



west virginia department of environmental protection

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

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

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

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for HILLROCK S-13HU
47-051-02273-00-00

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

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

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

James A. Martin
Chief

A blue ink signature of James A. Martin, written in a cursive style, is positioned to the right of his name and title.

Operator's Well Number: HILLROCK S-13HU
Farm Name: TERRY & DEBORAH L. SIIM⁺
U.S. WELL NUMBER: 47-051-02273-00-00
Horizontal 6A New Drill
Date Issued: 1/23/2020

PERMIT CONDITIONS

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

CONDITIONS

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

PERMIT CONDITIONS

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



west virginia department of environmental protection

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

Randall M. Albert, Chairman
dep.wv.gov

December 18, 2019

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

RE: Application for Deep Well Permit – API #47-051-02273

COMPANY: Tug Hill Operating, LLC

FARM: Terry E. and Deborah Simms

Hillrock S-13HU

COUNTY: Marshall

DISTRICT: Franklin

QUAD: New Martinsville

The deep well review of the application for the above company is **Approved to drill to Trenton for Point Pleasant completion. Pooling Docket No. 291-291**

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

1. Comments to Notice of Deviation filed? No
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: yes; Docket 291-291 Exception Location Hearing; Hillrock S-15HU 47-051-02263; Hillrock S-14HU 47-051-02262; Hillrock S-12HU 47-051-02272; Corley N-9HU 47-051-01983, Corley N-10HU 47-051-01998; Burch Ridge S-7HU 47-051-02194; Simms U-5H 47-051-01731
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

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

Susan Rose
Administrator

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

1) Well Operator: Tug Hill Operating, LLC 494510851 Marshall Franklin Powhatan Point 7
Operator ID County District Quadrangle

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

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

4) Elevation, current ground: 1219' Elevation, proposed post-construction: 1219'

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

Other _____

(b) If Gas Shallow _____ Deep

Horizontal

6) Existing Pad: Yes or No Yes

J 7/8/19

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Point Pleasant is the target formation at a depth of 11,390' - 11,270' - thickness of 120' and anticipated pressure of approx. 9500 psi.

8) Proposed Total Vertical Depth: 11,540'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 23,057'

11) Proposed Horizontal Leg Length: 10,607.19'

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

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

14) Approximate Saltwater Depths: 2,167'

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

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

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

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

WV Department of
Environmental Protection

WW-6B
(04/15)

4705-02273
API NO. 47-051
OPERATOR WELL NO. Hillrock S-13HU
Well Pad Name: Simms

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water	20"	NEW	J55	106.5#	920'	920'	1,493FT^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2701'	2701'	1,912FT^3(CTS)
Intermediate	9 5/8"	NEW	HPP110	47#	10,210'	10,210'	3,332FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	23,057'	23,057'	5,455FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		10,762'	
Liners							

Jim
7/8/19

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

PACKERS

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

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WW-6B
(10/14)

4705102273
API NO. 47-051 -
OPERATOR WELL NO. Hillrock S-13HU
Well Pad Name: Simms

JMS/19

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP. Drill curve and lateral per proposed well plan, run and cement production casing. Perform CBL from 60 deg to surface, make cleanout run, and stimulate.

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

Well to be completed with approximately 26,512,500 lb proppant and 409,903 bbl of water. Max rate = 80 bpm; max psi = 12,000#.

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

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

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

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25) Proposed borehole conditioning procedures:

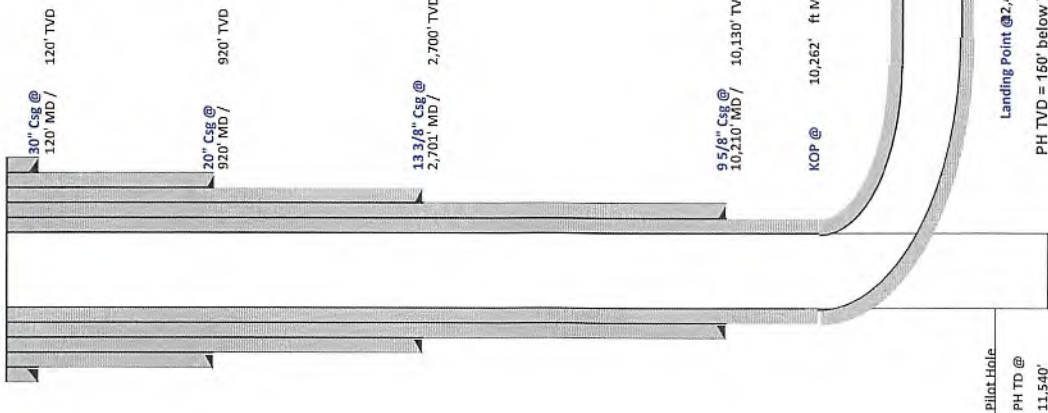
Will circulate a minimum of 3 hours at TD, short trip to curve, circulate bottoms up, check for flow, POOH

*Note: Attach additional sheets as needed.

4705102273



WELL NAME: Hillrock 15-13HU COUNTY: Marshall
 STATE: WV DISTRICT: Franklin
 DF-Elev: 1,219' GL Elev: 1,219'
 TD: 23,057'
 TH Latitude: 39.74577118
 TH Longitude: -80.77026191
 BH Latitude: 39.71890101
 BH Longitude: -80.74995661



FORMATION TOPS		Depth TVD
Formation	Depth TVD	
Deepest Fresh Water	812'	
Sewickley Coal	706'	
Pittsburgh Coal	806'	
Big Lime	1,992'	
Berea	2,530'	
Tully	6,400'	
Marcellus	6,494'	
Onondaga	6,528'	
Salina	7,248'	
Lockport	8,294'	
Utica	11,009'	
Point Pleasant	11,270'	
Landing Depth	11,320'	
Trenton	11,390'	
Pilot Hole TD	11,540'	

