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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Friday, August 10, 2018  
WELL WORK PERMIT  
Horizontal 6A / New Drill

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

Re: Permit approval for HILLROCK 8HM  
47-051-02063-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin  
Chief

Operator's Well Number: HILLROCK 8HM  
Farm Name: TERRY E. & DEBORAH SIMM  
U.S. WELL NUMBER: 47-051-02063-00-00  
Horizontal 6A New Drill  
Date Issued: 8/10/2018

# PERMIT CONDITIONS

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

## CONDITIONS

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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.

API Number: 47-051-02063

## 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](mailto:DEPOOGNotify@wv.gov).

4705102063

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

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

2) Operator's Well Number: Hillrock 8HM      Well Pad Name: Simms

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

4) Elevation, current ground: 1,219.50'      Elevation, proposed post-construction: 1,219.50'

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

(b) If Gas Shallow  Deep   
Horizontal

6) Existing Pad: Yes or No Yes

*ju*  
*6/20/18*

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus is the target formation at a depth of 6513 - 6564' thickness of 51' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,664'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 18,372' ✓

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11) Proposed Horizontal Leg Length: 11,495' ✓

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12) Approximate Fresh Water Strata Depths: 70', 812' ✓

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

14) Approximate Saltwater Depths: 2,167' ✓

15) Approximate Coal Seam Depths: Sewickly Coal - 706' and Pittsburgh Coal - 806' ✓

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

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

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

4705 02063

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120' ✓	259FT^3(CTS)
Fresh Water	13 3/8"	NEW	H40	48#	920'	920'	989ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	920'	920' ✓	989ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,800'	2,800' ✓	923ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	18,372'	18,372' ✓	4680ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		6,743'	
Liners							

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TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17 1/2"	.33	1,730	1,384	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	1,730	1,384	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE#24	1.19
Production	5 1/2"	8 7/8_ 8 3/4	.361	12,640 ✓	9,000	SEE#24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

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

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*6/20/18*

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

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

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

Well to be completed with approximately 28,335,325 lb proppant and 438,085 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

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 other joint. Production casing will have one centralizer every other joint in lateral, one centralizer every joint through curve, one centralizer every other joint to surface.

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

\*See Attachment

25) Proposed borehole conditioning procedures:

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

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\*Note: Attach additional sheets as needed.

### 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](mailto:dducoeur@dpslandservices.com) DPS GIS (05/24/2018) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

#### Request maps for:

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

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

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

Permit well - Hillrock 8HM

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	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101468	Tug Hill Operating	6599' TVD 12685' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101469	Tug Hill Operating	6631' TVD 12825' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
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.
4705170219	Manufactureers Light & Heat	Unknown	Unknown	Unknown	Unknown but unlikely. The well likley represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705170360	Manufactureers Light & Heat	Unknown	Unknown	Unknown	Unknown but unlikely. The well likley represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705170355	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likley represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705170356	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likley represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4710371611	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likley represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete

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Well: County = 51 Permit = 01452

Well Information: Well ID: 4705102063, County: 51, Permit: 01452, Status: Active, Location: ...

System Hole Location Information: ...

Owner Information: ...

Completion Information: ...

Production Gas Information (Volumes in MCF): ...

Production Oil Information (Volumes in BBL): ...

Production Water Information (Volumes in Gallons): ...

Stratigraphic Information: ...

Well: County = 51 Permit = 01466

Well Information: Well ID: 4705102066, County: 51, Permit: 01466, Status: Active, Location: ...

System Hole Location Information: ...

Owner Information: ...

Completion Information: ...

Production Gas Information (Volumes in MCF): ...

Production Oil Information (Volumes in BBL): ...

Production Water Information (Volumes in Gallons): ...

Stratigraphic Information: ...

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Well: County = 51 Permit = 01460

Well Information: Well ID: 01460, County: 51, Permit: 01460

Operator Information: Operator Name: ...

Production Data (Table):

WELL ID	DATE	PROD	DEPTH	TEMP	THICKNESS	QUALITY	THICKNESS	QUALITY	ELEVATION
01460	12/21/11	Oil	1000	100	10	10	10	10	1000
01460	12/22/11	Oil	1000	100	10	10	10	10	1000
01460	12/23/11	Oil	1000	100	10	10	10	10	1000
01460	12/24/11	Oil	1000	100	10	10	10	10	1000
01460	12/25/11	Oil	1000	100	10	10	10	10	1000
01460	12/26/11	Oil	1000	100	10	10	10	10	1000
01460	12/27/11	Oil	1000	100	10	10	10	10	1000
01460	12/28/11	Oil	1000	100	10	10	10	10	1000
01460	12/29/11	Oil	1000	100	10	10	10	10	1000
01460	12/30/11	Oil	1000	100	10	10	10	10	1000
01460	12/31/11	Oil	1000	100	10	10	10	10	1000

Well: County = 51 Permit = 01731

Well Information: Well ID: 01731, County: 51, Permit: 01731

Operator Information: Operator Name: ...

Production Data (Table):

WELL ID	DATE	PROD	DEPTH	TEMP	THICKNESS	QUALITY	THICKNESS	QUALITY	ELEVATION
01731	12/21/11	Oil	1000	100	10	10	10	10	1000
01731	12/22/11	Oil	1000	100	10	10	10	10	1000
01731	12/23/11	Oil	1000	100	10	10	10	10	1000
01731	12/24/11	Oil	1000	100	10	10	10	10	1000
01731	12/25/11	Oil	1000	100	10	10	10	10	1000
01731	12/26/11	Oil	1000	100	10	10	10	10	1000
01731	12/27/11	Oil	1000	100	10	10	10	10	1000
01731	12/28/11	Oil	1000	100	10	10	10	10	1000
01731	12/29/11	Oil	1000	100	10	10	10	10	1000
01731	12/30/11	Oil	1000	100	10	10	10	10	1000
01731	12/31/11	Oil	1000	100	10	10	10	10	1000

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## Tug Hill Operating, LLC Casing and Cement Program

### Hillrock 8HM

### Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	920'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,803'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4	18,372'	CTS

### Cement

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

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

Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.19

Kick Off Plug: Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug

Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.19

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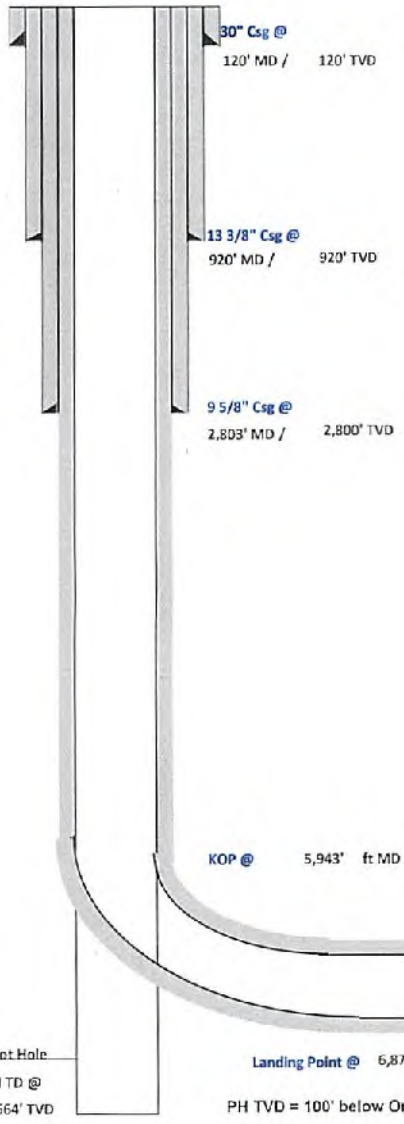


**WELL NAME:** Hillrock 8HM  
**STATE:** WV **COUNTY:** Marshall  
**DISTRICT:** Franklin  
**DF Elev:** 1,219' **GL Elev:** 1,219'  
**TD:** 18,372'  
**TH Latitude:** 39.74600178  
**TH Longitude:** -80.77026474  
**BH Latitude:** 39.72199066  
**BH Longitude:** -80.74048701

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	812
Sewickley Coal	706
Pittsburgh Coal	806
Big Lime	1610
Weir	1790
Berea	1897
Gordon	2018
Rhinstreet	3547
Genesee/Burkett	3779
Tully	3814
Hamilton	3832
Marcellus	6513
Landing Depth	6548
Onondaga	6564
Pilot Hole Depth	6664

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	920'	920'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,803'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	18,372'	6,729'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	992	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	914	A	15	Air	1 Centralizer every other jt
Production	4,127	A	14.5	Air / SOBIM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



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*Handwritten signature and date: 6/20/18*

4705-02063

Pilot Hole  
PH TD @  
6,664' TVD

Landing Point @ 6,877' MD / 6,548' TVD  
PH TVD = 100' below Onondaga Top

Lateral TD @ 18,372' ft MD  
6,729' ft TVD



Well: Hillrock 08 HM (H)  
 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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 1°/100' build
3	1900.00	4.00	338.00	1899.68	12.94	-5.23	1.00	338.00	-13.82	Begin 4.00° tangent section
4	3400.00	4.00	338.00	3396.02	109.95	-44.43	0.00	0.00	-117.44	Begin 1°/100' build/turn
5	3499.16	4.35	325.24	3494.92	116.25	-47.67	1.00	-75.66	-124.62	Begin 4.35° tangent section
6	5943.08	4.35	325.24	5931.79	268.63	-153.63	0.00	0.00	-309.46	Begin 10°/100' build/turn
7	6877.43	89.10	150.00	6548.00	-220.25	124.17	10.00	-175.23	252.84	Begin 89.10° lateral section
8	18372.02	89.10	150.00	6728.00	-10173.94	5870.23	0.00	0.00	1746.00	PBHLTD 18372.02 MD 6729.00 TVD

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

System Datum: Mean Sea Level  
 Depth Reference: GL @ 1219.00ft

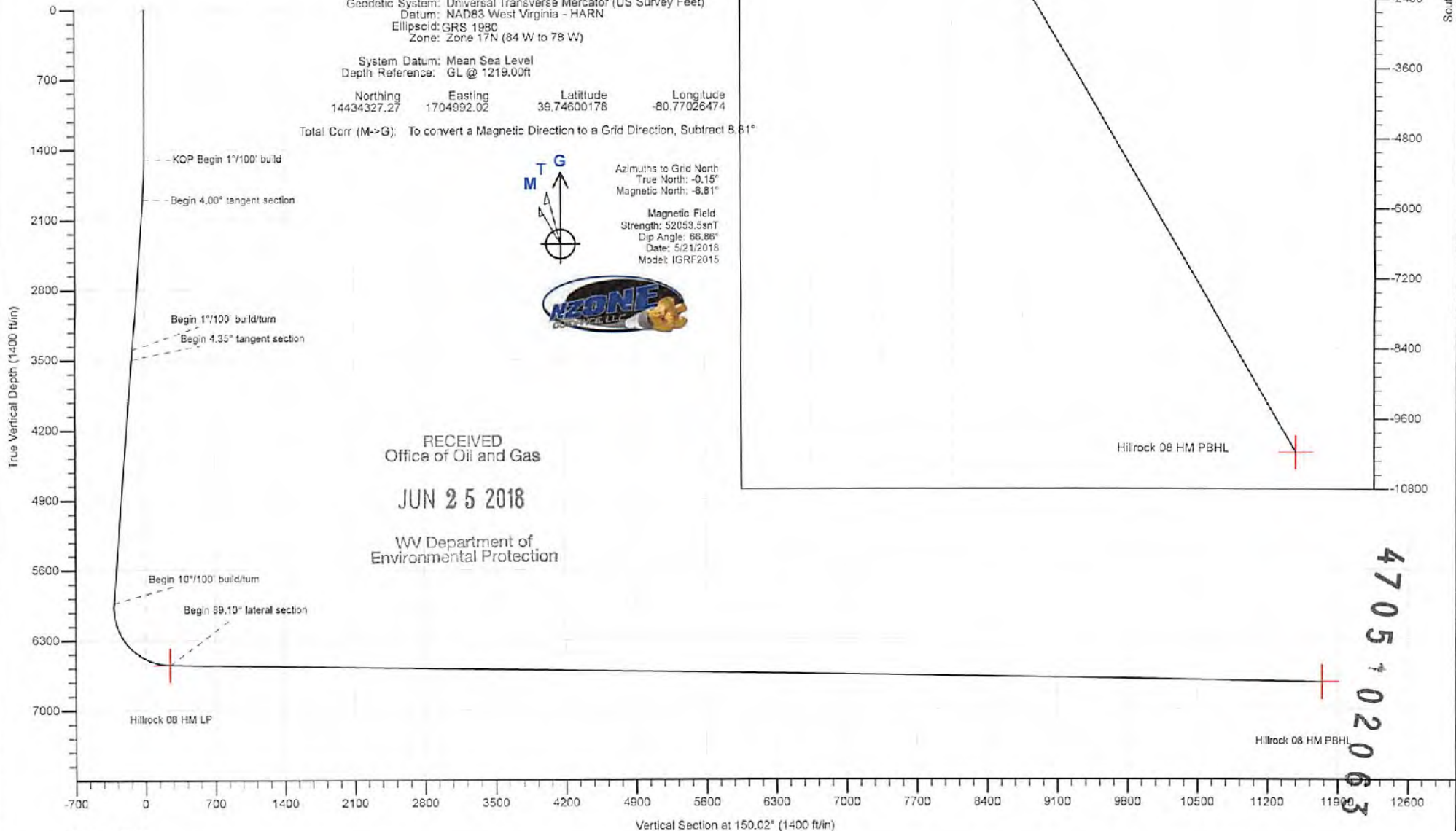
Northing 14434327.27 Easting 1704992.02 Latitude 39.74600178 Longitude -80.77026474

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



Azimuths to Grid North  
 True North: -0.15°  
 Magnetic North: -8.81°

Magnetic Field  
 Strength: 52053.5nT  
 Dip Angle: 66.86°  
 Date: 5/21/2018  
 Model: IGRF2015



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<b>Database:</b>	DB_Aug0116_LT_v14	<b>Local Co-ordinate Reference:</b>	Well Hillrock 08 HM (H)	RECEIVED Office of Oil and Gas  <b>JUN 25 2018</b>  WV Department of Environmental Protection
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1219.00ft	
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1219.00ft	
<b>Site:</b>	Hillrock/Simms	<b>North Reference:</b>	Grid	
<b>Well:</b>	Hillrock 08 HM (H)	<b>Survey Calculation Method:</b>	Minimum Curvature	
<b>Wellbore:</b>	Original Hole			
<b>Design:</b>	rev0			

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

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

<b>Well</b>	Hillrock 08 HM (H)					
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	14,434,327.27 usft	<b>Latitude:</b>	39.74600178
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	1,704,992.02 usft	<b>Longitude:</b>	-80.77026474
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	1,219.00 ft

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	5/21/2018	-8.66	66.86	52,053.51466337

<b>Design</b>	rev0			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	150.02

<b>Plan Survey Tool Program</b>	<b>Date</b>	5/23/2018		
<b>Depth From (ft)</b>	<b>Depth To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	18,371.69 rev0 (Original Hole)	MWD	MWD - Standard

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,900.00	4.00	338.00	1,899.68	12.94	-5.23	1.00	1.00	0.00	338.00	
3,400.00	4.00	338.00	3,396.02	109.96	-44.43	0.00	0.00	0.00	0.00	
3,499.16	4.35	325.24	3,494.92	116.25	-47.87	1.00	0.36	-12.87	-75.66	
5,943.06	4.35	325.24	5,931.79	288.63	-153.63	0.00	0.00	0.00	0.00	
6,877.43	89.10	150.00	6,548.00	-220.26	124.17	10.00	9.07	-18.75	-175.23	Hillrock 08 HM LP
18,372.02	89.10	150.00	6,729.00	-10,173.94	5,870.23	0.00	0.00	0.00	0.00	Hillrock 08 HM PBHL



**Database:** DB\_Aug0116\_LT\_v14  
**Company:** Tug Hill Operating LLC  
**Project:** Marshall County, West Virginia.  
**Site:** Hillrock/Simms  
**Well:** Hillrock 08 HM (H)  
**Wellbore:** Original Hole  
**Design:** rev0

**Local Co-ordinate Reference:** Well Hillrock 08 HM (H)  
**TVD Reference:** GL @ 1219.00ft  
**MD Reference:** GL @ 1219.00ft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

