



west virginia department of environmental protection

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

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

Thursday, January 23, 2020
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for HILLROCK S-15HU
47-051-02263-00-00

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

A handwritten signature in blue ink, appearing to read 'Jim Martin', is written over the typed name and title.

Operator's Well Number: HILLROCK S-15HU
Farm Name: TERRY E. & DEBORAH SIMM
U.S. WELL NUMBER: 47-051-02263-00-00
Horizontal 6A New Drill
Date Issued: 1/23/2020

PERMIT CONDITIONS

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

CONDITIONS

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

PERMIT CONDITIONS

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



west virginia department of environmental protection

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

Randall M. Albert, Chairman
dep.wv.gov

November 18, 2019

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

RE: Application for Deep Well Permit – API #47-051-02263

COMPANY: Tug Hill Operating, LLC

FARM: Terry E. and Deborah Simms

Hillrock S-15HU

COUNTY: Marshall

DISTRICT: Franklin

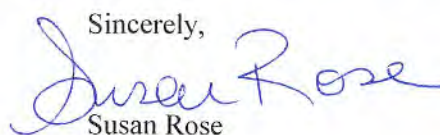
QUAD: New Martinsville

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

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

1. Comments to Notice of Deviation filed? No
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: yes; Docket 290-288 Exception Location Hearing; Hillrock S-14HU 47-051-02262; Corley N-9HU 47-051-01983, Corley N-10HU 47-051-01998; Burch Ridge S-7HU 47-051-02194; Simms U-5H 47-051-01731
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,


Susan Rose
Administrator

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

1) Well Operator: Tug Hill Operating, LLC
Operator ID: 494510851 County: Marshall District: Franklin Quadrangle: ~~Point Pleasant~~ New Martinsville

2) Operator's Well Number: Hillrock S-15HU Well Pad Name: Simms

3) Farm Name/Surface Owner: Terry E. and Deborah Simms Public Road Access: Rines Ridge Road (County Route 76)

4) Elevation, current ground: 1219.50' Elevation, proposed post-construction: 1219.50'

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

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No Yes

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

Point Pleasant is the target formation at a depth of 11,382' - 11,262' - thickness of 120' and anticipated pressure of approx. 9500 psi.

8) Proposed Total Vertical Depth: 11,532'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 19,577'

11) Proposed Horizontal Leg Length: 7,507.05'

12) Approximate Fresh Water Strata Depths: 70' ; 812'

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

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickley Coal - 706' ; Pittsburgh Coal - 806'

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

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

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

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

WW-6B
(04/15)

4705 02263
API NO. 47-051
OPERATOR WELL NO. Hillrock S-15HU
Well Pad Name: Simms

18)

CASING AND TUBING PROGRAM

| TYPE | Size (in) | New or Used | Grade | Weight per ft. (lb/ft) | FOOTAGE: For Drilling (ft) | INTERVALS: Left in Well (ft) | CEMENT: Fill-up (Cu. Ft.)/CTS |
|--------------|-----------|-------------|--------|------------------------|----------------------------|------------------------------|-------------------------------|
| Conductor | 30" | NEW | BW | BW | 120' | 120' | 259FT^3(CTS) |
| Fresh Water | 20" | NEW | J55 | 106.5# | 920' | 920' | 1,493FT^3(CTS) |
| Coal | 13 3/8" | NEW | J55 | 54.5# | 2700' | 2700' | 1,913FT^3(CTS) |
| Intermediate | 9 5/8" | NEW | HPP110 | 47# | 10,704' | 10,704' | 3,486FT^3(CTS) |
| Production | 5 1/2" | NEW | P110 | 23# | 19,577' | 19,577' | 4,667FT^3(CTS) |
| Tubing | 2 7/8" | NEW | P110 | 6.5# | | 11,949' | |
| Liners | | | | | | | |

me
4/10/19

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

PACKERS

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

RECEIVED
Office of Oil and Gas

AUG - 9 2019

WV Department of
Environmental Protection

WW-6B
(10/14)

4705102263
API NO. 47-051 -
OPERATOR WELL NO. Hillrock S-15HU
Well Pad Name: Simms

4/10/19

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP. 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 18,022,500 lb proppant and 278,641 bbl of water. Max rate = 80 bpm; max psi = 12,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 11.63 acres

22) Area to be disturbed for well pad only, less access road (acres): 3.19 acres

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

25) Proposed borehole conditioning procedures:

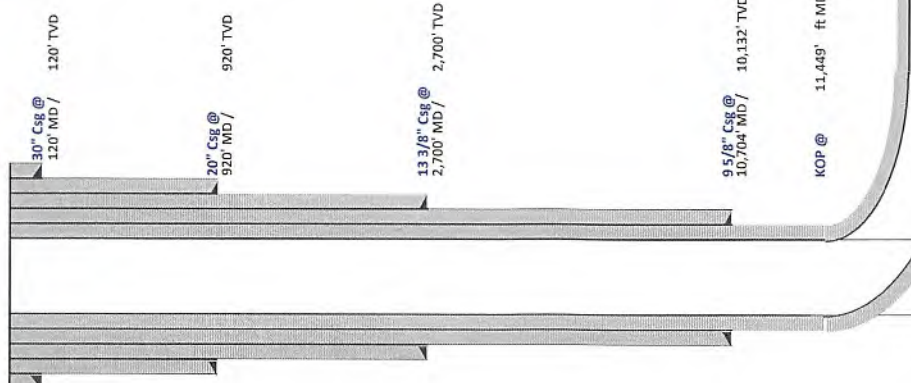
Will circulate a minimum of 3 hours at TD, short trip to curve, circulate bottoms up, check for flow, POOH

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

*Note: Attach additional sheets as needed.



WELL NAME: Hillrock 1S-15HU COUNTY: Marshall
 STATE: WV DISTRICT: Franklin
 DF Elev: 1,219' GL Elev: 1,219'
 TD: 19,577'
 TH Latitude: 39.74583707
 TH Longitude: -80.77026272
 BH Latitude: 39.72588275
 BH Longitude: -80.74489343



| FORMATION TOPS | |
|---------------------|-----------|
| Formation | Depth TVD |
| Deepest Fresh Water | 812' |
| Sewickley Coal | 706' |
| Pittsburgh Coal | 806' |
| Big Lime | 1,984' |
| Berea | 2,522' |
| Tully | 6,392' |
| Marcellus | 6,486' |
| Onondaga | 6,520' |
| Salina | 7,240' |
| Lockport | 8,286' |
| Utica | 11,001' |
| Point Pleasant | 11,262' |
| Landing Depth | 11,312' |
| Trenton | 11,382' |
| Pilot Hole TD | 11,532' |

| CASING SUMMARY | | | | | | |
|----------------|----------------|---------------|------------|-------------|----------------|---------------|
| Type | Hole Size (in) | Csg Size (in) | Depth (MD) | Depth (TVD) | Weight (lb/ft) | Top of Cement |
| Conductor | 36 | 30 | 120' | 120' | BW | Surface |
| Surface | 26 | 20 | 920' | 920' | 106.5 | Surface |
| Intermediate 1 | 17 1/2 | 13 3/8 | 2,700' | 2,700' | 54.5 | Surface |
| Intermediate 2 | 12 1/4 | 9 5/8 | 10,704' | 10,132' | 47 | Surface |
| Production | 8 1/2 | 5 1/2 | 19,577' | 11,425' | 23 | Surface |

| CEMENT SUMMARY | | | | DRILLING DETAILS | |
|----------------|-------|---------|-------------|---|--|
| Sacks | Class | Density | Fluid Type | Centralizer Notes | |
| 338 | A | 15.6 | Air | None | |
| 1,611 | A | 15.6 | Air | 3 Centralizers at equal distance | |
| 2,070 | A | 15 | Air | 1 Centralizer every other ft | |
| 2,921 | A | 14.5 | Air | 1 Centralizer every other ft | |
| 4,096 | A | 15 | Air / SOBMM | 1 every other joint in lateral; 1 per joint in curve; 1 every other ft to sfc | |

Handwritten signature and date: 4/10/19

Lateral TD @ 19,577' ft MD
 11,425' ft TVD

Landing Point @ 2,368' MD / 11,312' TVD
 PH TVD = 150' below Trenton Top

RECEIVED
 Office of Oil and Gas
 AUG - 9 2019
 WV Department of Environmental Protection

Pilot Hole
 PH TD @ 11,532'

Area of Review

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

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

Data Sources Reviewed:

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

Contacted Devin Ducoeur 724-705-0444, dducoeur@dpslandservices.com DPS GIS (2/14/2019) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

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

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

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

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

4705102268

Permit well - Hillrock 15-15HU

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

| API Number | Operator Name | Total Depth | Perforated Fms | Producing zones not perforated | Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation | Comments |
|------------|--------------------|-------------------------|----------------|--------------------------------|---|---|
| 4705101452 | Tug Hill Operating | 6584' TVD 11386' MD | Marcellus | Unknown | No, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore | Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat. |
| 4705101468 | Tug Hill Operating | 6599' TVD 12685' MD | Marcellus | Unknown | No, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore | Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat. |
| 4705101469 | Tug Hill Operating | 6631' TVD 12825' MD | Marcellus | Unknown | No, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore | Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat. |
| 4705101731 | Tug Hill Operating | 11492' TVD 16804' MD | Point Pleasant | Unknown | Yes, existing Point Pleasant producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore | Producing Point Pleasant horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat. |
| 4705102064 | Tug Hill Operating | n/a | n/a | n/a | No | Permit |
| 4705102066 | Tug Hill Operating | n/a | n/a | n/a | No | Permit |
| 4705102063 | Tug Hill Operating | n/a | n/a | n/a | No | Permit |
| 4705102062 | Tug Hill Operating | n/a | n/a | n/a | No | Permit |
| 4705102061 | Tug Hill Operating | n/a | n/a | n/a | No | Permit |
| 4705102055 | Tug Hill Operating | n/a | n/a | n/a | No | Permit |
| 4705130450 | Unknown | Unknown | Unknown | Unknown | Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well. | State records are incomplete |
| 4705130373 | Unknown | 2843' TVD | Gordon | Unknown | No, the well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation. | Well was plugged 11/20/1956 |
| | | | | | | |
| | | | | | | |

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

4705102263

WV Geological & Economic Survey **Well: County = 51 Permit = 030450**

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LONG_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------------|------------------|-----------|------------|----------|-----------|
| 4705130450 | Marshall | 30450 | Franklin | New Martinsville | New Martinsville | 39.742407 | -80.789788 | 820552.7 | 4362328.2 |

There is no Bottom Hole Location data for this well

Owner Information:

| API | CMP_DT | SUFFIX | STATUS | SURFACE_OWNER | WELL_NUM | CO_NUM | LEASE | LEASE_NUM | MINERAL_OWN | OPERATOR_AT_COMPLETION | PROP_VD | PROP_TRGT_FM | TFM_EST_PR |
|------------|---------|--------|-----------|---------------|----------|--------|-------|-----------|-------------|-------------------------------|---------|--------------|------------|
| 4705130450 | -J-1903 | | Completed | Henry Yoho | 2 | 1283 | | 2856 | | 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 | KCD | G_BEF | G_AFT |
|------------|---------|---------|------------|--------------|------------|-------------|---------------|--------------|---------------|---------|----------|-----|-----|---------|-----|-------|-------|
| 4705130450 | -J-1905 | -J-1905 | 1302 | Ground Level | | | unclassified | unclassified | not available | unknown | unknown | | | | | | |

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey **Well: County = 51 Permit = 30373**

Location Information: [View Map](#)

| API | COUNTY | PERMIT | TAX_DISTRICT | QUAD_75 | QUAD_15 | LAT_DD | LONG_DD | UTME | UTMN |
|------------|----------|--------|--------------|------------------|------------------|-----------|------------|----------|-----------|
| 4705130373 | Marshall | 30373 | Franklin | New Martinsville | New Martinsville | 39.733627 | -80.784608 | 821018.9 | 4368621.1 |

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 |
|------------|--------|--------|-----------|---------------|----------|--------|-------|-----------|-------------|-------------------------------|---------|--------------|------------|
| 4705130373 | -J- | | Completed | Timothy Yoho | | 1266 | | 2657 | unknown | 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 | KCD | G_BEF | G_AFT |
|------------|--------|---------|------------|--------------|----------------|------------------------|---------------|-------------|--------------|-----|------------|---------|------|---------|-----|-------|-------|
| 4705130373 | -J- | -J- | 1229 | Ground Level | Cameron-Garner | UDev undf/Ber/Loht/URN | Gordon | | unclassified | Gas | Cable Tool | unknown | 2643 | 2643 | | | |

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 |
|------------|--------|----------|------------|----------|-----------|--------|-----------|--------|-------------------|-------|-------|-------|------------|
| 4705130373 | -J- | Pay | Gas | Vertical | | | 1150 | | Undetermined unit | | | | |
| 4705130373 | -J- | Pay | Gas | Vertical | | | 1540 | | Salt Sands (undf) | | | | |
| 4705130373 | -J- | Water | Salt Water | Vertical | | | 1650 | | Salt Sands (undf) | | | | |

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 |
|------------|--------|-------------|-------------------|-----------|---------------|-----------|-------------------|------------|
| 4705130373 | | Well Record | Seewickley coal | 740 | Reasonable | | | 1229 |
| 4705130373 | | Well Record | Pittsburgh coal | 840 | Reasonable | | | 1229 |
| 4705130373 | | Well Record | Morganstown S&M | 810 | Reasonable | 26 | Reasonable | 1229 |
| 4705130373 | | Well Record | Salt Sande (undf) | 1540 | Reasonable | | | 1229 |
| 4705130373 | | Well Record | Big Lime | 1390 | Reasonable | | | 1229 |
| 4705130373 | | Well Record | Sig Injet (undf) | 1635 | Reasonable | 263 | Reasonable | 1229 |
| 4705130373 | | Well Record | Gordon | 2833 | Reasonable | | | 1229 |

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

Plugging Information:

| API | PLG_DT | DEPTH_PBT |
|------------|------------|-----------|
| 4705130373 | 11/20/1956 | 0 |

There is no Sample data for this well

Page 5 of 7
 RECEIVED
 Office of Oil and Gas
 AUG - 9 2019
 WV Department of
 Environmental Protection



Tug Hill Operating, LLC Casing and Cement Program

Hillrock 1S-15HU

Casing

| | String | Grade | Bit Size | Depth (Measured) | Cement Fill Up |
|----------------|---------|-------|----------|------------------|----------------|
| Conductor | 30" | BW | 36" | 120' | CTS |
| Surface | 20" | J55 | 26" | 920' | CTS |
| Intermediate 1 | 13 3/8" | J55 | 17 1/2" | 2,700' | CTS |
| Intermediate 2 | 9 5/8" | HP110 | 12 1/4" | 10,704' | CTS |
| Production | 5 1/2" | P110 | 8 1/2" | 19,577' | CTS |

Cement

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

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

Intermediate 2: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.99

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

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

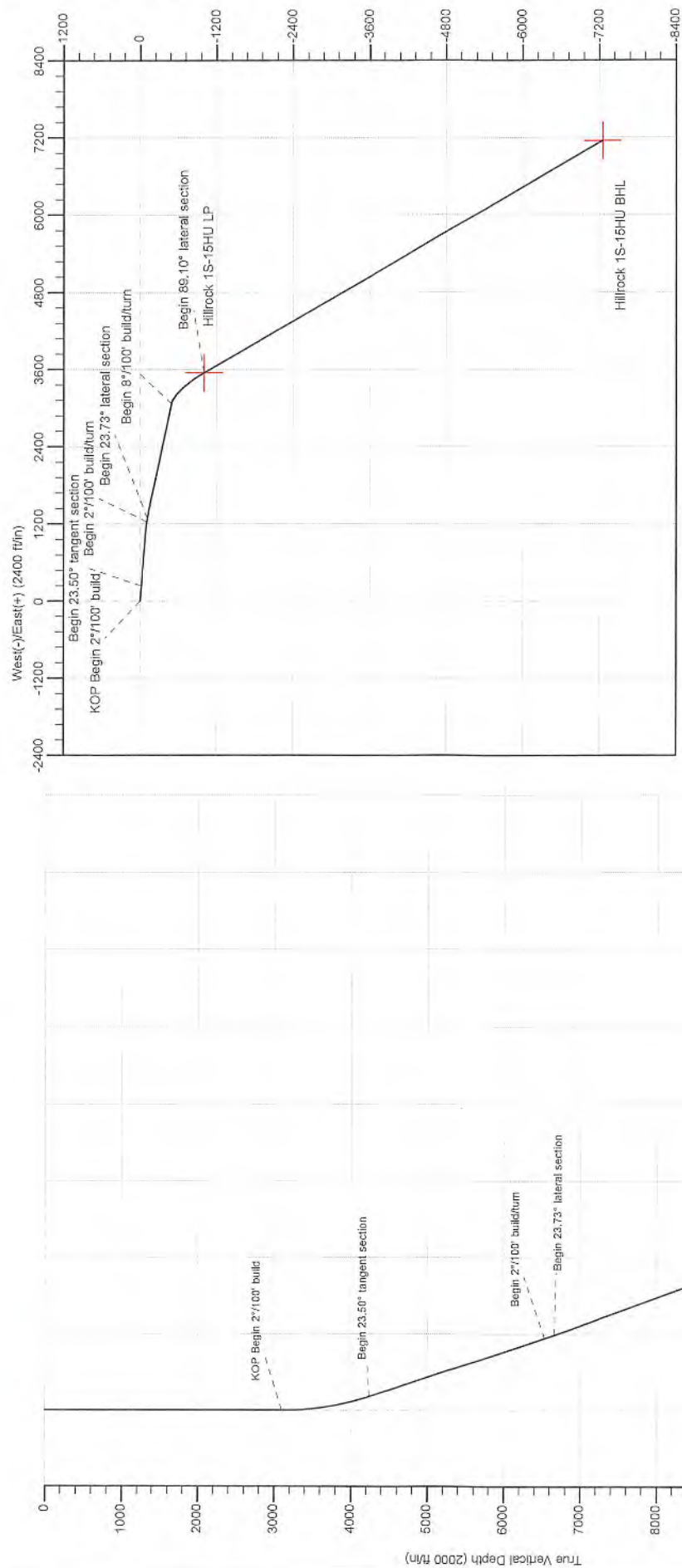
47 05 102263

Well: Hillrock 1S-15 HU (G)
 Site: Hillrock/Simms
 Project: Marshall County, West Virginia.
 Design: rev0



SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/S | +E/W | Dleg | TFace | VSEct | Annotation |
|-----|----------|-------|--------|----------|----------|---------|------|-------|---------|-----------------------------------|
| 1 | 3100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 4275.00 | 23.50 | 95.00 | 3100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | KOP Begin 2'100' build |
| 3 | 6775.00 | 23.50 | 95.00 | 4243.33 | -20.71 | 296.70 | 2.00 | 90.00 | 187.01 | Begin 2'100' tangent section |
| 4 | 8916.12 | 23.73 | 102.03 | 5634.98 | -107.58 | 4285.78 | 2.00 | 90.00 | 940.43 | Begin 8'100' build/turn |
| 5 | 11449.00 | 23.73 | 102.03 | 6664.31 | -115.96 | 4285.78 | 2.00 | 89.52 | 985.59 | Begin 23.73° lateral section |
| 6 | 12367.95 | 89.10 | 150.00 | 10813.88 | -496.04 | 3069.85 | 0.00 | 0.00 | 2509.45 | Begin 8'100' build/turn |
| 7 | 19576.99 | 89.10 | 150.00 | 11312.00 | -1004.14 | 3547.88 | 8.00 | 50.77 | 3206.87 | Begin 89.10° lateral section |
| 8 | 19576.99 | 89.10 | 150.00 | 11425.00 | -7246.58 | 7151.95 | 0.00 | 0.00 | 0181.52 | PBHL/JTD 19576.99 MD 11425.00 TVD |



Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: 17N (84 W to 78 W)
 System Datum: Mean Sea Level
 Depth Reference: GL @ 1219.00ft
 Northing: 14434267.29
 Easting: 1704992.74
 Latitude: 39.74583707
 Longitude: -80.77026272
 Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.82°



Azimuths to Grid North
 True North: -0.15°
 Magnetic North: -8.82°
 Magnetic Field
 Strength: 52000.3nT
 Dip Angle: 66.64°
 Date: 06/01/16
 Model: IGRF2015



RECEIVED
 Office of Oil and Gas
 AUG - 9 2019
 WV Department of
 Environmental Protection