CASING SUMMARY						
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Top of Cement
Conductor	36	30	120'	120'	BW	Surface
Surface	26	20	920'	920'	106.5	Surface
Intermediate 1	17 1/2	13 3/8	2,701'	2,700'	54.5	Surface
Intermediate 2	12 1/4	9 5/8	10,210'	10,130'	47	Surface
Production	8 1/2	5 1/2	23,057'	11,487'	23	Surface

CEMENT SUMMARY			DRILLING DETAILS		
Sacks	Class	Density	Fluid Type	Centralizer Notes	
338	A	15.6	Air	None	
1,611	A	15.6	Air	3 Centralizers at equal distance	
2,071	A	15	Air	1 Centralizer every other ft	
2,819	A	14.5	Air	1 Centralizer every other ft	
4,836	A	15	Air / SOBM	1 every other joint in lateral; 1 per joint in curve; 1 every other ft to sfc	

per 7/8/19

Lateral TD @ 23,057' ft MD
 11,487' ft TVD

Landing Point @ 2,452' MD / 11,320' TVD
 PH TVD = 150' below Trenton Top

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Tug Hill Operating, LLC Casing and Cement Program

Hillrock 1S-13HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	920'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,701'	CTS
Intermediate 2	9 5/8"	HP110	12 1/4"	10,210'	CTS
Production	5 1/2"	P110	8 1/2"	23,057'	CTS

Cement

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

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

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

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

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4705 02273



Well Site Safety Plan

Tug Hill Operating, LLC

Jan 2/13/19

Well Name: Hillrock S-13HU

Pad Location: Simms

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

NORTHING -4,399,566.16

EASTING -519,682.92

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

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

Data Sources Reviewed:

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

Contacted Devin Ducoeur 724-705-0444, dducoeur@dpslandservices.com DPS GIS (4/15/2019) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

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

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

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

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Permit well - Hillrock 15-13HU

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

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705101452	Tug Hill Operating	6584' TVD 11386' MD	Marcellus	Unknown	No, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101468	Tug Hill Operating	6599' TVD 12685' MD	Marcellus	Unknown	No, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101469	Tug Hill Operating	6631' TVD 12825' MD	Marcellus	Unknown	No, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101731	Tug Hill Operating	11492' TVD 16804' MD	Point Pleasant	Unknown	Yes, existing Point Pleasant producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Point Pleasant horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705100104	Manufacturers Light & Heat	2943' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation.	Well was plugged 9/13/1975
4705102064	Tug Hill Operating	n/a	n/a	n/a	No	Permit
4705102066	Tug Hill Operating	n/a	n/a	n/a	No	Permit
4705102063	Tug Hill Operating	n/a	n/a	n/a	No	Permit
4705102062	Tug Hill Operating	n/a	n/a	n/a	No	Permit
4705102061	Tug Hill Operating	n/a	n/a	n/a	No	Permit
4705102055	Tug Hill Operating	n/a	n/a	n/a	No	Permit
4705170360	Manufacturers Light & Heat	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705170355	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705170356	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705170219	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4710371611	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete

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Well County - 51 Permit - 01452

Well Information

Well ID	Well Name	Well Type	Well Status	Well Depth	Well Completion	Well Production	Well Location	Well Operator
W11111	Well 1	Oil	Active	1000	1000	1000	1000	1000
W1112	Well 2	Gas	Active	1000	1000	1000	1000	1000
W1113	Well 3	Oil	Active	1000	1000	1000	1000	1000
W1114	Well 4	Gas	Active	1000	1000	1000	1000	1000
W1115	Well 5	Oil	Active	1000	1000	1000	1000	1000
W1116	Well 6	Gas	Active	1000	1000	1000	1000	1000
W1117	Well 7	Oil	Active	1000	1000	1000	1000	1000
W1118	Well 8	Gas	Active	1000	1000	1000	1000	1000
W1119	Well 9	Oil	Active	1000	1000	1000	1000	1000
W1120	Well 10	Gas	Active	1000	1000	1000	1000	1000

Production Data Information

Well ID	Month	Production	Units
W1111	Jan	1000	1000
W1111	Feb	1000	1000
W1111	Mar	1000	1000
W1111	Apr	1000	1000
W1111	May	1000	1000
W1111	Jun	1000	1000
W1111	Jul	1000	1000
W1111	Aug	1000	1000
W1111	Sep	1000	1000
W1111	Oct	1000	1000
W1111	Nov	1000	1000
W1111	Dec	1000	1000

Well Status Information

Well ID	Status	Reason
W1111	Active	Normal
W1112	Active	Normal
W1113	Active	Normal
W1114	Active	Normal
W1115	Active	Normal
W1116	Active	Normal
W1117	Active	Normal
W1118	Active	Normal
W1119	Active	Normal
W1120	Active	Normal

Well County - 51 Permit - 01453

Well Information

Well ID	Well Name	Well Type	Well Status	Well Depth	Well Completion	Well Production	Well Location	Well Operator
W1211	Well 1	Oil	Active	1000	1000	1000	1000	1000
W1212	Well 2	Gas	Active	1000	1000	1000	1000	1000
W1213	Well 3	Oil	Active	1000	1000	1000	1000	1000
W1214	Well 4	Gas	Active	1000	1000	1000	1000	1000
W1215	Well 5	Oil	Active	1000	1000	1000	1000	1000
W1216	Well 6	Gas	Active	1000	1000	1000	1000	1000
W1217	Well 7	Oil	Active	1000	1000	1000	1000	1000
W1218	Well 8	Gas	Active	1000	1000	1000	1000	1000
W1219	Well 9	Oil	Active	1000	1000	1000	1000	1000
W1220	Well 10	Gas	Active	1000	1000	1000	1000	1000

