one agreement.

[TWO SIGNATURE PAGES TO FOLLOW]

STATE OF WEST VIRGINIA §
§
COUNTY OF MARSHALL §

Marshall County
Jan Pest, Clerk
Instrument 1428356
08/16/2017 @ 12:08:49 PM
ASSIGNMENTS
Book 40 @ Page 127
Pages Recorded 25
Recording Cost \$ 33.00

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "**Assignment**") is made and entered into this 1 day of AUGUST, 2017 (the "**Effective Date**"), by and between **CHEVRON U.S.A. INC.** (hereinafter "**Assignor**") and **TH EXPLORATION, LLC** (hereinafter "**Assignee**") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated the 1st day of August, 2017 (the "Acreage Trade Agreement"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

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

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases as described below, subject to certain overriding royalty interests and less and except certain exclusions.

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

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

A. The Chevron ORRI previously conveyed to Assignor and as described in that certain Memorandum of Assignment of Oil and Gas Lease Interests dated November 6, 2012 by and between Cornell Holdings Incorporated and Chevron U.S.A. Inc., which is recorded at Book 0028, Page 0239 in the Office of the County Clerk of Marshall County, West Virginia, and

B. As to each of the Leases and all oil, gas, and associated hydrocarbons produced, saved and sold thereunder, an overriding royalty interest equal to the difference between 82% and the

STATE OF WEST VIRGINIA §
§
COUNTY OF MARSHALL §

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 18th day of May, 2018, and made effective December 12, 2017 (the "Effective Date"), by and between AMERICAN PETROLEUM PARTNERS OPERATING, LLC, (hereinafter "Assignor") and TH EXPLORATION, LLC (hereinafter "Assignee") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated December 12, 2017 (the "Acreage Trade Agreement"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

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

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

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

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

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

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

Marshall County
Jan Pest, Clerk
Instrument 1440860
05/25/2018 @ 02:36:09 PM
ASSIGNMENTS
Book 42 @ Page 109
Pages Recorded 9
Recording Cost \$ 15.00

WI-AGR-0009



August 24, 2022

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

RE: Pendleton S-3HM

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 Pendleton S-3HM 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,

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

Amy L. Morris
Permitting Specialist – Appalachia Region

4705102470

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

Date of Notice Certification: 08/24/2022

API No. 47- 051 -

Operator's Well No. Pendleton S-3HM

Well Pad Name: Pendleton

Notice has been given:

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

| | | | | |
|-------------|--------------------------|---------------------------|---|---------------------|
| State: | <u>West Virginia</u> | UTM NAD 83 | Easting: | <u>522,771.39</u> |
| County: | <u>Marshall</u> | | Northing: | <u>4,400,439.15</u> |
| District: | <u>Franklin</u> | Public Road Access: | <u>Rines Ridge Road (County Route 76)</u> | |
| Quadrangle: | <u>Glen Easton 7.5'</u> | Generally used farm name: | <u>Alpine Farm, LLC</u> | |
| Watershed: | <u>Middle Fish Creek</u> | | | |

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

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

Required Attachments:

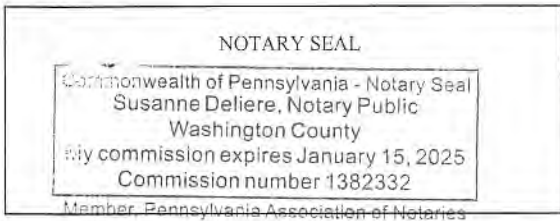
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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.