Planning Report - Geographic

| | | | |
|------------------|---------------------------------|-------------------------------------|----------------------------|
| Database: | DB_Aug0116_LT_v14 | Local Co-ordinate Reference: | Well Hillrock 1S-15 HU (G) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1219.00ft |
| Project: | Marshall County, West Virginia. | MD Reference: | GL @ 1219.00ft |
| Site: | Hillrock/Simms | North Reference: | Grid |
| Well: | Hillrock 1S-15 HU (G) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev0 | | |

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

| | | | | | |
|------------------------------|----------------|---------------------|--------------------|--------------------------|--------------|
| Site | Hillrock/Simms | | | | |
| Site Position: | | Northing: | 14,434,279.29 usft | Latitude: | 39.74587001 |
| From: | Lat/Long | Easting: | 1,704,992.60 usft | Longitude: | -80.77026312 |
| Position Uncertainty: | 0.00 ft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.15 ° |

| | | | | | | |
|-----------------------------|-----------------------|---------|----------------------------|--------------------|----------------------|--------------|
| Well | Hillrock 1S-15 HU (G) | | | | | |
| Well Position | +N/-S | 0.00 ft | Northing: | 14,434,267.30 usft | Latitude: | 39.74583707 |
| | +E/-W | 0.00 ft | Easting: | 1,704,992.74 usft | Longitude: | -80.77026272 |
| Position Uncertainty | | 0.00 ft | Wellhead Elevation: | | Ground Level: | 1,219.00 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Original Hole | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2015 | 8/2/2018 | -8.67 | 66.84 | 52,030.34312068 |

| | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| Design | rev0 | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
| | 0.00 | 0.00 | 0.00 | 135.38 |

| | | | | |
|---------------------------------|----------------------|--------------------------------|------------------|----------------|
| Plan Survey Tool Program | Date | 8/2/2018 | | |
| Depth From (ft) | Depth To (ft) | Survey (Wellbore) | Tool Name | Remarks |
| 1 | 0.00 | 19,576.44 rev0 (Original Hole) | MWD | MWD - Standard |

| Plan Sections | | | | | | | | | | |
|----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3,100.00 | 0.00 | 0.00 | 3,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4,275.00 | 23.50 | 95.00 | 4,242.33 | -20.71 | 236.70 | 2.00 | 2.00 | 0.00 | 95.00 | |
| 6,775.00 | 23.50 | 95.00 | 6,534.98 | -107.59 | 1,229.78 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,916.12 | 23.73 | 102.03 | 6,664.31 | -115.96 | 1,285.60 | 2.00 | 0.16 | 4.98 | 88.52 | |
| 11,449.00 | 23.73 | 102.03 | 10,813.88 | -496.04 | 3,069.85 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 12,367.95 | 89.10 | 150.00 | 11,312.00 | -1,004.14 | 3,547.88 | 8.00 | 7.11 | 5.22 | 50.77 | Hillrock 1S-15HU LP |
| 19,576.99 | 89.10 | 150.00 | 11,425.00 | -7,246.58 | 7,151.95 | 0.00 | 0.00 | 0.00 | 0.00 | Hillrock 1S-15HU BHI |

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of Environmental Protection



Planning Report - Geographic

| | | | |
|-----------|---------------------------------|------------------------------|----------------------------|
| Database: | DB_Aug0116_LT_v14 | Local Co-ordinate Reference: | Well Hillrock 1S-15 HU (G) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1219.00ft |
| Project: | Marshall County, West Virginia. | MD Reference: | GL @ 1219.00ft |
| Site: | Hillrock/Simms | North Reference: | Grid |
| Well: | Hillrock 1S-15 HU (G) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev0 | | |

| Planned Survey | | | | | | | | | | |
|-------------------------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|-------------|--------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,100.00 | 0.00 | 0.00 | 1,100.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,200.00 | 0.00 | 0.00 | 1,200.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,300.00 | 0.00 | 0.00 | 1,300.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,400.00 | 0.00 | 0.00 | 1,400.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,500.00 | 0.00 | 0.00 | 1,500.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,600.00 | 0.00 | 0.00 | 1,600.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,700.00 | 0.00 | 0.00 | 1,700.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,800.00 | 0.00 | 0.00 | 1,800.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 1,900.00 | 0.00 | 0.00 | 1,900.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,000.00 | 0.00 | 0.00 | 2,000.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,100.00 | 0.00 | 0.00 | 2,100.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,200.00 | 0.00 | 0.00 | 2,200.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,300.00 | 0.00 | 0.00 | 2,300.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,400.00 | 0.00 | 0.00 | 2,400.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,500.00 | 0.00 | 0.00 | 2,500.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,600.00 | 0.00 | 0.00 | 2,600.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,700.00 | 0.00 | 0.00 | 2,700.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,800.00 | 0.00 | 0.00 | 2,800.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 2,900.00 | 0.00 | 0.00 | 2,900.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 3,000.00 | 0.00 | 0.00 | 3,000.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| 3,100.00 | 0.00 | 0.00 | 3,100.00 | 0.00 | 0.00 | 14,434,267.30 | 1,704,992.74 | 39.74583707 | -80.77026272 | |
| KOP Begin 2°/100' build | | | | | | | | | | |
| 3,200.00 | 2.00 | 95.00 | 3,199.98 | -0.15 | 1.74 | 14,434,267.14 | 1,704,994.48 | 39.74583664 | -80.77025654 | |
| 3,300.00 | 4.00 | 95.00 | 3,299.84 | -0.61 | 6.95 | 14,434,266.69 | 1,704,999.69 | 39.74583535 | -80.77023799 | |
| 3,400.00 | 6.00 | 95.00 | 3,399.45 | -1.37 | 15.63 | 14,434,265.93 | 1,705,008.37 | 39.74583321 | -80.77020711 | |
| 3,500.00 | 8.00 | 95.00 | 3,498.70 | -2.43 | 27.77 | 14,434,264.87 | 1,705,020.51 | 39.74583020 | -80.77016394 | |
| 3,600.00 | 10.00 | 95.00 | 3,597.47 | -3.79 | 43.36 | 14,434,263.50 | 1,705,036.10 | 39.74582635 | -80.77010851 | |
| 3,700.00 | 12.00 | 95.00 | 3,695.62 | -5.46 | 62.36 | 14,434,261.84 | 1,705,055.11 | 39.74582165 | -80.77004090 | |
| 3,800.00 | 14.00 | 95.00 | 3,793.06 | -7.42 | 84.77 | 14,434,259.88 | 1,705,077.51 | 39.74581611 | -80.76996120 | |
| 3,900.00 | 16.00 | 95.00 | 3,889.64 | -9.67 | 110.55 | 14,434,257.62 | 1,705,103.30 | 39.74580973 | -80.76986950 | |
| 4,000.00 | 18.00 | 95.00 | 3,985.27 | -12.22 | 139.68 | 14,434,255.08 | 1,705,132.42 | 39.74580253 | -80.76976591 | |
| 4,100.00 | 20.00 | 95.00 | 4,079.82 | -15.06 | 172.11 | 14,434,252.24 | 1,705,164.85 | 39.74579451 | -80.76965056 | |
| 4,200.00 | 22.00 | 95.00 | 4,173.17 | -18.18 | 207.81 | 14,434,249.12 | 1,705,200.55 | 39.74578568 | -80.76952359 | |
| 4,275.00 | 23.50 | 95.00 | 4,242.33 | -20.71 | 236.70 | 14,434,246.59 | 1,705,229.44 | 39.74577853 | -80.76942083 | |
| Begin 23.50° tangent section | | | | | | | | | | |
| 4,300.00 | 23.50 | 95.00 | 4,265.26 | -21.58 | 246.63 | 14,434,245.72 | 1,705,239.37 | 39.74577607 | -80.76938550 | |
| 4,400.00 | 23.50 | 95.00 | 4,356.96 | -25.05 | 286.36 | 14,434,242.24 | 1,705,279.10 | 39.74576625 | -80.76924422 | |
| 4,500.00 | 23.50 | 95.00 | 4,448.67 | -28.53 | 326.08 | 14,434,238.77 | 1,705,318.82 | 39.74575642 | -80.76910293 | |
| 4,600.00 | 23.50 | 95.00 | 4,540.38 | -32.00 | 365.80 | 14,434,235.29 | 1,705,358.54 | 39.74574660 | -80.76896164 | |
| 4,700.00 | 23.50 | 95.00 | 4,632.08 | -35.48 | 405.52 | 14,434,231.82 | 1,705,398.26 | 39.74573677 | -80.76882036 | |
| 4,800.00 | 23.50 | 95.00 | 4,723.79 | -38.95 | 445.25 | 14,434,228.34 | 1,705,437.99 | 39.74572695 | -80.76867907 | |
| 4,900.00 | 23.50 | 95.00 | 4,815.49 | -42.43 | 484.97 | 14,434,224.87 | 1,705,477.71 | 39.74571712 | -80.76853778 | |
| 5,000.00 | 23.50 | 95.00 | 4,907.20 | -45.90 | 524.69 | 14,434,221.39 | 1,705,517.43 | 39.74570729 | -80.76839650 | |

Office of Oil and Gas



Planning Report - Geographic

Database: DB_Aug0116_LT_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Hillrock/Simms
 Well: Hillrock 1S-15 HU (G)
 Wellbore: Original Hole
 Design: rev0

Local Co-ordinate Reference: Well Hillrock 1S-15 HU (G)
 TVD Reference: GL @ 1219.00ft
 MD Reference: GL @ 1219.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

RECEIVED
 Office of Oil and Gas
 AUG - 9 2019
 WV Department of
 Environmental Protection

| Planned Survey | | | | | | | | | | |
|-------------------------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|-------------|--------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude | |
| 5,100.00 | 23.50 | 95.00 | 4,998.91 | -49.38 | 564.42 | 14,434,217.92 | 1,705,557.16 | 39.74569747 | -80.76825521 | |
| 5,200.00 | 23.50 | 95.00 | 5,090.61 | -52.86 | 604.14 | 14,434,214.44 | 1,705,596.88 | 39.74568764 | -80.76811392 | |
| 5,300.00 | 23.50 | 95.00 | 5,182.32 | -56.33 | 643.86 | 14,434,210.97 | 1,705,636.60 | 39.74567782 | -80.76797264 | |
| 5,400.00 | 23.50 | 95.00 | 5,274.02 | -59.81 | 683.59 | 14,434,207.49 | 1,705,676.33 | 39.74566799 | -80.76783135 | |
| 5,500.00 | 23.50 | 95.00 | 5,365.73 | -63.28 | 723.31 | 14,434,204.01 | 1,705,716.05 | 39.74565816 | -80.76769007 | |
| 5,600.00 | 23.50 | 95.00 | 5,457.44 | -66.76 | 763.03 | 14,434,200.54 | 1,705,755.77 | 39.74564833 | -80.76754878 | |
| 5,700.00 | 23.50 | 95.00 | 5,549.14 | -70.23 | 802.76 | 14,434,197.06 | 1,705,795.50 | 39.74563851 | -80.76740749 | |
| 5,800.00 | 23.50 | 95.00 | 5,640.85 | -73.71 | 842.48 | 14,434,193.59 | 1,705,835.22 | 39.74562868 | -80.76726621 | |
| 5,900.00 | 23.50 | 95.00 | 5,732.55 | -77.18 | 882.20 | 14,434,190.11 | 1,705,874.94 | 39.74561885 | -80.76712492 | |
| 6,000.00 | 23.50 | 95.00 | 5,824.26 | -80.66 | 921.93 | 14,434,186.64 | 1,705,914.67 | 39.74560902 | -80.76698363 | |
| 6,100.00 | 23.50 | 95.00 | 5,915.97 | -84.13 | 961.65 | 14,434,183.16 | 1,705,954.39 | 39.74559920 | -80.76684235 | |
| 6,200.00 | 23.50 | 95.00 | 6,007.67 | -87.61 | 1,001.37 | 14,434,179.69 | 1,705,994.11 | 39.74558937 | -80.76670106 | |
| 6,300.00 | 23.50 | 95.00 | 6,099.38 | -91.08 | 1,041.10 | 14,434,176.21 | 1,706,033.83 | 39.74557954 | -80.76655978 | |
| 6,400.00 | 23.50 | 95.00 | 6,191.08 | -94.56 | 1,080.82 | 14,434,172.74 | 1,706,073.56 | 39.74556971 | -80.76641849 | |
| 6,500.00 | 23.50 | 95.00 | 6,282.79 | -98.03 | 1,120.54 | 14,434,169.26 | 1,706,113.28 | 39.74555988 | -80.76627721 | |
| 6,600.00 | 23.50 | 95.00 | 6,374.50 | -101.51 | 1,160.26 | 14,434,165.79 | 1,706,153.00 | 39.74555005 | -80.76613592 | |
| 6,700.00 | 23.50 | 95.00 | 6,466.20 | -104.99 | 1,199.99 | 14,434,162.31 | 1,706,192.73 | 39.74554022 | -80.76599463 | |
| 6,775.00 | 23.50 | 95.00 | 6,534.98 | -107.59 | 1,229.78 | 14,434,159.70 | 1,706,222.52 | 39.74553285 | -80.76588867 | |
| Begin 2°/100' build/tum | | | | | | | | | | |
| 6,800.00 | 23.52 | 96.25 | 6,557.91 | -108.57 | 1,239.70 | 14,434,158.73 | 1,706,232.44 | 39.74553010 | -80.76585337 | |
| 6,900.00 | 23.69 | 101.23 | 6,649.55 | -114.66 | 1,279.25 | 14,434,152.64 | 1,706,271.98 | 39.74551310 | -80.76571276 | |
| 6,916.12 | 23.73 | 102.03 | 6,664.31 | -115.96 | 1,285.60 | 14,434,151.33 | 1,706,278.33 | 39.74550946 | -80.76569018 | |
| Begin 23.73° lateral section | | | | | | | | | | |
| 7,000.00 | 23.73 | 102.03 | 6,741.10 | -123.00 | 1,318.61 | 14,434,144.30 | 1,706,311.35 | 39.74548991 | -80.76557279 | |
| 7,100.00 | 23.73 | 102.03 | 6,832.64 | -131.38 | 1,357.97 | 14,434,135.92 | 1,706,350.71 | 39.74546660 | -80.76543283 | |
| 7,200.00 | 23.73 | 102.03 | 6,924.18 | -139.77 | 1,397.34 | 14,434,127.53 | 1,706,390.07 | 39.74544329 | -80.76529288 | |
| 7,300.00 | 23.73 | 102.03 | 7,015.73 | -148.15 | 1,436.70 | 14,434,119.15 | 1,706,429.44 | 39.74541998 | -80.76515292 | |
| 7,400.00 | 23.73 | 102.03 | 7,107.27 | -156.54 | 1,476.06 | 14,434,110.76 | 1,706,468.80 | 39.74539667 | -80.76501296 | |
| 7,500.00 | 23.73 | 102.03 | 7,198.82 | -164.92 | 1,515.42 | 14,434,102.38 | 1,706,508.16 | 39.74537336 | -80.76487301 | |
| 7,600.00 | 23.73 | 102.03 | 7,290.36 | -173.31 | 1,554.79 | 14,434,093.99 | 1,706,547.52 | 39.74535005 | -80.76473305 | |
| 7,700.00 | 23.73 | 102.03 | 7,381.90 | -181.69 | 1,594.15 | 14,434,085.61 | 1,706,586.89 | 39.74532673 | -80.76459309 | |
| 7,800.00 | 23.73 | 102.03 | 7,473.45 | -190.08 | 1,633.51 | 14,434,077.22 | 1,706,626.25 | 39.74530342 | -80.76445314 | |
| 7,900.00 | 23.73 | 102.03 | 7,564.99 | -198.46 | 1,672.87 | 14,434,068.84 | 1,706,665.61 | 39.74528011 | -80.76431318 | |
| 8,000.00 | 23.73 | 102.03 | 7,656.54 | -206.85 | 1,712.24 | 14,434,060.45 | 1,706,704.97 | 39.74525680 | -80.76417323 | |
| 8,100.00 | 23.73 | 102.03 | 7,748.08 | -215.23 | 1,751.60 | 14,434,052.07 | 1,706,744.34 | 39.74523349 | -80.76403327 | |
| 8,200.00 | 23.73 | 102.03 | 7,839.62 | -223.62 | 1,790.96 | 14,434,043.68 | 1,706,783.70 | 39.74521017 | -80.76389332 | |
| 8,300.00 | 23.73 | 102.03 | 7,931.17 | -232.00 | 1,830.32 | 14,434,035.30 | 1,706,823.06 | 39.74518686 | -80.76375336 | |
| 8,400.00 | 23.73 | 102.03 | 8,022.71 | -240.39 | 1,869.69 | 14,434,026.91 | 1,706,862.42 | 39.74516355 | -80.76361340 | |
| 8,500.00 | 23.73 | 102.03 | 8,114.26 | -248.77 | 1,909.05 | 14,434,018.53 | 1,706,901.79 | 39.74514024 | -80.76347345 | |
| 8,600.00 | 23.73 | 102.03 | 8,205.80 | -257.16 | 1,948.41 | 14,434,010.14 | 1,706,941.15 | 39.74511692 | -80.76333349 | |
| 8,700.00 | 23.73 | 102.03 | 8,297.34 | -265.54 | 1,987.77 | 14,434,001.76 | 1,706,980.51 | 39.74509361 | -80.76319354 | |
| 8,800.00 | 23.73 | 102.03 | 8,388.89 | -273.93 | 2,027.14 | 14,433,993.37 | 1,707,019.87 | 39.74507030 | -80.76305358 | |
| 8,900.00 | 23.73 | 102.03 | 8,480.43 | -282.31 | 2,066.50 | 14,433,984.99 | 1,707,059.24 | 39.74504698 | -80.76291363 | |
| 9,000.00 | 23.73 | 102.03 | 8,571.97 | -290.70 | 2,105.86 | 14,433,976.60 | 1,707,098.60 | 39.74502367 | -80.76277367 | |
| 9,100.00 | 23.73 | 102.03 | 8,663.52 | -299.08 | 2,145.22 | 14,433,968.22 | 1,707,137.96 | 39.74500036 | -80.76263372 | |
| 9,200.00 | 23.73 | 102.03 | 8,755.06 | -307.47 | 2,184.59 | 14,433,959.83 | 1,707,177.32 | 39.74497704 | -80.76249376 | |
| 9,300.00 | 23.73 | 102.03 | 8,846.61 | -315.85 | 2,223.95 | 14,433,951.45 | 1,707,216.69 | 39.74495373 | -80.76235381 | |
| 9,400.00 | 23.73 | 102.03 | 8,938.15 | -324.24 | 2,263.31 | 14,433,943.06 | 1,707,256.05 | 39.74493041 | -80.76221386 | |
| 9,500.00 | 23.73 | 102.03 | 9,029.69 | -332.62 | 2,302.67 | 14,433,934.68 | 1,707,295.41 | 39.74490710 | -80.76207390 | |
| 9,600.00 | 23.73 | 102.03 | 9,121.24 | -341.01 | 2,342.04 | 14,433,926.29 | 1,707,334.77 | 39.74488378 | -80.76193395 | |
| 9,700.00 | 23.73 | 102.03 | 9,212.78 | -349.39 | 2,381.40 | 14,433,917.91 | 1,707,374.13 | 39.74486047 | -80.76179399 | |
| 9,800.00 | 23.73 | 102.03 | 9,304.33 | -357.78 | 2,420.76 | 14,433,909.52 | 1,707,413.50 | 39.74483715 | -80.76165404 | |
| 9,900.00 | 23.73 | 102.03 | 9,395.87 | -366.16 | 2,460.12 | 14,433,901.14 | 1,707,452.86 | 39.74481384 | -80.76151409 | |
| 10,000.00 | 23.73 | 102.03 | 9,487.41 | -374.55 | 2,499.49 | 14,433,892.75 | 1,707,492.22 | 39.74479052 | -80.76137413 | |



Planning Report - Geographic

Database: DB_Aug0116_LT_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Hillrock/Simms
 Well: Hillrock 1S-15 HU (G)
 Wellbore: Original Hole
 Design: rev0

Local Co-ordinate Reference: Well Hillrock 1S-15 HU (G)
 TVD Reference: GL @ 1219.00ft
 MD Reference: GL @ 1219.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