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**JUN 25 2018**  
  
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**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	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
100.00	0.00	0.00	100.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
200.00	0.00	0.00	200.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
300.00	0.00	0.00	300.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
400.00	0.00	0.00	400.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
500.00	0.00	0.00	500.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
600.00	0.00	0.00	600.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
700.00	0.00	0.00	700.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
800.00	0.00	0.00	800.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
900.00	0.00	0.00	900.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,434,327.27	1,704,992.02	39.74600178	-80.77026474
<b>KOP Begin 1"/100' build</b>									
1,600.00	1.00	338.00	1,599.99	0.81	-0.33	14,434,328.08	1,704,991.69	39.74600401	-80.77026590
1,700.00	2.00	338.00	1,699.96	3.24	-1.31	14,434,330.51	1,704,990.71	39.74601088	-80.77026936
1,800.00	3.00	338.00	1,799.86	7.28	-2.94	14,434,334.55	1,704,989.08	39.74602180	-80.77027514
1,900.00	4.00	338.00	1,899.68	12.94	-5.23	14,434,340.21	1,704,986.79	39.74603736	-80.77028322
<b>Begin 4.00° tangent section</b>									
2,000.00	4.00	338.00	1,999.43	19.41	-7.84	14,434,346.68	1,704,984.18	39.74605514	-80.77029246
2,100.00	4.00	338.00	2,099.19	25.88	-10.45	14,434,353.15	1,704,981.56	39.74607292	-80.77030170
2,200.00	4.00	338.00	2,198.94	32.34	-13.07	14,434,359.61	1,704,978.95	39.74609070	-80.77031094
2,300.00	4.00	338.00	2,298.70	38.81	-15.68	14,434,366.08	1,704,976.34	39.74610848	-80.77032017
2,400.00	4.00	338.00	2,398.46	45.28	-18.29	14,434,372.55	1,704,973.73	39.74612626	-80.77032941
2,500.00	4.00	336.00	2,498.21	51.75	-20.91	14,434,379.02	1,704,971.11	39.74614404	-80.77033865
2,600.00	4.00	338.00	2,597.97	58.21	-23.52	14,434,385.48	1,704,968.50	39.74616182	-80.77034789
2,700.00	4.00	338.00	2,697.73	64.68	-26.13	14,434,391.95	1,704,965.89	39.74617960	-80.77035712
2,800.00	4.00	338.00	2,797.48	71.15	-28.75	14,434,398.42	1,704,963.27	39.74619738	-80.77036636
2,900.00	4.00	338.00	2,897.24	77.62	-31.36	14,434,404.89	1,704,960.66	39.74621516	-80.77037560
3,000.00	4.00	338.00	2,997.00	84.09	-33.97	14,434,411.36	1,704,958.05	39.74623294	-80.77038484
3,100.00	4.00	338.00	3,096.75	90.55	-36.59	14,434,417.82	1,704,955.43	39.74625072	-80.77039407
3,200.00	4.00	338.00	3,196.51	97.02	-39.20	14,434,424.29	1,704,952.82	39.74626850	-80.77040331
3,300.00	4.00	338.00	3,296.26	103.49	-41.81	14,434,430.76	1,704,950.21	39.74628629	-80.77041255
3,400.00	4.00	338.00	3,396.02	109.96	-44.43	14,434,437.23	1,704,947.59	39.74630407	-80.77042179
<b>Begin 1"/100' build/turn</b>									
3,499.16	4.35	325.24	3,494.92	116.25	-47.87	14,434,443.52	1,704,944.15	39.74632139	-80.77043397
<b>Begin 4.35° tangent section</b>									
3,500.00	4.35	325.24	3,495.76	116.31	-47.90	14,434,443.58	1,704,944.12	39.74632153	-80.77043410
3,600.00	4.35	325.24	3,595.47	122.54	-52.23	14,434,449.81	1,704,939.79	39.74633868	-80.77044944
3,700.00	4.35	325.24	3,695.18	128.78	-56.56	14,434,456.05	1,704,935.46	39.74635584	-80.77046478
3,800.00	4.35	325.24	3,794.89	135.01	-60.89	14,434,462.28	1,704,931.13	39.74637299	-80.77048012
3,900.00	4.35	325.24	3,894.60	141.25	-65.21	14,434,468.52	1,704,926.81	39.74639014	-80.77049545
4,000.00	4.35	325.24	3,994.32	147.48	-69.54	14,434,474.75	1,704,922.48	39.74640730	-80.77051079
4,100.00	4.35	325.24	4,094.03	153.72	-73.87	14,434,480.99	1,704,918.15	39.74642445	-80.77052613
4,200.00	4.35	325.24	4,193.74	159.95	-78.20	14,434,487.22	1,704,913.82	39.74644160	-80.77054147
4,300.00	4.35	325.24	4,293.45	166.19	-82.52	14,434,493.46	1,704,909.50	39.74645876	-80.77055681
4,400.00	4.35	325.24	4,393.16	172.42	-86.85	14,434,499.69	1,704,905.17	39.74647591	-80.77057215
4,500.00	4.35	325.24	4,492.87	178.66	-91.18	14,434,505.93	1,704,900.84	39.74649306	-80.77058749
4,600.00	4.35	325.24	4,592.58	184.89	-95.51	14,434,512.16	1,704,896.51	39.74651022	-80.77060283
4,700.00	4.35	325.24	4,692.30	191.13	-99.83	14,434,518.40	1,704,892.19	39.74652737	-80.77061817
4,800.00	4.35	325.24	4,792.01	197.36	-104.16	14,434,524.63	1,704,887.86	39.74654452	-80.77063350

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**Local Co-ordinate Reference:** Well Hillrock 08 HM (H)  
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**Planned Survey**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,900.00	4.35	325.24	4,891.72	203.60	-108.49	14,434,530.87	1,704,883.53	39.74656168	-80.77064884
5,000.00	4.35	325.24	4,991.43	209.83	-112.82	14,434,537.10	1,704,879.20	39.74657883	-80.77066418
5,100.00	4.35	325.24	5,091.14	216.07	-117.14	14,434,543.34	1,704,874.88	39.74659598	-80.77067952
5,200.00	4.35	325.24	5,190.85	222.30	-121.47	14,434,549.57	1,704,870.55	39.74661314	-80.77069486
5,300.00	4.35	325.24	5,290.57	228.54	-125.80	14,434,555.81	1,704,866.22	39.74663029	-80.77071020
5,400.00	4.35	325.24	5,390.28	234.77	-130.13	14,434,562.04	1,704,861.89	39.74664744	-80.77072554
5,500.00	4.35	325.24	5,489.99	241.01	-134.45	14,434,568.28	1,704,857.57	39.74666460	-80.77074088
5,600.00	4.35	325.24	5,589.70	247.24	-138.78	14,434,574.51	1,704,853.24	39.74668175	-80.77075622
5,700.00	4.35	325.24	5,689.41	253.48	-143.11	14,434,580.74	1,704,848.91	39.74669891	-80.77077155
5,800.00	4.35	325.24	5,789.12	259.71	-147.44	14,434,586.98	1,704,844.58	39.74671606	-80.77078689
5,900.00	4.35	325.24	5,888.84	265.95	-151.76	14,434,593.21	1,704,840.26	39.74673321	-80.77080223
5,943.08	4.35	325.24	5,931.79	268.63	-153.63	14,434,595.90	1,704,838.39	39.74674060	-80.77080884
<b>Begin 10°/100' build/turn</b>									
6,000.00	1.40	164.96	5,988.67	269.73	-154.68	14,434,597.00	1,704,837.34	39.74674364	-80.77081257
6,100.00	11.36	151.80	6,087.92	259.85	-149.69	14,434,587.12	1,704,842.32	39.74671645	-80.77079493
6,200.00	21.35	150.92	6,183.76	235.19	-136.16	14,434,562.46	1,704,855.86	39.74664864	-80.77074699
6,300.00	31.36	150.59	6,273.25	196.51	-114.48	14,434,523.78	1,704,877.54	39.74654227	-80.77067021
6,400.00	41.36	150.41	6,353.68	144.99	-85.31	14,434,472.26	1,704,906.71	39.74640057	-80.77056893
6,500.00	51.35	150.29	6,422.61	82.19	-49.55	14,434,409.46	1,704,942.47	39.74622784	-80.77044028
6,600.00	61.35	150.20	6,477.94	10.01	-8.28	14,434,337.28	1,704,983.74	39.74602933	-80.77029411
6,700.00	71.35	150.12	6,518.00	-69.35	37.25	14,434,257.92	1,705,029.27	39.74581108	-80.77013286
6,800.00	81.35	150.05	6,541.56	-153.47	85.65	14,434,173.80	1,705,077.67	39.74557971	-80.76996143
6,877.43	89.10	150.00	6,548.00	-220.26	124.17	14,434,107.01	1,705,116.19	39.74539600	-80.76982500
<b>Begin 89.10° lateral section</b>									
6,900.00	89.10	150.00	6,548.36	-239.80	135.45	14,434,087.47	1,705,127.47	39.74534226	-80.76978505
7,000.00	89.10	150.00	6,549.93	-326.40	185.44	14,434,000.87	1,705,177.46	39.74510409	-80.76960800
7,100.00	89.10	150.00	6,551.50	-412.99	235.43	14,433,914.28	1,705,227.45	39.74486592	-80.76943095
7,200.00	89.10	150.00	6,553.08	-499.59	285.42	14,433,827.68	1,705,277.44	39.74462776	-80.76925391
7,300.00	89.10	150.00	6,554.65	-586.18	335.41	14,433,741.09	1,705,327.43	39.74438959	-80.76907686
7,400.00	89.10	150.00	6,556.23	-672.78	385.40	14,433,654.49	1,705,377.42	39.74415142	-80.76889982
7,500.00	89.10	150.00	6,557.80	-759.37	435.39	14,433,567.90	1,705,427.41	39.74391326	-80.76872278
7,600.00	89.10	150.00	6,559.38	-845.97	485.38	14,433,481.31	1,705,477.40	39.74367509	-80.76854574
7,700.00	89.10	150.00	6,560.95	-932.56	535.37	14,433,394.71	1,705,527.38	39.74343692	-80.76836870
7,800.00	89.10	150.00	6,562.53	-1,019.15	585.36	14,433,308.12	1,705,577.37	39.74319875	-80.76819166
7,900.00	89.10	150.00	6,564.10	-1,105.75	635.35	14,433,221.52	1,705,627.36	39.74296058	-80.76801462
8,000.00	89.10	150.00	6,565.68	-1,192.34	685.33	14,433,134.93	1,705,677.35	39.74272242	-80.76783759
8,100.00	89.10	150.00	6,567.25	-1,278.94	735.32	14,433,048.33	1,705,727.34	39.74248425	-80.76766055
8,200.00	89.10	150.00	6,568.83	-1,365.53	785.31	14,432,961.74	1,705,777.33	39.74224608	-80.76748352
8,300.00	89.10	150.00	6,570.40	-1,452.13	835.30	14,432,875.15	1,705,827.32	39.74200791	-80.76730649
8,400.00	89.10	150.00	6,571.98	-1,538.72	885.29	14,432,788.55	1,705,877.31	39.74176974	-80.76712946
8,500.00	89.10	150.00	6,573.55	-1,625.32	935.28	14,432,701.96	1,705,927.30	39.74153157	-80.76695243
8,600.00	89.10	150.00	6,575.12	-1,711.91	985.27	14,432,615.36	1,705,977.29	39.74129340	-80.76677540
8,700.00	89.10	150.00	6,576.70	-1,798.50	1,035.26	14,432,528.77	1,706,027.28	39.74105523	-80.76659837
8,800.00	89.10	150.00	6,578.27	-1,885.10	1,085.25	14,432,442.18	1,706,077.27	39.74081706	-80.76642135
8,900.00	89.10	150.00	6,579.85	-1,971.69	1,135.24	14,432,355.58	1,706,127.25	39.74057888	-80.76624432
9,000.00	89.10	150.00	6,581.42	-2,058.29	1,185.23	14,432,268.99	1,706,177.24	39.74034071	-80.76606730
9,100.00	89.10	150.00	6,583.00	-2,144.88	1,235.22	14,432,182.39	1,706,227.23	39.74010254	-80.76589027
9,200.00	89.10	150.00	6,584.57	-2,231.48	1,285.21	14,432,095.80	1,706,277.22	39.73986437	-80.76571325
9,300.00	89.10	150.00	6,586.15	-2,318.07	1,335.19	14,432,009.20	1,706,327.21	39.73962820	-80.76553623
9,400.00	89.10	150.00	6,587.72	-2,404.66	1,385.18	14,431,922.61	1,706,377.20	39.73939202	-80.76535921
9,500.00	89.10	150.00	6,589.30	-2,491.26	1,435.17	14,431,836.02	1,706,427.19	39.73915585	-80.76518220
9,600.00	89.10	150.00	6,590.87	-2,577.85	1,485.16	14,431,749.42	1,706,477.18	39.73891968	-80.76500518
9,700.00	89.10	150.00	6,592.45	-2,664.45	1,535.15	14,431,662.83	1,706,527.17	39.73868350	-80.76482817
9,800.00	89.10	150.00	6,594.02	-2,751.04	1,585.14	14,431,576.23	1,706,577.16	39.73844733	-80.76465115

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## Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,900.00	89.10	150.00	6,595.60	-2,837.64	1,635.13	14,431,489.64	1,706,627.15	39.73819716	-80.76447414
10,000.00	89.10	150.00	6,597.17	-2,924.23	1,685.12	14,431,403.04	1,706,677.14	39.73795898	-80.76429713
10,100.00	89.10	150.00	6,598.74	-3,010.83	1,735.11	14,431,316.45	1,706,727.12	39.73772081	-80.76412012
10,200.00	89.10	150.00	6,600.32	-3,097.42	1,785.10	14,431,229.86	1,706,777.11	39.73748263	-80.76394311
10,300.00	89.10	150.00	6,601.89	-3,184.01	1,835.09	14,431,143.26	1,706,827.10	39.73724446	-80.76376610
10,400.00	89.10	150.00	6,603.47	-3,270.61	1,885.08	14,431,056.67	1,706,877.09	39.73700628	-80.76358909
10,500.00	89.10	150.00	6,605.04	-3,357.20	1,935.07	14,430,970.07	1,706,927.08	39.73676811	-80.76341209
10,600.00	89.10	150.00	6,606.62	-3,443.80	1,985.06	14,430,883.48	1,706,977.07	39.73652993	-80.76323509
10,700.00	89.10	150.00	6,608.19	-3,530.39	2,035.04	14,430,796.88	1,707,027.06	39.73629176	-80.76305808
10,800.00	89.10	150.00	6,609.77	-3,616.99	2,085.03	14,430,710.29	1,707,077.05	39.73605358	-80.76288108
10,900.00	89.10	150.00	6,611.34	-3,703.58	2,135.02	14,430,623.70	1,707,127.04	39.73581540	-80.76270408
11,000.00	89.10	150.00	6,612.92	-3,790.18	2,185.01	14,430,537.10	1,707,177.03	39.73557723	-80.76252708
11,100.00	89.10	150.00	6,614.49	-3,876.77	2,235.00	14,430,450.51	1,707,227.02	39.73533905	-80.76235008
11,200.00	89.10	150.00	6,616.07	-3,963.36	2,284.99	14,430,363.91	1,707,277.01	39.73510087	-80.76217309
11,300.00	89.10	150.00	6,617.64	-4,049.96	2,334.98	14,430,277.32	1,707,326.99	39.73486269	-80.76199609
11,400.00	89.10	150.00	6,619.21	-4,136.55	2,384.97	14,430,190.72	1,707,376.98	39.73462451	-80.76181910
11,500.00	89.10	150.00	6,620.79	-4,223.15	2,434.96	14,430,104.13	1,707,426.97	39.73438634	-80.76164210
11,600.00	89.10	150.00	6,622.36	-4,309.74	2,484.95	14,430,017.54	1,707,476.96	39.73414816	-80.76146511
11,700.00	89.10	150.00	6,623.94	-4,396.34	2,534.94	14,429,930.94	1,707,526.95	39.73390998	-80.76128812
11,800.00	89.10	150.00	6,625.51	-4,482.93	2,584.93	14,429,844.35	1,707,576.94	39.73367180	-80.76111113
11,900.00	89.10	150.00	6,627.09	-4,569.53	2,634.92	14,429,757.75	1,707,626.93	39.73343362	-80.76093414
12,000.00	89.10	150.00	6,628.66	-4,656.12	2,684.91	14,429,671.16	1,707,676.92	39.73319544	-80.76075716
12,100.00	89.10	150.00	6,630.24	-4,742.71	2,734.89	14,429,584.56	1,707,726.91	39.73295726	-80.76058017
12,200.00	89.10	150.00	6,631.81	-4,829.31	2,784.88	14,429,497.97	1,707,776.90	39.73271908	-80.76040318
12,300.00	89.10	150.00	6,633.39	-4,915.90	2,834.87	14,429,411.38	1,707,826.89	39.73248090	-80.76022620
12,400.00	89.10	150.00	6,634.96	-5,002.50	2,884.86	14,429,324.78	1,707,876.88	39.73224272	-80.76004922
12,500.00	89.10	150.00	6,636.54	-5,089.09	2,934.85	14,429,238.19	1,707,926.86	39.73200454	-80.75987224
12,600.00	89.10	150.00	6,638.11	-5,175.69	2,984.84	14,429,151.59	1,707,976.85	39.73176636	-80.75969526
12,700.00	89.10	150.00	6,639.69	-5,262.28	3,034.83	14,429,065.00	1,708,026.84	39.73152817	-80.75951828
12,800.00	89.10	150.00	6,641.26	-5,348.88	3,084.82	14,428,978.41	1,708,076.83	39.73128998	-80.75934130
12,900.00	89.10	150.00	6,642.83	-5,435.47	3,134.81	14,428,891.81	1,708,126.82	39.73105181	-80.75916433
13,000.00	89.10	150.00	6,644.41	-5,522.06	3,184.80	14,428,805.22	1,708,176.81	39.73081363	-80.75898735
13,100.00	89.10	150.00	6,645.98	-5,608.66	3,234.79	14,428,718.62	1,708,226.80	39.73057545	-80.75881038
13,200.00	89.10	150.00	6,647.56	-5,695.25	3,284.78	14,428,632.03	1,708,276.79	39.73033726	-80.75863340
13,300.00	89.10	150.00	6,649.13	-5,781.85	3,334.77	14,428,545.43	1,708,326.78	39.73009908	-80.75845643
13,400.00	89.10	150.00	6,650.71	-5,868.44	3,384.75	14,428,458.84	1,708,376.77	39.72986090	-80.75827946
13,500.00	89.10	150.00	6,652.28	-5,955.04	3,434.74	14,428,372.25	1,708,426.76	39.72962271	-80.75810249
13,600.00	89.10	150.00	6,653.86	-6,041.63	3,484.73	14,428,285.65	1,708,476.75	39.72938453	-80.75792553
13,700.00	89.10	150.00	6,655.43	-6,128.23	3,534.72	14,428,199.06	1,708,526.73	39.72914634	-80.75774856
13,800.00	89.10	150.00	6,657.01	-6,214.82	3,584.71	14,428,112.46	1,708,576.72	39.72890816	-80.75757160
13,900.00	89.10	150.00	6,658.58	-6,301.41	3,634.70	14,428,025.87	1,708,626.71	39.72866997	-80.75739463
14,000.00	89.10	150.00	6,660.16	-6,388.01	3,684.69	14,427,939.27	1,708,676.70	39.72843179	-80.75721767
14,100.00	89.10	150.00	6,661.73	-6,474.60	3,734.68	14,427,852.68	1,708,726.69	39.72819360	-80.75704071
14,200.00	89.10	150.00	6,663.31	-6,561.20	3,784.67	14,427,766.09	1,708,776.68	39.72795542	-80.75686375
14,300.00	89.10	150.00	6,664.88	-6,647.79	3,834.66	14,427,679.49	1,708,826.67	39.72771723	-80.75668679
14,400.00	89.10	150.00	6,666.45	-6,734.39	3,884.65	14,427,592.90	1,708,876.66	39.72747904	-80.75650983
14,500.00	89.10	150.00	6,668.03	-6,820.98	3,934.64	14,427,506.30	1,708,926.65	39.72724085	-80.75633287
14,600.00	89.10	150.00	6,669.60	-6,907.58	3,984.63	14,427,419.71	1,708,976.64	39.72700267	-80.75615592
14,700.00	89.10	150.00	6,671.18	-6,994.17	4,034.62	14,427,333.11	1,709,026.63	39.72676448	-80.75597896
14,800.00	89.10	150.00	6,672.75	-7,080.76	4,084.60	14,427,246.52	1,709,076.62	39.72652630	-80.75580201
14,900.00	89.10	150.00	6,674.33	-7,167.36	4,134.59	14,427,159.93	1,709,126.60	39.72628811	-80.75562506
15,000.00	89.10	150.00	6,675.90	-7,253.95	4,184.58	14,427,073.33	1,709,176.59	39.72604992	-80.75544811
15,100.00	89.10	150.00	6,677.48	-7,340.55	4,234.57	14,426,986.74	1,709,226.58	39.72581173	-80.75527116
15,200.00	89.10	150.00	6,679.05	-7,427.14	4,284.56	14,426,900.14	1,709,276.57	39.72557354	-80.75509421
15,300.00	89.10	150.00	6,680.63	-7,513.74	4,334.55	14,426,813.55	1,709,326.56	39.72533535	-80.75491726