10/14/2022

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 Region</u> | Facsimile: | <u>724-338-2030</u> |
| Telephone: | <u>724-749-8388</u> | Email: | <u>amorris@tug-hilop.com</u> |



Subscribed and sworn before me this 24th day of August, 2022
Susanne Deliere Notary Public
 My Commission Expires 1/15/2025

Oil and Gas Privacy Notice:

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

WW-6A
(9-13)

API NO. 47- 051 -
OPERATOR WELL NO. Pendleton S-3HM
Well Pad Name: Pendleton

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: 8/24/2022 **Date Permit Application Filed:** 8/25/2022

Notice of:

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

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

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

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

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

SURFACE OWNER(s)
 Name: Alpine Farm, LLC (Well Pad and Access Road)
 Address: 7932 TWP Road 662
Dundee, OH 44624-9602
 Name: _____
 Address: _____

COAL OWNER OR LESSEE
 Name: Consol Energy, LLC 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: Ray J. Miller
 Address: 1538 Township Road 660
Dundee, OH 44624
 Name: _____
 Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
 Name: No water purveyors 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

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

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

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

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

WW-6A
(8-13)

API NO. 47-051 -
OPERATOR WELL NO. Pendleton S-3HM
Well Pad Name: Pendleton

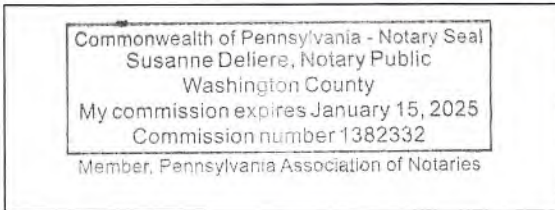
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

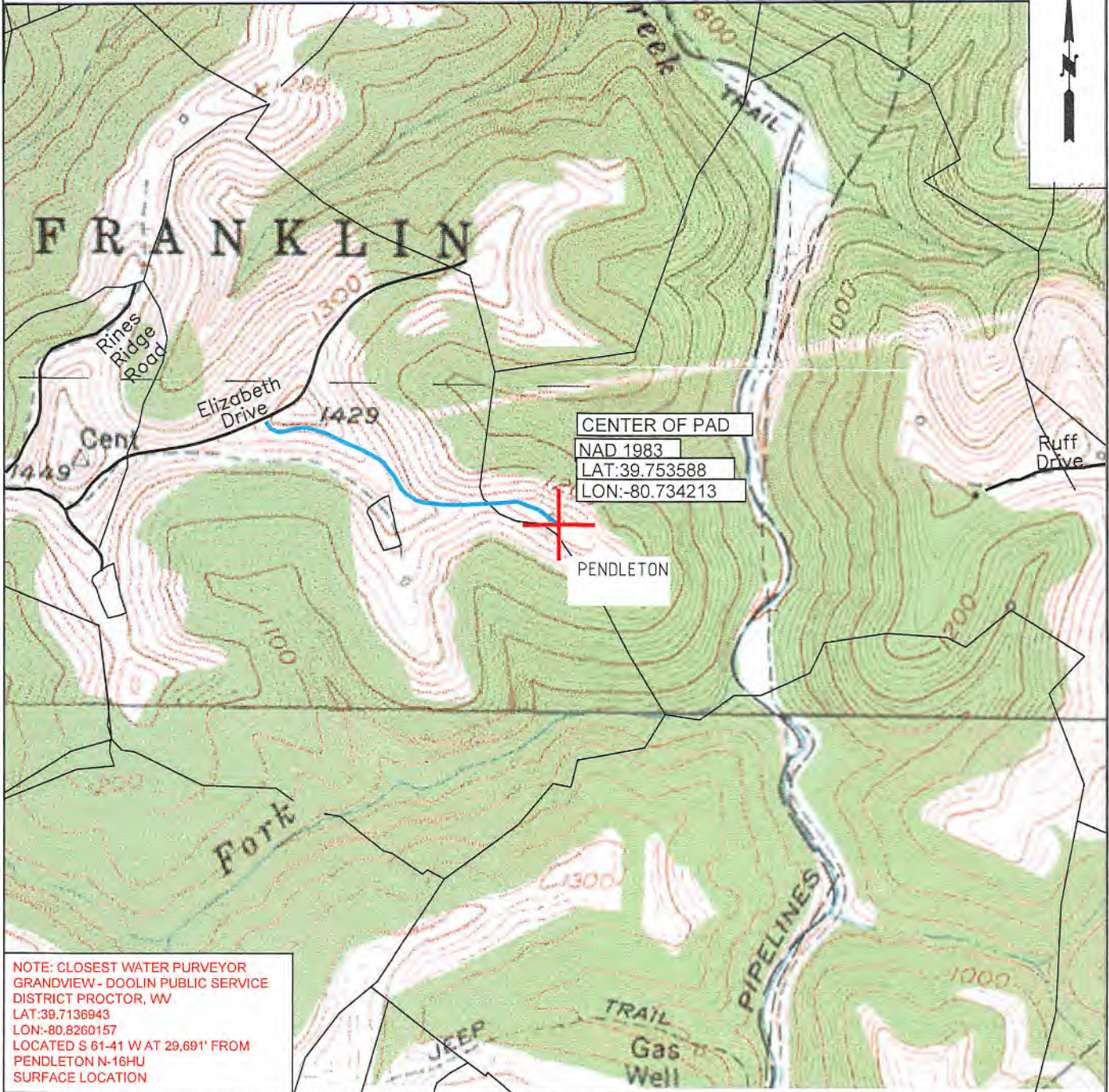
The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory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