RECEIVED
 Office of Oil and Gas
 AUG - 9 2019

WV Department of
 Environmental Protection

| Planned Survey | | | | | | | | | | |
|-------------------------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|-------------|--------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude | |
| 10,100.00 | 23.73 | 102.03 | 9,578.96 | -382.93 | 2,538.85 | 14,433,884.37 | 1,707,531.58 | 39.74476721 | -80.76123418 | |
| 10,200.00 | 23.73 | 102.03 | 9,670.50 | -391.32 | 2,578.21 | 14,433,875.98 | 1,707,570.95 | 39.74474389 | -80.76109422 | |
| 10,300.00 | 23.73 | 102.03 | 9,762.05 | -399.70 | 2,617.57 | 14,433,867.60 | 1,707,610.31 | 39.74472058 | -80.76095427 | |
| 10,400.00 | 23.73 | 102.03 | 9,853.59 | -408.09 | 2,656.94 | 14,433,859.21 | 1,707,649.67 | 39.74469726 | -80.76081432 | |
| 10,500.00 | 23.73 | 102.03 | 9,945.13 | -416.47 | 2,696.30 | 14,433,850.83 | 1,707,689.03 | 39.74467394 | -80.76067436 | |
| 10,600.00 | 23.73 | 102.03 | 10,036.68 | -424.86 | 2,735.66 | 14,433,842.44 | 1,707,728.40 | 39.74465063 | -80.76053441 | |
| 10,700.00 | 23.73 | 102.03 | 10,128.22 | -433.24 | 2,775.02 | 14,433,834.06 | 1,707,767.76 | 39.74462731 | -80.76039446 | |
| 10,800.00 | 23.73 | 102.03 | 10,219.77 | -441.63 | 2,814.39 | 14,433,825.67 | 1,707,807.12 | 39.74460399 | -80.76025450 | |
| 10,900.00 | 23.73 | 102.03 | 10,311.31 | -450.01 | 2,853.75 | 14,433,817.29 | 1,707,846.48 | 39.74458068 | -80.76011455 | |
| 11,000.00 | 23.73 | 102.03 | 10,402.85 | -458.40 | 2,893.11 | 14,433,808.90 | 1,707,885.85 | 39.74455736 | -80.75997460 | |
| 11,100.00 | 23.73 | 102.03 | 10,494.40 | -466.78 | 2,932.47 | 14,433,800.52 | 1,707,925.21 | 39.74453404 | -80.75983464 | |
| 11,200.00 | 23.73 | 102.03 | 10,585.94 | -475.17 | 2,971.84 | 14,433,792.13 | 1,707,964.57 | 39.74451072 | -80.75969469 | |
| 11,300.00 | 23.73 | 102.03 | 10,677.48 | -483.55 | 3,011.20 | 14,433,783.75 | 1,708,003.93 | 39.74448741 | -80.75955474 | |
| 11,400.00 | 23.73 | 102.03 | 10,769.03 | -491.94 | 3,050.56 | 14,433,775.36 | 1,708,043.30 | 39.74446409 | -80.75941479 | |
| 11,449.00 | 23.73 | 102.03 | 10,813.88 | -496.04 | 3,069.85 | 14,433,771.25 | 1,708,062.58 | 39.74445266 | -80.75934621 | |
| Begin 8°/100' build/turn | | | | | | | | | | |
| 11,500.00 | 26.49 | 109.12 | 10,860.07 | -501.91 | 3,090.64 | 14,433,765.39 | 1,708,083.38 | 39.74443640 | -80.75927230 | |
| 11,600.00 | 32.86 | 119.51 | 10,947.06 | -522.54 | 3,135.27 | 14,433,744.76 | 1,708,128.00 | 39.74437942 | -80.75911373 | |
| 11,700.00 | 39.43 | 126.78 | 11,027.90 | -554.90 | 3,184.26 | 14,433,712.40 | 1,708,177.00 | 39.74429020 | -80.75893974 | |
| 11,800.00 | 46.54 | 132.18 | 11,101.04 | -598.35 | 3,236.68 | 14,433,668.95 | 1,708,229.41 | 39.74417048 | -80.75875369 | |
| 11,900.00 | 53.85 | 136.42 | 11,165.03 | -652.05 | 3,291.49 | 14,433,615.25 | 1,708,284.23 | 39.74402258 | -80.75855921 | |
| 12,000.00 | 61.28 | 139.94 | 11,218.64 | -714.96 | 3,347.63 | 14,433,552.34 | 1,708,340.37 | 39.74384940 | -80.75836009 | |
| 12,100.00 | 68.79 | 142.98 | 11,260.83 | -785.85 | 3,404.01 | 14,433,481.44 | 1,708,396.75 | 39.74365430 | -80.75816020 | |
| 12,200.00 | 76.35 | 145.72 | 11,290.77 | -863.35 | 3,459.53 | 14,433,403.95 | 1,708,452.26 | 39.74344107 | -80.75796344 | |
| 12,300.00 | 83.94 | 148.30 | 11,307.88 | -945.93 | 3,513.11 | 14,433,321.37 | 1,708,505.84 | 39.74321387 | -80.75777363 | |
| 12,367.95 | 89.10 | 150.00 | 11,312.00 | -1,004.14 | 3,547.88 | 14,433,263.16 | 1,708,540.61 | 39.74305375 | -80.75765051 | |
| Begin 89.10° lateral section | | | | | | | | | | |
| 12,400.00 | 89.10 | 150.00 | 11,312.50 | -1,031.89 | 3,563.90 | 14,433,235.41 | 1,708,556.63 | 39.74297742 | -80.75759378 | |
| 12,500.00 | 89.10 | 150.00 | 11,314.07 | -1,118.48 | 3,613.89 | 14,433,148.82 | 1,708,606.63 | 39.74273924 | -80.75741676 | |
| 12,600.00 | 89.10 | 150.00 | 11,315.64 | -1,205.08 | 3,663.89 | 14,433,062.22 | 1,708,656.62 | 39.74250106 | -80.75723975 | |
| 12,700.00 | 89.10 | 150.00 | 11,317.21 | -1,291.67 | 3,713.88 | 14,432,975.63 | 1,708,706.61 | 39.74226289 | -80.75706273 | |
| 12,800.00 | 89.10 | 150.00 | 11,318.77 | -1,378.26 | 3,763.87 | 14,432,889.04 | 1,708,756.61 | 39.74202471 | -80.75688572 | |
| 12,900.00 | 89.10 | 150.00 | 11,320.34 | -1,464.85 | 3,813.87 | 14,432,802.45 | 1,708,806.60 | 39.74178653 | -80.75670871 | |
| 13,000.00 | 89.10 | 150.00 | 11,321.91 | -1,551.44 | 3,863.86 | 14,432,715.86 | 1,708,856.59 | 39.74154835 | -80.75653170 | |
| 13,100.00 | 89.10 | 150.00 | 11,323.47 | -1,638.03 | 3,913.85 | 14,432,629.26 | 1,708,906.59 | 39.74131017 | -80.75635469 | |
| 13,200.00 | 89.10 | 150.00 | 11,325.04 | -1,724.63 | 3,963.85 | 14,432,542.67 | 1,708,956.58 | 39.74107199 | -80.75617768 | |
| 13,300.00 | 89.10 | 150.00 | 11,326.61 | -1,811.22 | 4,013.84 | 14,432,456.08 | 1,709,006.58 | 39.74083381 | -80.75600068 | |
| 13,400.00 | 89.10 | 150.00 | 11,328.18 | -1,897.81 | 4,063.84 | 14,432,369.49 | 1,709,056.57 | 39.74059563 | -80.75582367 | |
| 13,500.00 | 89.10 | 150.00 | 11,329.74 | -1,984.40 | 4,113.83 | 14,432,282.90 | 1,709,106.56 | 39.74035745 | -80.75564667 | |
| 13,600.00 | 89.10 | 150.00 | 11,331.31 | -2,070.99 | 4,163.82 | 14,432,196.31 | 1,709,156.56 | 39.74011927 | -80.75546966 | |
| 13,700.00 | 89.10 | 150.00 | 11,332.88 | -2,157.59 | 4,213.82 | 14,432,109.71 | 1,709,206.55 | 39.73988109 | -80.75529266 | |
| 13,800.00 | 89.10 | 150.00 | 11,334.45 | -2,244.18 | 4,263.81 | 14,432,023.12 | 1,709,256.54 | 39.73964291 | -80.75511566 | |
| 13,900.00 | 89.10 | 150.00 | 11,336.01 | -2,330.77 | 4,313.81 | 14,431,936.53 | 1,709,306.54 | 39.73940473 | -80.75493866 | |
| 14,000.00 | 89.10 | 150.00 | 11,337.58 | -2,417.36 | 4,363.80 | 14,431,849.94 | 1,709,356.53 | 39.73916655 | -80.75476166 | |
| 14,100.00 | 89.10 | 150.00 | 11,339.15 | -2,503.95 | 4,413.79 | 14,431,763.35 | 1,709,406.53 | 39.73892836 | -80.75458467 | |
| 14,200.00 | 89.10 | 150.00 | 11,340.72 | -2,590.55 | 4,463.79 | 14,431,676.76 | 1,709,456.52 | 39.73869018 | -80.75440767 | |
| 14,300.00 | 89.10 | 150.00 | 11,342.28 | -2,677.14 | 4,513.78 | 14,431,590.16 | 1,709,506.51 | 39.73845200 | -80.75423068 | |
| 14,400.00 | 89.10 | 150.00 | 11,343.85 | -2,763.73 | 4,563.78 | 14,431,503.57 | 1,709,556.51 | 39.73821382 | -80.75405368 | |
| 14,500.00 | 89.10 | 150.00 | 11,345.42 | -2,850.32 | 4,613.77 | 14,431,416.98 | 1,709,606.50 | 39.73797563 | -80.75387669 | |
| 14,600.00 | 89.10 | 150.00 | 11,346.99 | -2,936.91 | 4,663.76 | 14,431,330.39 | 1,709,656.49 | 39.73773745 | -80.75369970 | |
| 14,700.00 | 89.10 | 150.00 | 11,348.55 | -3,023.50 | 4,713.76 | 14,431,243.80 | 1,709,706.49 | 39.73749927 | -80.75352271 | |
| 14,800.00 | 89.10 | 150.00 | 11,350.12 | -3,110.10 | 4,763.75 | 14,431,157.21 | 1,709,756.48 | 39.73726108 | -80.75334572 | |
| 14,900.00 | 89.10 | 150.00 | 11,351.69 | -3,196.69 | 4,813.74 | 14,431,070.61 | 1,709,806.48 | 39.73702290 | -80.75316874 | |
| 15,000.00 | 89.10 | 150.00 | 11,353.26 | -3,283.28 | 4,863.74 | 14,430,984.02 | 1,709,856.47 | 39.73678471 | -80.75299175 | |



Planning Report - Geographic

Database: DB_Aug0116_LT_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia.
 Site: Hillrock/Simms
 Well: Hillrock 1S-15 HU (G)
 Wellbore: Original Hole
 Design: rev0

Local Co-ordinate Reference: Well Hillrock 1S-15 HU (G)
 TVD Reference: GL @ 1219.00ft
 MD Reference: GL @ 1219.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

RECEIVED
 Office of Oil and Gas

AUG - 9 2019

WV Department of
 Environmental Protection

| Planned Survey | | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|---------------------|--------------------|-------------|--------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Map Northing (usft) | Map Easting (usft) | Latitude | Longitude | |
| 15,100.00 | 89.10 | 150.00 | 11,354.82 | -3,369.87 | 4,913.73 | 14,430,897.43 | 1,709,906.46 | 39.73654653 | -80.75281477 | |
| 15,200.00 | 89.10 | 150.00 | 11,356.39 | -3,456.46 | 4,963.73 | 14,430,810.84 | 1,709,956.46 | 39.73630834 | -80.75263778 | |
| 15,300.00 | 89.10 | 150.00 | 11,357.96 | -3,543.06 | 5,013.72 | 14,430,724.25 | 1,710,006.45 | 39.73607016 | -80.75246080 | |
| 15,400.00 | 89.10 | 150.00 | 11,359.53 | -3,629.65 | 5,063.71 | 14,430,637.66 | 1,710,056.45 | 39.73583197 | -80.75228382 | |
| 15,500.00 | 89.10 | 150.00 | 11,361.09 | -3,716.24 | 5,113.71 | 14,430,551.06 | 1,710,106.44 | 39.73559379 | -80.75210684 | |
| 15,600.00 | 89.10 | 150.00 | 11,362.66 | -3,802.83 | 5,163.70 | 14,430,464.47 | 1,710,156.43 | 39.73535560 | -80.75192986 | |
| 15,700.00 | 89.10 | 150.00 | 11,364.23 | -3,889.42 | 5,213.70 | 14,430,377.88 | 1,710,206.43 | 39.73511742 | -80.75175288 | |
| 15,800.00 | 89.10 | 150.00 | 11,365.80 | -3,976.02 | 5,263.69 | 14,430,291.29 | 1,710,256.42 | 39.73487923 | -80.75157591 | |
| 15,900.00 | 89.10 | 150.00 | 11,367.36 | -4,062.61 | 5,313.68 | 14,430,204.70 | 1,710,306.41 | 39.73464104 | -80.75139893 | |
| 16,000.00 | 89.10 | 150.00 | 11,368.93 | -4,149.20 | 5,363.68 | 14,430,118.11 | 1,710,356.41 | 39.73440285 | -80.75122196 | |
| 16,100.00 | 89.10 | 150.00 | 11,370.50 | -4,235.79 | 5,413.67 | 14,430,031.51 | 1,710,406.40 | 39.73416467 | -80.75104499 | |
| 16,200.00 | 89.10 | 150.00 | 11,372.07 | -4,322.38 | 5,463.67 | 14,429,944.92 | 1,710,456.40 | 39.73392648 | -80.75086801 | |
| 16,300.00 | 89.10 | 150.00 | 11,373.63 | -4,408.97 | 5,513.66 | 14,429,858.33 | 1,710,506.39 | 39.73368829 | -80.75069104 | |
| 16,400.00 | 89.10 | 150.00 | 11,375.20 | -4,495.57 | 5,563.65 | 14,429,771.74 | 1,710,556.38 | 39.73345010 | -80.75051408 | |
| 16,500.00 | 89.10 | 150.00 | 11,376.77 | -4,582.16 | 5,613.65 | 14,429,685.15 | 1,710,606.38 | 39.73321191 | -80.75033711 | |
| 16,600.00 | 89.10 | 150.00 | 11,378.34 | -4,668.75 | 5,663.64 | 14,429,598.56 | 1,710,656.37 | 39.73297373 | -80.75016014 | |
| 16,700.00 | 89.10 | 150.00 | 11,379.90 | -4,755.34 | 5,713.64 | 14,429,511.96 | 1,710,706.36 | 39.73273554 | -80.74998318 | |
| 16,800.00 | 89.10 | 150.00 | 11,381.47 | -4,841.93 | 5,763.63 | 14,429,425.37 | 1,710,756.36 | 39.73249735 | -80.74980621 | |
| 16,900.00 | 89.10 | 150.00 | 11,383.04 | -4,928.53 | 5,813.62 | 14,429,338.78 | 1,710,806.35 | 39.73225916 | -80.74962925 | |
| 17,000.00 | 89.10 | 150.00 | 11,384.61 | -5,015.12 | 5,863.62 | 14,429,252.19 | 1,710,856.35 | 39.73202097 | -80.74945229 | |
| 17,100.00 | 89.10 | 150.00 | 11,386.17 | -5,101.71 | 5,913.61 | 14,429,165.60 | 1,710,906.34 | 39.73178278 | -80.74927533 | |
| 17,200.00 | 89.10 | 150.00 | 11,387.74 | -5,188.30 | 5,963.60 | 14,429,079.00 | 1,710,956.33 | 39.73154459 | -80.74909837 | |
| 17,300.00 | 89.10 | 150.00 | 11,389.31 | -5,274.89 | 6,013.60 | 14,428,992.41 | 1,711,006.33 | 39.73130640 | -80.74892141 | |
| 17,400.00 | 89.10 | 150.00 | 11,390.88 | -5,361.49 | 6,063.59 | 14,428,905.82 | 1,711,056.32 | 39.73106820 | -80.74874445 | |
| 17,500.00 | 89.10 | 150.00 | 11,392.44 | -5,448.08 | 6,113.59 | 14,428,819.23 | 1,711,106.31 | 39.73083001 | -80.74856750 | |
| 17,600.00 | 89.10 | 150.00 | 11,394.01 | -5,534.67 | 6,163.58 | 14,428,732.64 | 1,711,156.31 | 39.73059182 | -80.74839054 | |
| 17,700.00 | 89.10 | 150.00 | 11,395.58 | -5,621.26 | 6,213.57 | 14,428,646.05 | 1,711,206.30 | 39.73035363 | -80.74821359 | |
| 17,800.00 | 89.10 | 150.00 | 11,397.15 | -5,707.85 | 6,263.57 | 14,428,559.45 | 1,711,256.30 | 39.73011544 | -80.74803664 | |
| 17,900.00 | 89.10 | 150.00 | 11,398.71 | -5,794.44 | 6,313.56 | 14,428,472.86 | 1,711,306.29 | 39.72987725 | -80.74785969 | |
| 18,000.00 | 89.10 | 150.00 | 11,400.28 | -5,881.04 | 6,363.56 | 14,428,386.27 | 1,711,356.28 | 39.72963905 | -80.74768274 | |
| 18,100.00 | 89.10 | 150.00 | 11,401.85 | -5,967.63 | 6,413.55 | 14,428,299.68 | 1,711,406.28 | 39.72940086 | -80.74750579 | |
| 18,200.00 | 89.10 | 150.00 | 11,403.42 | -6,054.22 | 6,463.54 | 14,428,213.09 | 1,711,456.27 | 39.72916267 | -80.74732884 | |
| 18,300.00 | 89.10 | 150.00 | 11,404.98 | -6,140.81 | 6,513.54 | 14,428,126.50 | 1,711,506.27 | 39.72892447 | -80.74715190 | |
| 18,400.00 | 89.10 | 150.00 | 11,406.55 | -6,227.40 | 6,563.53 | 14,428,039.90 | 1,711,556.26 | 39.72868628 | -80.74697495 | |
| 18,500.00 | 89.10 | 150.00 | 11,408.12 | -6,314.00 | 6,613.53 | 14,427,953.31 | 1,711,606.25 | 39.72844809 | -80.74679801 | |
| 18,600.00 | 89.10 | 150.00 | 11,409.69 | -6,400.59 | 6,663.52 | 14,427,866.72 | 1,711,656.25 | 39.72820989 | -80.74662107 | |
| 18,700.00 | 89.10 | 150.00 | 11,411.25 | -6,487.18 | 6,713.51 | 14,427,780.13 | 1,711,706.24 | 39.72797170 | -80.74644413 | |
| 18,800.00 | 89.10 | 150.00 | 11,412.82 | -6,573.77 | 6,763.51 | 14,427,693.54 | 1,711,756.23 | 39.72773350 | -80.74626719 | |
| 18,900.00 | 89.10 | 150.00 | 11,414.39 | -6,660.36 | 6,813.50 | 14,427,606.95 | 1,711,806.23 | 39.72749531 | -80.74609025 | |
| 19,000.00 | 89.10 | 150.00 | 11,415.96 | -6,746.96 | 6,863.49 | 14,427,520.35 | 1,711,856.22 | 39.72725711 | -80.74591331 | |
| 19,100.00 | 89.10 | 150.00 | 11,417.52 | -6,833.55 | 6,913.49 | 14,427,433.76 | 1,711,906.22 | 39.72701891 | -80.74573637 | |
| 19,200.00 | 89.10 | 150.00 | 11,419.09 | -6,920.14 | 6,963.48 | 14,427,347.17 | 1,711,956.21 | 39.72678072 | -80.74555944 | |
| 19,300.00 | 89.10 | 150.00 | 11,420.66 | -7,006.73 | 7,013.48 | 14,427,260.58 | 1,712,006.20 | 39.72654252 | -80.74538251 | |
| 19,400.00 | 89.10 | 150.00 | 11,422.23 | -7,093.32 | 7,063.47 | 14,427,173.99 | 1,712,056.20 | 39.72630433 | -80.74520557 | |
| 19,500.00 | 89.10 | 150.00 | 11,423.79 | -7,179.91 | 7,113.46 | 14,427,087.40 | 1,712,106.19 | 39.72606613 | -80.74502864 | |
| 19,576.99 | 89.10 | 150.00 | 11,425.00 | -7,246.58 | 7,151.95 | 14,427,020.73 | 1,712,144.68 | 39.7258275 | -80.74489243 | |