Production Data Information

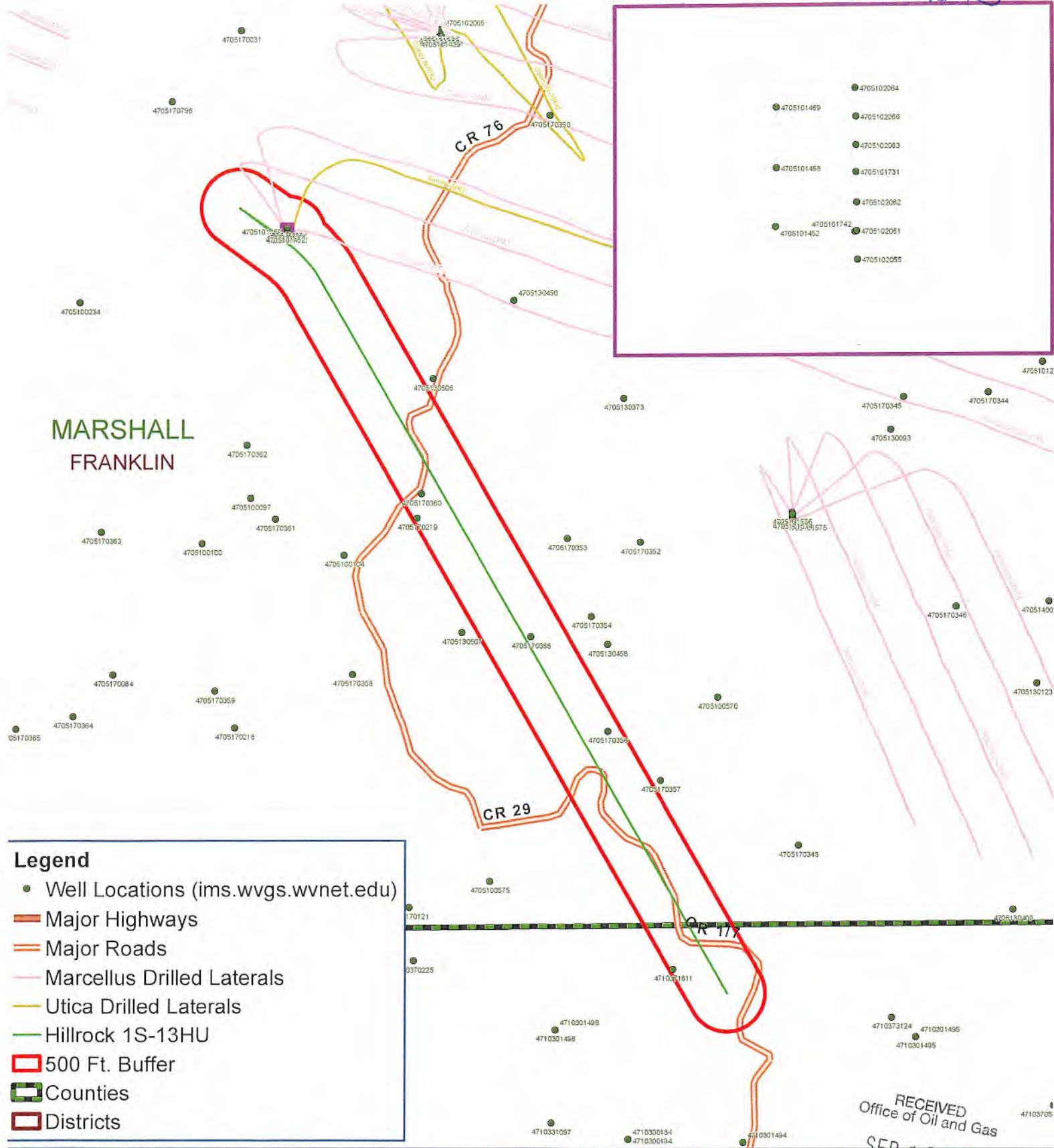
Well ID	Month	Production	Units
W1211	Jan	1000	1000
W1211	Feb	1000	1000
W1211	Mar	1000	1000
W1211	Apr	1000	1000
W1211	May	1000	1000
W1211	Jun	1000	1000
W1211	Jul	1000	1000
W1211	Aug	1000	1000
W1211	Sep	1000	1000
W1211	Oct	1000	1000
W1211	Nov	1000	1000
W1211	Dec	1000	1000

Well Status Information

Well ID	Status	Reason
W1211	Active	Normal
W1212	Active	Normal
W1213	Active	Normal
W1214	Active	Normal
W1215	Active	Normal
W1216	Active	Normal
W1217	Active	Normal
W1218	Active	Normal
W1219	Active	Normal
W1220	Active	Normal

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SI-02273

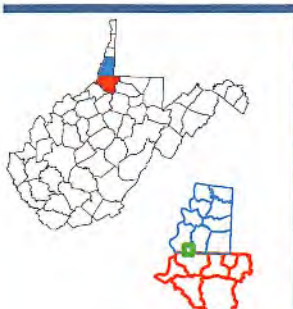


● 4705101469	● 4705102064
● 4705101468	● 4705102066
● 4705101742	● 4705102063
● 4705101452	● 4705101731
● 4705102055	● 4705102062
	● 4705102081
	● 4705102055

MARSHALL
FRANKLIN

Legend

- Well Locations (ims.wvgs.wvnet.edu)
- Major Highways
- Major Roads
- Marcellus Drilled Laterals
- Utica Drilled Laterals
- Hillrock 1S-13HU
- 500 Ft. Buffer
- Counties
- Districts



Hillrock 1S - 13HU
Franklin District
Marshall County, WV



Notes:

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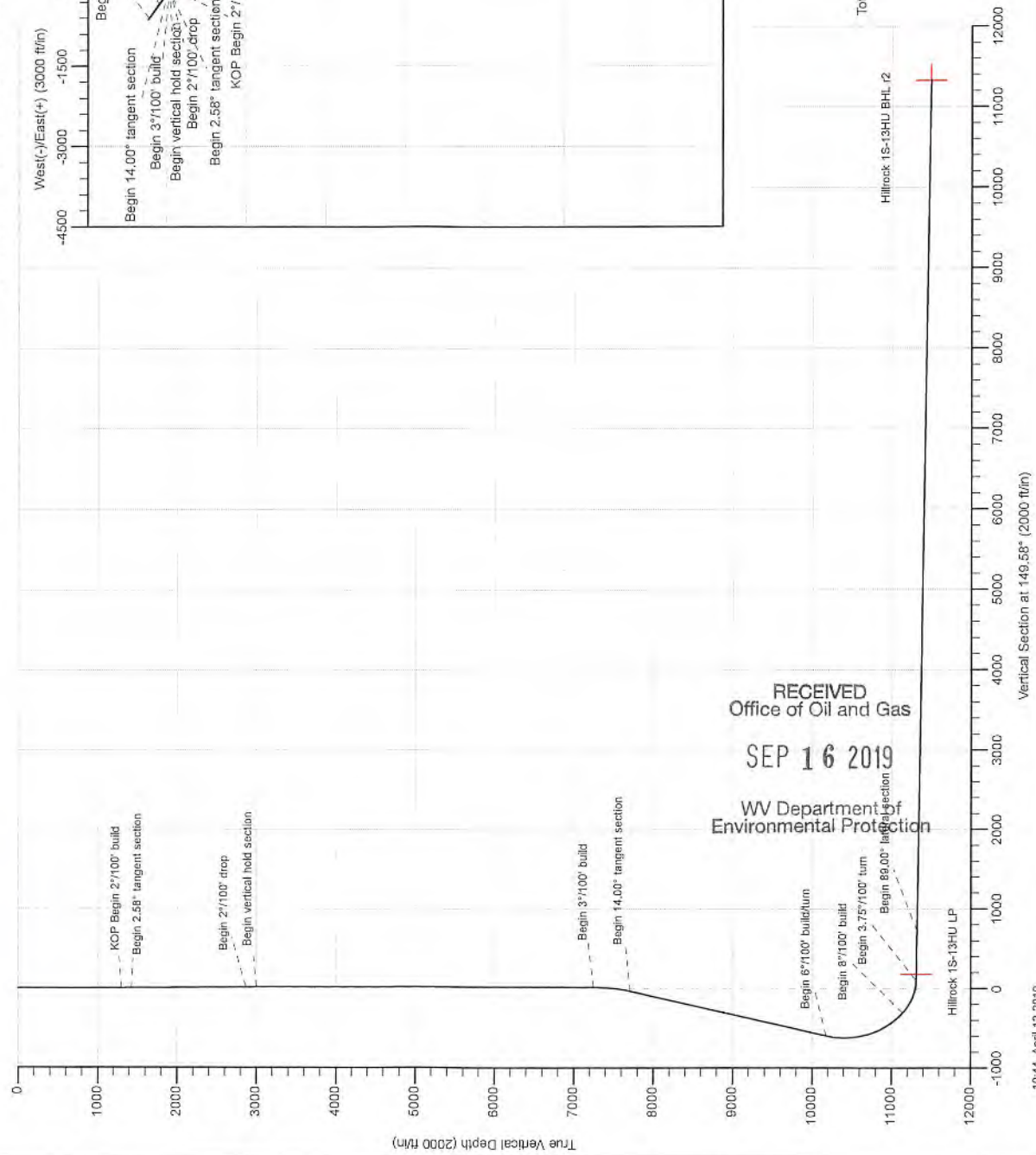




Well: Hillrock 1S-13 HU (E)
Site: Hillrock/Simms
Project: Marshall County, West Virginia
Design: rev2

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFacs	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2°/100' build
3	1428.85	2.58	225.00	1428.80	-2.05	0.00	2.00	225.00	0.73	Begin 2.58° tangent section
4	2672.70	2.58	225.00	2871.20	-47.95	0.00	0.00	17.08	17.08	Begin 2°/100' drop
5	3007.55	0.00	0.00	3000.00	-50.00	0.00	0.00	180.00	17.80	Begin vertical hold section
6	7251.55	0.00	0.00	7250.00	-50.00	0.00	0.00	0.00	17.80	Begin 3°/100' build
7	7716.21	14.00	305.00	7712.04	-17.46	0.00	0.00	305.00	3.00	Begin 14.00° tangent section
8	10261.73	14.00	305.00	10180.00	335.48	-66.47	0.00	0.00	-593.34	Begin 6°/100' build/turn
9	11326.35	50.00	126.20	11142.49	148.32	-349.92	6.00	-178.98	-305.06	Begin 8°/100' build
10	11817.10	89.10	150.00	11309.96	-116.93	12.50	8.00	0.00	107.16	Begin 3.75°/100' turn
11	12451.69	89.10	150.00	11320.08	-685.81	433.20	3.75	90.19	724.50	Begin 89.00° lateral section
12	23056.64	89.10	150.00	11487.00	-9768.82	5735.04	0.00	0.00	1927.87	PBHLTD 23056.64 MD/11487.00 TVD



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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: 14434243.30
 Easting: 1704993.03
 Latitude: 39.74577118
 Longitude: -80.77026191
 Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.82°



47 05 | 02273



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Hillrock 1S-13 HU (E)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1219.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1219.00ft
Site:	Hillrock/Simms	North Reference:	Grid
Well:	Hillrock 1S-13 HU (E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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

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

Well	Hillrock 1S-13 HU (E)					
Well Position	+N/-S	0.00 ft	Northing:	14,434,243.30 usft	Latitude:	39.74577118
	+E/-W	0.00 ft	Easting:	1,704,993.03 usft	Longitude:	-80.77026191
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	1,219.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/2/2018	-8.67	66.84	52,030.30960380

Design	rev2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	149.58

Plan Survey Tool Program	Date	4/12/2019		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	23,056.54 rev2 (Original Hole)	MWD	
			MWD - Standard	