<b>Database:</b>	DB_Aug0116_LT_v14	<b>Local Co-ordinate Reference:</b>	Well Hillrock 08 HM (H)	<b>RECEIVED</b> Office of Oil and Gas
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1219.00ft	
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1219.00ft	<b>JUN 25 2018</b>
<b>Site:</b>	Hillrock/Simms	<b>North Reference:</b>	Grid	
<b>Well:</b>	Hillrock 08 HM (H)	<b>Survey Calculation Method:</b>	Minimum Curvature	WV Department of Environmental Protection
<b>Wellbore:</b>	Original Hole			
<b>Design:</b>	rev0			

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,400.00	89.10	150.00	6,682.20	-7,600.33	4,384.54	14,426,726.95	1,709,376.55	39.72509716	-80.75474032	
15,500.00	89.10	150.00	6,683.78	-7,686.92	4,434.53	14,426,640.36	1,709,426.54	39.72485898	-80.75456337	
15,600.00	89.10	150.00	6,685.35	-7,773.52	4,484.52	14,426,553.77	1,709,476.53	39.72462079	-80.75438643	
15,700.00	89.10	150.00	6,686.93	-7,860.11	4,534.51	14,426,467.17	1,709,526.52	39.72438260	-80.75420949	
15,800.00	89.10	150.00	6,688.50	-7,946.71	4,584.50	14,426,380.58	1,709,576.51	39.72414441	-80.75403255	
15,900.00	89.10	150.00	6,690.07	-8,033.30	4,634.49	14,426,293.98	1,709,626.50	39.72390522	-80.75385561	
16,000.00	89.10	150.00	6,691.65	-8,119.90	4,684.48	14,426,207.39	1,709,676.49	39.72366802	-80.75367867	
16,100.00	89.10	150.00	6,693.22	-8,206.49	4,734.46	14,426,120.79	1,709,726.47	39.72342983	-80.75350173	
16,200.00	89.10	150.00	6,694.80	-8,293.09	4,784.45	14,426,034.20	1,709,776.46	39.72319164	-80.75332479	
16,300.00	89.10	150.00	6,696.37	-8,379.68	4,834.44	14,425,947.61	1,709,826.45	39.72295345	-80.75314786	
16,400.00	89.10	150.00	6,697.95	-8,466.27	4,884.43	14,425,861.01	1,709,876.44	39.72271526	-80.75297093	
16,500.00	89.10	150.00	6,699.52	-8,552.87	4,934.42	14,425,774.42	1,709,926.43	39.72247707	-80.75279399	
16,600.00	89.10	150.00	6,701.10	-8,639.46	4,984.41	14,425,687.82	1,709,976.42	39.72223887	-80.75261706	
16,700.00	89.10	150.00	6,702.67	-8,726.06	5,034.40	14,425,601.23	1,710,026.41	39.72200068	-80.75244013	
16,800.00	89.10	150.00	6,704.25	-8,812.65	5,084.39	14,425,514.63	1,710,076.40	39.72176249	-80.75226320	
16,900.00	89.10	150.00	6,705.82	-8,899.25	5,134.38	14,425,428.04	1,710,126.39	39.72152430	-80.75208628	
17,000.00	89.10	150.00	6,707.40	-8,985.84	5,184.37	14,425,341.45	1,710,176.38	39.72128810	-80.75190935	
17,100.00	89.10	150.00	6,708.97	-9,072.44	5,234.36	14,425,254.85	1,710,226.37	39.72104791	-80.75173242	
17,200.00	89.10	150.00	6,710.54	-9,159.03	5,284.35	14,425,168.26	1,710,276.36	39.72080971	-80.75155550	
17,300.00	89.10	150.00	6,712.12	-9,245.62	5,334.34	14,425,081.66	1,710,326.34	39.72057152	-80.75137858	
17,400.00	89.10	150.00	6,713.69	-9,332.22	5,384.33	14,424,995.07	1,710,376.33	39.72033332	-80.75120166	
17,500.00	89.10	150.00	6,715.27	-9,418.81	5,434.31	14,424,908.48	1,710,426.32	39.72009513	-80.75102474	
17,600.00	89.10	150.00	6,716.84	-9,505.41	5,484.30	14,424,821.88	1,710,476.31	39.71985693	-80.75084782	
17,700.00	89.10	150.00	6,718.42	-9,592.00	5,534.29	14,424,735.29	1,710,526.30	39.71961874	-80.75067090	
17,800.00	89.10	150.00	6,719.99	-9,678.60	5,584.28	14,424,648.69	1,710,576.29	39.71938054	-80.75049398	
17,900.00	89.10	150.00	6,721.57	-9,765.19	5,634.27	14,424,562.10	1,710,626.28	39.71914235	-80.75031707	
18,000.00	89.10	150.00	6,723.14	-9,851.79	5,684.26	14,424,475.50	1,710,676.27	39.71890415	-80.75014015	
18,100.00	89.10	150.00	6,724.72	-9,938.38	5,734.25	14,424,388.91	1,710,726.26	39.71866595	-80.74996324	
18,200.00	89.10	150.00	6,726.29	-10,024.97	5,784.24	14,424,302.32	1,710,776.25	39.71842776	-80.74978633	
18,300.00	89.10	150.00	6,727.87	-10,111.57	5,834.23	14,424,215.72	1,710,826.24	39.71818956	-80.74960942	
18,372.02	89.10	150.00	6,729.00	-10,173.94	5,870.23	14,424,153.35	1,710,862.24	39.71801800	-80.74948200	

PBHLTD 18372.02 MD 6729.00 TVD

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Hillrock 08 HM LP - hit/miss target - Shape - Point	0.00	0.00	6,548.00	-220.26	124.17	14,434,107.01	1,705,116.19	39.74539600	-80.76982500	
Hillrock 08 HM PBHL - plan hits target center - Point	0.00	0.00	6,729.00	-10,173.94	5,870.23	14,424,153.35	1,710,862.24	39.71801800	-80.74948200	



<b>Database:</b>	DB_Aug0116_LT_v14	<b>Local Co-ordinate Reference:</b>	Well Hillrock 08 HM (H)	RECEIVED Office of Oil and Gas  JUN 25 2018  WV Department of Environmental Protection
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1219.00ft	
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1219.00ft	
<b>Site:</b>	Hillrock/Simms	<b>North Reference:</b>	Grid	
<b>Well:</b>	Hillrock 08 HM (H)	<b>Survey Calculation Method:</b>	Minimum Curvature	
<b>Wellbore:</b>	Original Hole			
<b>Design:</b>	rev0			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,500.00	1,500.00	0.00	0.00	KOP Begin 1°/100' build
1,900.00	1,899.68	12.94	-5.23	Begin 4.00° tangent section
3,400.00	3,396.02	109.96	-44.43	Begin 1°/100' build/turn
3,499.16	3,494.92	116.25	-47.87	Begin 4.35° tangent section
5,943.08	5,931.79	268.63	-153.63	Begin 10°/100' build/turn
6,877.43	6,548.00	-220.26	124.17	Begin 89.10° lateral section
18,372.02	6,729.00	-10,173.94	5,870.23	PBHL/TD 18372.02 MD 6729.00 TVD

4705102063

WW-9  
(4/16)

API Number 47 - 051 -  
Operator's Well No. Hillrock 8HM

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

RECEIVED  
Office of Oil and Gas

JUN 25 2018

WV Department of  
Environmental Protection

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? Welzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1389426)

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 \_\_\_\_\_

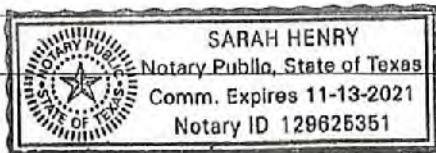
Company Official (Typed Name) Sean Gasser

Company Official Title Engineer

Subscribed and sworn before me this 18 day of June, 2018

Notary Public

My commission expires \_\_\_\_\_



*Sarah Henry*

4705102063

Form WW-9

Operator's Well No. Hillrock 8HM

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Juan Velasco*  
Comments: \_\_\_\_\_

RECEIVED  
Office of Oil and Gas

JUN 25 2018

WV Department of  
Environmental Protection

Title: Oil and Gas Inspector

Date: 6/20/18

Field Reviewed?  Yes  No

WW-9

# PROPOSED HILLROCK BHM

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.

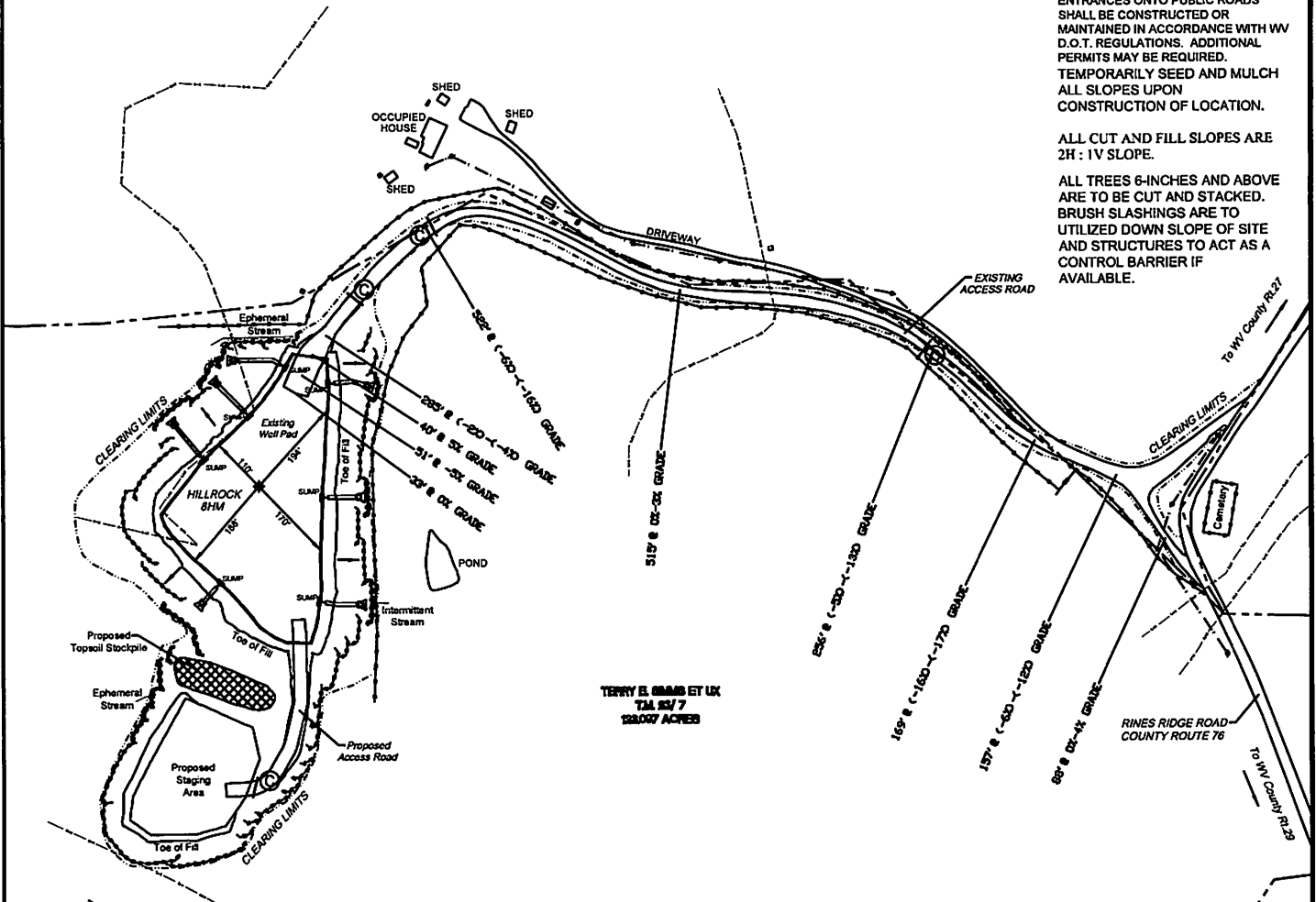
ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

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. COBLEY et al.  
T.M. 07/8  
120 Acres

TERRY E. GRAM ET UX  
T.M. 02/7  
22,007 ACRES

WILLIAM + VIRGINIA ROUPE  
T.M. 08/21  
84 Acres



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**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



4705 · 02063



# Well Site Safety Plan

## Tug Hill Operating, LLC

*John*  
6/20/18

Well Name: Hillrock 8HM

Pad Location: Simms Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,399,591.75