Subscribed and sworn before me this 24th day of August, 2022
Susanne Deliere Notary Public
My Commission Expires 1/15/2025

Pendleton Pad

THERE APPEAR TO BE NO (0) RESIDENCES WITHIN 2,000'.



NOTE: CLOSEST WATER PURVEYOR
 GRANDVIEW - DOOLIN PUBLIC SERVICE
 DISTRICT PROCTOR, WV
 LAT: 39.7136943
 LON: -80.8260157
 LOCATED S 61-41 W AT 29.691' FROM
 PENDLETON N-16HU
 SURFACE LOCATION



TUG HILL
 OPERATING

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

TOPO SECTION

GLEN EASTON 7.5'

SCALE:

1" = 1000'

LEASE NAME

PENDLETON

DATE:

DATE: 03-15-2022

10/14/2022

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.
Date of Notice: 07/14/2022 **Date Permit Application Filed:** 07/25/2022

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

HAND DELIVERY CERTIFIED MAIL RETURN RECEIPT REQUESTED

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 receipt 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: Eli and Fannie Mae Wengerd (Well Pad and Access Road)
Address: 7932 TWP Road 662
Dundee, OH 44624-9602

Name: Ray J. Miller (Access Road)
Address: 1538 Township Road 660
Dundee, OH 44624

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: West Virginia UTM NAD 83 Easting: 522,771.39
County: Marshall Northing: 4,400,439.15
District: Franklin Public Road Access: Rines Ridge Road (County Route 76)
Quadrangle: Glen Easton 7.5' Generally used farm name: Eli and Fannie Mae Wengerd
Watershed: Fish Creek

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-hillop.com
Facsimile: _____

Authorized Representative: Darren Brown
Address: 5098 Washington Street W, Suite 407
Charleston, WV 25313-1561
Telephone: 877-467-3525
Email: ct-statecommunications@wolterskluwer.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: 08/24/2022 **Date Permit Application Filed:** 08/25/2022

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

- CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

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

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

Name: Alpine Farm, LLC (Well Pad and Access Road)
Address: 7932 TWP Road 662
Dundee, OH 44624-9602

Name: Ray J. Miller (Access Road)
Address: 1538 Township Road 660
Dundee, OH 44624

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>522,771.39</u> |
| County: <u>Marshall</u> | | Northing: <u>4,400,439.15</u> |
| District: <u>Franklin</u> | Public Road Access: <u>Rines Ridge Road (County Route 76)</u> | |
| Quadrangle: <u>Glen Easton 7.5'</u> | Generally used farm name: <u>Alpine Farm, LLC</u> | |
| Watershed: <u>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-hillop.com

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

Oil and Gas Privacy Notice:

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



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

January 24, 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 Pendleton Pad, Marshall County
Pendleton S-3HM Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2010-0110 which has been issued to Tug Hill Operating LLC for access to the State Road for a well site located off Marshall County Route 76 SLS MP 1.91.