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Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Hillrock 1S-13 HU (E)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1219.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1219.00ft
Site:	Hillrock/Simms	North Reference:	Grid
Well:	Hillrock 1S-13 HU (E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,428.85	2.58	225.00	1,428.80	-2.05	-2.05	2.00	2.00	0.00	225.00	
2,872.70	2.58	225.00	2,871.20	-47.95	-47.95	0.00	0.00	0.00	0.00	
3,001.55	0.00	0.00	3,000.00	-50.00	-50.00	2.00	-2.00	0.00	180.00	
7,251.55	0.00	0.00	7,250.00	-50.00	-50.00	0.00	0.00	0.00	0.00	
7,718.21	14.00	305.00	7,712.04	-17.46	-96.47	3.00	3.00	0.00	305.00	
10,261.73	14.00	305.00	10,180.00	335.48	-600.52	0.00	0.00	0.00	0.00	
11,328.35	50.00	126.20	11,142.49	148.32	-349.92	6.00	3.38	-16.76	-178.98	
11,817.10	89.10	126.20	11,309.96	-116.93	12.50	8.00	8.00	0.00	0.00	
12,451.69	89.10	150.00	11,320.08	-585.81	433.20	3.75	0.00	3.75	90.19	
23,056.64	89.10	150.00	11,487.00	-9,768.82	5,735.04	0.00	0.00	0.00	0.00	Hillrock 1S-13HU BHL

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Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Hillrock/Simms
 Well: Hillrock 1S-13 HU (E)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Hillrock 1S-13 HU (E)
 TVD Reference: GL @ 1219.00ft
 MD Reference: GL @ 1219.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Environmental Protection

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
100.00	0.00	0.00	100.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
200.00	0.00	0.00	200.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
300.00	0.00	0.00	300.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
400.00	0.00	0.00	400.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
500.00	0.00	0.00	500.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
600.00	0.00	0.00	600.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
700.00	0.00	0.00	700.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
800.00	0.00	0.00	800.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
900.00	0.00	0.00	900.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,434,243.30	1,704,993.03	39.74577118	-80.77026191
KOP Begin 2°/100' build									
1,400.00	2.00	225.00	1,399.98	-1.23	-1.23	14,434,242.07	1,704,991.80	39.74576780	-80.77026631
1,428.85	2.58	225.00	1,428.80	-2.05	-2.05	14,434,241.26	1,704,990.98	39.74576557	-80.77026922
Begin 2.58° tangent section									
1,500.00	2.58	225.00	1,499.88	-4.31	-4.31	14,434,238.99	1,704,988.72	39.74575937	-80.77027729
1,600.00	2.58	225.00	1,599.78	-7.49	-7.49	14,434,235.81	1,704,985.54	39.74575067	-80.77028862
1,700.00	2.58	225.00	1,699.68	-10.67	-10.67	14,434,232.64	1,704,982.36	39.74574196	-80.77029996
1,800.00	2.58	225.00	1,799.58	-13.85	-13.85	14,434,229.46	1,704,979.18	39.74573325	-80.77031130
1,900.00	2.58	225.00	1,899.48	-17.03	-17.03	14,434,226.28	1,704,976.00	39.74572454	-80.77032264
2,000.00	2.58	225.00	1,999.38	-20.21	-20.21	14,434,223.10	1,704,972.82	39.74571583	-80.77033398
2,100.00	2.58	225.00	2,099.28	-23.39	-23.39	14,434,219.92	1,704,969.64	39.74570712	-80.77034532
2,200.00	2.58	225.00	2,199.18	-26.57	-26.57	14,434,216.74	1,704,966.47	39.74569841	-80.77035666
2,300.00	2.58	225.00	2,299.08	-29.74	-29.74	14,434,213.56	1,704,963.29	39.74568970	-80.77036800
2,400.00	2.58	225.00	2,398.97	-32.92	-32.92	14,434,210.38	1,704,960.11	39.74568100	-80.77037934
2,500.00	2.58	225.00	2,498.87	-36.10	-36.10	14,434,207.20	1,704,956.93	39.74567229	-80.77039068
2,600.00	2.58	225.00	2,598.77	-39.28	-39.28	14,434,204.02	1,704,953.75	39.74566358	-80.77040202
2,700.00	2.58	225.00	2,698.67	-42.46	-42.46	14,434,200.84	1,704,950.57	39.74565487	-80.77041336
2,800.00	2.58	225.00	2,798.57	-45.64	-45.64	14,434,197.66	1,704,947.39	39.74564616	-80.77042470
2,872.70	2.58	225.00	2,871.20	-47.95	-47.95	14,434,195.35	1,704,945.08	39.74563983	-80.77043294
Begin 2°/100' drop									
2,900.00	2.03	225.00	2,898.47	-48.73	-48.73	14,434,194.58	1,704,944.30	39.74563770	-80.77043571
3,000.00	0.03	225.00	2,998.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044024
3,001.55	0.00	0.00	3,000.00	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
Begin vertical hold section									
3,100.00	0.00	0.00	3,098.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
3,200.00	0.00	0.00	3,198.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
3,300.00	0.00	0.00	3,298.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
3,400.00	0.00	0.00	3,398.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
3,500.00	0.00	0.00	3,498.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
3,600.00	0.00	0.00	3,598.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
3,700.00	0.00	0.00	3,698.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
3,800.00	0.00	0.00	3,798.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
3,900.00	0.00	0.00	3,898.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
4,000.00	0.00	0.00	3,998.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
4,100.00	0.00	0.00	4,098.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
4,200.00	0.00	0.00	4,198.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
4,300.00	0.00	0.00	4,298.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
4,400.00	0.00	0.00	4,398.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
4,500.00	0.00	0.00	4,498.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025
4,600.00	0.00	0.00	4,598.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025