Easting: 519,682.61

June 2018

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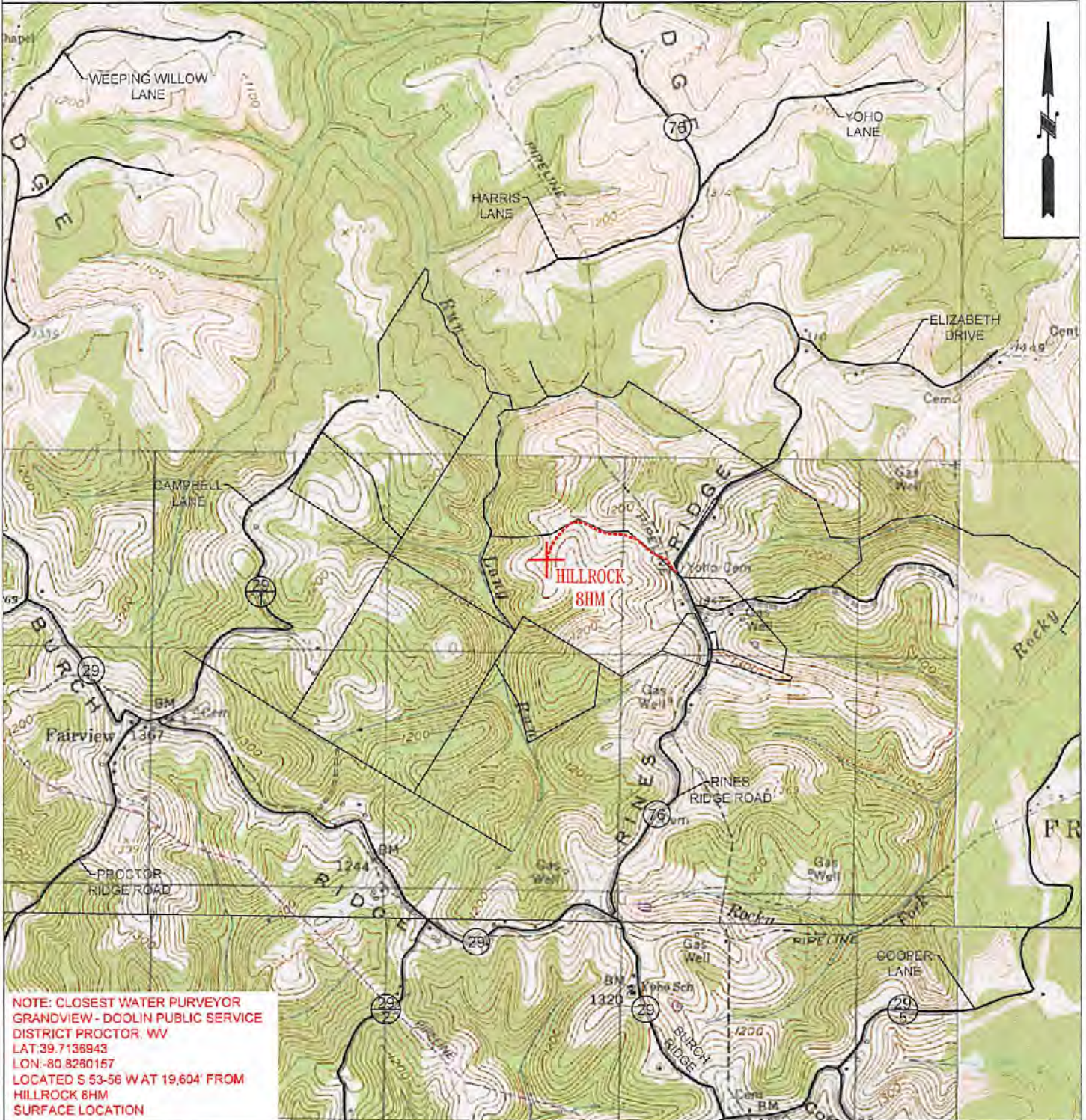
WW-9

JUN 25 2018

**PROPOSED**  
**HILLROCK 8HM**

SUPPLEMENT PG 2  
4705-02063

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NOTE: CLOSEST WATER PURVEYOR  
GRANDVIEW - DOOLIN PUBLIC SERVICE  
DISTRICT PROCTOR, WV  
LAT: 39.7136943  
LON: -80.8260157  
LOCATED S 53-56 W AT 19,604' FROM  
HILLROCK 8HM  
SURFACE LOCATION



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'		DATE: 06-11-2018	

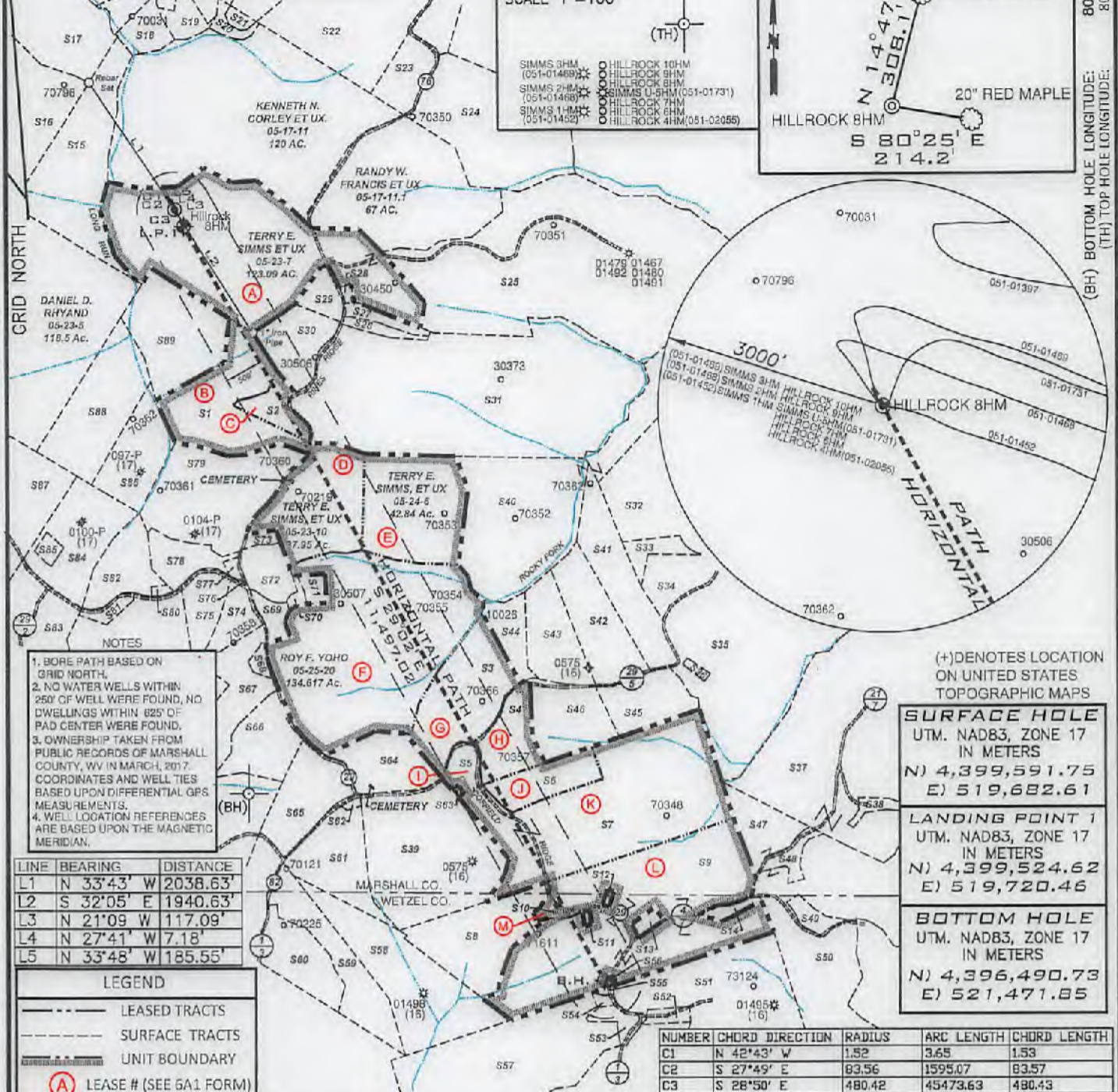
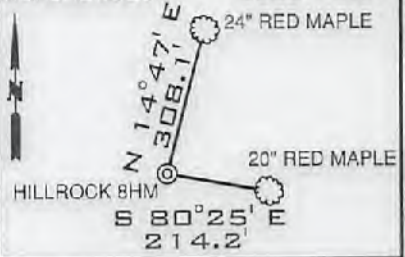
# HILLROCK LEASE WELL 8HM 659.406± ACRES

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

DETAIL  
SKETCH "A"  
SCALE 1"=100'

REFERENCES SCALE 1"=400'

SIMMS 3HM (051-01469)  
 SIMMS 2HM (051-01468)  
 SIMMS 1HM (051-01452)  
 HILLROCK 10HM (051-01731)  
 HILLROCK 9HM (051-01488)  
 HILLROCK 8HM (051-01488)  
 HILLROCK 7HM (051-01488)  
 HILLROCK 6HM (051-02055)  
 HILLROCK 4HM (051-02055)



- NOTES
1. BORE PATH BASED ON GRID NORTH.
  2. NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 825' OF PAD CENTER WERE FOUND.
  3. OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2017. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
  4. WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.

LINE	BEARING	DISTANCE
L1	N 33°43' W	2038.63'
L2	S 32°05' E	1940.63'
L3	N 21°09' W	117.09'
L4	N 27°41' W	7.18'
L5	N 33°48' W	185.55'

LEGEND

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

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

SURFACE HOLE	
UTM. NAD83, ZONE 17 IN METERS	
N) 4,399,591.75	
E) 519,682.61	

LANDING POINT 1	
UTM. NAD83, ZONE 17 IN METERS	
N) 4,399,524.62	
E) 519,720.46	

BOTTOM HOLE	
UTM. NAD83, ZONE 17 IN METERS	
N) 4,396,490.73	
E) 521,471.85	

NUMBER	CHORD	DIRECTION	RADIUS	ARC LENGTH	CHORD LENGTH
C1	N	42°43' W	1.52	3.65	1.53
C2	S	27°49' E	83.56	1595.07	83.57
C3	S	28°50' E	480.42	45473.63	480.43

FILE NUMBER \_\_\_\_\_

DRAWING NUMBER HILLROCK\_WP\_8HM

SCALE 1" = 2000'

MINIMUM DEGREE OF ACCURACY 1/200

PROVEN SOURCE OF ELEVATION SUBMETER MAPPING

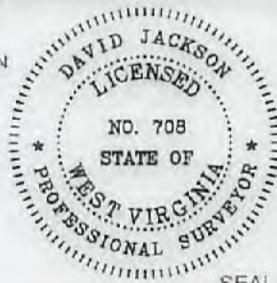
GRADE GPS

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 1450  
Clarksburg, WV 26302  
304-623-6851



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

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

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 - SEE WW-6A1 FORM LEASE ACREAGE 319.91

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

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD 6,664' TMD: 18,372'

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

COUNTY NAME  
PERMIT

**HILLROCK LEASE  
WELL 8HM  
659.406± ACRES**

Number	TAX MAP-PARCEL	ADJOINER 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	05-25-01	Michael L. Mason	35.43
S4	05-25-13	Nicolas J. & Debra L. Klug	16.014
S5	05-25-13.2	David A. Klug	5.89
S6	05-25-12.1	Kent & Betty Mason	15.0
S7	05-25-12	Marion Parsons Jr., et al	85.16
S8	05-25-11.4	Edward W. Klug, et ux	32.787
S9	05-25-11.2	James W. Klug	114.305
S10	05-25-11.1	Edward W. Klug et ux	2.343
S11	12-03-44	James A. & Jo C. Estep	1.10
S12	12-03-47	Wetzel County Emergency Ambulance	0.50
S13	12-03-43	Adam W. Ferrell & Brittany M. Loy	1.97
S14	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	75.6
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	05-24-1	Linda L. Hendrickson	175.0
S26	05-24-5.2	James D. Watkins, et ux	3.151
S27	05-24-5.1	James D. Watkins, et ux	4.6
S28	05-23-7.1	H.J. Weigand, et ux	0.549
S29	05-23-7.2	H.J. Weigand, et ux	6.354
S30	05-24-5.5	H.J. Weigand, et ux	17.194
S31	05-24-5	Robert C. Francis et ux (Life)	145.788
S32	05-24-3.2	T.H. Exploration II, LLC	49.0
S33	05-24-3.1	T.H. Exploration II, LLC	5.50
S34	05-25-2.2	John G. Klug, Sr. et ux	10.0
S35	05-25-2	James W. Klug	122.3
S36	05-25-2.1	Nancy Jackson	1.0
S37	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	Bernard R. Weigand, et ux	65.0
S40	05-24-04	Terry E. Simms, et ux	84.05
S41	05-25-1.4	Samantha J. & Philip A. Namlik	100.7235
S42	05-25-1.3	Michael E. & Annie A. Chapman	26.2
S43	05-25-1.2	William Jr. & Andrea J. Dubiel	20.1
S44	05-25-1.1	Ryan A. & Jacqueline E. Layman	9.79
S45	05-25-13.3	William M. Sr. & Cynthia A. Ferda	17.21

Number	TAX MAP-PARCEL	ADJOINER OWNER	ACRES
S46	05-25-1.5	Ryan J. Bratton	21.35
S47	05-25-10	Terry L. & Tammy J. Kirkland	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	74.138
S51	12-03-4	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	Donald Lee Anderson, et al	4.2
S60	12-02-14.1	Richard Joseph Otte, et ux	1.25
S61	15-25-16.1	David L. Cunningham	6.34
S62	05-25-16.2	Rodney J. Loy	1.087
S63	05-25-13.1	Morgan Chad Gump, et ux	0.9
S64	05-25-14	Roy F. Yoho	23.0
S65	05-25-16	Emily Jones Irrevocable Trust	23.5
S66	05-25-17	Emily Jones Irrevocable Trust	22.79
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	3.445
S73	05-23-11.7	Bryan L. Huggins	1.835
S74	05-23-11.5	Roy F. Yoho	9.25
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. & Daanna 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



P.S. 708

*David L Jackson*



**TUG HILL**  
OPERATING

OPERATOR'S  
WELL # HILLROCK 8HM  
DISTRICT: Franklin  
COUNTY: Marshall  
STATE: WV

WELL PLAT  
PAGE 2 OF 2  
DATE: 06/14/2018

4705 + 02063

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

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

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

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

\*See attached pages

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JUN 25 2018

WV Department of  
Environmental Protection

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

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

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

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

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

WW-6A1 Supplement

Operator's Well No. Hillrock - 8HM

4705102063

Lease No.	Tracts	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*14140	A	5-23-7	TERRY E SIMMS AND DEBORAH L SIMMS	TRIENERGY, INC	1/8+	666	529	NA	20/348 Trienergy, Inc to AB Resources LLC	21/491 AB Resources LLC to Chief Exploration & Development LLC	685/643 Chief Exploration & Development and Radler 2000 Limited Partnership to Enerplus Resources Corp	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources Corp to Gstar Exploration USA, Inc	21/41 Gstar Exploration USA Inc to Gstar Exploration, Inc	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14797	B	5-24-5.4	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	NA	NA	NA	NA	21/41 Gstar Exploration USA Inc to Gstar Exploration, Inc	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14814	B	5-24-5.4	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	537	NA	NA	NA	NA	NA	NA	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14815	B	5-24-5.4	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14817	B	5-24-5.4	DONNA V YOHO	GASTAR EXPLORATION INC	1/8+	874	351	NA	NA	NA	NA	NA	NA	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14818	B	5-24-5.4	DEWEY A MILICIA	GASTAR EXPLORATION INC	1/8+	875	591	NA	NA	NA	NA	NA	NA	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14819	B	5-24-5.4	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION INC	1/8+	875	593	NA	NA	NA	NA	NA	NA	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14820	B	5-24-5.4	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION INC	1/8+	875	595	NA	NA	NA	NA	NA	NA	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14821	B	5-24-5.4	JANICE HAUDENSCHILT	GASTAR EXPLORATION INC	1/8+	875	597	NA	NA	NA	NA	NA	NA	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14822	B	5-24-5.4	ONWARD E BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*14823	B	5-24-5.4	SARAH L BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gstar Exploration, Inc. to TH Exploration II, LLC
10*17181	B	5-24-5.4	PAUL F HAMMERS	CHESAPEAKE APPALACHIA LLC	1/8+	705	593	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merger SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17182	B	5-24-5.4	TWILA ORA WHIPKEY	CHESAPEAKE APPALACHIA LLC	1/8+	715	505	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merger SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17184	B	5-24-5.4	KERMIT L. PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	716	83	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merger SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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WV Department of Environmental Protection

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10*17195	B	5-24-5.4	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17196	B	5-24-5.4	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17197	B	5-24-5.4	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17199	B	5-24-5.4	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17200	B	5-24-5.4	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17201	B	5-24-5.4	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17202	B	5-24-5.4	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17203	B	5-24-5.4	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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10*17204	B	5-24-5.4	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17206	B	5-24-5.4	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17207	B	5-24-5.4	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17210	B	5-24-5.4	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17211	B	5-24-5.4	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17212	B	5-24-5.4	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17213	B	5-24-5.4	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*18275	B	5-24-5.4	BETTY JEAN NEELY	TH EXPLORATION LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA
10*18366	B	5-24-5.4	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA
10*18369	B	5-24-5.4	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA
10*18370	B	5-24-5.4	SAMUEL D YOHO	TH EXPLORATION LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA
10*18379	B	5-24-5.4	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION LLC	1/8+	932	439	NA	NA	NA	NA	RECEIVED Office of Oil and Gas NA	NA	NA