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,

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

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

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

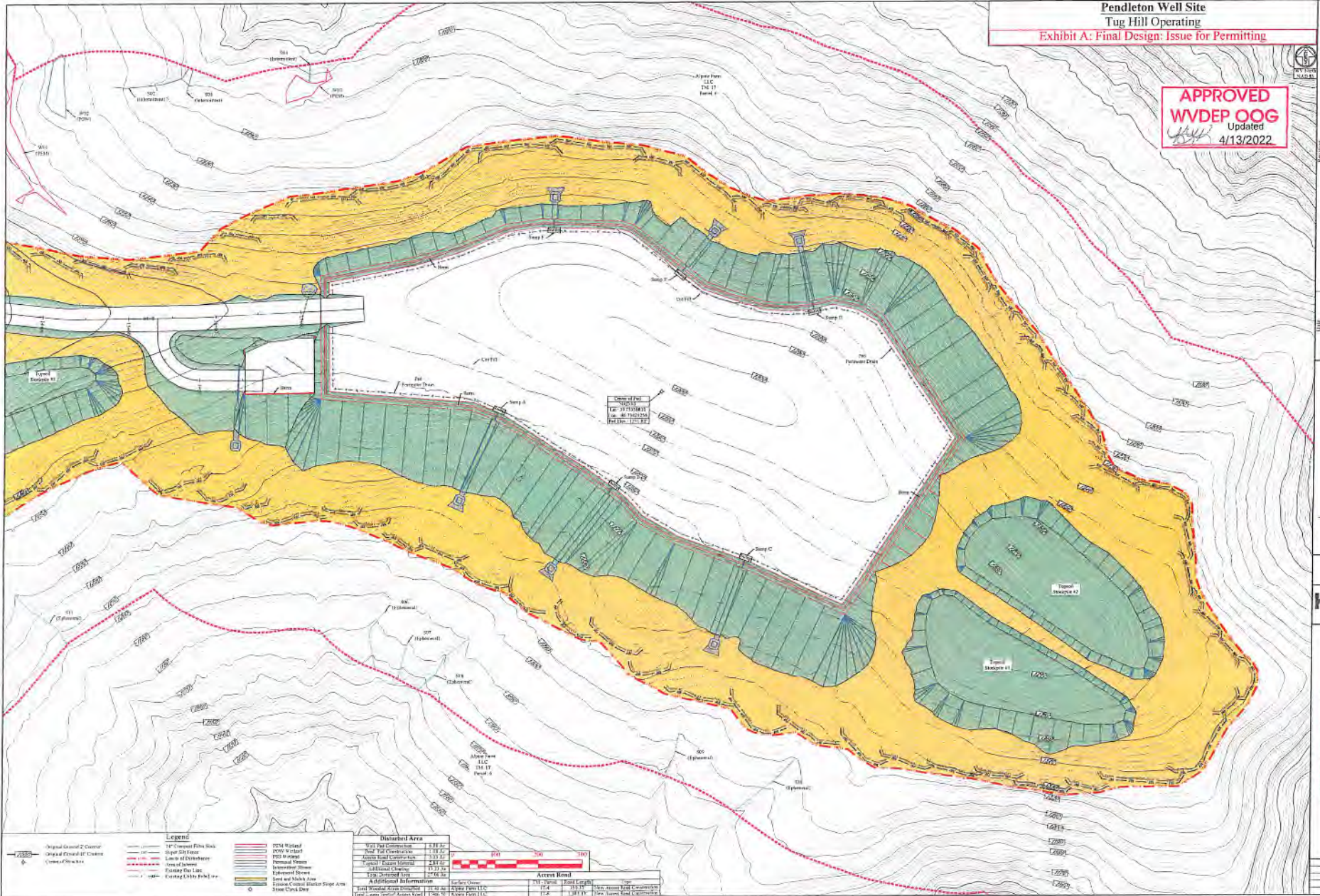


PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Pendleton Wells

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

APPROVED
WVDEP OOG
Updated
4/13/2022



TUG HILL
OPERATING



THIS DOCUMENT
PREPARED FOR
TUG HILL
OPERATING



Errosion and Sediment Control Plan
Pendleton Well Site
Franklin District
Marshall County, WV

DATE: 12/17/2021
SCALE: AS SHOWN
DESIGNED BY: ZS
JOB NO:
SHEET 6 OF 20