PBHL/TD 19576.99 MD 11425.00 TVD



Planning Report - Geographic

| | | | |
|------------------|---------------------------------|-------------------------------------|----------------------------|
| Database: | DB_Aug0116_LT_v14 | Local Co-ordinate Reference: | Well Hillrock 1S-15 HU (G) |
| Company: | Tug Hill Operating LLC | TVD Reference: | GL @ 1219.00ft |
| Project: | Marshall County, West Virginia. | MD Reference: | GL @ 1219.00ft |
| Site: | Hillrock/Simms | North Reference: | Grid |
| Well: | Hillrock 1S-15 HU (G) | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Original Hole | | |
| Design: | rev0 | | |

| Design Targets | | | | | | | | | |
|--|---------------|--------------|-----------|------------|------------|-----------------|----------------|-------------|--------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
| Hillrock 1S-15HU LP - hit/miss target - Shape - Point | 0.00 | 0.00 | 11,312.00 | -1,004.14 | 3,547.88 | 14,433,263.16 | 1,708,540.61 | 39.74305375 | -80.75765051 |
| Hillrock 1S-15HU BHL - plan hits target center - Point | 0.00 | 0.00 | 11,425.00 | -7,246.58 | 7,151.95 | 14,427,020.73 | 1,712,144.68 | 39.72588275 | -80.74489243 |

| Plan Annotations | | | | | |
|---------------------|---------------------|-------------------|------------|----------------------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment | |
| | | +N/-S (ft) | +E/-W (ft) | | |
| 3,100.00 | 3,100.00 | 0.00 | 0.00 | KOP Begin 2°/100' build | |
| 4,275.00 | 4,242.33 | -20.71 | 236.70 | Begin 23.50° tangent section | |
| 6,775.00 | 6,534.98 | -107.59 | 1,229.78 | Begin 2°/100' build/turn | |
| 6,916.12 | 6,664.31 | -115.96 | 1,285.60 | Begin 23.73° lateral section | |
| 11,449.00 | 10,813.88 | -496.04 | 3,069.85 | Begin 8°/100' build/turn | |
| 12,367.95 | 11,312.00 | -1,004.14 | 3,547.88 | Begin 89.10° lateral section | |
| 19,576.99 | 11,425.00 | -7,246.58 | 7,151.95 | PBHL/TD 19576.99 MD 11425.00 TVD | |

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. Hillrock S-15HU

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

Watershed (HUC 10) Fish Creek Quadrangle New Martinsville 7.5'

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386428)

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

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

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

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

RECEIVED
Office of Oil and Gas
AUG - 9 2019

Subscribed and sworn before me this 10 day of April, 2019

[Signature]

Notary Public

My commission expires 6-30-2019

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Matthew W. Reese, Notary Public
Cranberry Twp., Butler County
My Commission Expires June 30, 2019
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Form WW-9

Operator's Well No. Hillrock S-15HU

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 11.63 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary

Permanent

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

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jim Nichols*

Comments: _____

Title: Oil and Gas Inspector

Date: 4/10/19

Field Reviewed? () Yes () No

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

WW-9

**PROPOSED HILLROCK
S-15HU**

SUPPLEMENT PG 1

DRAWING NOT
TO SCALE

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

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

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

TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

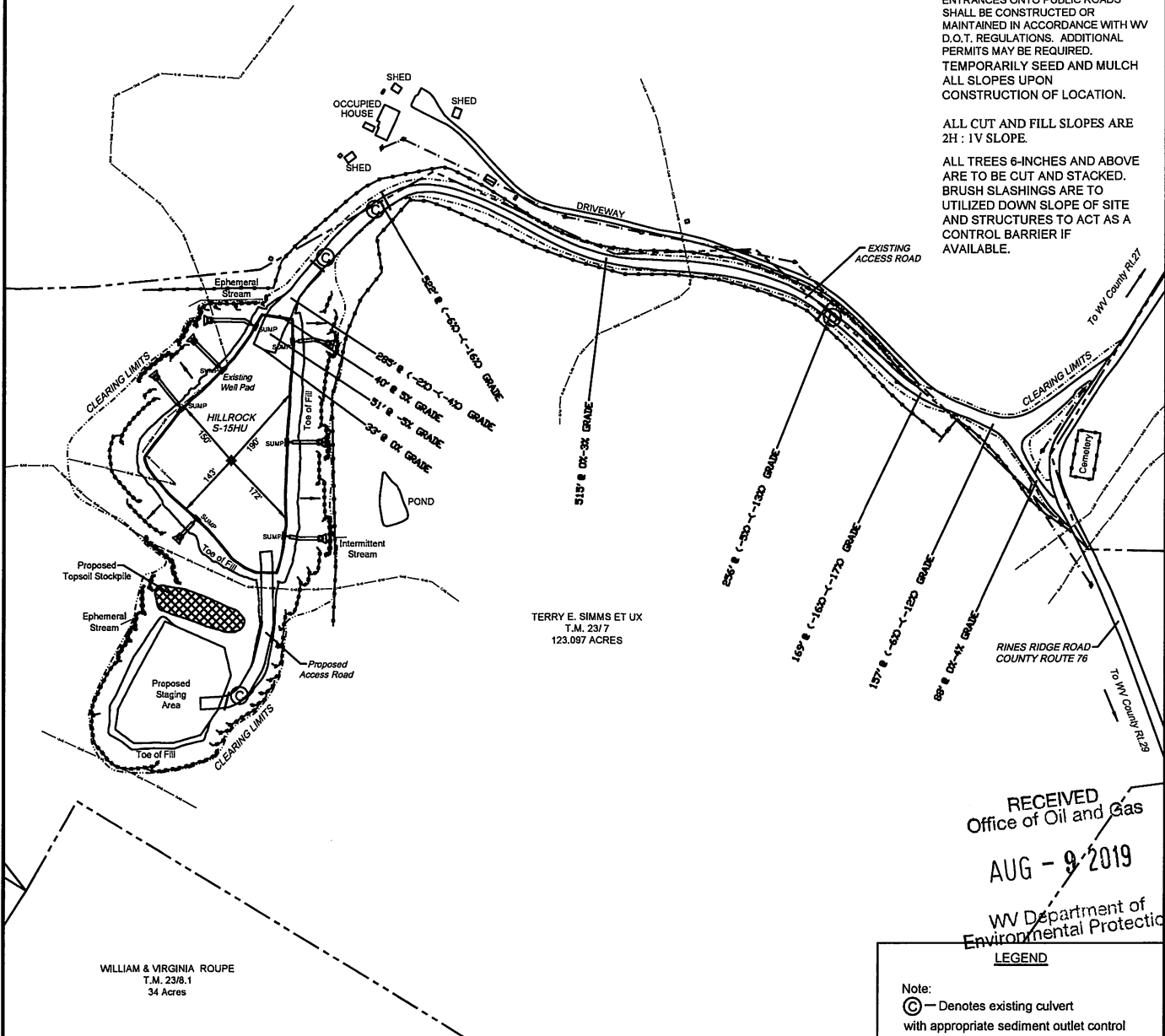
ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

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

KENNETH N. CORLEY et ux.
T.M. 17/11
120 Acres

TERRY E. SIMMS ET UX
T.M. 23/7
123,087 ACRES

WILLIAM & VIRGINIA ROUPE
T.M. 23/8.1
34 Acres



RECEIVED
Office of Oil and Gas
AUG - 9 - 2019
WV Department of
Environmental Protection

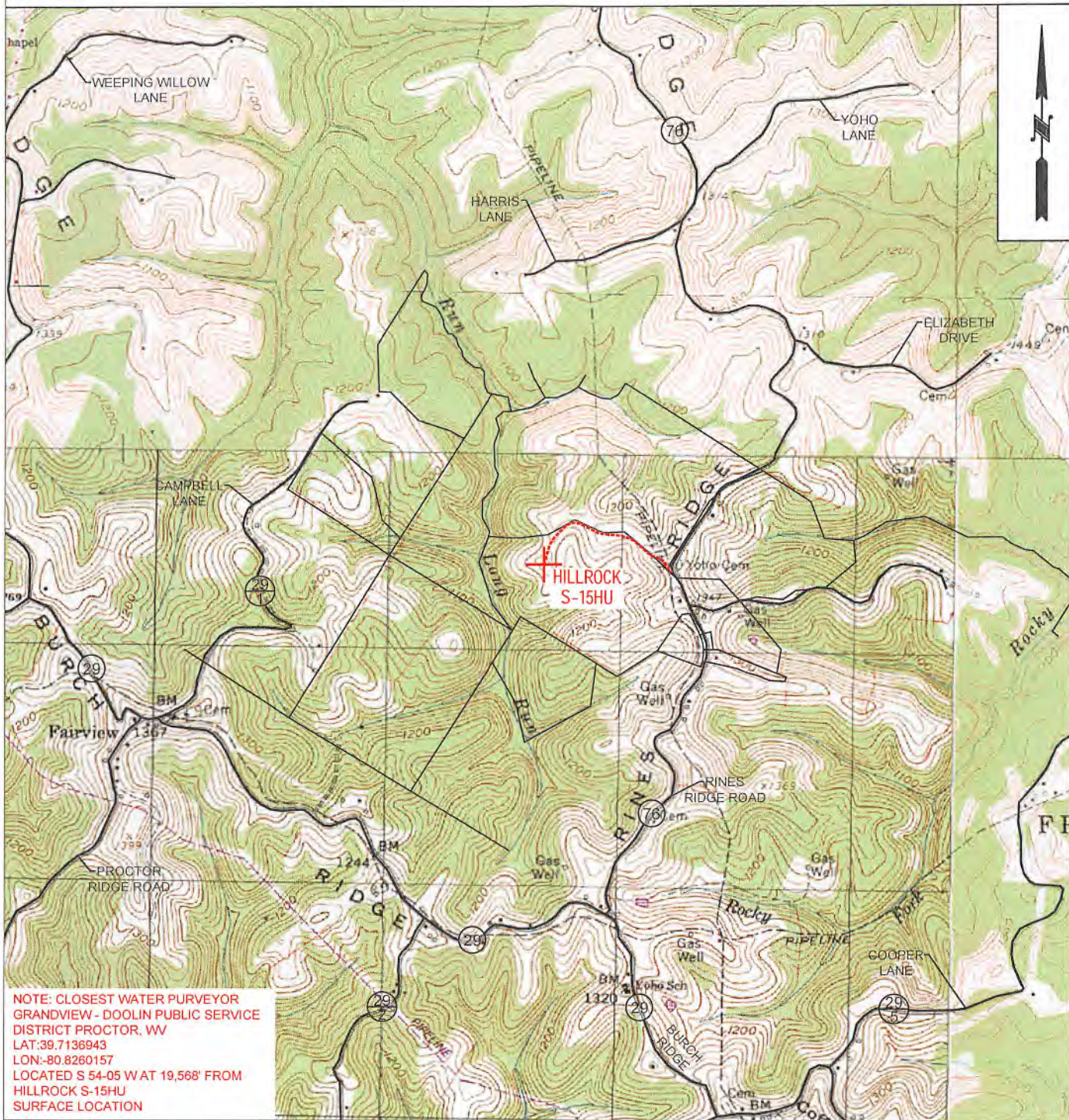
LEGEND

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

WW-9

PROPOSED HILLROCK S-15HU

SUPPLEMENT PG 2



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT:39.7138943
LON:-80.8260157
LOCATED S 54-05 W AT 19,568' FROM
HILLROCK S-15HU
SURFACE LOCATION



TUG HILL
OPERATING

| | | | |
|--|-----------|-----------------------|------------------|
| OPERATOR | 494510851 | TOPO SECTION | LEASE NAME |
| TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317 | | NEW MARTINSVILLE 7.5' | HILLROCK |
| | | SCALE: | DATE: |
| | | 1" = 2000' | AUG - 9 2019 |
| | | | DATE: 03-13-2019 |

RECEIVED
Department of Oil and Gas
WV Department of Environmental Protection



Well Site Safety Plan

Tug Hill Operating, LLC

Ju
4/10/19

Well Name: Hillrock S-15HU

Pad Location: Simms

Marshall County, West

Virginia

UTM (meters), NAD83, Zone 17:

NORTHING -4,399,573.47

EASTING -519,682.83

April 2019

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

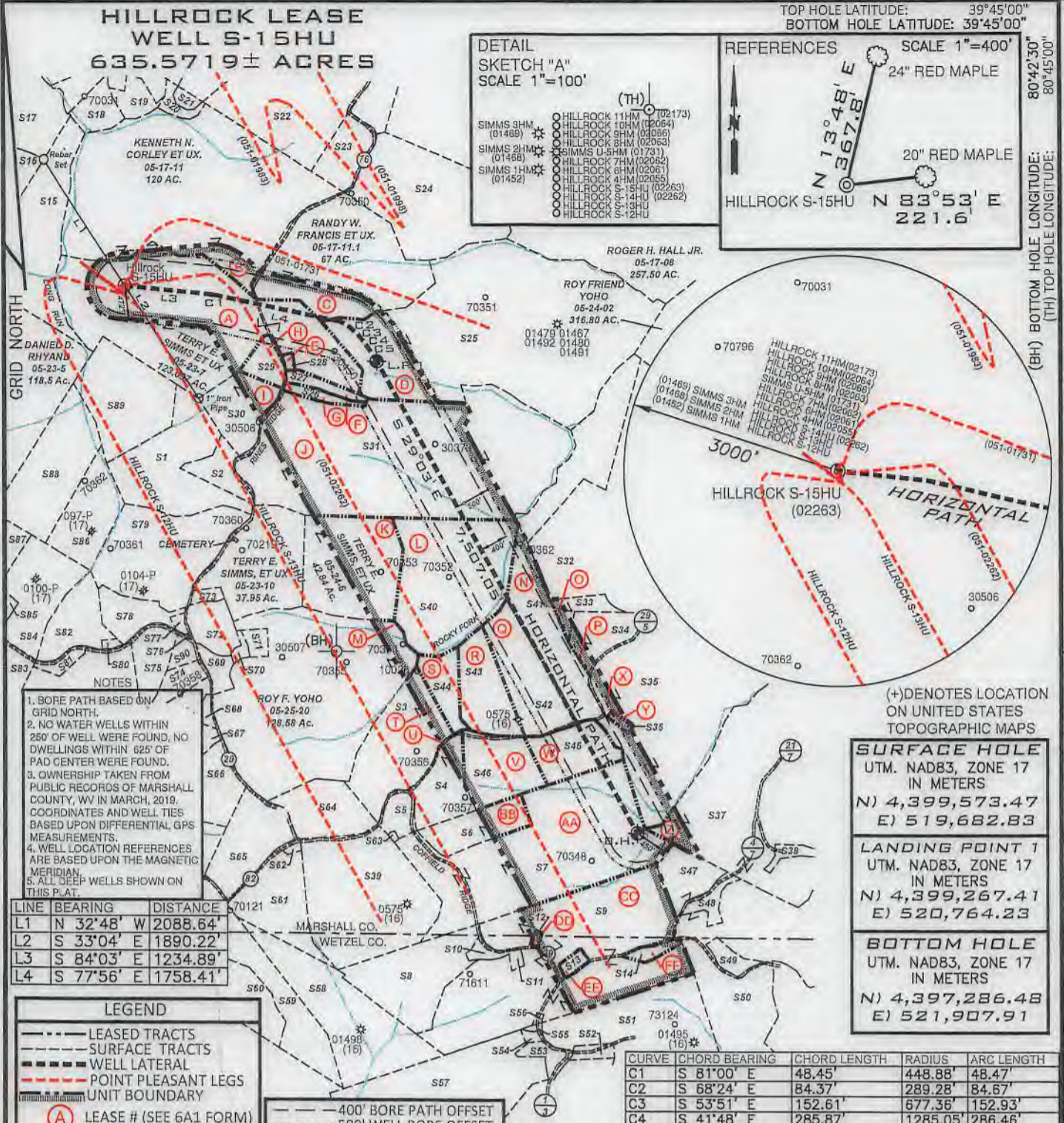
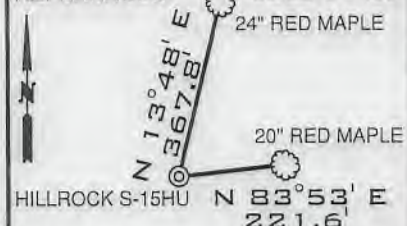
HILLROCK LEASE WELL S-15HU 635.5719± ACRES

DETAIL
SKETCH "A"
SCALE 1"=100'

REFERENCES

SCALE 1"=400'

- HILLROCK 11HM (02173)
- HILLROCK 10HM (02064)
- HILLROCK 9HM (02065)
- HILLROCK 8HM (02063)
- SIMMS U-5HM (01731)
- HILLROCK 7HM (02062)
- HILLROCK 6HM (02061)
- HILLROCK 4HM (02055)
- HILLROCK S-15HU (02263)
- HILLROCK 3HU (02262)
- HILLROCK 2HU
- SIMMS 3HM (01468)
- SIMMS 2HM (01466)
- SIMMS 1HM (01452)



- 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 MARCH, 2019. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 - ALL DEEP WELLS SHOWN ON THIS PLAT.

| LINE | BEARING | DISTANCE |
|------|------------|----------|
| L1 | N 32°48' W | 2088.64' |
| L2 | S 33°04' E | 1890.22' |
| L3 | S 84°03' E | 1234.89' |
| L4 | S 77°56' E | 1758.41' |

LEGEND

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

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,573.47
E) 519,682.83

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,267.41
E) 520,764.23

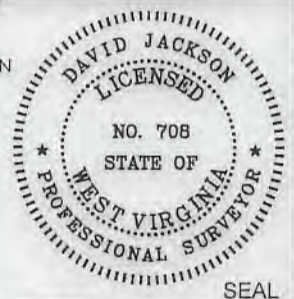
BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,397,286.48
E) 521,907.91

| CURVE | CHORD BEARING | CHORD LENGTH | RADIUS | ARC LENGTH |
|-------|---------------|--------------|----------|------------|
| C1 | S 81°00' E | 48.45' | 448.88' | 48.47' |
| C2 | S 68°24' E | 84.37' | 289.28' | 84.67' |
| C3 | S 53°51' E | 152.61' | 677.36' | 152.93' |
| C4 | S 41°48' E | 285.87' | 1285.05' | 286.46' |
| C5 | S 32°31' E | 267.91' | 2124.03' | 268.09' |

FILE NUMBER _____
DRAWING NUMBER: HILLROCK_S-15HU_REV 1
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING
GRADE GPS

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

David L Jackson



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

DATE: AUGUST 07, 2019
REVISED DATE: AUGUST 14, 2019
OPERATORS WELL NO. HILLROCK S-15HU
API WELL NO. 47-051-02263
STATE COUNTY PERMIT

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

LOCATION ELEVATION 1219.5' WATERSHED (HUC 10) FISH CREEK
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE NEW MARTINSVILLE 7.5' LEASE NUMBER SEE WW-6A1 Form

SURFACE OWNER TERRY E. & DEBORAH SIMMS ACREAGE 123.09
OIL & GAS ROYALTY OWNER TERRY E. & DEBORAH L. SIMMS, ET AL LEASE ACREAGE 123.09
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE (SPECIFY) _____

TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,532' TMD: 19,577'
WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD
FORT WORTH, TX 76107 CHARLESTON, WV 25313