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10*19540	B	5-24-5.4	ERICA M MASON	TH EXPLORATION LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA
10*19652	B	5-24-5.4	JACK R HAMMERS	TH EXPLORATION LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA
10*19903	B	5-24-5.4	PAUL F HAMMERS	TH EXPLORATION LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
10*14797	C	5-24-5.3	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14814	C	5-24-5.3	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	537	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14815	C	5-24-5.3	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14817	C	5-24-5.3	DONNA V YOHO	GASTAR EXPLORATION INC	1/8+	874	351	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14818	C	5-24-5.3	DEWEY A MILICIA	GASTAR EXPLORATION INC	1/8+	875	591	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14819	C	5-24-5.3	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION INC	1/8+	875	593	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14820	C	5-24-5.3	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION INC	1/8+	875	595	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14821	C	5-24-5.3	JANICE HAUDENSCHILT	GASTAR EXPLORATION INC	1/8+	875	597	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14822	C	5-24-5.3	ONWARD E BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14823	C	5-24-5.3	SARAH L BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*17181	C	5-24-5.3	PAUL F HAMMERS	CHESAPEAKE APPALACHIA LLC	1/8+	705	593	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merger SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17182	C	5-24-5.3	TWILA ORA WHIPKEY	CHESAPEAKE APPALACHIA LLC	1/8+	715	505	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merger SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17184	C	5-24-5.3	KERMIT L. PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	716	83	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merger SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17195	C	5-24-5.3	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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10*17196	C	5-24-5.3	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17197	C	5-24-5.3	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17199	C	5-24-5.3	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17200	C	5-24-5.3	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17201	C	5-24-5.3	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17202	C	5-24-5.3	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17203	C	5-24-5.3	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17204	C	5-24-5.3	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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10*17206	C	5-24-5.3	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17207	C	5-24-5.3	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17210	C	5-24-5.3	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17211	C	5-24-5.3	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17212	C	5-24-5.3	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17213	C	5-24-5.3	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*18275	C	5-24-5.3	BETTY JEAN NEELY	TH EXPLORATION LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA
10*18366	C	5-24-5.3	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA
10*18369	C	5-24-5.3	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA
10*18370	C	5-24-5.3	SAMUEL D YOHO	TH EXPLORATION LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA
10*18379	C	5-24-5.3	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA
10*19540	C	5-24-5.3	ERICA M MASON	TH EXPLORATION LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA
10*19652	C	5-24-5.3	JACK R HAMMERS	TH EXPLORATION LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA
10*19903	C	5-24-5.3	PAUL F HAMMERS	TH EXPLORATION LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
10*14786	D	5-23-10	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	NA	NA	RECEIVED Office of Oil and Gas NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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10*14795	D	5-23-10	LARRY YOHO	GASTAR EXPLORATION USA, INC	1/8+	799	526	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14797	D	5-23-10	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14806	D	5-23-10	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14807	D	5-23-10	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14808	D	5-23-10	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14809	D	5-23-10	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14810	D	5-23-10	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14811	D	5-23-10	MARK YOHO AND MARY YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	543	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14814	D	5-23-10	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	537	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14815	D	5-23-10	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14822	D	5-23-10	ONWARD E BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14823	D	5-23-10	SARAH L BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*17195	D	5-23-10	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17196	D	5-23-10	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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

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10*17207	D	5-23-10	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17210	D	5-23-10	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17211	D	5-23-10	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17212	D	5-23-10	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17213	D	5-23-10	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*18275	D	5-23-10	BETTY JEAN NEELY	TH EXPLORATION LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA
10*18366	D	5-23-10	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA
10*18369	D	5-23-10	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA
10*18370	D	5-23-10	SAMUEL D YOHO	TH EXPLORATION LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA
10*18379	D	5-23-10	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA
10*19540	D	5-23-10	ERICA M MASON	TH EXPLORATION LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA
10*19652	D	5-23-10	JACK R HAMMERS	TH EXPLORATION LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA
10*19903	D	5-23-10	PAUL F HAMMERS	TH EXPLORATION LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
10*22008	D	5-23-10	COLIN R YOHO	TH EXPLORATION LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA
10*22025	D	5-23-10	MARK & MARY YOHO	TH EXPLORATION LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA
10*22129	D	5-23-10	JANICE N HAUDENSCHILT	TH EXPLORATION LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA
10*22441	D	5-23-10	APRIL ROSE POSTLETHWAIT	TH EXPLORATION LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA	NA
10*22510	D	5-23-10	DONNA YOHO	TH EXPLORATION LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA	NA
10*14558	E	5-24-6	KLOVA ANN MORRIS	GASTAR EXPLORATION USA, INC	1/8+	765	434	NA	27/639 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	28/499 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	806/1 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA, Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II, LLC	

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10*14559	E	5-24-6	WILLIAM L LITMAN	GASTAR EXPLORATION USA, INC	1/8+	767	258	NA	NA	27/639 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	28/499 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	806/1 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA, Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14560	E	5-24-6	AARON DEAN LITMAN	GASTAR EXPLORATION USA, INC	1/8+	767	262	NA	NA	27/639 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	28/499 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	806/1 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA, Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14561	E	5-24-6	THE ESTATE OF MERNA NELSON C/O ULA NELSON	GASTAR EXPLORATION USA, INC	1/8+	770	474	NA	NA	27/639 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	28/499 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	806/1 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA, Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14562	E	5-24-6	MARY VOLTZ	GASTAR EXPLORATION USA, INC	1/8+	773	575	NA	NA	27/639 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	28/499 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	806/1 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA, Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14563	E	5-24-6	JACK MICHAEL FOREMAN	GASTAR EXPLORATION USA, INC	1/8+	796	44	NA	NA	27/639 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	28/499 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	806/1 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA, Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14564	E	5-24-6	JULIE SPRINGWATER	GASTAR EXPLORATION USA, INC	1/8+	799	57	NA	NA	27/639 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	28/499 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	806/1 Gastar Exploration USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA, Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*17597	E	5-24-6	JOHN P ICARD AND REVA J ICARD	TH EXPLORATION LLC	1/8+	765	432	NA	NA	NA	NA	NA	NA	NA
10*17626	E	5-24-6	VICKI LYNN AND RICHARD FRANKLIN WOOD	TH EXPLORATION LLC	1/8+	917	60	NA	NA	NA	NA	NA	NA	NA
10*18174	E	5-24-6	THE ESTATE OF ROY JOSEPH LEACH	TH EXPLORATION LLC	1/8+	927	647	NA	NA	NA	NA	NA	NA	NA
10*21455	E	5-24-6	MELISSA MILLER GIBSON AND JAMES GIBSON	TH EXPLORATION LLC	1/8+	953	308	NA	NA	NA	NA	NA	NA	NA
10*14786	F	5-25-20	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14792	F	5-25-20	TIMOTHY YOHO	GASTAR EXPLORATION USA, INC	1/8+	799	536	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14795	F	5-25-20	LARRY YOHO	GASTAR EXPLORATION USA, INC	1/8+	799	526	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14797	F	5-25-20	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14798	F	5-25-20	CECILIA D. NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	800	609	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14800	F	5-25-20	DAPHNE HUFFMAN & CHARLES HUFFM	GASTAR EXPLORATION USA, INC	1/8+	800	613	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14804	F	5-25-20	DEBORAH K. & FRANK KLIMASZEWSK	GASTAR EXPLORATION USA, INC	1/8+	801	333	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14805	F	5-25-20	HAROLD C. SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	803	148	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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10*14806	F	5-25-20	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14807	F	5-25-20	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14808	F	5-25-20	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14809	F	5-25-20	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14810	F	5-25-20	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA	NA	RECEIVED Office of Oil and Gas	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14811	F	5-25-20	MARK YOHO AND MARY YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	543	NA	NA	JUN 25 2018	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14812	F	5-25-20	DENISE ANN GALE	GASTAR EXPLORATION USA, INC	1/8+	815	224	NA	NA	WV Department of Environmental Protection	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14813	F	5-25-20	DEBRA JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	818	568	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14814	F	5-25-20	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	537	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14815	F	5-25-20	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14822	F	5-25-20	ONWARD E BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14822	F	5-25-20	ONWARD E BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14823	F	5-25-20	SARAH L BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14823	F	5-25-20	SARAH L BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*17195	F	5-25-20	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC



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10*17196	F	5-25-20	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17197	F	5-25-20	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17199	F	5-25-20	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17200	F	5-25-20	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17201	F	5-25-20	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17202	F	5-25-20	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17203	F	5-25-20	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17204	F	5-25-20	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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10*17206	F	5-25-20	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17207	F	5-25-20	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17210	F	5-25-20	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17211	F	5-25-20	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17212	F	5-25-20	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17213	F	5-25-20	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum 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 Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*18275	F	5-25-20	BETTY JEAN NEELY	TH EXPLORATION LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA
10*18366	F	5-25-20	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA
10*18369	F	5-25-20	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA
10*18370	F	5-25-20	SAMUEL D YOHO	TH EXPLORATION LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA
10*18379	F	5-25-20	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA
10*19540	F	5-25-20	ERICA M MASON	TH EXPLORATION LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA
10*19652	F	5-25-20	JACK R HAMMERS	TH EXPLORATION LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA
10*19662	F	5-25-20	CHESTNUT HOLDINGS INC	TH EXPLORATION LLC	1/8+	949	311	NA	NA	NA	NA	NA	NA	NA
10*19903	F	5-25-20	PAUL F HAMMERS	TH EXPLORATION LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
10*21179	F	5-25-20	JACK R HAMMERS	TH EXPLORATION LLC	1/8+	952	188	NA	NA	NA	NA	NA	NA	NA
10*21180	F	5-25-20	ANTOINE E GERAUD	TH EXPLORATION LLC	1/8+	952	192	NA	NA	NA	NA	NA	NA	NA

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10*21183	F	5-25-20	DONALD R NEWLAND AND SUZANNE NEWLAND	TH EXPLORATION LLC	1/8+	952	205	NA	NA	NA	NA	NA	NA	NA
10*21241	F	5-25-20	DARRELL NEWLAND	TH EXPLORATION LLC	1/8+	952	636	NA	NA	NA	NA	NA	NA	NA
10*21315	F	5-25-20	CLAUDIA LOWERY MALLOY	TH EXPLORATION LLC	1/8+	953	302	NA	NA	NA	NA	NA	NA	NA
10*21316	F	5-25-20	JAMES MICHAEL YOHO	TH EXPLORATION LLC	1/8+	953	300	NA	NA	NA	NA	NA	NA	NA
10*21317	F	5-25-20	BRADFORD D LOWERY & DEBORAH BRADFORD	TH EXPLORATION LLC	1/8+	953	297	NA	NA	NA	NA	NA	NA	NA
10*21383	F	5-25-20	JANET LEE SPARKS	TH EXPLORATION LLC	1/8+	957	27	NA	NA	NA	NA	NA	NA	NA
10*21419	F	5-25-20	DAPHNE HUFFMAN AND CHARLES HUFFMAN	TH EXPLORATION LLC	1/8+	957	59	NA	NA	NA	NA	NA	NA	NA
10*21431	F	5-25-20	GARY WAYNE ZESIGER & VICKIE ZESIGER	TH EXPLORATION LLC	1/8+	957	57	NA	NA	NA	NA	NA	NA	NA
10*21436	F	5-25-20	CECILIA D NEWLAND	TH EXPLORATION LLC	1/8+	957	55	NA	NA	NA	NA	NA	NA	NA
10*21439	F	5-25-20	M VIRGINIA & EDWARD C MARSH	TH EXPLORATION LLC	1/8+	957	53	NA	NA	NA	NA	NA	NA	NA
10*21456	F	5-25-20	TONI JO MASON LIVING TRUST	TH EXPLORATION LLC	1/8+	953	540	NA	NA	NA	NA	NA	NA	NA
10*21469	F	5-25-20	KIMBERLY S DENNY AND JAMES E DENNY	TH EXPLORATION LLC	1/8+	957	244	NA	NA	NA	NA	NA	NA	NA
10*21471	F	5-25-20	RICHARD ROSS WILSON	TH EXPLORATION LLC	1/8+	960	190	NA	NA	NA	NA	NA	NA	NA
10*21620	F	5-25-20	ROBERT CRAIG MONTGOMERY AND CYNTHIA R MONTGOMERY	TH EXPLORATION LLC	1/8+	959	496	NA	NA	NA	NA	NA	NA	NA
10*21621	F	5-25-20	MARILYN NOEL	TH EXPLORATION LLC	1/8+	959	494	NA	NA	NA	NA	NA	NA	NA
10*21658	F	5-25-20	CLARENCE RICHARD ZESIGER & MARY ZESIGER	TH EXPLORATION LLC	1/8+	959	490	NA	NA	NA	NA	NA	NA	NA
10*21659	F	5-25-20	DEBORAH BLOUGH	TH EXPLORATION LLC	1/8+	958	392	NA	NA	NA	NA	NA	NA	NA
10*21660	F	5-25-20	PAMELA L DRAZIC AND JEFFREY DRAZIC	TH EXPLORATION LLC	1/8+	958	390	NA	NA	NA	NA	NA	NA	NA
10*21830	F	5-25-20	MARISSA MASON	TH EXPLORATION LLC	1/8+	960	200	NA	NA	NA	NA	NA	NA	NA
10*21831	F	5-25-20	MATTHEW MASON	TH EXPLORATION LLC	1/8+	966	122	NA	NA	NA	NA	NA	NA	NA
10*21834	F	5-25-20	GEORGE DANIEL KRUGER	TH EXPLORATION LLC	1/8+	960	204	NA	NA	NA	NA	NA	NA	NA
10*21947	F	5-25-20	WALLACE LYNN WENDEL	TH EXPLORATION LLC	1/8+	965	59	NA	NA	NA	NA	NA	NA	NA
10*21988	F	5-25-20	ERICA M MASON	TH EXPLORATION, LLC	1/8+	960	552	NA	NA	NA	NA	NA	NA	NA
10*22007	F	5-25-20	DEBORAH K KLIMASZEWSI AND FRANK KLIMASZEWSKI	TH EXPLORATION LLC	1/8+	959	492	NA	NA	NA	NA	NA	NA	NA
10*22008	F	5-25-20	COLIN R YOHO	TH EXPLORATION LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA
10*22008	F	5-25-20	COLIN R YOHO	TH EXPLORATION LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA
10*22009	F	5-25-20	MARGARET F RICHMOND	TH EXPLORATION LLC	1/8+	954	626	NA	NA	NA	NA	NA	NA	NA
10*22010	F	5-25-20	ROBERT I BONAR SR	TH EXPLORATION LLC	1/8+	954	624	NA	NA	NA	NA	NA	NA	NA
10*22011	F	5-25-20	BARBARA ANN MAYNARD	TH EXPLORATION LLC	1/8+	954	628	NA	NA	NA	NA	NA	NA	NA
10*22012	F	5-25-20	PAUL F HAMMER	TH EXPLORATION, LLC	1/8+	954	622	NA	NA	NA	NA	NA	NA	NA
10*22025	F	5-25-20	MARK & MARY YOHO	TH EXPLORATION LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA
10*22025	F	5-25-20	MARK & MARY YOHO	TH EXPLORATION LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA
10*22031	F	5-25-20	PHILLIP YOHO AND PATRICIA YOHO	TH EXPLORATION LLC	1/8+	960	535	NA	NA	NA	NA	NA	NA	NA
10*22032	F	5-25-20	JOANNE E RAY	TH EXPLORATION LLC	1/8+	960	537	NA	NA	NA	NA	NA	NA	NA