Planning Report - Geographic

4705702273

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Hillrock/Simms
 Well: Hillrock 1S-13 HU (E)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Hillrock 1S-13 HU (E)
 TVD Reference: GL @ 1219.00ft
 MD Reference: GL @ 1219.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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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	
4,700.00	0.00	0.00	4,698.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
4,800.00	0.00	0.00	4,798.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
4,900.00	0.00	0.00	4,898.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,000.00	0.00	0.00	4,998.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,100.00	0.00	0.00	5,098.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,200.00	0.00	0.00	5,198.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,300.00	0.00	0.00	5,298.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,400.00	0.00	0.00	5,398.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,500.00	0.00	0.00	5,498.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,600.00	0.00	0.00	5,598.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,700.00	0.00	0.00	5,698.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,800.00	0.00	0.00	5,798.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
5,900.00	0.00	0.00	5,898.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,000.00	0.00	0.00	5,998.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,100.00	0.00	0.00	6,098.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,200.00	0.00	0.00	6,198.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,300.00	0.00	0.00	6,298.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,400.00	0.00	0.00	6,398.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,500.00	0.00	0.00	6,498.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,600.00	0.00	0.00	6,598.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,700.00	0.00	0.00	6,698.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,800.00	0.00	0.00	6,798.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
6,900.00	0.00	0.00	6,898.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
7,000.00	0.00	0.00	6,998.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
7,100.00	0.00	0.00	7,098.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
7,200.00	0.00	0.00	7,198.45	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
7,251.55	0.00	0.00	7,250.00	-50.00	-50.00	14,434,193.30	1,704,943.03	39.74563422	-80.77044025	
Begin 3°/100' build										
7,300.00	1.45	305.00	7,298.45	-49.65	-50.50	14,434,193.66	1,704,942.53	39.74563519	-80.77044203	
7,400.00	4.45	305.00	7,398.30	-46.69	-54.72	14,434,196.61	1,704,938.31	39.74564334	-80.77045702	
7,500.00	7.45	305.00	7,497.75	-40.74	-63.22	14,434,202.56	1,704,929.81	39.74565973	-80.77048719	
7,600.00	10.45	305.00	7,596.52	-31.82	-75.97	14,434,211.49	1,704,917.06	39.74568433	-80.77053246	
7,700.00	13.45	305.00	7,694.34	-19.94	-92.93	14,434,223.37	1,704,900.10	39.74571708	-80.77059270	
7,718.21	14.00	305.00	7,712.03	-17.46	-96.47	14,434,225.84	1,704,896.56	39.74572391	-80.77060527	
Begin 14.00° tangent section										
7,800.00	14.00	305.00	7,791.39	-6.11	-112.68	14,434,237.19	1,704,880.35	39.74575519	-80.77066283	
7,900.00	14.00	305.00	7,888.42	7.76	-132.50	14,434,251.07	1,704,860.53	39.74579344	-80.77073321	
8,000.00	14.00	305.00	7,985.45	21.64	-152.31	14,434,264.94	1,704,840.72	39.74583168	-80.77080358	
8,100.00	14.00	305.00	8,082.48	35.52	-172.13	14,434,278.82	1,704,820.90	39.74586993	-80.77087396	
8,200.00	14.00	305.00	8,179.51	49.39	-191.95	14,434,292.70	1,704,801.08	39.74590818	-80.77094433	
8,300.00	14.00	305.00	8,276.54	63.27	-211.76	14,434,306.57	1,704,781.27	39.74594642	-80.77101471	
8,400.00	14.00	305.00	8,373.57	77.14	-231.58	14,434,320.45	1,704,761.45	39.74598467	-80.77108508	
8,500.00	14.00	305.00	8,470.60	91.02	-251.40	14,434,334.33	1,704,741.63	39.74602292	-80.77115546	
8,600.00	14.00	305.00	8,567.63	104.90	-271.22	14,434,348.20	1,704,721.82	39.74606116	-80.77122583	
8,700.00	14.00	305.00	8,664.66	118.77	-291.03	14,434,362.08	1,704,702.00	39.74609941	-80.77129621	
8,800.00	14.00	305.00	8,761.69	132.65	-310.85	14,434,375.95	1,704,682.18	39.74613766	-80.77136658	
8,900.00	14.00	305.00	8,858.72	146.53	-330.67	14,434,389.83	1,704,662.36	39.74617590	-80.77143696	
9,000.00	14.00	305.00	8,955.75	160.40	-350.48	14,434,403.71	1,704,642.55	39.74621415	-80.77150733	
9,100.00	14.00	305.00	9,052.78	174.28	-370.30	14,434,417.58	1,704,622.73	39.74625240	-80.77157771	
9,200.00	14.00	305.00	9,149.81	188.15	-390.12	14,434,431.46	1,704,602.91	39.74629064	-80.77164808	
9,300.00	14.00	305.00	9,246.84	202.03	-409.94	14,434,445.33	1,704,583.10	39.74632889	-80.77171846	
9,400.00	14.00	305.00	9,343.87	215.91	-429.75	14,434,459.21	1,704,563.28	39.74636714	-80.77178884	
9,500.00	14.00	305.00	9,440.90	229.78	-449.57	14,434,473.09	1,704,543.46	39.74640538	-80.77185921	
9,600.00	14.00	305.00	9,537.93	243.66	-469.39	14,434,486.96	1,704,523.64	39.74644363	-80.77192959	