COUNTY NAME
PERMIT

form wv6

**HILLROCK LEASE
WELL S-15HU
635.5719± ACRES**

4705102263

| Number | TAX MAP-PARCEL | SURFACE OWNER | ACRES |
|--------|----------------|---|---------|
| S1 | 05-24-5.4 | Thomas V. Tuttle, et ux | 38.224 |
| S2 | 05-24-5.3 | Thomas V. Tuttle, et ux | 8.543 |
| S3 T | 05-25-01 | Michael L. Mason | 35.43 |
| S4 U | 05-25-13 | William M. Ferda, Jr. & Stephanie Palicka | 16.014 |
| S5 | 05-25-13.2 | David A. Klug | 5.89 |
| S6 BB | 05-25-12.1 | Kent & Betty Mason | 15.0 |
| S7 AA | 05-25-12 | Marion Parsons Jr., et al | 85.16 |
| S8 | 05-25-11.4 | Edward W. Klug, et ux | 32.787 |
| S9 CC | 05-25-11.2 | James W. Klug | 114.305 |
| S10 | 05-25-11.1 | Edward W. Klug & Dianna Klug | 2.343 |
| S11 | 12-03-44 | James A. & Jo C. Estep | 1.10 |
| S12 DD | 12-03-47 | Wetzel County Emergency Ambulance | 0.50 |
| S13 EE | 12-03-43 | Adam W. Ferrell & Brittany M. Loy | 1.97 |
| S14 FF | 12-03-42 | J. M. Klug | 2.617 |
| S15 | 05-23-06 | James A. Channing, et al | 48.0 |
| S16 | 05-18-21 | Curtis E. & Michelle J. Hall | 43.119 |
| S17 | 05-18-20 | Wayne E. Channing, et al | 75.60 |
| S18 | 05-18-31 | Kenneth E. Rastall | 6.94 |
| S19 | 05-18-32 | Kenneth E. Rastall | 5.335 |
| S20 | 05-17-12 | James A. & Jill C. Corley | 3.33 |
| S21 | 05-17-12.1 | Williams Ohio Valley Midstream, LLC | 1.67 |
| S22 | 05-17-10 | James A. Corley, et al | 92.61 |
| S23 | 05-17-9.3 | James A. Corley, et ux | 12.478 |
| S24 | 05-17-9.4 | Vicki L. Bowen | 60.3 |
| S25 D | 05-24-1 | Linda L. Hendrickson & Donald Ray Pickering | 175.0 |
| S26 G | 05-24-5.2 | James D. Watkins, et ux | 3.151 |
| S27 F | 05-24-5.1 | James D. Watkins, et ux | 4.60 |
| S28 E | 05-23-7.1 | Lisa Ann Nelson | 0.549 |
| S29 H | 05-23-7.2 | Lisa Ann Nelson | 6.354 |
| S30 I | 05-24-5.5 | Linda Lou Tagg | 17.194 |
| S31 J | 05-24-5 | Robert C. Francis et ux (Life) | 145.788 |
| S32 | 05-24-3.2 | T.H. Exploration II, LLC | 49.0 |
| S33 O | 05-24-3.1 | T.H. Exploration II, LLC | 5.50 |
| S34 P | 05-25-2.2 | John G. Klug, Sr. et ux | 10.0 |
| S35 X | 05-25-2 | James W. Klug | 122.3 |
| S36 Y | 05-25-2.1 | Nancy Jackson | 1.0 |
| S37 Z | 05-25-3 | S.D. Fertitta, et ux | 181.548 |
| S38 | 05-25-3.1 | S.D. Fertitta, et ux | 3.022 |
| S39 | 05-25-14.1 | Judith L. Weigand | 65.0 |
| S40 L | 05-24-04 | Terry E. Simms, et ux | 84.05 |
| S41 N | 05-25-1.4 | Samantha J. & Philip A. Namlik | 24.44 |
| S42 Q | 05-25-1.3 | Michael E. & Annie A. Chapman | 26.2 |
| S43 R | 05-25-1.2 | William Jr. & Andrea J. Dubiel | 20.10 |
| S44 S | 05-25-1.1 | Ryan A. & Jacqueline E. Layman | 9.79 |
| S45 W | 05-25-13.3 | William M. Sr. & Cynthia A. Ferda | 17.21 |

| Number | TAX MAP-PARCEL | SURFACE OWNER | ACRES |
|--------|----------------|---|--------|
| S46 V | 05-25-1.5 | Ryan J. Bratton | 21.35 |
| S47 | 05-25-10 | Terry L. & Tammy J. Kirkland as Trustees of the Terry L. & Tammy J. Kirkland Living Trust | 18.75 |
| S48 | 05-25-10.1 | Terry L. & Tammy J. Kirkland (Life) | 5.250 |
| S49 | 12-03-41 | Carl L. Kirkland | 4.102 |
| S50 | 12-03-41.1 | Terry L. & Tammy J. Kirkland as Trustees of the Terry L. & Tammy J. Kirkland Living Trust | 74.138 |
| S51 | 12-03-04 | Albert L. & Mary Hohman et al | 85.0 |
| S52 | 12-03-02 | Robert Lee & Diana G. Smith | 2.48 |
| S53 | 12-03-4.3 | Joseph P. & Barbara A. Cain | 3.619 |
| S54 | 12-03-4.6 | Steven P. Wayman | 1.009 |
| S55 | 12-03-4.5 | Hazel M. Blair | 0.451 |
| S56 | 12-03-01 | James W. Klug | 0.375 |
| S57 | 12-03-4.7 | Joseph P. & Barbara A. Cain | 67.3 |
| S58 | 12-02-14 | David L. Cunningham | 56.23 |
| S59 | 12-02-14.2 | John G. Jr. & Geraldine M. Rogers | 25.1 |
| S60 | 12-02-14.1 | Sammy J. Greathouse, Jr. Sammy J. Greathouse, Sr. (L/E) | 18.67 |
| S61 | 05-25-16.1 | David L. Cunningham | 6.34 |
| S62 | 05-25-16.2 | Rodney J. Loy | 1.087 |
| S63 | 05-25-13.4 | Parsons Cemetery | 0.38 |
| S64 | 05-25-14 | Roy F. Yoho | 23.0 |
| S65 | 05-25-16 | Craig R. & Ashley Ferrell | 23.5 |
| S66 | 05-25-17 | Craig R. & Ashley Ferrell | 22.790 |
| S67 | 05-25-18 | Joseph Johnson, et ux (Life) | 37.746 |
| S68 | 05-25-19 | Joseph Johnson, et ux (Life) | 1.973 |
| S69 | 05-25-20.3 | James A. & Jo C. Estep | 4.49 |
| S70 | 05-25-20.2 | James M. Zombotti | 1.347 |
| S71 | 05-25-20.1 | James M. Zombotti | 2.746 |
| S72 | 05-23-11 | Roy F. Yoho | 9.475 |
| S73 | 05-23-11.7 | Bryan L. Huggins | 1.835 |
| S74 | 05-23-11.5 | Roy F. Yoho | 2.25 |
| S75 | 05-23-11.3 | Colin R. Yoho | 11.29 |
| S76 | 05-23-11.6 | T.H. Exploration II, LLC & Atinum Marcellus I, LLC | 0.094 |
| S77 | 05-23-11.2 | Evelyn Hudson | 1.154 |
| S78 | 05-23-11.4 | Evelyn Hudson | 10.879 |
| S79 | 05-23-11.1 | John H. & Sonya D. Holliday | 46.482 |
| S80 | 05-23-13.1 | James R. & Pamela J. Ferrell | 0.7625 |
| S81 | 05-23-12 | Mark A. Yoho | 3.05 |
| S82 | 05-23-13 | Linda D. Greathouse | 14.24 |
| S83 | 05-23-9.1 | John W. Van Orden et ux | 23.376 |
| S84 | 05-23-9.2 | Linda D. Greathouse | 25.58 |
| S85 | 05-23-9.4 | Jackson R. Sr. & Deanna L. Davis | 2.087 |
| S86 | 05-23-9.3 | Linda D. Greathouse | 17.5 |
| S87 | 05-23-14 | Dominion Transmission, Inc. | 59.5 |
| S88 | 05-23-08 | Carl David & Suzanne L. Guseman | 29.5 |
| S89 | 05-23-8.1 | William & Virginia Roupe | 34.0 |
| S90 | 05-23-11.8 | Zachary R. Stevey | 7.0 |



P.S. 708

David L Jackson



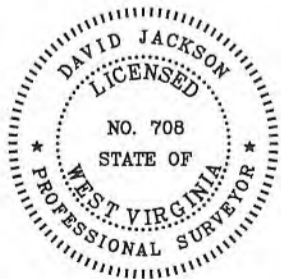
**TUG HILL
OPERATING**

OPERATOR'S
WELL #: HILLROCK S-15HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API: 047-051-02263

WELL PLAT
PAGE 2 OF 3
DATE: 08/07/2019
REVISED DATE:
8/14/2019

HILLROCK LEASE
WELL S-15HU
635.5719± ACRES

| Lease ID | Tags | Parcel | Grantor, Lessor, Etc. | Deed Book | Page |
|----------|------|-----------|--|-----------|------|
| 10*14140 | A | 5-23-7 | TERRY E SIMMS AND DEBORAH L SIMMS | 666 | 529 |
| 10*14126 | B | 5-17-11 | SHARON MIDCAP | 697 | 152 |
| 10*14126 | C | 5-17-11.1 | SHARON MIDCAP | 697 | 152 |
| 10*14138 | D | 5-24-1 | LINDA AND DONALD HENDRICKSON | 666 | 528 |
| 10*14130 | E | 5-23-7.1 | JANE ELLEN MARCUM ET AL | 708 | 185 |
| 10*14797 | F | 5-24-5.1 | ORVILLE YOUNG ET AL | 800 | 598 |
| 10*14797 | G | 5-24-5.2 | ORVILLE YOUNG ET AL | 800 | 598 |
| 10*14130 | H | 5-23-7.2 | JANE ELLEN MARCUM ET AL | 708 | 185 |
| 10*14797 | I | 5-24-5.5 | ORVILLE YOUNG ET AL | 800 | 598 |
| 10*14797 | J | 5-24-5 | ORVILLE YOUNG ET AL | 800 | 598 |
| 10*14558 | K | 5-24-6 | KLOVA ANN MORRIS ET AL | 765 | 434 |
| 10*14462 | L | 5-24-4 | JERRY ELDON RICHMOND ET AL | 744 | 57 |
| 10*14786 | M | 5-25-20 | TWILA O WHIPKEY EL AL | 799 | 61 |
| 10*14728 | N | 5-25-1.4 | IRIS K MOELLENDICK ET AL | 839 | 509 |
| 10*14068 | O | 5-24-3.1 | ROHN JEAN MARTIN ET AL | 666 | 552 |
| 10*14525 | P | 5-25-2.2 | IMA LEE YOHO | 757 | 192 |
| 10*14728 | Q | 5-25-1.3 | IRIS K MOELLENDICK ET AL | 839 | 509 |
| 10*14661 | R | 5-25-1.2 | ANDREA & WILLIAM DUBIEL JR ET AL | 777 | 563 |
| 10*14728 | S | 5-25-1.1 | IRIS K MOELLENDICK ET AL | 839 | 509 |
| 10*14728 | T | 5-25-1 | IRIS K MOELLENDICK ET AL | 839 | 509 |
| 10*14728 | U | 5-25-13 | IRIS K MOELLENDICK ET AL | 839 | 509 |
| 10*14728 | V | 5-25-1.5 | IRIS K MOELLENDICK ET AL | 839 | 509 |
| 10*14664 | W | 5-25-13.3 | CHRISTINA L MILLER ET AL | 779 | 496 |
| 10*14525 | X | 5-25-2 | IMA LEE YOHO | 757 | 192 |
| 10*14525 | Y | 5-25-2.1 | IMA LEE YOHO | 757 | 192 |
| 10*14524 | Z | 5-25-3 | IMA LEE YOHO | 757 | 194 |
| 10*14926 | AA | 5-25-12 | NILA JUNE MASON ET AL | 842 | 394 |
| 10*18120 | BB | 5-25-12.1 | KENT & BETTY MASON | 927 | 75 |
| 10*22496 | CC | 5-25-11.2 | JAMES W KLUG | 923 | 543 |
| 10*22984 | DD | 12-3-47 | WETZEL COUNTY EMERGENCY AMBULANCE AUTHORITY INC | 209A | 748 |
| 10*24576 | EE | 12-3-43 | ADAM W FERRELL AND BRITTANY M FERRELL | 218A | 837 |
| 10*22496 | FF | 12-3-42 | JAMES W KLUG | 923 | 543 |

P.S.
708

David L Jackson



TUG HILL
OPERATING

OPERATOR'S
WELL #: HILLROCK S-15HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API: 047-051-02263

WELL PLAT
PAGE 3 OF 3
DATE: 08/07/2019
REVISED DATE:
8/14/2019

WW-6A1
(5/13)

Operator's Well No. Hillrock S-15HU

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

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

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

| Lease Name or Number | Grantor, Lessor, etc. | Grantee, Lessee, etc. | Royalty | Book/Page |
|----------------------|-----------------------|-----------------------|---------|-----------|
|----------------------|-----------------------|-----------------------|---------|-----------|

*See attached pages

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

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

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

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

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

| Lease No. | Tags | Parcel | Lessor | Lessee | Royalty | Book | Page | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | Assignment | | | |
|-----------|------|-----------|-----------------------------------|----------------------------|---------|------|------|--|--|--|---|--|--|--|--|--|--|--|--|
| 10*14140 | A | 5-23-7 | TERRY E SIMMS AND DEBORAH L SIMMS | TRIENERGY HOLDINGS, LLC | 1/8+ | 666 | 529 | NA | 20/348 TriEnergy Inc to AB Resources LLC | 21/148 TriEnergy Inc to TriEnergy Holdings LLC | 21/491 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership | 21/491 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources (USA) | 685/643 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources (USA) | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 26/419 Gaster Exploration USA Inc and Atinum Marcellus I LLC stipulation of interest | 22/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14126 | B | 5-17-11 | SHARON MIDCAP | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 152 | NA | NA | NA | NA | 24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources (USA) to Gaster Exploration USA Inc and Atinum Marcellus I LLC | 26/419 Gaster Exploration USA Inc and Atinum Marcellus I LLC stipulation of interest | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | 40/552 TH Exploration II LLC to TH Exploration LLC | | |
| 10*14126 | C | 5-17-11.1 | SHARON MIDCAP | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 152 | NA | NA | NA | NA | 24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources (USA) to Gaster Exploration USA Inc and Atinum Marcellus I LLC | 26/419 Gaster Exploration USA Inc and Atinum Marcellus I LLC stipulation of interest | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | 40/552 TH Exploration II LLC to TH Exploration LLC | | |
| 10*14138 | D | 5-24-1 | LINDA AND DONALD HENDRICKSON | TRIENERGY, INC. | 1/8+ | 666 | 528 | 20/348 TriEnergy Inc to AB Resources LLC | 21/148 TriEnergy Inc to TriEnergy Holdings LLC | 21/491 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership | 685/643 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources (USA) | 720/214 TriEnergy Holdings LLC to AB Resources LLC | 24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources (USA) to Gaster Exploration USA Inc and Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | 40/552 TH Exploration II LLC to TH Exploration LLC | | |
| 10*14130 | E | 5-23-7.1 | JANE ELLEN MARCUM | GASTAR EXPLORATION USA INC | 1/8+ | 708 | 185 | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | | | |
| 10*14131 | E | 5-23-7.1 | NOEL S YOHO | GASTAR EXPLORATION USA INC | 1/8+ | 708 | 191 | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | | | |
| 10*14132 | E | 5-23-7.1 | CHRISTA JO DAVIES | GASTAR EXPLORATION USA INC | 1/8+ | 710 | 65 | NA | NA | NA | NA | 24/335 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | | | |
| 10*14133 | E | 5-23-7.1 | THOMAS S YOHO | GASTAR EXPLORATION USA INC | 1/8+ | 708 | 199 | NA | NA | NA | NA | 24/335 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | | | |
| 10*14797 | F | 5-24-5.1 | ORVILLE YOUNG | GASTAR EXPLORATION USA INC | 1/8+ | 800 | 598 | NA | NA | NA | NA | 806/1 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | | | |

4705102203

| | | | | | | | | | | | | | | | | | | | |
|----------|---|----------|---|----------------------------|------|-----|-----|----|----|----|----|----|----|----|----|----|----|--|--|
| 10*14817 | F | 5-24-5.1 | DONNA V YOHO | GASTAR EXPLORATION INC | 1/8+ | 874 | 351 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 35/144 Gastar Exploration Inc to Atrium Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14818 | F | 5-24-5.1 | DEWEY A MILICIA AND ROBIN MILICIA | GASTAR EXPLORATION INC | 1/8+ | 875 | 591 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 35/144 Gastar Exploration Inc to Atrium Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14819 | F | 5-24-5.1 | NICOLETTA MILICIA BLOODWORTH | GASTAR EXPLORATION INC | 1/8+ | 875 | 593 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 35/144 Gastar Exploration Inc to Atrium Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14820 | F | 5-24-5.1 | DANA MILICIA HUMPHREYS | GASTAR EXPLORATION INC | 1/8+ | 875 | 595 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 35/144 Gastar Exploration Inc to Atrium Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14821 | F | 5-24-5.1 | JANICE N HAUDENSCHILT | GASTAR EXPLORATION INC | 1/8+ | 875 | 597 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 35/144 Gastar Exploration Inc to Atrium Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14822 | F | 5-24-5.1 | ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE | GASTAR EXPLORATION INC | 1/8+ | 876 | 463 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 35/144 Gastar Exploration Inc to Atrium Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14823 | F | 5-24-5.1 | SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE | GASTAR EXPLORATION INC | 1/8+ | 876 | 459 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 35/144 Gastar Exploration Inc to Atrium Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*17181 | F | 5-24-5.1 | PAUL F HAMMERS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 705 | 593 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 41/256 SWN Production Company LLC to TH Exploration II LLC | 41/256 SWN Production Company LLC to TH Exploration II LLC |
| 10*17182 | F | 5-24-5.1 | TWILA ORA WHIRKEY | CHESAPEAKE APPALACHIA LLC | 1/8+ | 715 | 505 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 41/238 Staroil USA Onshore Properties Inc to TH Exploration II LLC | 41/256 SWN Production Company LLC to TH Exploration II LLC |
| 10*17195 | F | 5-24-5.1 | PATRICIA HARTMAN | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 317 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 41/238 Staroil USA Onshore Properties Inc to TH Exploration II LLC | 41/256 SWN Production Company LLC to TH Exploration II LLC |
| 10*17196 | F | 5-24-5.1 | DELBERT R. MONTGOMERY | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 311 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 41/238 Staroil USA Onshore Properties Inc to TH Exploration II LLC | 41/256 SWN Production Company LLC to TH Exploration II LLC |
| 10*17197 | F | 5-24-5.1 | GLORIA J. SIMMONS HAROLD SIMMONS | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 313 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 41/238 Staroil USA Onshore Properties Inc to TH Exploration II LLC | 41/256 SWN Production Company LLC to TH Exploration II LLC |

| | | | | | | | | | | | | | | | | |
|----------|---|----------|---|----------------------------|------|-----|-----|----|----|---|--|--|---|---|---|---|
| 10*17199 | F | 5-24-5.1 | PAMELA L DRAZIC AND JEFFREY DRAZIC | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 315 | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17200 | F | 5-24-5.1 | STEPHANIE L. HALL | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 156 | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17201 | F | 5-24-5.1 | DENISE A GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 395 | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17202 | F | 5-24-5.1 | JANE GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 385 | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17203 | F | 5-24-5.1 | BARRY RAY MOORE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 387 | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17204 | F | 5-24-5.1 | CLARENCE RICHARD ZESIGER & MARY ZESIGER | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 391 | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17206 | F | 5-24-5.1 | M VIRGINIA & EDWARD C MARSH | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 399 | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17207 | F | 5-24-5.1 | DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 389 | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |

| | | | | | | | | | | | | | | | | | |
|----------|---|----------|---|----------------------------|------|-----|-----|----|----|----|--|--|---|---|---|---|---|
| 10*17196 | G | 5-24-5.2 | DELBERT R. MONTGOMERY | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 311 | NA | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17182 | G | 5-24-5.2 | TWILA ORA WHIPKEY | CHESAPEAKE APPALACHIA LLC | 1/8+ | 715 | 505 | NA | NA | NA | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC | |
| 10*14823 | G | 5-24-5.2 | SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE | GASTAR EXPLORATION INC | 1/8+ | 876 | 459 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14822 | G | 5-24-5.2 | ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE | GASTAR EXPLORATION INC | 1/8+ | 876 | 463 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14820 | G | 5-24-5.2 | HUNPHREYS | GASTAR EXPLORATION INC | 1/8+ | 875 | 595 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14819 | G | 5-24-5.2 | BLOODWORTH | GASTAR EXPLORATION INC | 1/8+ | 875 | 593 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14818 | G | 5-24-5.2 | ROBIN MILICIA | GASTAR EXPLORATION INC | 1/8+ | 875 | 591 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14817 | G | 5-24-5.2 | DONNA V YOHO | GASTAR EXPLORATION INC | 1/8+ | 874 | 351 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14816 | G | 5-24-5.2 | DEWEY A MILICIA AND ROBIN MILICIA | GASTAR EXPLORATION INC | 1/8+ | 875 | 591 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14815 | G | 5-24-5.2 | HAUDENSCHILT | GASTAR EXPLORATION INC | 1/8+ | 875 | 597 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14814 | G | 5-24-5.2 | JANICE N | GASTAR EXPLORATION INC | 1/8+ | 875 | 597 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14813 | G | 5-24-5.2 | AND SUZANNE NEWLAND | TH EXPLORATION, LLC | 1/8+ | 952 | 205 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 35/144 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*17195 | G | 5-24-5.2 | PATRICIA HARTMAN | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 317 | NA | NA | NA | 23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |

| | | | | | | | | | | | | | | | | |
|----------|---|----------|---|-------------------------------|------|-----|-----|----|----|---|--|---|--|--|---|--|
| 10*17197 | G | 5-24-5.2 | GLORIA J. SIMMONS HAROLD SIMMONS | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 313 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17199 | G | 5-24-5.2 | PAMELA L DRAZIC AND JEFFREY DRAZIC | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 315 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17200 | G | 5-24-5.2 | STEPHANIE L HALL | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 156 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17201 | G | 5-24-5.2 | DENISE A GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 395 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17202 | G | 5-24-5.2 | JANE GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 385 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17203 | G | 5-24-5.2 | BARRY RAY MOORE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 387 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17204 | G | 5-24-5.2 | CLARENCE RICHARD ZESIGER & MARY ZESIGER | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 391 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17206 | G | 5-24-5.2 | M VIRGINIA & EDWARD C MARSH | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 399 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |

| | | | | | | | | | | | | | | | | | |
|----------|---|----------|---------------------------------------|-------------------------------|------|-----|-----|----|----|----|---|--|---|--|--|---|--|
| 10*17181 | I | 5-24-5.5 | PAUL F HAMMERS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 705 | 593 | NA | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17182 | I | 5-24-5.5 | TWILA ORA WHIPKEY | CHESAPEAKE APPALACHIA LLC | 1/8+ | 715 | 505 | NA | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17195 | I | 5-24-5.5 | PATRICIA HARTMAN | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 317 | NA | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17196 | I | 5-24-5.5 | DELBERT R. MONTGOMERY | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 311 | NA | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17197 | I | 5-24-5.5 | GLORIA J. SIMMONS HAROLD SIMMONS | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 313 | NA | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17199 | I | 5-24-5.5 | PAMELA L DRAZIC AND JEFFREY DRAZIC | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 315 | NA | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17200 | I | 5-24-5.5 | STEPHANIE L. HALL | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 156 | NA | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17201 | I | 5-24-5.5 | DENISE A GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 395 | NA | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |