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10*22106	F	5-25-20	BARRY RAY MOORE	TH EXPLORATION LLC	1/8+	954	643	NA	NA	NA	NA	NA	NA	NA
10*22129	F	5-25-20	JANICE N HAUDENSCHILT	TH EXPLORATION LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA
10*22129	F	5-25-20	JANICE N HAUDENSCHILT	TH EXPLORATION LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA
10*22137	F	5-25-20	CONNIE L NEELY	TH EXPLORATION LLC	1/8+	961	466	NA	NA	NA	NA	NA	NA	NA
10*22152	F	5-25-20	PAUL F HAMMERS	TH EXPLORATION LLC	1/8+	954	622	NA	NA	NA	NA	NA	NA	NA
10*22285	F	5-25-20	DONALD JAMES WILSON AND SANDY L WILSON	TH EXPLORATION LLC	1/8+	962	193	NA	NA	NA	NA	NA	NA	NA
10*22334	F	5-25-20	JOHN BRYANT	TH EXPLORATION LLC	1/8+	962	540	NA	NA	NA	NA	NA	NA	NA
10*22441	F	5-25-20	APRIL ROSE POSTLETHWAIT	TH EXPLORATION LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA	NA
10*22510	F	5-25-20	DONNA YOHO	TH EXPLORATION LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA	NA
10*22561	F	5-25-20	MARY ROSE YOHO	TH EXPLORATION LLC	1/8+	968	200	NA	NA	NA	NA	NA	NA	NA
10*22562	F	5-25-20	HAROLD C SIMMONS	TH EXPLORATION LLC	1/8+	966	100	NA	NA	NA	NA	NA	NA	NA
10*22563	F	5-25-20	KIMBERLY D STRAUCH	TH EXPLORATION LLC	1/8+	966	522	NA	NA	NA	NA	NA	NA	NA
10*22718	F	5-25-20	WILLIAM R RICHMOND AND CONNIE S RICHMOND	TH EXPLORATION LLC	1/8+	963	389	NA	NA	NA	NA	NA	NA	NA
10*14728	G	5-25-1	IRIS K MOELLENDICK	GASTAR EXPLORATION INC	1/8+	839	509	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14729	G	5-25-1	BONNIE S SHANNON	GASTAR EXPLORATION INC	1/8+	839	511	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14730	G	5-25-1	CATHIE K LAKE	GASTAR EXPLORATION INC	1/8+	839	513	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14731	G	5-25-1	RICHARD KLUG	GASTAR EXPLORATION INC	1/8+	839	515	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14734	G	5-25-1	CLARENCE BAXTER, BY RODNEY BAX	GASTAR EXPLORATION INC	1/8+	842	376	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14735	G	5-25-1	GLENNALEE COZART	GASTAR EXPLORATION INC	1/8+	842	378	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14737	G	5-25-1	MARION PARSONS JR	GASTAR EXPLORATION INC	1/8+	844	83	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*19914	G	5-25-1	MICHAEL L MASON	TH EXPLORATION LLC	1/8+	945	436	NA	NA	NA	NA	NA	NA	NA
10*14728	H	5-25-13	IRIS K MOELLENDICK	GASTAR EXPLORATION INC	1/8+	839	509	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14729	H	5-25-13	BONNIE S SHANNON	GASTAR EXPLORATION INC	1/8+	839	511	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14730	H	5-25-13	CATHIE K LAKE	GASTAR EXPLORATION INC	1/8+	839	513	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14733	H	5-25-13	NICHOLAS J KLUG AND DEBRA L KL	GASTAR EXPLORATION INC	1/8+	842	374	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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10*14734	H	5-25-13	CLARENCE BAXTER, BY RODNEY BAX	GASTAR EXPLORATION INC	1/8+	842	376	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14735	H	5-25-13	GLENNALEE COZART	GASTAR EXPLORATION INC	1/8+	842	378	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14737	H	5-25-13	MARION PARSONS JR	GASTAR EXPLORATION INC	1/8+	844	83	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14728	I	5-25-13.2	IRIS K MOELLENDICK	GASTAR EXPLORATION INC	1/8+	839	509	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14729	I	5-25-13.2	BONNIE S SHANNON	GASTAR EXPLORATION INC	1/8+	839	511	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14730	I	5-25-13.2	CATHIE K LAKE	GASTAR EXPLORATION INC	1/8+	839	513	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14732	I	5-25-13.2	DAVID KLUG	GASTAR EXPLORATION INC	1/8+	839	517	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14734	I	5-25-13.2	CLARENCE BAXTER, BY RODNEY BAX	GASTAR EXPLORATION INC	1/8+	842	376	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14735	I	5-25-13.2	GLENNALEE COZART	GASTAR EXPLORATION INC	1/8+	842	378	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14737	I	5-25-13.2	MARION PARSONS JR	GASTAR EXPLORATION INC	1/8+	844	83	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*18120	J	5-25-12.1	KENT & BETTY MASON	TH EXPLORATION LLC	1/8+	927	75	NA	NA	NA	NA	NA	NA	NA
10*19969	K	5-25-12	MATTHEW E WEAR AND LEIGH ANN WEAR	TH EXPLORATION LLC	1/8+	948	232	NA	NA	NA	NA	NA	NA	NA
10*21128	K	5-25-12	BARBARA J CONWAY AND JAMES G CONWAY	TH EXPLORATION LLC	1/8+	952	218	NA	NA	NA	NA	NA	NA	NA
10*22193	K	5-25-12	CAROLE PARSONS	TH EXPLORATION LLC	1/8+	952	625	NA	NA	NA	NA	NA	NA	NA
10*22331	K	5-25-12	TIMOTHY J CAROLL AND KATHLEEN A CARROLL	TH EXPLORATION LLC	1/8+	957	472	NA	NA	NA	NA	NA	NA	NA
10*22454	K	5-25-12	NANCY ELAINE BELL	TH EXPLORATION LLC	1/8+	958	385	NA	NA	NA	NA	NA	NA	NA
10*22841	K	5-25-12	AARON PATRICK WEAR	TH EXPLORATION LLC	1/8+	962	313	NA	NA	NA	NA	NA	NA	NA
10*22983	K	5-25-12	SEAN MICHAEL WEAR	TH EXPLORATION LLC	1/8+	962	318	NA	NA	NA	NA	NA	NA	NA
10*22496	L	5-25-11.2	JAMES W KLUG	AMERICAN PETROLEUM PARTNERS LLC	1/8+	923	543	NA	NA	NA	NA	NA	NA	42/109 American Petroleum Partners Operating, LLC to TH Exploration, LLC
10*22494	M	5-25-11.1	EDWARD W KLUG & DIANNA KLUG	AMERICAN PETROLEUM PARTNERS LLC	1/8+	920	109	NA	NA	NA	NA	NA	NA	42/109 American Petroleum Partners Operating, LLC to TH Exploration, LLC

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Environmental Protection

AFFIDAVIT

STATE OF TEXAS            §  
                                          § SS  
COUNTY OF TARRANT    §

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

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

FURTHER, AFFIANT SAITH NOT.

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

David D. Kalish  
Affiant: David D. Kalish

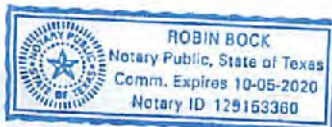
Jan Pest  
MARSHALL County 03:44:28 PM  
Instrument No 1416299  
Date Recorded 10/19/2016  
Document Type NIS  
Pages Recorded 1  
Book-Page 28-62  
Recording Fee \$5.00  
Additional \$6.00

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STATE OF TEXAS            §  
                                          § SS  
COUNTY OF TARRANT    §

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

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



My Commission Expires: 10-05-2020

Signature/Notary Public: Robin Bock

Name/Notary Public (Print): Robin Bock

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

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

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 TE 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 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 (b) of this Section 1, less and except the Excluded Assets, collectively, the "Conveyed Interests"):

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

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

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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*") INSO FAR AND ONLY INSO FAR 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





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June 22, 2018

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

RE: Hillrock 8HM

Subject: Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC will not be drilling, extracting or producing any minerals under any WV County or State Routes in the area reflected on the Hillrock 8HM well plat.

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

Sincerely,

Amy L. Miller  
Permitting Specialist – Appalachia Region

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

Date of Notice Certification: 06/22/2018

API No. 47- 051 - \_\_\_\_\_  
Operator's Well No. Hillrock 8HM  
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: <u>West Virginia</u>	UTM NAD 83	Easting: <u>519,682.61</u>
County: <u>Marshall</u>		Northing: <u>4,399,591.75</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>Terry E. and Deborah Simms</u>	
Watershed: <u>Fish Creek (HUC 10)</u>		

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

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  <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED  <input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED  <input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or  <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)  <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION  <input checked="" type="checkbox"/> 5. PUBLIC NOTICE  <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		<b>OOG OFFICE USE ONLY</b>  <input type="checkbox"/> RECEIVED/ NOT REQUIRED  <input type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED/ NOT REQUIRED  <input type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED  <input type="checkbox"/> RECEIVED
RECEIVED Office of Oil and Gas  <b>JUN 25 2018</b>  WV Department of Environmental Protection		

**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.

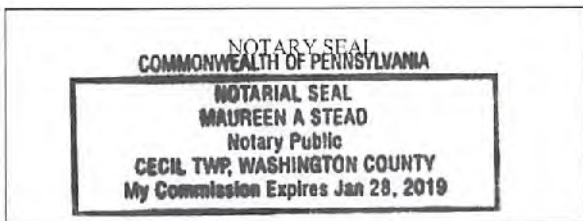
4705702063

**Certification of Notice is hereby given:**

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

Well Operator: Tug Hill Operating, LLC  
By: Amy L. Miller *Amy L. Miller*  
Its: Permitting Specialist  
Telephone: 724-749-8388

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



Subscribed and sworn before me this 22 day of JUNE 2018.  
Maureen A. Stead Notary Public  
My Commission Expires 1/29/19

**Oil and Gas Privacy Notice:**

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

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

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 6/21/2018 **Date Permit Application Filed:** 6/22/2018

Notice of:

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

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

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

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

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

SURFACE OWNER(s)

Name: 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: \_\_\_\_\_

\*Please attach additional forms if necessary

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Environmental Protection

WW-6A  
(8-13)

JUN 25 2018

API NO. 47-051 -  
OPERATOR WELL NO. Hillrock BHM  
Well Pad Name: SimmsWV Department of  
Environmental Protection**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

**Well Location Restrictions**

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

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

**Water Well Testing:**

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

**Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:**

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

**Written Comment:**

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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

### **Time Limits and Methods for Filing Comments.**

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

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

### **Comment Requirements**

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

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

### **Permit Denial or Condition**

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

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

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

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

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WW-6A  
(8-13)

API NO. 47- 651 -  
OPERATOR WELL NO. Hillrock 8HM  
Well Pad Name: Simms

**4705 102063**

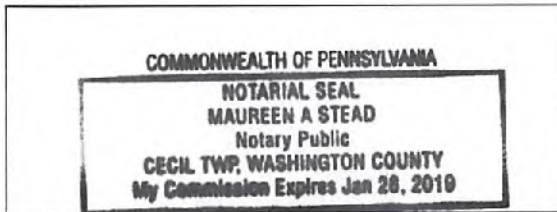
**Notice is hereby given by:**

Well Operator: Tug Hill Operating, LLC  
Telephone: 724-749-8386  
Email: amiller@tug-hillcp.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 [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



Subscribed and sworn before me this 21 day of JUNE 2018  
Maureen A Stead Notary Public  
My Commission Expires 1/28/19

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**JUN 25 2018**

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 8HM  
 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		

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JUN 25 2018

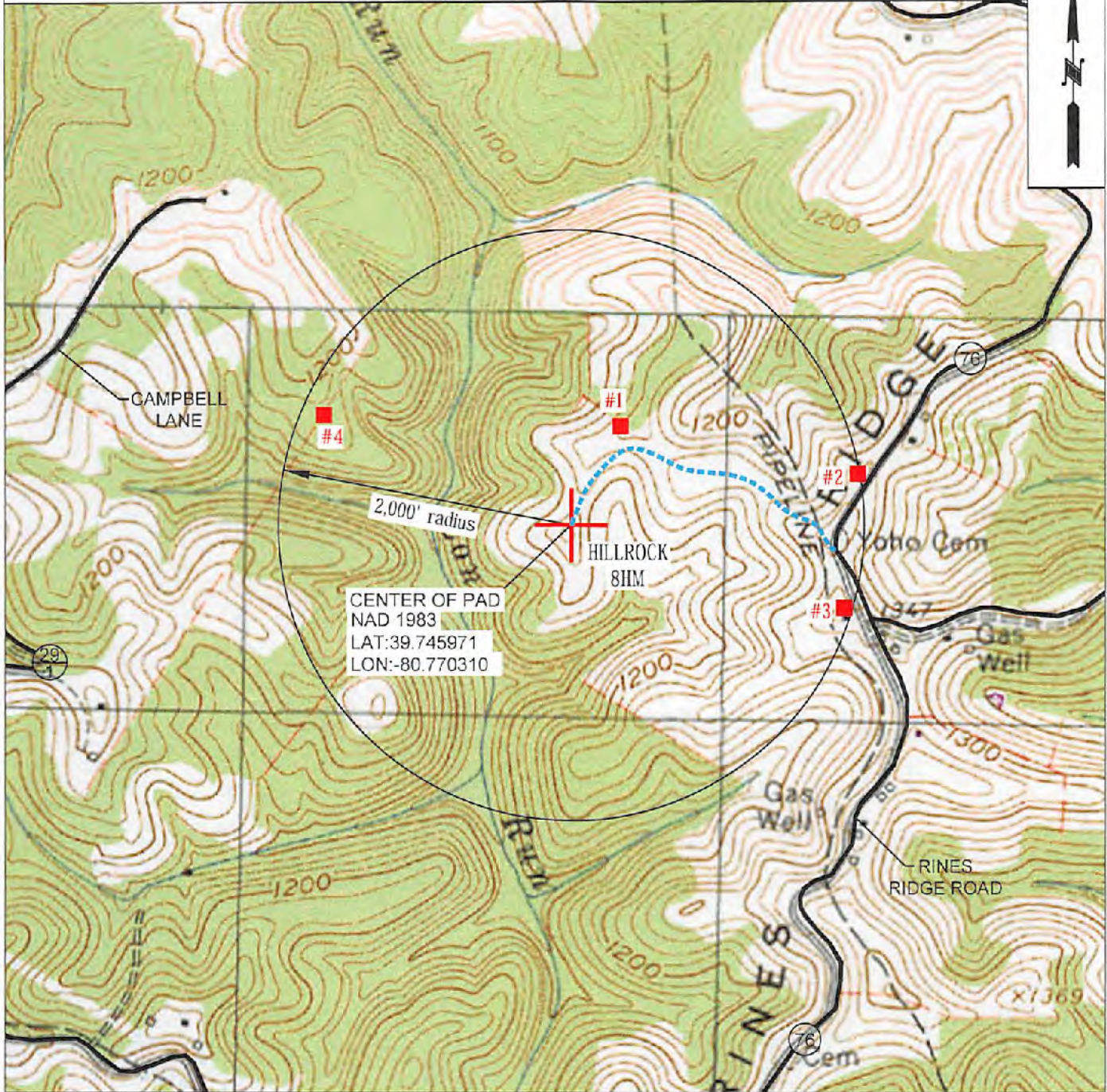
WV Department of  
Environmental Protection

# PROPOSED HILLROCK 8HM

SUPPLEMENT PG 1

WW-6A

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



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

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

**TOPO SECTION**  
NEW MARTINSVILLE 7.5'  
**SCALE:**  
1" = 1000'

**LEASE NAME**  
HILLROCK  
**DATE:**  
DATE: 06-11-2018



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

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

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

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

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

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

**Notice is hereby provided to:**

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Office of Oil and Gas

**JUN 25 2018**

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 Altn: Casey Saunders  
**Address:** 1000 CONSOL Energy Drive  
Canonsburg, PA 15317

WV Department of  
Environmental Protection

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:

<b>State:</b> <u>West Virginia</u>	<b>Approx. Latitude &amp; Longitude:</b> <u>39.7459021; -80.7702658</u>
<b>County:</b> <u>Marshall</u>	<b>Public Road Access:</b> <u>Rines Ridge Road (County Route 76)</u>
<b>District:</b> <u>Franklin</u>	<b>Watershed:</b> <u>Fish Creek (HUC 10)</u>
<b>Quadrangle:</b> <u>New Martinsville 7.5'</u>	<b>Generally used farm name:</b> <u>Simms, Terry E. and Deborah</u>

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> 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](http://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-hillcp.com

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

**Oil and Gas Privacy Notice:**

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

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

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 06/21/2018      **Date Permit Application Filed:** 06/22/2018

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

CERTIFIED MAIL                       HAND  
RETURN RECEIPT REQUESTED              DELIVERY

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

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

**Name:** 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:** 7089 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>519,682.61</u>
County:	<u>Marshall</u>		Northing:	<u>4,399,591.75</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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://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

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4705-02063

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

**Division of Highways**

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

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

May 16, 2018

Jill M. Newman  
Deputy Commissioner

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

Subject: DOH Permits for the Simms Well Pad, Marshall County  
Hillrock 8HM 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: Jonathan White  
Tug Hill Operating  
CH, OM, D-6  
File

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TUG HILL

4705 \* 02063

PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Hillrock 8HM

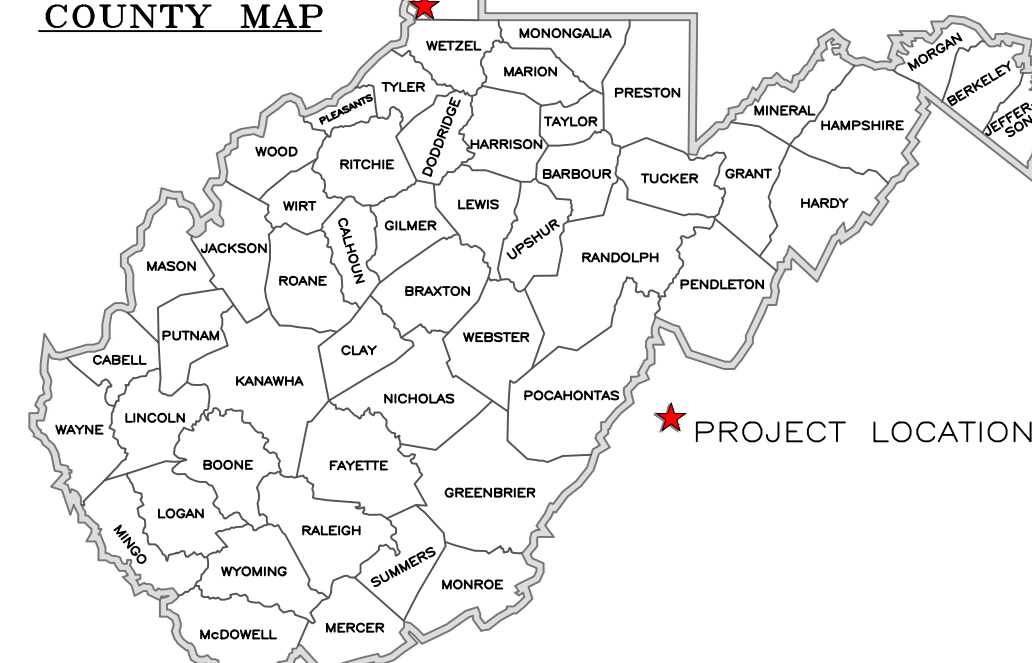
PRODUCT NAME:	CHEMICAL DESCRIPTION:	PRODUCT USE:	HAZARDOUS COMPONENT:
GBW-20C	Hemicellulase Breaker	Breaker - Water	None
ALPHA 1427		Biocide	Glutaraldehyde – CAS#000111-30-8 Quaternary ammonium chloride CAS# 007173-51-5 Alky dimethyl benzyl ammonium Chloride (C12-16) – CAS#068424-85-1 Ethanol – CAS#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