4705(02273

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Hillrock/Simms
 Well: Hillrock 1S-13 HU (E)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Hillrock 1S-13 HU (E)
 TVD Reference: GL @ 1219.00ft
 MD Reference: GL @ 1219.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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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	
9,700.00	14.00	305.00	9,634.96	257.53	-489.20	14,434,500.84	1,704,503.83	39.74648187	-80.77199996	
9,800.00	14.00	305.00	9,731.99	271.41	-509.02	14,434,514.71	1,704,484.01	39.74652012	-80.77207034	
9,900.00	14.00	305.00	9,829.01	285.29	-528.84	14,434,528.59	1,704,464.19	39.74655837	-80.77214072	
10,000.00	14.00	305.00	9,926.04	299.16	-548.65	14,434,542.47	1,704,444.38	39.74659661	-80.77221109	
10,100.00	14.00	305.00	10,023.07	313.04	-568.47	14,434,556.34	1,704,424.56	39.74663486	-80.77228147	
10,200.00	14.00	305.00	10,120.10	326.91	-588.29	14,434,570.22	1,704,404.74	39.74667310	-80.77235184	
10,261.73	14.00	305.00	10,180.00	335.48	-600.52	14,434,578.78	1,704,392.51	39.74669671	-80.77239529	
Begin 6°/100' build/turn										
10,300.00	11.70	304.80	10,217.31	340.35	-607.50	14,434,583.65	1,704,385.53	39.74671014	-80.77242008	
10,400.00	5.71	303.52	10,316.11	348.89	-619.99	14,434,592.20	1,704,373.04	39.74673368	-80.77246442	
10,500.00	0.39	165.66	10,415.95	351.31	-624.05	14,434,594.62	1,704,368.98	39.74674036	-80.77247866	
10,600.00	6.30	128.23	10,515.74	347.58	-619.65	14,434,590.89	1,704,373.38	39.74673009	-80.77246324	
10,700.00	12.30	127.13	10,614.38	337.75	-606.84	14,434,581.05	1,704,386.19	39.74670299	-80.77241773	
10,800.00	18.30	126.74	10,710.79	321.91	-585.74	14,434,565.22	1,704,407.29	39.74665935	-80.77234284	
10,900.00	24.30	126.54	10,803.92	300.25	-556.61	14,434,543.56	1,704,436.43	39.74659966	-80.77223937	
11,000.00	30.30	126.42	10,892.74	273.00	-519.74	14,434,516.31	1,704,473.29	39.74652457	-80.77210846	
11,100.00	36.30	126.33	10,976.29	240.46	-475.55	14,434,483.76	1,704,517.48	39.74643489	-80.77195156	
11,200.00	42.30	126.26	11,053.63	202.99	-424.53	14,434,446.29	1,704,568.50	39.74633162	-80.77177037	
11,300.00	48.30	126.21	11,123.94	160.99	-367.23	14,434,404.29	1,704,625.81	39.74621588	-80.77156689	
11,328.35	50.00	126.20	11,142.49	148.32	-349.92	14,434,391.63	1,704,643.11	39.74618097	-80.77150544	
Begin 8°/100' build										
11,400.00	55.73	126.20	11,185.72	114.60	-303.85	14,434,357.90	1,704,689.18	39.74608804	-80.77134183	
11,500.00	63.73	126.20	11,236.09	63.63	-234.21	14,434,306.94	1,704,758.82	39.74594758	-80.77109455	
11,600.00	71.73	126.20	11,273.95	9.02	-159.59	14,434,252.33	1,704,833.44	39.74579708	-80.77082959	
11,700.00	79.73	126.20	11,298.58	-48.17	-81.45	14,434,195.13	1,704,911.58	39.74563946	-80.77055211	
11,800.00	87.73	126.20	11,309.49	-106.83	-1.30	14,434,136.47	1,704,991.73	39.74547780	-80.77026751	
11,817.10	89.10	126.20	11,309.96	-116.93	12.49	14,434,126.38	1,705,005.52	39.74544998	-80.77021853	
Begin 3.75°/100' turn										
11,900.00	89.09	129.31	11,311.27	-167.67	78.02	14,434,075.63	1,705,071.05	39.74531016	-80.76998587	
12,000.00	89.08	133.06	11,312.86	-233.50	153.26	14,434,009.81	1,705,146.29	39.74512884	-80.76971882	
12,100.00	89.08	136.81	11,314.47	-304.11	224.03	14,433,939.20	1,705,217.06	39.74493443	-80.76946770	
12,200.00	89.08	140.56	11,316.07	-379.19	290.03	14,433,864.11	1,705,283.06	39.74472776	-80.76923359	
12,300.00	89.08	144.31	11,317.67	-458.44	350.97	14,433,784.87	1,705,344.00	39.74450971	-80.76901750	
12,400.00	89.09	148.06	11,319.27	-541.50	406.61	14,433,701.81	1,705,399.64	39.74428121	-80.76882034	
12,451.69	89.10	150.00	11,320.08	-585.81	433.20	14,433,657.50	1,705,426.23	39.74415932	-80.76872614	
Begin 89.00° lateral section										
12,500.00	89.10	150.00	11,320.84	-627.64	457.35	14,433,615.66	1,705,450.38	39.74404426	-80.76864061	
12,600.00	89.10	150.00	11,322.42	-714.23	507.35	14,433,529.07	1,705,500.38	39.74380610	-80.76846355	
12,700.00	89.10	150.00	11,323.99	-800.83	557.34	14,433,442.48	1,705,550.37	39.74356794	-80.76828649	
12,800.00	89.10	150.00	11,325.56	-887.42	607.33	14,433,355.89	1,705,600.36	39.74332978	-80.76810944	
12,900.00	89.10	150.00	11,327.14	-974.01	657.33	14,433,269.30	1,705,650.36	39.74309162	-80.76793238	
13,000.00	89.10	150.00	11,328.71	-1,060.60	707.32	14,433,182.71	1,705,700.35	39.74285346	-80.76775533	
13,100.00	89.10	150.00	11,330.29	-1,147.19	757.32	14,433,096.11	1,705,750.34	39.74261530	-80.76757828	
13,200.00	89.10	150.00	11,331.86	-1,233.78	807.31	14,433,009.52	1,705,800.34	39.74237714	-80.76740123	
13,300.00	89.10	150.00	11,333.43	-1,320.38	857.30	14,432,922.93	1,705,850.33	39.74213897	-80.76722418	
13,400.00	89.10	150.00	11,335.01	-1,406.97	907.30	14,432,836.34	1,705,900.33	39.74190081	-80.76704713	
13,500.00	89.10	150.00	11,336.58	-1,493.56	957.29	14,432,749.75	1,705,950.32	39.74166265	-80.76687009	
13,600.00	89.10	150.00	11,338.16	-1,580.15	1,007.29	14,432,663.16	1,706,000.31	39.74142449	-80.76669304	
13,700.00	89.10	150.00	11,339.73	-1,666.74	1,057.28	14,432,576.56	1,706,050.31	39.74118632	-80.76651600	
13,800.00	89.10	150.00	11,341.30	-1,753.33	1,107.27	14,432,489.97	1,706,100.30	39.74094816	-80.76633896	
13,900.00	89.10	150.00	11,342.88	-1,839.93	1,157.27	14,432,403.38	1,706,150.30	39.74070999	-80.76616191	
14,000.00	89.10	150.00	11,344.45	-1,926.52	1,207.26	14,432,316.79	1,706,200.29	39.74047183	-80.76598487	
14,100.00	89.10	150.00	11,346.03	-2,013.11	1,257.26	14,432,230.20	1,706,250.28	39.74023367	-80.76580783	
14,200.00	89.10	150.00	11,347.60	-2,099.70	1,307.25	14,432,143.61	1,706,300.28	39.73999550	-80.76563080	