4705102203

| | | | | | | | | | | | | | | | | |
|----------|---|----------|---|----------------------------|------|-----|-----|----|----|---|--|--|--|---|---|---|
| 10*17202 | 1 | 5-24-5.5 | JANE GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 385 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17203 | 1 | 5-24-5.5 | BARRY RAY MOORE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 387 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17204 | 1 | 5-24-5.5 | CLARENCE RICHARD ZESIGER & MARY ZESIGER | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 391 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17206 | 1 | 5-24-5.5 | M VIRGINIA & EDWARD C MARSH | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 399 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17207 | 1 | 5-24-5.5 | DEBORAH K. KIMASZEWSKI FRANK KIMASZEWSKI, SR. | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 389 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties to SWN Exchange | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17210 | 1 | 5-24-5.5 | MARILYN NOEL | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 393 | NA | NA | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17211 | 1 | 5-24-5.5 | GARY WAYNE ZESIGER & VICKIE ZESIGER | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 397 | NA | NA | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17212 | 1 | 5-24-5.5 | DARRELL NEWLAND LVDIA NEWLAND | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 158 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17213 | 1 | 5-24-5.5 | CAROL DEEN GARDNER | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 154 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*18275 | 1 | 5-24-5.5 | BETTY JEAN NEELY | TH EXPLORATION, LLC | 1/8+ | 929 | 60 | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company | 33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |

| | | | | | | | | | | | | | | | | | | | |
|----------|---|--------|--|-------------------------------|------|-----|-----|----|----|----|----|----|----|---|---|--|--|---|--|
| 10*14822 | J | 5-24-5 | ONWARD E BURG TRUST STEPHEN W BURGE AS TRUSTEE | GASTAR EXPLORATION INC | 1/8+ | 876 | 463 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | NA | NA | NA | 35/144 Gaster Exploration Inc to Atrium Marcellus I LLC | 35/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14823 | J | 5-24-5 | SARAH L BURG TRUST STEPHEN W BURG AS TRUSTEE | GASTAR EXPLORATION INC | 1/8+ | 876 | 459 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | NA | NA | NA | 35/144 Gaster Exploration Inc to Atrium Marcellus I LLC | 35/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*17181 | J | 5-24-5 | PAUL F HAMMERS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 705 | 593 | NA | NA | NA | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17182 | J | 5-24-5 | TWILA ORA WHIPKEY | CHESAPEAKE APPALACHIA LLC | 1/8+ | 715 | 505 | NA | NA | NA | NA | NA | NA | 29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17195 | J | 5-24-5 | PATRICIA HARTMAN | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 317 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17196 | J | 5-24-5 | DELBERT R. MONTGOMERY | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 311 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17197 | J | 5-24-5 | GLORIA J. SIMMONS HAROLD SIMMONS | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 313 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17199 | J | 5-24-5 | PAMELA L DRAZIC AND JEFFREY DRAZIC | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 315 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17200 | J | 5-24-5 | STEPHANIE L HALL | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 156 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |

| | | | | | | | | | | | | | | | | |
|----------|---|--------|--|-------------------------------|------|-----|-----|----|----|---|---|---|---|--|--|--|
| 10*17201 | J | 5-24-5 | DENISE A GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 395 | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gaster Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17202 | J | 5-24-5 | JANE GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 385 | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gaster Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17203 | J | 5-24-5 | BARRY RAY MOORE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 387 | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gaster Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17204 | J | 5-24-5 | CLARENCE RICHARD ZESIGER & MARY ZESIGER | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 391 | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gaster Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17206 | J | 5-24-5 | M VIRGINIA & EDWARD C MARSH | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 399 | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gaster Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17207 | J | 5-24-5 | DEBORAH K. KLIMASZEWSKI, FRANK KLIMASZEWSKI, SR. | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 389 | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gaster Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17210 | J | 5-24-5 | MARILYN NOEL | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 393 | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gaster Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17211 | J | 5-24-5 | GARY WAYNE ZESIGER & VICKIE ZESIGER | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 397 | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gaster Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties Inc to SWN Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17212 | J | 5-24-5 | DARBRELL NEWLAND LYDIA NEWLAND | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 158 | NA | NA | 23/353 Gaster Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gaster Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties Inc to SWN Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |

| | | | | | | | | | | | | | | | | | | | | | |
|----------|---|--------|--|----------------------------|------|-----|-----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|
| 10*14561 | K | 5-24-6 | THE ESTATE OF MERRA NELSON C/O ULA NELSON | GASTAR EXPLORATION USA INC | 1/8+ | 770 | 474 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 27/639 Gastar Exploration USA Inc to Athnum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gatar Exploration Inc merger | 36/9 Gatar Exploration Inc to TH Exploration II LLC |
| 10*14562 | K | 5-24-6 | MARY VOLTZ | GASTAR EXPLORATION USA INC | 1/8+ | 773 | 575 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 28/499 Gatar Exploration USA Inc to Athnum Marcellus I LLC | 21/41 Gatar Exploration USA Inc and Gatar Exploration Inc merger | 36/9 Gatar Exploration Inc to TH Exploration II LLC |
| 10*14563 | K | 5-24-6 | JACK MICHAEL FOREMAN | GASTAR EXPLORATION USA INC | 1/8+ | 796 | 44 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 806/1 Gatar Exploration USA Inc to Athnum Marcellus I LLC | 21/41 Gatar Exploration USA Inc and Gatar Exploration Inc merger | 36/9 Gatar Exploration Inc to TH Exploration II LLC |
| 10*14564 | K | 5-24-6 | JULIE SPRINGWATER | GASTAR EXPLORATION USA INC | 1/8+ | 799 | 57 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 806/1 Gatar Exploration USA Inc to Athnum Marcellus I LLC | 21/41 Gatar Exploration USA Inc and Gatar Exploration Inc merger | 36/9 Gatar Exploration Inc to TH Exploration II LLC |
| 10*17597 | K | 5-24-6 | JOHN P ICARD AND REVA J ICARD VICKI LYNN AND RICHARD FRANKLIN WOOD | TH EXPLORATION, LLC | 1/8+ | 957 | 129 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*17626 | K | 5-24-6 | WOOD | TH EXPLORATION, LLC | 1/8+ | 917 | 60 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*18174 | K | 5-24-6 | THE ESTATE OF ROY JOSEPH LEACH | TH EXPLORATION, LLC | 1/8+ | 927 | 647 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*21455 | K | 5-24-6 | MELISSA MILLER GIBSON AND JAMES GIBSON | TH EXPLORATION, LLC | 1/8+ | 953 | 308 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*14462 | L | 5-24-4 | JERRY ELDON RICHMOND | GASTAR EXPLORATION USA INC | 1/8+ | 744 | 57 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gatar Exploration USA Inc to Athnum Marcellus I LLC | 21/41 Gatar Exploration USA Inc and Gatar Exploration Inc merger | 36/9 Gatar Exploration Inc to TH Exploration II LLC |
| 10*14463 | L | 5-24-4 | CHERYL ANN COCHRAN | GASTAR EXPLORATION USA INC | 1/8+ | 744 | 231 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gatar Exploration USA Inc to Athnum Marcellus I LLC | 21/41 Gatar Exploration USA Inc and Gatar Exploration Inc merger | 36/9 Gatar Exploration Inc to TH Exploration II LLC |
| 10*14464 | L | 5-24-4 | NIKA JEAN COCHRAN | GASTAR EXPLORATION USA INC | 1/8+ | 744 | 59 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gatar Exploration USA Inc to Athnum Marcellus I LLC | 21/41 Gatar Exploration USA Inc and Gatar Exploration Inc merger | 36/9 Gatar Exploration Inc to TH Exploration II LLC |
| 10*14465 | L | 5-24-4 | LARRY RICHMOND | GASTAR EXPLORATION USA INC | 1/8+ | 744 | 61 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gatar Exploration USA Inc to Athnum Marcellus I LLC | 21/41 Gatar Exploration USA Inc and Gatar Exploration Inc merger | 36/9 Gatar Exploration Inc to TH Exploration II LLC |
| 10*14466 | L | 5-24-4 | BETTY ROSE YOHO | GASTAR EXPLORATION USA INC | 1/8+ | 749 | 580 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gatar Exploration USA Inc to Athnum Marcellus I LLC | 21/41 Gatar Exploration USA Inc and Gatar Exploration Inc merger | 36/9 Gatar Exploration Inc to TH Exploration II LLC |

| | | | | | | | | | | | | | | | | | | | | | | |
|----------|---|--------|-----------------------------|---------------------------|------|-----|-----|----|----|----|----|----|----|----|----|----|----|----|---|---|--|--|
| 10*14467 | L | 5-24-4 | DANA MILICIA HUMPHREYS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 694 | 351 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 27/321 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc to Gastar Exploration USA Inc and Athnum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14468 | L | 5-24-4 | TWILA ORA WHIPKEY | CHESAPEAKE APPALACHIA LLC | 1/8+ | 692 | 416 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 24/338 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc | 27/321 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc to Gastar Exploration USA Inc and Athnum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14469 | L | 5-24-4 | JACK R HAMMERS | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 | 547 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 27/321 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc to Gastar Exploration USA Inc and Athnum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14470 | L | 5-24-4 | DONNA V YOHO | CHESAPEAKE APPALACHIA LLC | 1/8+ | 690 | 645 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 27/321 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc to Gastar Exploration USA Inc and Athnum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14471 | L | 5-24-4 | JANICE N HAUDENSCHILT | CHESAPEAKE APPALACHIA LLC | 1/8+ | 691 | 501 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 27/321 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc to Gastar Exploration USA Inc and Athnum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14472 | L | 5-24-4 | O E BURGE AND SARAH L BURGE | CHESAPEAKE APPALACHIA LLC | 1/8+ | 692 | 582 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 27/321 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc to Gastar Exploration USA Inc and Athnum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |
| 10*14473 | L | 5-24-4 | IMALEE YOHO | CHESAPEAKE APPALACHIA LLC | 1/8+ | 693 | 293 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 27/321 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc to Gastar Exploration USA Inc and Athnum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC | |

| | | | | | | | | | | | | | | | | | | | | | |
|----------|---|---------|---|----------------------------|------|-----|-----|----|----|----|----|----|----|---|----|----|----|---|--|--|--|
| 10*14786 | M | 5-25-20 | TWILA O WHPKEY | GASTAR EXPLORATION USA INC | 1/8+ | 799 | 61 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | NA | 806/1 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14792 | M | 5-25-20 | TIMOTHY YOHO | GASTAR EXPLORATION USA INC | 1/8+ | 799 | 536 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | 806/1 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14797 | M | 5-25-20 | ORVILLE YOUNG | GASTAR EXPLORATION USA INC | 1/8+ | 800 | 598 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | 806/1 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14815 | M | 5-25-20 | CHESTNUT HOLDINGS INC | GASTAR EXPLORATION USA INC | 1/8+ | 827 | 535 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | NA | 32/428 Gaster Exploration to Atinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14822 | M | 5-25-20 | ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE | GASTAR EXPLORATION USA INC | 1/8+ | 876 | 463 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | NA | 35/144 Gaster Exploration Inc to Atinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14823 | M | 5-25-20 | SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE | GASTAR EXPLORATION USA INC | 1/8+ | 876 | 459 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | NA | 35/144 Gaster Exploration Inc to Atinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*17195 | M | 5-25-20 | PATRICIA HARTMAN | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 317 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC | |
| 10*17196 | M | 5-25-20 | DELBERT R. MONTGOMERY | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 311 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC | |
| 10*17197 | M | 5-25-20 | GLORIA J. SIMMONS HAROLD SIMMONS | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 313 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | 806/1 Gaster Exploration USA Inc to Atinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 41/256 SWN Production Company LLC to TH Exploration LLC | |
| 10*17199 | M | 5-25-20 | PAMELA L DRAZIC AND JEFFREY DRAZIC | GASTAR EXPLORATION USA INC | 1/8+ | 695 | 315 | NA | NA | NA | NA | NA | NA | 23/353 Gaster Exploration USA Inc to Atinum Marcellus I LLC | NA | NA | NA | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC | |

| | | | | | | | | | | | | | | | | |
|----------|---|---------|---|-------------------------------|------|-----|-----|----|----|---|---|---|---|--|--|--|
| 10*17200 | M | 5-25-20 | STEPHANIE L. HALL | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 156 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17201 | M | 5-25-20 | DENISE A GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 395 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17202 | M | 5-25-20 | JANE GALE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 385 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17203 | M | 5-25-20 | BARRY RAY MOORE | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 387 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17204 | M | 5-25-20 | CLARENCE RICHARD ZEISIGER & MARY ZEISIGER | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 391 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17206 | M | 5-25-20 | M VIRGINIA & EDWARD C MARSH | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 399 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |
| 10*17207 | M | 5-25-20 | DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. | GASTAR EXPLORATION USA INC | 1/8+ | 697 | 389 | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 27/311 Gastar Exploration USA Inc and Atrium Marcellus I LLC to Chesapeake Appalachia LLC and Statcoil USA Onshore Properties Inc | 33/110 Chesapeake Appalachia LLC to SWN Production Company LLC | 33/424 Statcoil USA Onshore Properties to SWN Exchange Titleholder LLC | 19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger | 41/238 Statcoil USA Onshore Properties Inc to TH Exploration LLC | 41/256 SWN Production Company LLC to TH Exploration LLC |

| | | | | | | | | | | | | | | | | | | | | |
|----------|---|----------|--|----------------------------|------|-----|-----|----|----|----|----|----|----|----|----|----|----|---|--|--|
| 10*14074 | 0 | 5-24-3.1 | JANE N FISHER AND LEX FISHER | GASTAR EXPLORATION USA INC | 1/8+ | 710 | 604 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 735/ 263 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14075 | 0 | 5-24-3.1 | SHIRLEY K WHITE | GASTAR EXPLORATION USA INC | 1/8+ | 708 | 201 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 24/335 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14076 | 0 | 5-24-3.1 | PATRICIA CROW /AGENT & AIF FOR VERLA SHUTLER | GASTAR EXPLORATION USA INC | 1/8+ | 710 | 63 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 24/335 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14077 | 0 | 5-24-3.1 | WILLIAM FRANK TORRES | GASTAR EXPLORATION USA INC | 1/8+ | 710 | 72 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 24/335 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14078 | 0 | 5-24-3.1 | CAROL VASS | GASTAR EXPLORATION USA INC | 1/8+ | 710 | 74 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 24/335 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14079 | 0 | 5-24-3.1 | JON & SUSAN NEWMAN | GASTAR EXPLORATION USA INC | 1/8+ | 710 | 76 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 24/335 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14080 | 0 | 5-24-3.1 | EDITH OBLINGER | GASTAR EXPLORATION USA INC | 1/8+ | 714 | 133 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 735/263 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14081 | 0 | 5-24-3.1 | STEVEN J & CAROL J NEWMAN | GASTAR EXPLORATION USA INC | 1/8+ | 724 | 50 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 735/263 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14082 | 0 | 5-24-3.1 | PAUL E & LYNN E BARCUS JR | GASTAR EXPLORATION USA INC | 1/8+ | 734 | 455 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/183 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14083 | 0 | 5-24-3.1 | JAN L O'DONNELL | GASTAR EXPLORATION USA INC | 1/8+ | 739 | 415 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/183 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14084 | 0 | 5-24-3.1 | ROGER A & LAURA J MAY | GASTAR EXPLORATION USA INC | 1/8+ | 741 | 643 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14085 | 0 | 5-24-3.1 | BRAD EVNON | GASTAR EXPLORATION USA INC | 1/8+ | 741 | 645 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14086 | 0 | 5-24-3.1 | BRUCE BAILEY | GASTAR EXPLORATION USA INC | 1/8+ | 741 | 647 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 23/353 Gastar Exploration USA Inc to Atrium Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger | 36/9 Gastar Exploration Inc to TH Exploration II LLC |

| | | | | | | | | | | | | | | | | | | | | | |
|----------|---|----------|---|-------------------------------|------|------|-----|----|----|----|----|----|----|----|----|----|----|----|--|--|--|
| 10*14090 | O | 5-24-3.1 | CATHERINE R KLUG PAUL FOX - POWER OF ATTORNEY | GASTAR EXPLORATION USA INC | 1/8+ | 762 | 454 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 27/639 Gaster Exploration USA Inc to Athinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14091 | O | 5-24-3.1 | AGNES C KLUG | GASTAR EXPLORATION USA INC | 1/8+ | 762 | 456 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 27/639 Gaster Exploration USA Inc to Athinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14094 | O | 5-24-3.1 | GUY J INGRASSELLINO | GASTAR EXPLORATION INC | 1/8+ | 839 | 528 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*23467 | O | 5-24-3.1 | STONE HILL MINERALS HOLDINGS LLC | TH EXPLORATION, LLC | 1/8+ | 1010 | 228 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*25630 | O | 5-24-3.1 | CHESTNUT HOLDINGS LLC | TH EXPLORATION, LLC | 1/8+ | 1034 | 544 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*14525 | P | 5-25-2.2 | IMA LEE YOHO | GASTAR EXPLORATION USA INC | 1/8+ | 757 | 192 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gaster Exploration USA Inc to Gaster Exploration Inc Athinum Marcellus I LLC merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14728 | Q | 5-25-1.3 | IRIS K MOELLENDICK | GASTAR EXPLORATION INC | 1/8+ | 839 | 509 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14729 | Q | 5-25-1.3 | BONNIE S SHANNON, INDIVIDUALLY | GASTAR EXPLORATION INC | 1/8+ | 839 | 511 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14730 | Q | 5-25-1.3 | CATHIE K LAKE | GASTAR EXPLORATION USA INC | 1/8+ | 839 | 513 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14731 | Q | 5-25-1.3 | RICHARD KLUG | GASTAR EXPLORATION USA INC | 1/8+ | 839 | 515 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14734 | Q | 5-25-1.3 | CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 376 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14735 | Q | 5-25-1.3 | GLENNALEE COZART | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 378 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |
| 10*14737 | Q | 5-25-1.3 | MARION PARSONS JR | GASTAR EXPLORATION USA INC | 1/8+ | 844 | 83 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 29/157 Gaster Exploration USA Inc to Gaster Exploration Inc merger | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14738 | Q | 5-25-1.3 | MICHAEL E & ANNIE A CHAPMAN | GASTAR EXPLORATION USA INC | 1/8+ | 787 | 627 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 29/157 Gaster Exploration USA Inc to Athinum Marcellus I LLC | 21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14661 | R | 5-25-1.2 | ANDREA & WILLIAM DUBIEL JR | GASTAR EXPLORATION USA INC | 1/8+ | 777 | 563 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 28/499 Gaster Exploration USA Inc to Athinum Marcellus I LLC | 33/308 Gaster Exploration USA Inc and Gaster Exploration Inc merger | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14728 | R | 5-25-1.2 | IRIS K MOELLENDICK | GASTAR EXPLORATION INC | 1/8+ | 839 | 509 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC | |