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**WEST VIRGINIA COUNTY MAP**



**WVDEP OOG  
ACCEPTED AS-BUILT**

*WJ* 7/3/2018

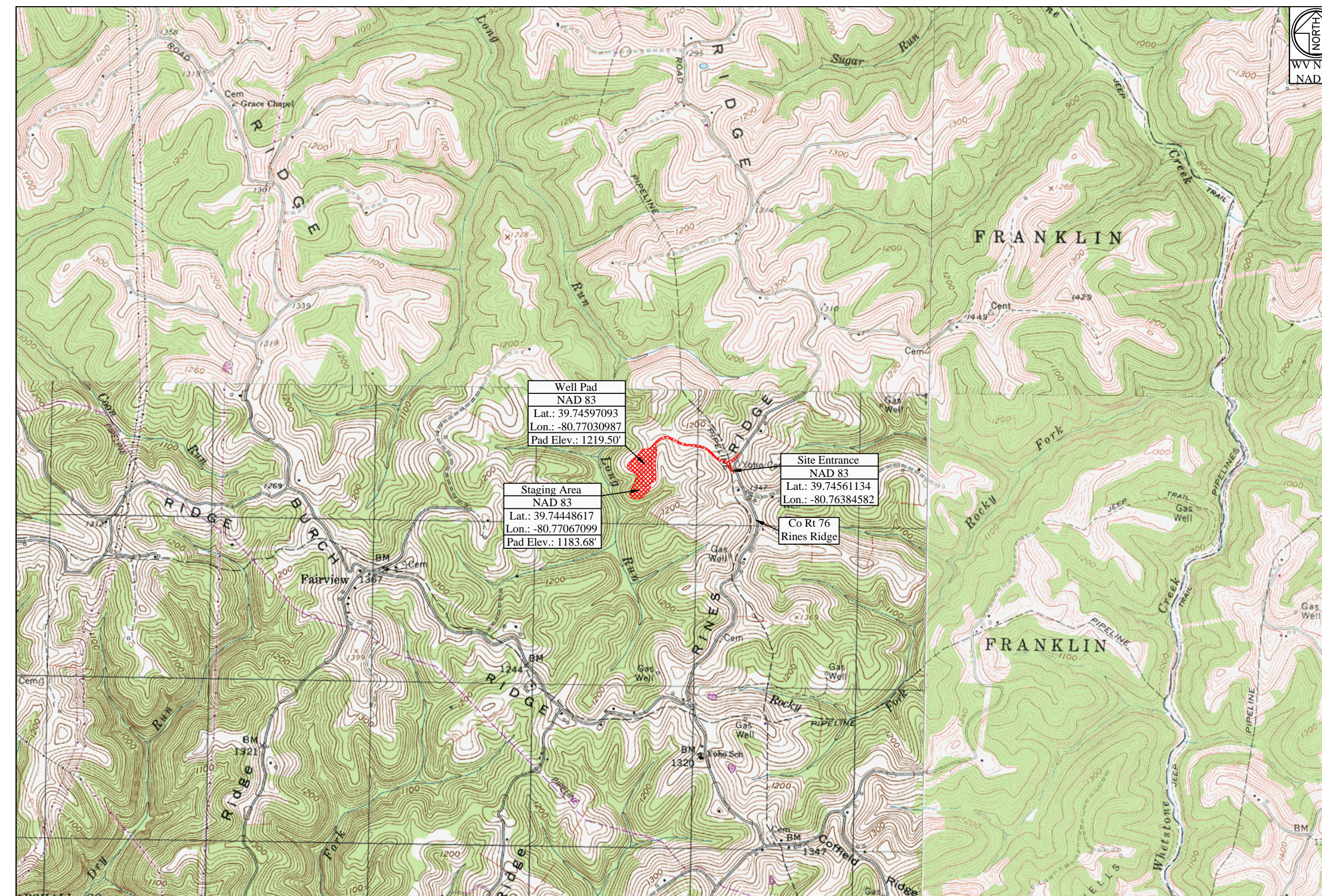
**Simms Well Site**  
Site Design, Construction Plan, &  
Erosion and Sediment Control Plans  
Tug Hill Operating  
Marshall County  
Franklin District  
Latitude 39.74597093°  
Longitude -80.77030987°  
Lower Fish Creek Watershed

**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

**Property Owner Information - Simms Well Site**

Franklin District - Marshall County							
Owner	TM - Parcel	Well Pad	Staging	Access Road	Topsol/Excess	Add. Clearing	Total Disturbed
Kenneth Corley et ux	17-11	0.00	0.00	0.67	0.00	0.64	1.31
Terry Simms et ux	23-7	3.19	1.34	0.66	0.24	4.87	10.30
Site Totals (Ac)		3.19	1.34	1.33	0.24	5.51	11.61

**Exhibit A: Final Design: Issue for Permitting**



WV State Plane Coordinate System  
North Zone, NAD 83  
Elevations Based on NAV88  
Established By Survey Grade GPS  
and OPUS Post-Processing

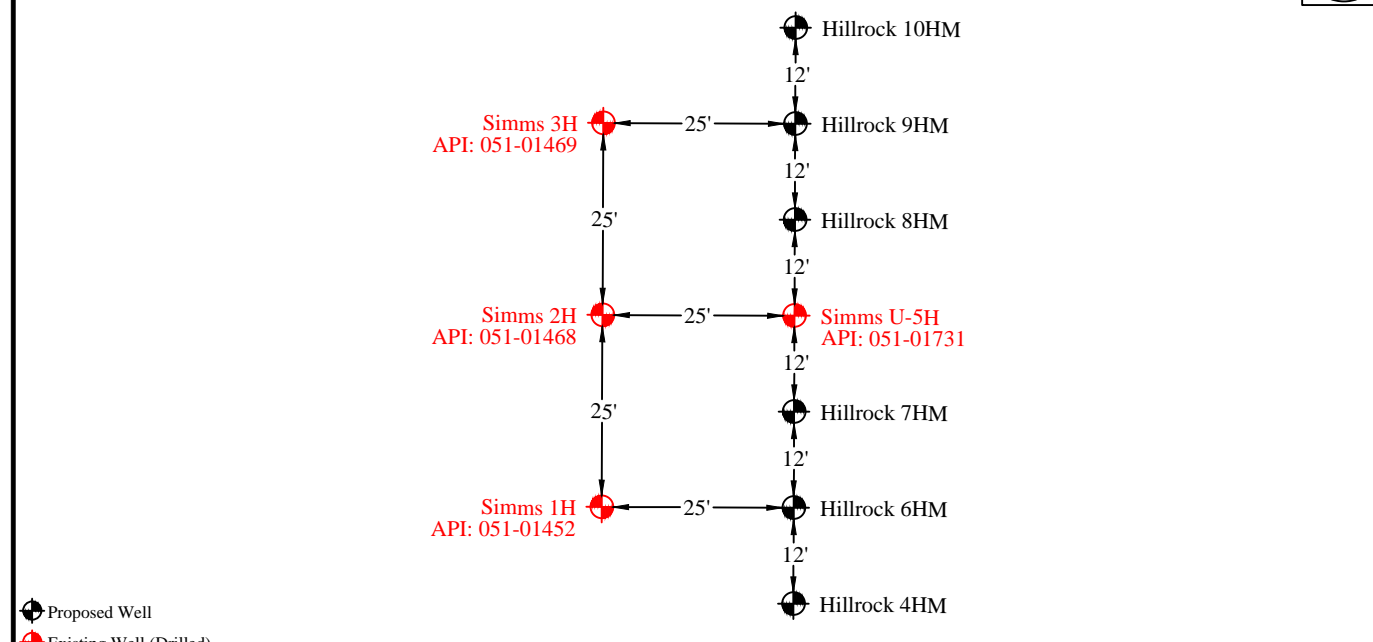
Access Road			
Surface Owner	TM - Parcel	Road Length	Type
Kenneth Corley et ux	17-11	1,258.30'	New Access Road Construction
Terry Simms et ux	23-7	1,267.30'	New Access Road Construction

Disturbed Area	
Well Pad Construction	3.19 Ac
Staging Area Construction	1.34 Ac
Access Road Construction	1.33 Ac
Topsol / Excess Material	0.24 Ac
Additional Clearing	5.51 Ac
Total Disturbed Area	11.61 Ac
<b>Additional Information</b>	
Total Wasted Acres Disturbed	0.00 Ac
Total Linear Feet of Access Road	2,525.60'

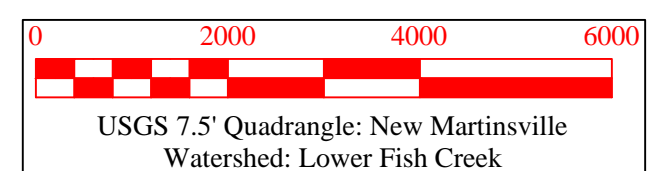
**Simms Well Site Quantities**

Description	Cut (CY)	Fill (CY)	Spoil (CY)	Borrow (CY)	Max. Slope	Length of Slope
Well Pad Grading	586.75	5,998.13		5,411.38	N/A	N/A
Access Road Mountable Berm	0.89	255.00		254.11	17.12%	58.42'
Staging Area	7,237.57	2,239.23		4,998.34	N/A	N/A
Staging Area Access Road	152.50	709.44		556.94	12.00%	319.31'
Topsol/Excess Material Stockpile	0.00	2,007.36		2,007.36	N/A	N/A
Totals	7,977.71	11,209.16	4,998.34	8,229.79		
Total Spoil (CY) =		-3,231.45 (Excess Spoil Capacity)				

Site Entrance	Center of Well Pad	Center of Staging Area
WV-N NAD 83 N: 456189.29 WV-N NAD 83 E: 1613138.72 WV-N NAD 27 N: 456153.02 WV-N NAD 27 E: 1644576.34 Lat. NAD 83: 39.74561134 Lon. NAD 83: -80.76384582 Lat. NAD 27: 39.74553374 Lon. NAD 27: -80.76403326 UTM 17 NAD 83 N: 4399549.85 UTM 17 NAD 83 E: 520232.66	WV-N NAD 83 N: 456345.89 WV-N NAD 83 E: 1611323.16 WV-N NAD 27 N: 456399.67 WV-N NAD 27 E: 1642760.82 Lat. NAD 83: 39.74597093 Lon. NAD 83: -80.77030987 Lat. NAD 27: 39.74589345 Lon. NAD 27: -80.77049703 UTM 17 NAD 83 N: 4399588.32 UTM 17 NAD 83 E: 519678.75 Pad Elev.: 1219.50'	WV-N NAD 83 N: 458906.56 WV-N NAD 83 E: 1611213.98 WV-N NAD 27 N: 455770.34 WV-N NAD 27 E: 1642631.66 Lat. NAD 83: 39.74448617 Lon. NAD 83: -80.77067099 Lat. NAD 27: 39.74448668 Lon. NAD 27: -80.77085805 UTM 17 NAD 83 N: 4399423.45 UTM 17 NAD 83 E: 519648.25 Pad Elev.: 1183.68'



Well Table			
Simms 1H	Simms 2H	Simms 3H	Simms U-5H
WV-N NAD 83 N: 456320.03 WV-N NAD 83 E: 1611310.62 WV-N NAD 27 N: 456283.80 WV-N NAD 27 E: 1642748.27 Lat. NAD 83: 39.74589944 Lon. NAD 83: -80.77055318 Lat. NAD 27: 39.74582196 Lon. NAD 27: -80.77054033 UTM 17 NAD 83 (m) N: 4399580.37 UTM 17 NAD 83 (m) E: 519675.06	WV-N NAD 83 N: 456345.42 WV-N NAD 83 E: 1611310.85 WV-N NAD 27 N: 456309.19 WV-N NAD 27 E: 1642748.47 Lat. NAD 83: 39.74596914 Lon. NAD 83: -80.77035362 Lat. NAD 27: 39.74589166 Lon. NAD 27: -80.77054078 UTM 17 NAD 83 (m) N: 4399588.17 UTM 17 NAD 83 (m) E: 519675.00	WV-N NAD 83 N: 456370.02 WV-N NAD 83 E: 1611310.81 WV-N NAD 27 N: 456333.79 WV-N NAD 27 E: 1642748.47 Lat. NAD 83: 39.74603667 Lon. NAD 83: -80.77035500 Lat. NAD 27: 39.74595919 Lon. NAD 27: -80.77054216 UTM 17 NAD 83 (m) N: 4399595.60 UTM 17 NAD 83 (m) E: 519674.86	WV-N NAD 83 N: 456344.95 WV-N NAD 83 E: 1611335.95 WV-N NAD 27 N: 456308.73 WV-N NAD 27 E: 1642773.61 Lat. NAD 83: 39.74599884 Lon. NAD 83: -80.77026434 Lat. NAD 27: 39.74589136 Lon. NAD 27: -80.77051569 UTM 17 NAD 83 (m) N: 4399591.75 UTM 17 NAD 83 (m) E: 519682.61
Hillrock 4HM	Hillrock 6HM	Hillrock 7HM	Hillrock 8HM
WV-N NAD 83 N: 456308.95 WV-N NAD 83 E: 1611335.79 WV-N NAD 27 N: 456272.73 WV-N NAD 27 E: 1642773.44 Lat. NAD 83: 39.74587001 Lon. NAD 83: -80.77026312 Lat. NAD 27: 39.74579253 Lon. NAD 27: -80.77045028 UTM 17 NAD 83 (m) N: 4399577.13 UTM 17 NAD 83 (m) E: 519682.78	WV-N NAD 83 N: 456320.95 WV-N NAD 83 E: 1611335.84 WV-N NAD 27 N: 456284.73 WV-N NAD 27 E: 1642773.50 Lat. NAD 83: 39.74590295 Lon. NAD 83: -80.77026353 Lat. NAD 27: 39.74582547 Lon. NAD 27: -80.77045069 UTM 17 NAD 83 (m) N: 4399580.78 UTM 17 NAD 83 (m) E: 519682.74	WV-N NAD 83 N: 456332.95 WV-N NAD 83 E: 1611335.90 WV-N NAD 27 N: 456296.73 WV-N NAD 27 E: 1642773.55 Lat. NAD 83: 39.74592590 Lon. NAD 83: -80.77026393 Lat. NAD 27: 39.74585841 Lon. NAD 27: -80.77045109 UTM 17 NAD 83 (m) N: 4399584.44 UTM 17 NAD 83 (m) E: 519682.70	WV-N NAD 83 N: 456356.95 WV-N NAD 83 E: 1611336.01 WV-N NAD 27 N: 456320.73 WV-N NAD 27 E: 1642773.66 Lat. NAD 83: 39.74600178 Lon. NAD 83: -80.77026474 Lat. NAD 27: 39.74592430 Lon. NAD 27: -80.77045191 UTM 17 NAD 83 (m) N: 4399591.75 UTM 17 NAD 83 (m) E: 519682.61
Hillrock 9HM	Hillrock 10HM		
WV-N NAD 83 N: 456368.95 WV-N NAD 83 E: 1611336.03 WV-N NAD 27 N: 456332.73 WV-N NAD 27 E: 1642773.68 Lat. NAD 83: 39.74603472 Lon. NAD 83: -80.77026528 Lat. NAD 27: 39.74595724 Lon. NAD 27: -80.77045244 UTM 17 NAD 83 (m) N: 4399595.41 UTM 17 NAD 83 (m) E: 519682.55	WV-N NAD 83 N: 456380.95 WV-N NAD 83 E: 1611336.12 WV-N NAD 27 N: 456344.72 WV-N NAD 27 E: 1642773.77 Lat. NAD 83: 39.74606767 Lon. NAD 83: -80.77026555 Lat. NAD 27: 39.74599919 Lon. NAD 27: -80.77045272 UTM 17 NAD 83 (m) N: 4399599.06 UTM 17 NAD 83 (m) E: 519682.52		



**Project Contacts**

Tug Hill Operating	Survey and Engineer
Jonathan White - Regulatory Analyst 724-485-2000 Off. 304-689-7676 Cell	Kenneth Kelly 304-338-6985 Off.
Geoff Radler - V.P. Production 817-632-5200 Off.	John P. See 304-442-0220 Off.
	Zachary Summerfield 304-338-6987 Off.

**Environmental:**

Wetland Delineations as provided by Allstar Ecology dated April 9, 2018

**Topographic Information:**

The topographic information shown herein is based on aerial photography by Blue Mountain Aerial Mapping, Burton, WV

MISS UTILITY OF WEST VIRGINIA  
1-800-245-8484  
West Virginia State Law  
Section XIV, Chapter 24-C requires that you call two business days before you dig in the state of West Virginia.  
**IT'S THE LAW**  
Know what's below. Call before you dig.

Tug Hill Operating will obtain an Encroachment Permit (Form MM-109) from the WV Department of Transportation, Division of Highways, prior to the commencement of any construction activities

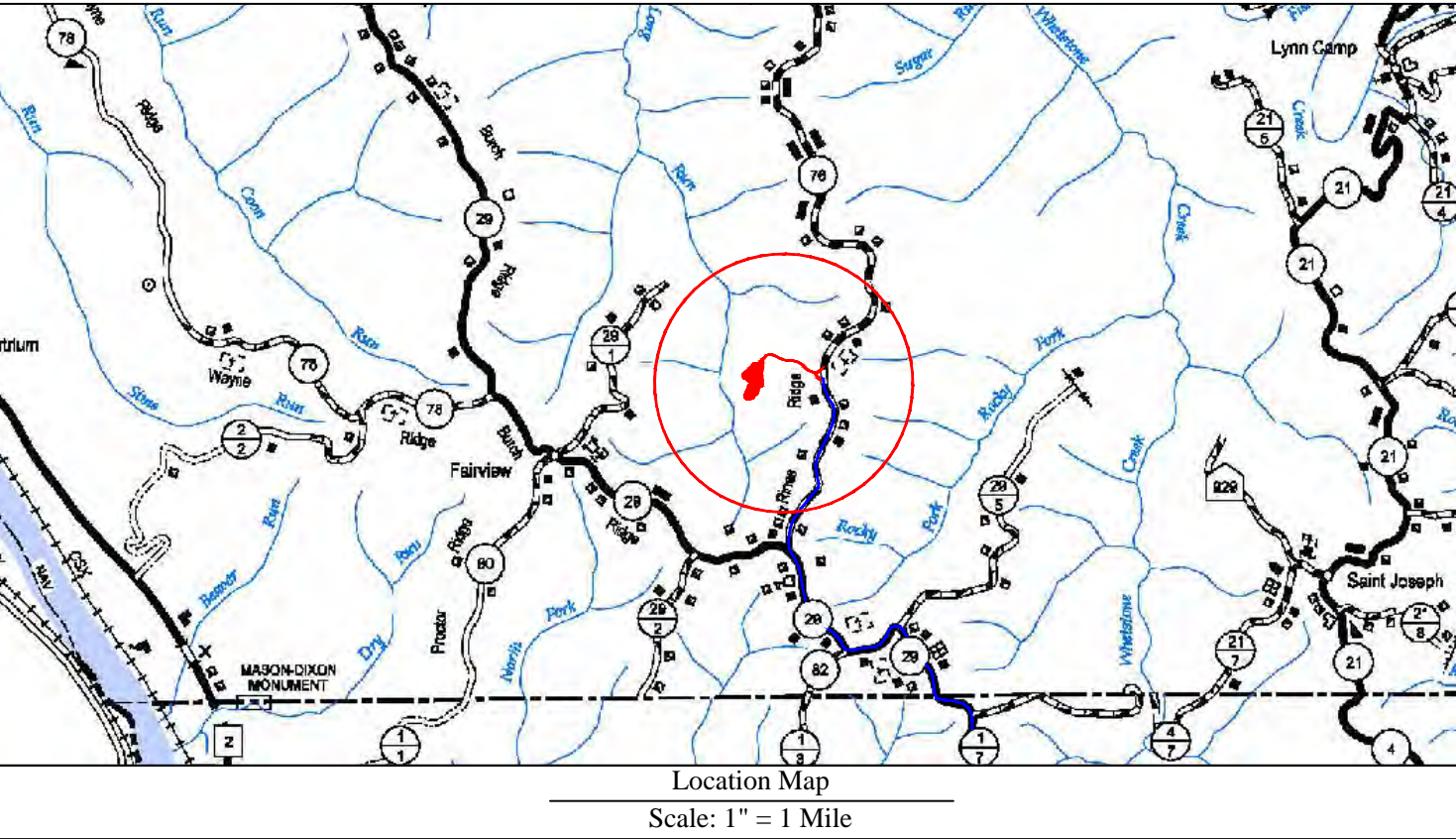
The WV Mines Website was consulted. Previous (Current) mining activities are not within the AOI.

WVDEP Website files show that there are active and/or abandoned gas wells within the AOI

**Approach Routes:**

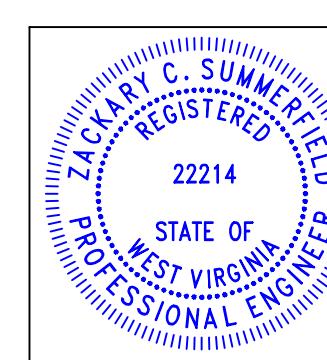
From the intersection of OH Rt 7 and WV Rt 2 near New Martinsville, WV. Follow WV Rt 2 North for 4.5 mi. Turn Right onto Co Rt 89 (Proctor Creek Rd). Follow Co Rt 89 for 5.9 mi. Turn Left onto Co Rt 1/7 (Coffield Ridge). Follow Co Rt 1/7 for 1.7 mi. Co Rt 1/7 becomes Co Rt 29 (Coffield Ridge). Follow Co Rt 29 for 1.4 mi. Turn Right onto Co Rt 76 (Rines Ridge Rd). Follow Co Rt 76 for 1.1 mi. The site entrance will be on the Left (West) side of the road.

Site Locations (NAD 27)			Site Locations (NAD 83)		
Structure	Latitude (DD)	Longitude (DD)	Structure	Latitude (DD)	Longitude (DD)
Site Entrance	39.74553374	-80.76403326	Site Entrance	39.74561134	-80.76384582
Center of Well Pad	39.74589345	-80.77049703	Center of Well Pad	39.74597093	-80.77030987
Center of Staging Area	39.74448668	-80.77085805	Center of Staging Area	39.74448617	-80.77067099



**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 barn greater than 2,500 SF used for poultry or dairy measured from the center of the pad.
- \*100' from the edge of disturbance to wetlands, perennial streams, natural or artificial lake, pond or reservoir.
- \*300' from the edge of disturbance to a naturally reproducing trout stream.
- \*1,000' of a surface or ground water intake to a public water supply.



Design Certification  
The drawings, construction notes and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas (OS&G).  
All Plans, Sheets, and/or Reference Diagrams included in this design constitute a complete set of plans. A complete set of plans is necessary to construct the site in accordance with the design.  
Zachary C. Summerfield  
RPE 22214  
Kelly Surveying PLLC  
CO# 00423-09  
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	Clearing Exhibit
5	Overall Plan View
6-7	E&S Plan View
8	Toe Key Exhibit
9-10	Plan View
11	Cross Sections - Well Pad
12	Cross Sections - Well Pad Access Road
13	Cross Sections - Staging Area
G1-G2	Geotechnical Exhibit
L1	Landowner Disturbed Area Exhibit
S1	Site Reclamation
M1-M3	Production Exhibit
D1-D2	Erosion and Sediment Control Details
R1	Access Road Details
P1	Pad Details

Revision  
Design  
Design: WVDEP Corrections

Date  
05-24-2018  
07-02-2018

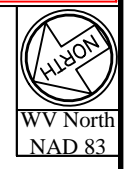


THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

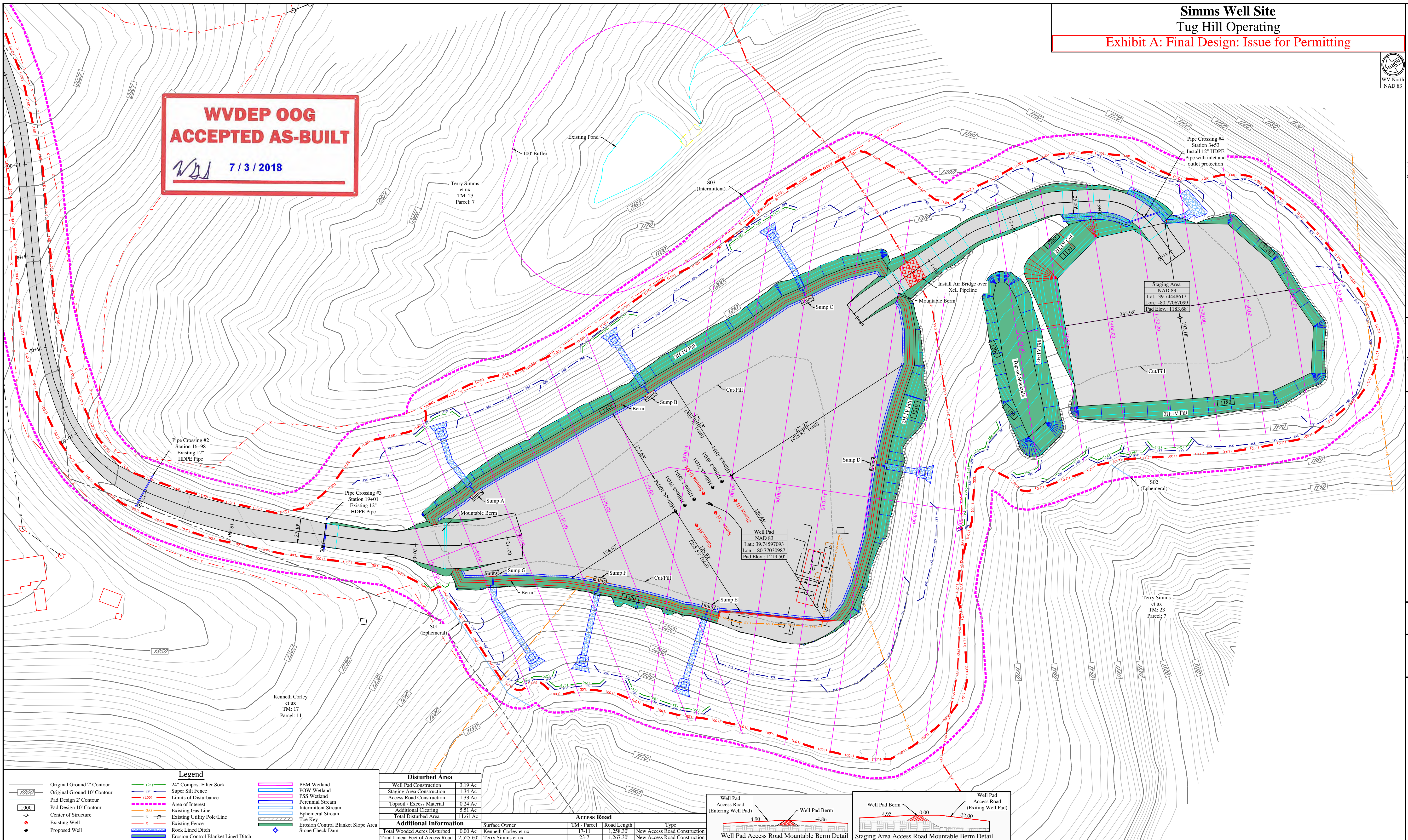


Cover Sheet  
**Simms Well Site**  
Franklin District  
Marshall County, WV

Date: 05/24/2018  
Scale: As Shown  
Designed By: ZS  
File No.  
Sheet 1 of 13



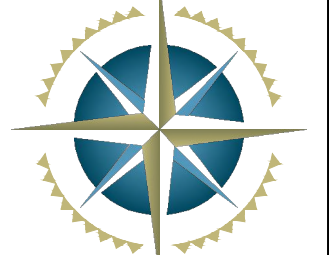
**WVDEP OOG**  
**ACCEPTED AS-BUILT**  
*WJ* 7/3/2018



Revision  
 Design  
 Design: WVDEP Corrections

Date  
 05-24-2018  
 07-02-2018

**TUG HILL**  
 OPERATING



THIS DOCUMENT  
 PREPARED FOR  
 TUG HILL  
 OPERATING

**Kelly Surveying**  
 2500 254  
 2nd St., WV 26299  
 304-338-6985

Site Plan  
**Simms Well Site**  
 Franklin District  
 Marshall County, WV

**Legend**

	Original Ground 10' Contour		Pad Design 2' Contour		Pad Design 10' Contour
	Center of Structure		Existing Well		Proposed Well
	24" Composite Filter Sock		Super Silt Fence		Limits of Disturbance
	Area of Interest		Existing Gas Line		Existing Utility Pole/Line
	Existing Fence		Rock Lined Ditch		Erosion Control Blanket Lined Ditch
	PEM Wetland		POW Wetland		PSS Wetland
	Perennial Stream		Intermittent Stream		Ephemeral Stream
	Toe Key		Erosion Control Blanket Slope Area		Stone Check Dam

**Disturbed Area**

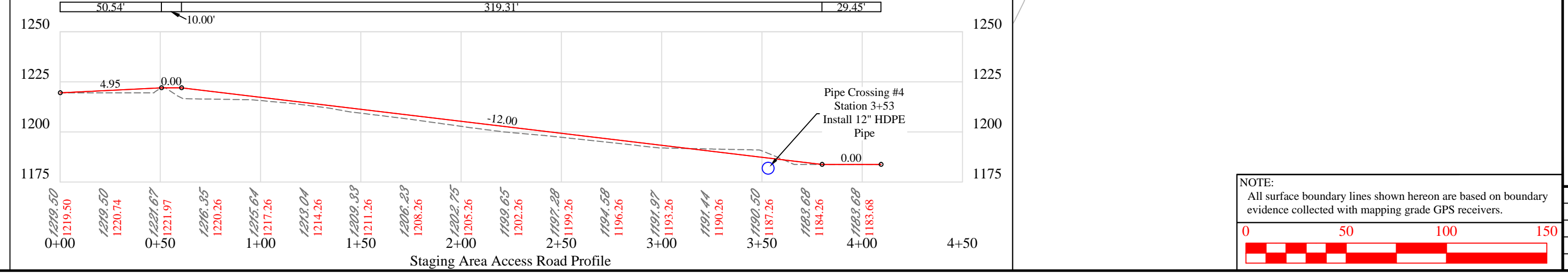
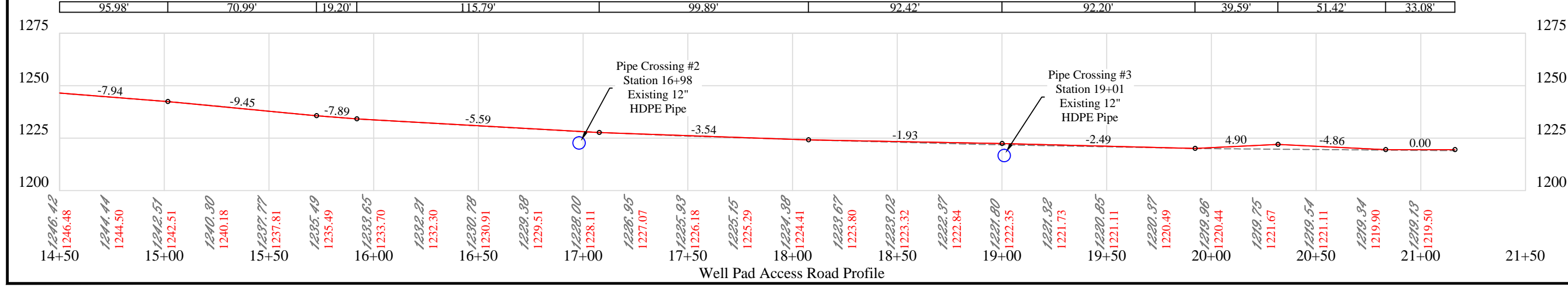
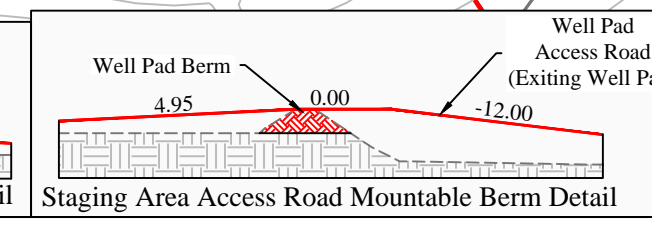
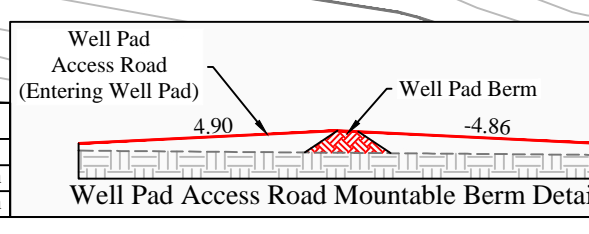
Well Pad Construction	3.19 Ac
Staging Area Construction	1.34 Ac
Access Road Construction	1.33 Ac
Topsoil / Excess Material	0.24 Ac
Additional Clearing	5.51 Ac
<b>Total Disturbed Area</b>	<b>11.61 Ac</b>

**Additional Information**

Total Worsened Acres Disturbed	0.00 Ac
Total Linear Feet of Access Road	2,525.60'

**Access Road**

Surface Owner	TM - Parcel	Road Length	Type
Kenneth Corley et ux	17-11	1,238.30'	New Access Road Construction
Terry Simms et ux	23-7	1,267.30'	New Access Road Construction



NOTE:  
 All surface boundary lines shown hereon are based on boundary evidence collected with mapping grade GPS receivers.