| | | | | | | | | | | | | | | | | | | | | | |
|----------|---|----------|---|---------|--------------------|------|-----|-----|----|----|----|----|----|----|----|----|----|----|----|--|--|
| 10*14729 | R | 5-25-1.2 | BONNIE S SHANNON, INDIVIDUALLY | INC | GASTAR EXPLORATION | 1/8+ | 839 | 511 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14730 | R | 5-25-1.2 | CATHIE K LAKE | USA INC | GASTAR EXPLORATION | 1/8+ | 839 | 513 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14731 | R | 5-25-1.2 | RICHARD KLUG CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF | USA INC | GASTAR EXPLORATION | 1/8+ | 839 | 515 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14734 | R | 5-25-1.2 | RODNEY C BAXTER, AGENT AND AIF | USA INC | GASTAR EXPLORATION | 1/8+ | 842 | 376 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14735 | R | 5-25-1.2 | GLENNALEE COZART | USA INC | GASTAR EXPLORATION | 1/8+ | 842 | 378 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14737 | R | 5-25-1.2 | MARION PARSONS JR | USA INC | GASTAR EXPLORATION | 1/8+ | 844 | 83 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14728 | S | 5-25-1.1 | IRIS K MOELLENDICK | INC | GASTAR EXPLORATION | 1/8+ | 839 | 509 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14729 | S | 5-25-1.1 | BONNIE S SHANNON, INDIVIDUALLY | INC | GASTAR EXPLORATION | 1/8+ | 839 | 511 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14730 | T | 5-25-1 | CATHIE K LAKE | USA INC | GASTAR EXPLORATION | 1/8+ | 839 | 513 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14731 | T | 5-25-1 | RICHARD KLUG | USA INC | GASTAR EXPLORATION | 1/8+ | 839 | 515 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14731 | S | 5-25-1.1 | RICHARD KLUG CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF | USA INC | GASTAR EXPLORATION | 1/8+ | 839 | 515 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14734 | S | 5-25-1.1 | RYAN A & JACQUELINE E LAYMAN | USA INC | GASTAR EXPLORATION | 1/8+ | 842 | 380 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14735 | S | 5-25-1.1 | GLENNALEE COZART | USA INC | GASTAR EXPLORATION | 1/8+ | 842 | 378 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14736 | S | 5-25-1.1 | MARION PARSONS JR | USA INC | GASTAR EXPLORATION | 1/8+ | 844 | 83 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14728 | T | 5-25-1 | IRIS K MOELLENDICK | INC | GASTAR EXPLORATION | 1/8+ | 839 | 509 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14729 | T | 5-25-1 | BONNIE S SHANNON, INDIVIDUALLY | INC | GASTAR EXPLORATION | 1/8+ | 839 | 511 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14730 | T | 5-25-1 | CATHIE K LAKE | USA INC | GASTAR EXPLORATION | 1/8+ | 839 | 513 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |
| 10*14731 | T | 5-25-1 | RICHARD KLUG | USA INC | GASTAR EXPLORATION | 1/8+ | 839 | 515 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gaster Exploration Inc to Athinum Marcellus I LLC | 36/9 Gaster Exploration Inc to TH Exploration II LLC |

| | | | | | | | | | | | | | | | | | | | | | |
|----------|---|----------|---|-------------------------------|------|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|---|--|
| 10*14734 | T | 5-25-1 | CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 376 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14735 | T | 5-25-1 | GLENNALEE COZART | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 378 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14737 | T | 5-25-1 | MARION PARSONS JR | GASTAR EXPLORATION USA INC | 1/8+ | 844 | 83 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*19914 | T | 5-25-1 | MICHAEL L MASON | TH EXPLORATION, LLC | 1/8+ | 945 | 436 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*14728 | U | 5-25-13 | IRIS K MOELLENDICK | GASTAR EXPLORATION INC | 1/8+ | 839 | 509 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14729 | U | 5-25-13 | BONNIE S SHANNON, INDIVIDUALLY | GASTAR EXPLORATION INC | 1/8+ | 839 | 511 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14730 | U | 5-25-13 | CATHIE K LAKE | GASTAR EXPLORATION USA INC | 1/8+ | 839 | 513 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14733 | U | 5-25-13 | NICHOLAS J KLUG & DEBRA L KLUG | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 374 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14734 | U | 5-25-13 | CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 376 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14735 | U | 5-25-13 | GLENNALEE COZART | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 378 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14737 | U | 5-25-13 | MARION PARSONS JR | GASTAR EXPLORATION USA INC | 1/8+ | 844 | 83 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14728 | V | 5-25-1.5 | IRIS K MOELLENDICK | GASTAR EXPLORATION INC | 1/8+ | 839 | 509 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14729 | V | 5-25-1.5 | BONNIE S SHANNON, INDIVIDUALLY | GASTAR EXPLORATION INC | 1/8+ | 839 | 511 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14730 | V | 5-25-1.5 | CATHIE K LAKE | GASTAR EXPLORATION USA INC | 1/8+ | 839 | 513 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14731 | V | 5-25-1.5 | RICHARD KLUG | GASTAR EXPLORATION USA INC | 1/8+ | 839 | 515 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14734 | V | 5-25-1.5 | CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 376 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14735 | V | 5-25-1.5 | GLENNALEE COZART | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 378 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |
| 10*14737 | V | 5-25-1.5 | MARION PARSONS JR | GASTAR EXPLORATION USA INC | 1/8+ | 844 | 83 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athnum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH Exploration II LLC |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|----|-----------|---|----------------------------|------|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|---|-----------------------------------|
| 10*24001 | V | 5-25-1.5 | RYAN BRATTON | TH EXPLORATION, LLC | 1/8+ | 1019 | 468 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc | NA | 36/9 Gastar Exploration Inc to TH |
| 10*14664 | W | 5-25-13.3 | CHRISTINA L MILLER | GASTAR EXPLORATION USA INC | 1/8+ | 779 | 496 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 29/499 Gastar Exploration USA Inc to Gastar Exploration Inc | NA | 36/9 Gastar Exploration Inc to TH |
| 10*14728 | W | 5-25-13.3 | IRIS K MOELLENDICK | GASTAR EXPLORATION INC | 1/8+ | 839 | 509 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | NA | 36/9 Gastar Exploration Inc to TH |
| 10*14729 | W | 5-25-13.3 | BONNIE S SHANNON, INDIVIDUALLY | GASTAR EXPLORATION INC | 1/8+ | 839 | 511 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | NA | 36/9 Gastar Exploration Inc to TH |
| 10*14730 | W | 5-25-13.3 | CATHIE K LAKE | GASTAR EXPLORATION USA INC | 1/8+ | 839 | 513 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | NA | 36/9 Gastar Exploration Inc to TH |
| 10*14731 | W | 5-25-13.3 | RICHARD KLUG | GASTAR EXPLORATION USA INC | 1/8+ | 839 | 515 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | NA | 36/9 Gastar Exploration Inc to TH |
| 10*14734 | W | 5-25-13.3 | CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 376 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | NA | 36/9 Gastar Exploration Inc to TH |
| 10*14735 | W | 5-25-13.3 | GLENNALEE COZART | GASTAR EXPLORATION USA INC | 1/8+ | 842 | 378 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | NA | 36/9 Gastar Exploration Inc to TH |
| 10*14737 | W | 5-25-13.3 | MARION PARSONS JR | GASTAR EXPLORATION USA INC | 1/8+ | 844 | 83 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | NA | 36/9 Gastar Exploration Inc to TH |
| 10*14525 | X | 5-25-2 | IMALEE YOHO | GASTAR EXPLORATION USA INC | 1/8+ | 757 | 192 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gastar Exploration USA Inc to Athinum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH |
| 10*14525 | Y | 5-25-2.1 | IMALEE YOHO | GASTAR EXPLORATION USA INC | 1/8+ | 757 | 192 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gastar Exploration USA Inc to Athinum Marcellus I LLC | 21/41 Gastar Exploration USA Inc and Gastar Exploration Inc | 36/9 Gastar Exploration Inc to TH |
| 10*14524 | Z | 5-25-3 | IMALEE YOHO | GASTAR EXPLORATION USA INC | 1/8+ | 757 | 194 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 26/639 Gastar Exploration USA Inc to Athinum Marcellus I LLC | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH |
| 10*14926 | AA | 5-25-12 | NILA JUNE MASON | GASTAR EXPLORATION INC | 1/8+ | 842 | 394 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH | |
| 10*14927 | AA | 5-25-12 | MARION PARSONS JR | GASTAR EXPLORATION INC | 1/8+ | 842 | 396 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 33/308 Gastar Exploration Inc to Athinum Marcellus I LLC | 36/9 Gastar Exploration Inc to TH | |
| 10*18535 | AA | 5-25-12 | WILLAJEAN NEVA HORES AND DONALD HORES | TH EXPLORATION, LLC | 1/8+ | 933 | 639 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 36/9 Gastar Exploration Inc to TH |
| 10*18536 | AA | 5-25-12 | MIRIAM D LYDICK | TH EXPLORATION, LLC | 1/8+ | 933 | 637 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 36/9 Gastar Exploration Inc to TH |

| | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|----|-----------|--|------------------------------------|------|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 10*19898 | AA | 5-25-12 | NANCY TODD | TH EXPLORATION, LLC | 1/8+ | 949 | 226 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | |
| 10*19899 | AA | 5-25-12 | WILLIAM H BELL | TH EXPLORATION, LLC | 1/8+ | 948 | 228 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*19965 | AA | 5-25-12 | HARRY R BELL | TH EXPLORATION, LLC | 1/8+ | 948 | 221 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*19969 | AA | 5-25-12 | MATTHEW E WEAR AND LEIGH ANN WEAR | TH EXPLORATION, LLC | 1/8+ | 948 | 232 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*21128 | AA | 5-25-12 | BARBARA J CONWAY AND JAMES G CONWAY | TH EXPLORATION, LLC | 1/8+ | 952 | 218 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*22331 | AA | 5-25-12 | TIMOTHY J CARROLL AND KATHLEEN A CARROLL | TH EXPLORATION, LLC | 1/8+ | 957 | 472 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*23891 | AA | 5-25-12 | EILEEN A KEDERLY OR UNKNOWN HEIRS BY SHANE W MALLETT, SPECIAL COMMISSIONER | TH EXPLORATION, LLC | 1/8+ | 1020 | 198 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*24784 | AA | 5-25-12 | JOHN R RYBKOSKI AND LINDA RYBKOSKI | TH EXPLORATION, LLC | 1/8+ | 1027 | 106 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*24785 | AA | 5-25-12 | JOHN R RYBKOSKI AND LINDA RYBKOSKI | TH EXPLORATION, LLC | 1/8+ | 1027 | 109 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*18120 | BB | 5-25-12.1 | KENT & BETTY MASON | TH EXPLORATION, LLC | 1/8+ | 927 | 75 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*22496 | CC | 5-25-11.2 | JAMES W KLUUG | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 923 | 543 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*22984 | DD | 12-3-47 | WETZEL COUNTY EMERGENCY AMBULANCE AUTHORITY INC | TH EXPLORATION, LLC | 1/8+ | 209A | 748 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*24576 | EE | 12-3-43 | ADAM W FERRELL AND BRITTANY M FERRELL | TH EXPLORATION, LLC | 1/8+ | 218A | 837 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 10*2496 | FF | 12-3-42 | JAMES W KLUUG | AMERICAN PETROLEUM PARTNERS LLC | 1/8+ | 923 | 543 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |

42/109 American
Petroleum Partners
Operating LLC to TH
Exploration LLC

42/109 American
Petroleum Partners
Operating LLC to TH
Exploration LLC

Jan Pest
 MARSHALL County 01:22:38 PM
 Instrument No 1403489
 Date Recorded 04/27/2016
 Document Type ASH
 Pages Recorded 77
 Book-Page 36-9
 Recording Fee \$77.00
 Additional \$13.00

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

Execution Version

ASSIGNMENT AND BILL OF SALE

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

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

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

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

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

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

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

RECEIVED
 Office of Oil and Gas
 AUG - 9 2019
 WV Department of
 Environmental Protection

ASSIGNMENT OF OIL AND GAS LEASES

This **ASSIGNMENT OF OIL AND GAS LEASES** (the "**Assignment**") is made and entered into this 29th day of November, 2017 (the "**Effective Date**"), from **TH Exploration II, LLC**, a Texas limited liability company, having an address at 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 (hereinafter "**Assignor**"), and **TH Exploration, LLC**, a Texas limited liability company, having an address at 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 (hereinafter "**Assignee**").

WITNESSETH:

WHEREAS, Assignor is the owner of the right, title, and interest in those certain Oil and Gas Leases situated in Marshall County, West Virginia, which are described in Exhibit "A" and Exhibit "A-1" attached hereto and made a part hereof (hereinafter the "**Leases**"); and

WHEREAS, subject to the exceptions and reservations herein contained, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases.

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, subject to the terms, reservations, waivers and provisions as hereinafter set forth, an undivided interest of all of Assignor's right, title and interest in and to the Leases and all oil, natural gas, natural gas liquids, condensate, casinghead gas and other liquefied or gaseous hydrocarbons or products ("**Hydrocarbons**") thereby held, in any and all depths and formations ("**Assigned Formations**"), together with any and all other rights that are reasonably necessary or convenient to explore for and produce Hydrocarbons from the Assigned Formations, including, but not limited to, the right of surface access, use and occupancy, the right of ingress and egress, the right to conduct geophysical and other exploratory activities, the right to lay pipeline, the right to drill through, but not perforate or stimulate, all other depths and formations necessary for the purpose of reaching the Assigned Formations and to conduct operations therein.

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

2. **Representations and Warranties.** Assignor represents and warrants that such Assignor has not conveyed or otherwise encumbered its interest in the Leases since the time that Assignor obtained its interests in the Leases.

Assignor represents and warrants that, as to its interests in the Leases, Assignor has paid all royalties, overriding royalties, and other payments required by the Leases which were due for the period in which Assignor held its interests in the Leases, including, but not limited to, the interests assigned hereunder, and that Assignor has fully performed all conditions necessary to maintain the Leases in full force and effect during such period.

Assignor represents and warrants that, as to its interests in the Leases, Assignor shall not, by virtue of this Assignment or otherwise, retain any interest in the Assigned Formations, including, without limitation, any overriding royalty interest or working interest therein or with respect thereto.

3. **Successors and Assigns.** The terms of this Assignment shall be binding upon and inure to the benefit of the parties hereto and each of their respective successors

Environmental Protection
MW Department of

AUG - 9 2019

RECEIVED
Office of Oil and Gas

DPS LAND SERVICES CORP - JESSICA LEMON
6000 TOWN CENTER BLVD STE 145
CANDANBURG PA 15317-5870

4705-02267

ASSIGNMENT AND CONVEYANCE

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

**ARTICLE 1
ASSIGNMENT OF ASSETS**

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

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

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

**ARTICLE 2
SPECIAL WARRANTY OF TITLE AND DISCLAIMERS**

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

Section 2.2 Disclaimers of Warranties and Representations.

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

ASHLEY FAVINGER
AMERICAN PETROLEUM PARTNERS OPERATING LLC.
4600 J BARRY COURT STE 310
CANDONSBURG PA 15317-5854

BOOK 0042 PAGE 0109

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

RECEIVED
Office of Oil and Gas

AUG - 9 2019

WV Department of
Environmental Protection

WV-AGIR-0009

47 05 1 02263



July 30, 2019

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

RE: Hillrock S-15HU

Subject: Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Routes 4/7, 29/5 and 76 in the area reflected on the Hillrock S-15HU well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

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

Sincerely,

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

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

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

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

Date of Notice Certification: 07/30/2019

API No. 47- 051 -

Operator's Well No. Hillrock S-151HJ

Well Pad Name: Simms

Notice has been given:

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

| | | | | |
|-------------|-----------------------|---------------------------|------------------------------------|--------------|
| State: | West Virginia | UTM NAD 83 | Easting: | 519,682.83 |
| County: | Marshall | | Northing: | 4,399,573.47 |
| District: | Franklin | Public Road Access: | Rines Ridge Road (County Route 76) | |
| Quadrangle: | New Martinsville 7.5' | Generally used farm name: | Terry E., and Deborah Simms | |
| Watershed: | Fish Creek (HUC 10) | | | |

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

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

*PLEASE CHECK ALL THAT APPLY

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

OOG OFFICE USE ONLY

RECEIVED/
NOT REQUIRED

RECEIVED

RECEIVED/
NOT REQUIRED

RECEIVED
Office of Oil and Gas

AUG - 9 2019

RECEIVED
WV Department of
Environmental Protection

RECEIVED

RECEIVED

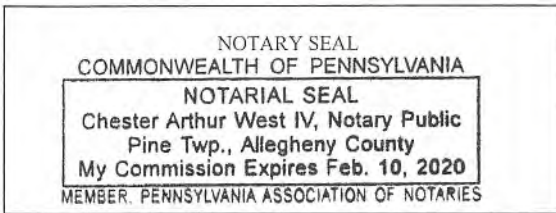
Required Attachments:

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

Certification of Notice is hereby given:

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

| | | | |
|----------------|--|------------|---|
| Well Operator: | <u>Tug Hill Operating, LLC</u> | Address: | <u>380 Southpointe Boulevard, Plaza II, Suite 200</u> |
| By: | <u>Amy L. Miller <i>Amy Miller</i></u> | | <u>Canonsburg, PA 15317</u> |
| Its: | <u>Permitting Specialist</u> | Facsimile: | <u>724-338-2030</u> |
| Telephone: | <u>724-749-8388</u> | Email: | <u>amiller@tug-hillop.com</u> |



Subscribed and sworn before me this 30th day of July 2019.

[Signature] Notary Public

My Commission Expires 2-10-2020

Oil and Gas Privacy Notice:

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

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

WW-6A
(9-13)

API NO. 47-051 **4705-02263**
OPERATOR WELL NO. Hillrock S-15HU
Well Pad Name: Simms

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: 8/23/2019 **Date Permit Application Filed:** 8/24/2019

Notice of:

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

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

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

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

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

SURFACE OWNER(s)
Name: Terry and Deborah Simms (Access Road and Well Pad)
Address: 7175 Rines Ridge Road
Proctor, WV 26055

Name: Kenneth and Nadine Corley (Access Road)
Address: 7069 Rines Ridge Road
Proctor, WV 26055

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: _____
Address: _____

Name: _____
Address: _____

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

COAL OWNER OR LESSEE
Name: CNX Land Attn: Casey Saunders
Address: 1000 CONSOL Energy Drive
Canonsburg, PA 15317

COAL OPERATOR
Name: _____
Address: _____

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

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

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

*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

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of Environmental Protection

WW-6A
(8-13)

API NO. 47405 **47 05 02263**
OPERATOR WELL NO. Hillrock S-15HU
Well Pad Name: Simms

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.**

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

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.

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

WW-6A
(8-13)

47 05 02263

API NO. 47- 051 -
OPERATOR WELL NO. Hillrock S-15HU
Well Pad Name: Simms

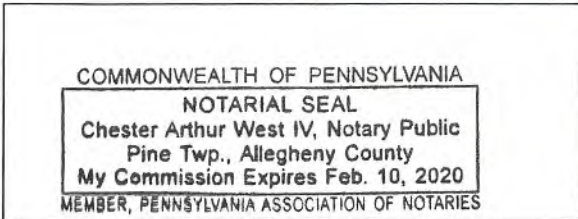
Notice is hereby given by:

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

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 23rd day of July, 2019.

CAW

Notary Public

My Commission Expires 2-10-2020

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

WW-6A

PROPOSED HILLROCK S-15HU

SUPPLEMENT PG 1

There appears to be Four (4) possible water sources within 2,000'.



CENTER OF PAD
NAD 1983
LAT:39.745971
LON:-80.770310

| | | | | |
|---|--|-----------|-----------------------|--------------|
|  TUG HILL OPERATING | OPERATOR | 494510851 | TOPO SECTION | LEASE NAME |
| | TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317 | | NEW MARTINSVILLE 7.5' | HILLROCK |
| | SCALE: | | DATE: | AUG - 9 2019 |
| | 1" = 1000' | | DATE: | 03-13-2019 |

Office of Oil and Gas
WV Department of Environmental Protection

WW-6A

Supplement Pg. 1A

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

WATER WELL REPORT

Well: HILLROCK S-15HU
 District: Franklin
 County: Marshall
 State: WV

There appears to be Four (4) possible water sources within 2,000 feet of the above referenced well location.

| | | |
|--|--|--|
| Topo Spot #1 TM 17 Par.11 Kenneth N. Corley et ux 304-455-4983 7069 Rines Ridge Rd. Proctor, WV 26055 | Topo spot #2 TM 17 Par.11 Kenneth N. & Deborah Corley 304-455-5670(H), 304-455-3844(C) 7069 Rines Ridge Rd. Proctor, WV 26055 | Topo spot #3 TM 23 Par.7 Terry E. & Deborah Simms 304-455-1439 7175 Rines Ridge Rd. Proctor, WV 26055 |
| Topo Spot #4 TM 23 Par.6 James A. Channing, et al 304-797-0119 c/o James Channing 3954 Clarimont Pl. Weirton, WV 26026 | | |

RECEIVED
 Office of Oil and Gas
 AUG - 9 2019
 WV Department of
 Environmental Protection

WW-6A3
(1/12)Operator Well No. Hillrock 15HU

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

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

Date of Notice: 1/8/2018 **Date of Planned Entry:** 1/15/2018

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

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

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

Notice is hereby provided to:

SURFACE OWNER(s)
 Name: Kenneth and Nadine Corley (Access Road)
 Address: 7069 Rines Ridge Road
Proctor, WV 26055

Name: Terry and Deborah Simms (Access Road and Well Pad)
 Address: 7175 Rines Ridge Road
Proctor, WV 26055

Name: _____
 Address: _____

COAL OWNER OR LESSEE
 Name: CNX Land Attn: Casey Saunders
 Address: 1000 CONSOL Energy Drive
Canonsburg, PA 15317

MINERAL OWNER(s)
 Name: Terry and Deborah L. Simms
 Address: 7175 Rines Ridge Road
Proctor, WV 26055

*please attach additional forms if necessary

Notice is hereby given:

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

State: West Virginia
 County: Marshall
 District: Franklin
 Quadrangle: New Martinsville 7.5'

Approx. Latitude & Longitude: 39.7459021; -80.7702658
 Public Road Access: Rines Ridge Road (County Route 76)
 Watershed: Fish Creek (HUC 10)
 Generally used farm name: Simms, Terry E. and Deborah

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

Notice is hereby given by:

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

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

RECEIVED
 Office of Oil and Gas
 AUG - 9 2019
 WV Department of
 Environmental Protection

Oil and Gas Privacy Notice:

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

WW-6A5
(1/12)

4705 * 02263
Operator Well No. Hillrack S-15HU

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: 07/23/2019 **Date Permit Application Filed:** 07/30/2019

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

CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

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

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

Name: Terry and Deborah Simms (Access Road and Well Pad)
Address: 7175 Rines Ridge Road
Proctor, WV 26055

Name: Kenneth and Nadine Corley (Access Road)
Address: 7069 Rines Ridge Road
Proctor, WV 26055

Notice is hereby given:

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

| | | | | |
|-------------|------------------------------|---------------------------|---|---------------------|
| State: | <u>West Virginia</u> | UTM NAD 83 | Easting: | <u>519,682.83</u> |
| County: | <u>Marshall</u> | | Northing: | <u>4,399,573.47</u> |
| District: | <u>Franklin</u> | Public Road Access: | <u>Rines Ridge Road (County Route 76)</u> | |
| Quadrangle: | <u>New Martinsville 7.5'</u> | Generally used farm name: | <u>Simms, Terry E. and Deborah</u> | |
| Watershed: | <u>Fish Creek (HUC 10)</u> | | | |

This Notice Shall Include:

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

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

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

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

Oil and Gas Privacy Notice:

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



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

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

January 11, 2019

Jill M. Newman
Deputy Commissioner

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

Subject: DOH Permits for the Simms Well Pad, Marshall County
Hillrock 15HU Well

Dear Mr. Martin,

This well site will be accessed from Permit #06-2011-0123 transferred to Tug Hill Operating for access to the State Road for a well site located off of Marshall County Route 76 SLS.

The operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

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

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

RECEIVED
Office of Oil and Gas

AUG - 9 2019

WV Department of
Environmental Protection



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

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

RECEIVED
Office of Oil and Gas
AUG - 9 2019
WV Department of
Environmental Protection

Well Site

Construction Plan, &
 Permit Control Plans
 Operating
 Marshall County
 Franklin District
 Tug Hill
 39.74597093°
 -80.77030987°
 Creek Watershed

Warning: Issue for Permitting

Pertinent Site Information
 Simms Well Site
 Emergency Number: 304-845-1920
 Franklin District, Marshall County, WV
 Watershed: Lower Fish Creek Watershed
 Tug Hill Contact Number: 1-817-632-3400

4705102263

Property Owner Information - Simms Well Site

| Owner | WV Parcel | Well Pad | Seepage | Access Road | Topsoil Excav | Add. Clearing | Total Disturbed |
|--------------------------|-------------|-------------|-------------|-------------|---------------|---------------|-----------------|
| American Center of Arts | 17-211 | 0.00 | 0.67 | 0.00 | 0.64 | 0.64 | 1.31 |
| Tug Hill Simms Well Site | 2-21 | 3.19 | 1.24 | 0.66 | 0.24 | 4.87 | 10.30 |
| Total | 3.19 | 1.24 | 1.33 | 0.24 | 5.51 | 11.81 | |

WV State Plane Coordinate System
 North Zone, NAD83
 Elevation based on NAVD83
 Horizontal Accuracy: ± 0.30 m (1.0 ft)
 Vertical Accuracy: ± 0.30 m (1.0 ft)

Access Road

| Surface | Owner | WV Parcel | Right of Way | Type |
|--------------------------|--------|-----------|--------------|------------------------------|
| Kenneth Center of Arts | 17-211 | 1,258.90' | 1,258.90' | New Access Road Construction |
| Tug Hill Simms Well Site | 2-21 | 1,207.90' | 1,207.90' | New Access Road Construction |

Disturbed Area

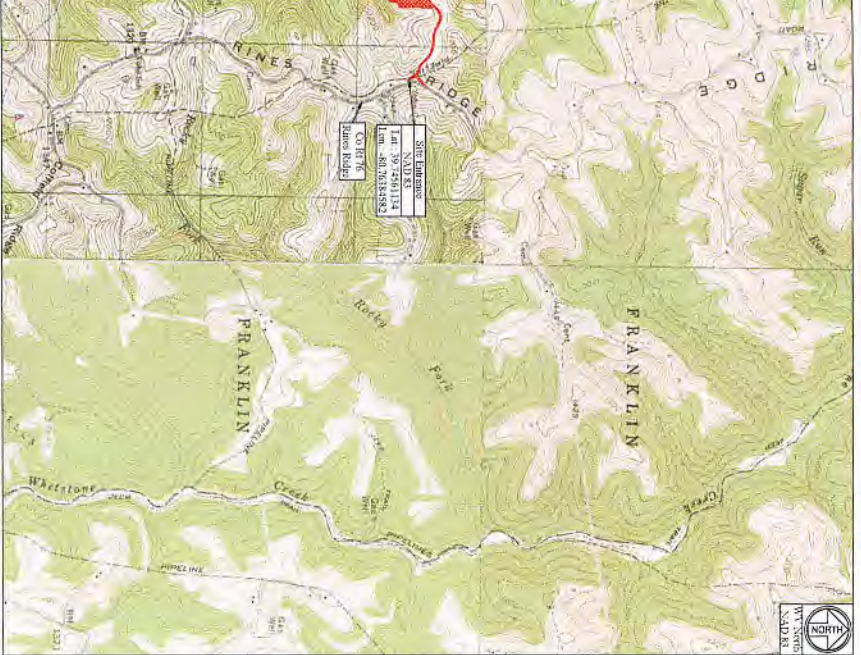
| | |
|-----------------------------|-----------------|
| Well Pad Construction | 7.19 AC |
| Seepage | 1.33 AC |
| Access Road Construction | 1.33 AC |
| Topsoil / Excav Material | 0.24 AC |
| Additional Clearing | 3.51 AC |
| Total Disturbed Area | 11.81 AC |

Additional Information

| | |
|--------------------------------|-----------|
| Total Well Pad Construction | 7.19 AC |
| Total Access Road Construction | 2,466.80' |
| Total Seepage | 1.33 AC |

Simms Well Site Quantities

| Description | Quantity | Unit | Material | Spill/CVI | Item | CVI | Max. Spill | Length of Spill |
|------------------------------------|-----------------|-----------|------------------|-----------------|-----------------|------------|-----------------|-----------------|
| Well Pad Grade | 586.75 | SF | 3,998.15 | N/A | N/A | N/A | N/A | |
| Access Road Monthable Berm | 0.89 | SF | 758.00 | N/A | 17.2% | 58.42' | 58.42' | |
| Seepage | 2,727.27 | SF | 2,727.27 | N/A | 4.98% | 350.92' | 350.92' | |
| Topsoil / Excav Material Stockpile | 0.00 | SF | 2,100.26 | N/A | N/A | N/A | N/A | |
| Total | 7,997.91 | SF | 11,230.95 | 4,995.34 | 8,378.95 | N/A | 4,521.18 | |

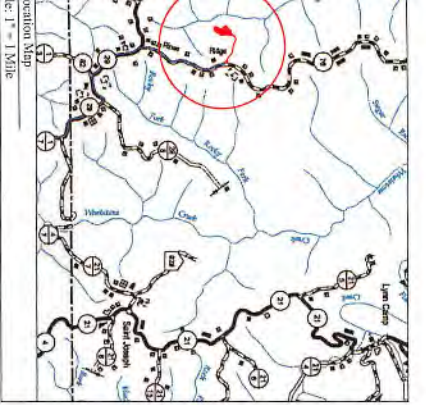


41000 64000

Example: New Marshonsville
 Lower Fish Creek

Site Locations (NAD 83)

| Structure | Latitude (NAD 83) | Longitude (W) |
|------------------------|-------------------|---------------|
| Well Pad | 39.74597093° | -80.77030987° |
| Center of Well Pad | 39.74597093° | -80.77030987° |
| Center of Seepage Area | 39.74186817° | -80.77030987° |



Well Location Restrictions:

- All Pad construction complies with the following restrictions:
 - *250' from an existing well or developed spring used for human or domestic animals
 - *625' from an occupied dwelling or ten greater than 2,500 SF used for poultry or dairy operations from the center of the pad
 - *100' from the edge of disturbance to wetland, perennial stream, natural or artificial lake, pond or reservoir
 - *300' from the edge of disturbance to a naturally-occurring trout stream
 - *1,000' of a sealer or gravel water tank to a public water supply
- (WV) Location Restrictions of WV Code 20-6A-121



The drawings, construction notes and reference figures contained herein have been prepared in accordance with the West Virginia Code of 2019 Code, Division of Professional Regulation, Office of Professional Engineering, Surveying and Land Surveying, and the rules and regulations of the Board of Professional Engineering, Surveying and Land Surveying.

All items shown on these drawings were prepared by the author or under the direct supervision of the author. The author is not responsible for any errors or omissions on these drawings.

Author: Zackary C. Sullivan
 Title: Surveying Engineer
 License No. 22214
 Date: 05-24-2018

| Sheet | Description |
|-------|---|
| 1 | Cover Sheet |
| V1 | Schedule of Quantities |
| N1-N4 | Site Notes |
| 2 | Pre-Construction Site Conditions |
| 3 | Site Soil Map |
| 4 | Site Plan Exhibit |
| 5 | Overall Plan View |
| 6-7 | E&S Plan View |
| 8 | Tree Key Exhibit |
| 9-10 | Plan View |
| 11 | Cross Sections - Well Pad |
| 12 | Cross Sections - Well Pad Access Road |
| 13 | Cross Sections - Seepage Area |
| G1-G2 | Geotechnical Exhibit |
| L1 | Landowner Disturbed Area Exhibit |
| M1-M3 | Site Reclamation |
| D1-D2 | Production / Settlement Control Details |
| P1 | Access Road Details |

RECEIVED
 Office of Oil and Gas
 AUG - 9 2019
 WV Department of Environmental Protection



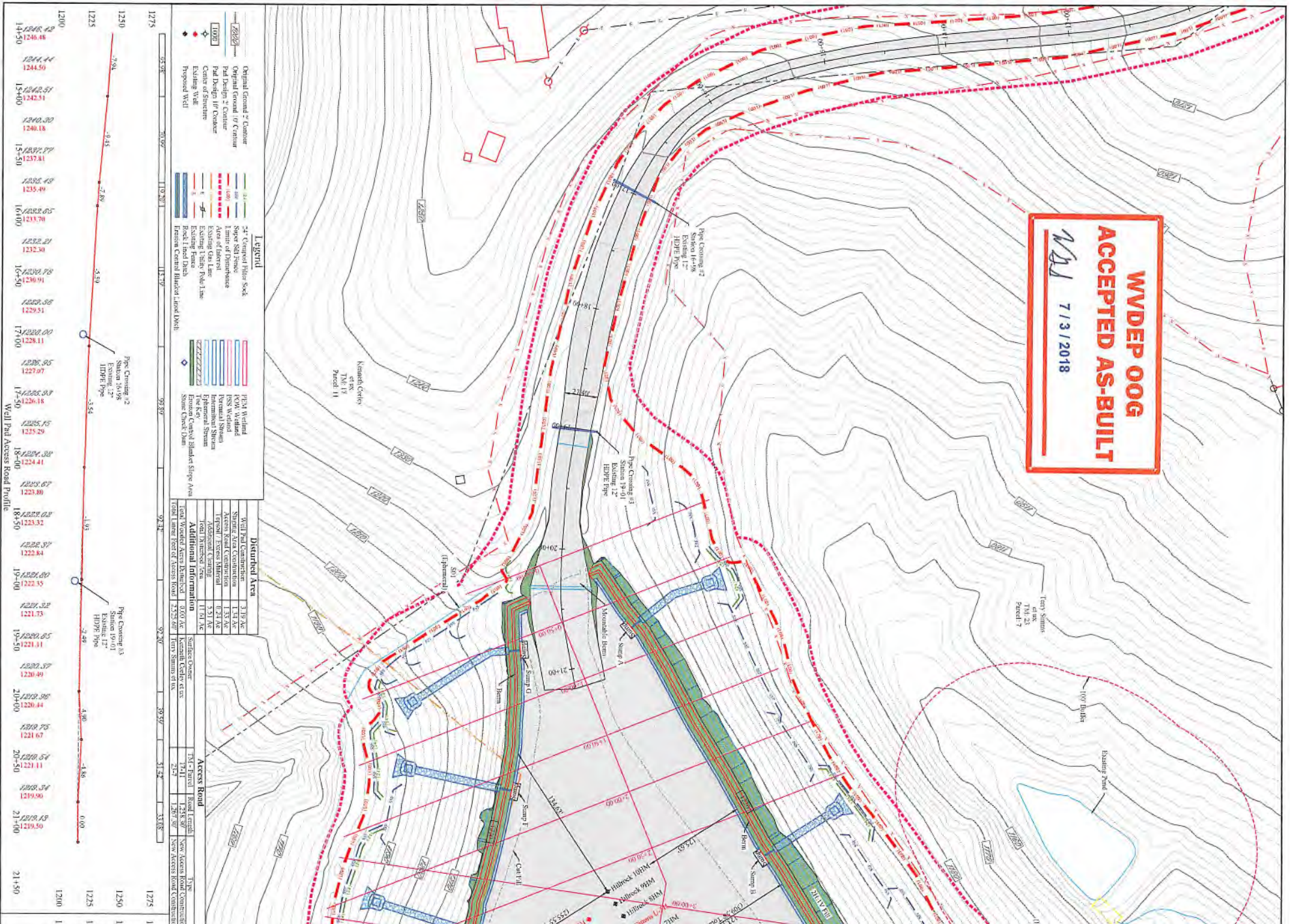
THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

Kelly Surcove
 Surveying Engineer
 License No. 22214

Simms Well Site
 Franklin District
 Marshall County, WV

Cover Sheet
 Date: 05/24/2018
 Scale: As Shown
 Designed by: ZS
 Plotted by: R
 Sheet 1 of 13

WVDEP 00G
ACCEPTED AS-BUILT
WJL 7/3/2018



Legend

| | |
|--|---------------------------------------|
| | Original Ground 2' Contour |
| | Pad Design 2' Contour |
| | Center of Structure |
| | Existing Well |
| | Proposed Well |
| | 24' Composite Filter Stock |
| | Slope 50% |
| | Limit of Disturbance |
| | Area of Interest |
| | Existing Trench |
| | Existing Trench Profile Line |
| | Rock-lined Ditch |
| | Freshwater Channel - Rock-lined Ditch |
| | P14 Wetland |
| | KWA Wetland |
| | ISS Wetland |
| | Intermittent Stream |
| | Ephemeral Stream |
| | Freshwater Channel - Slope Area |
| | Stone Check Dam |

Disturbed Area

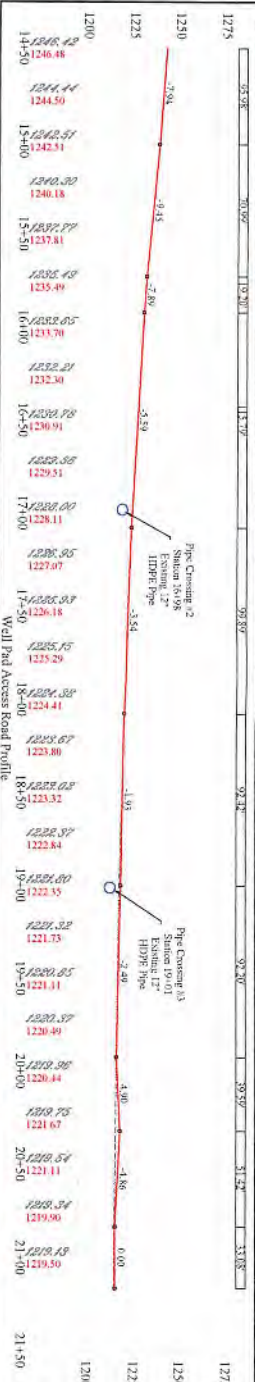
| | |
|--------------------------|----------|
| Wetland Construction | 3.19 AC |
| Stream Area Construction | 1.41 AC |
| Access Road Construction | 1.35 AC |
| Typical Erosion Material | 0.24 AC |
| Total Disturbed Area | 11.61 AC |

Additional Information

| | | |
|----------------------------------|-----------|-------------|
| Final Wetland Area Impacted | 3.00 AC | Scrub-shrub |
| Final Stream Area Impacted | 2.25 AC | Stream |
| Total Linear Feet of Access Road | 2,255.00' | 11.74 AC |

Access Road

| | | | |
|------------------|-----------|-------------|--------------|
| TOT. Length | 2,255.00' | Type | Construction |
| Wetland Impacted | 1,411.00' | Stream | Construction |
| Stream Impacted | 1,357.00' | Access Road | Construction |
| Wetland Impacted | 2.24' | Stream | Construction |
| Stream Impacted | 1.35' | Access Road | Construction |



Simms Well Site
Tug Hill Operating
Exhibit A: Final Design: Issue for Permitting



RECEIVED
 Office of Oil and Gas
 AUG - 9 2019
 WV Department of
 Environmental Protection

NOTE:
 All surface boundaries (per shown berm) are based on boundary evidence collected with mapping grade 075 receivers.
 0' 50' 100' 150'

| | | | | | | |
|---|---|--|------|--------------------------|----------|-------------------------------------|
| <p>Kelly Surviving 1000 W. Main Street Logan, WV 25755 (304) 231-1234</p> | <p>THIS DOCUMENT PREPARED FOR TUG HILL OPERATING</p> | | Date | 05-24-2018 07-02-2018 | Revision | Design Design: WVDEP Corrections |
| | | | Date | 05-24-2018 07-02-2018 | Revision | Design Design: WVDEP Corrections |

Site Plan
Simms Well Site
 Franklin District
 Marshall County, WV

Date: 05/24/2018
 SS: AS Shown
 Designed by: ZS
 The No.
 Sheet 10 of 13