Planning Report - Geographic

47051-02273

Database: DB_Jul2216dt_v14
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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
14,300.00	89.10	150.00	11,349.17	-2,186.29	1,357.24	14,432,057.02	1,706,350.27	39.73975734	-80.76545376
14,400.00	89.10	150.00	11,350.75	-2,272.89	1,407.24	14,431,970.42	1,706,400.26	39.73951917	-80.76527672
14,500.00	89.10	150.00	11,352.32	-2,359.48	1,457.23	14,431,883.83	1,706,450.26	39.73926100	-80.76509969
14,600.00	89.10	150.00	11,353.90	-2,446.07	1,507.23	14,431,797.24	1,706,500.25	39.73904284	-80.76492266
14,700.00	89.10	150.00	11,355.47	-2,532.66	1,557.22	14,431,710.65	1,706,550.25	39.73880467	-80.76474563
14,800.00	89.10	150.00	11,357.04	-2,619.25	1,607.21	14,431,624.06	1,706,600.24	39.73856651	-80.76456859
14,900.00	89.10	150.00	11,358.62	-2,705.84	1,657.21	14,431,537.47	1,706,650.23	39.73832834	-80.76439157
15,000.00	89.10	150.00	11,360.19	-2,792.44	1,707.20	14,431,450.87	1,706,700.23	39.73809017	-80.76421454
15,100.00	89.10	150.00	11,361.77	-2,879.03	1,757.20	14,431,364.28	1,706,750.22	39.73785201	-80.76403751
15,200.00	89.10	150.00	11,363.34	-2,965.62	1,807.19	14,431,277.69	1,706,800.22	39.73761384	-80.76386048
15,300.00	89.10	150.00	11,364.91	-3,052.21	1,857.18	14,431,191.10	1,706,850.21	39.73737567	-80.76368346
15,400.00	89.10	150.00	11,366.49	-3,138.80	1,907.18	14,431,104.51	1,706,900.20	39.73713750	-80.76350644
15,500.00	89.10	150.00	11,368.06	-3,225.39	1,957.17	14,431,017.92	1,706,950.20	39.73689933	-80.76332941
15,600.00	89.10	150.00	11,369.64	-3,311.99	2,007.16	14,430,931.33	1,707,000.19	39.73666117	-80.76315239
15,700.00	89.10	150.00	11,371.21	-3,398.58	2,057.16	14,430,844.73	1,707,050.18	39.73642300	-80.76297537
15,800.00	89.10	150.00	11,372.78	-3,485.17	2,107.15	14,430,758.14	1,707,100.18	39.73618483	-80.76279836
15,900.00	89.10	150.00	11,374.36	-3,571.76	2,157.15	14,430,671.55	1,707,150.17	39.73594666	-80.76262134
16,000.00	89.10	150.00	11,375.93	-3,658.35	2,207.14	14,430,584.96	1,707,200.17	39.73570849	-80.76244432
16,100.00	89.10	150.00	11,377.51	-3,744.94	2,257.13	14,430,498.37	1,707,250.16	39.73547032	-80.76226731
16,200.00	89.10	150.00	11,379.08	-3,831.54	2,307.13	14,430,411.78	1,707,300.15	39.73523215	-80.76209029
16,300.00	89.10	150.00	11,380.65	-3,918.13	2,357.12	14,430,325.18	1,707,350.15	39.73499398	-80.76191328
16,400.00	89.10	150.00	11,382.23	-4,004.72	2,407.12	14,430,238.59	1,707,400.14	39.73475581	-80.76173627
16,500.00	89.10	150.00	11,383.80	-4,091.31	2,457.11	14,430,152.00	1,707,450.14	39.73451764	-80.76155926
16,600.00	89.10	150.00	11,385.38	-4,177.90	2,507.10	14,430,065.41	1,707,500.13	39.73427946	-80.76138225
16,700.00	89.10	150.00	11,386.95	-4,264.49	2,557.10	14,429,978.82	1,707,550.12	39.73404129	-80.76120524
16,800.00	89.10	150.00	11,388.52	-4,351.09	2,607.09	14,429,892.23	1,707,600.12	39.73380312	-80.76102824
16,900.00	89.10	150.00	11,390.10	-4,437.68	2,657.09	14,429,805.64	1,707,650.11	39.73356495	-80.76085123
17,000.00	89.10	150.00	11,391.67	-4,524.27	2,707.08	14,429,719.04	1,707,700.11	39.73332678	-80.76067423
17,100.00	89.10	150.00	11,393.25	-4,610.86	2,757.07	14,429,632.45	1,707,750.10	39.73308860	-80.76049723
17,200.00	89.10	150.00	11,394.82	-4,697.45	2,807.07	14,429,545.86	1,707,800.09	39.73285043	-80.76032022
17,300.00	89.10	150.00	11,396.39	-4,784.05	2,857.06	14,429,459.27	1,707,850.09	39.73261226	-80.76014322
17,400.00	89.10	150.00	11,397.97	-4,870.64	2,907.06	14,429,372.68	1,707,900.08	39.73237408	-80.75996623
17,500.00	89.10	150.00	11,399.54	-4,957.23	2,957.05	14,429,286.09	1,707,950.07	39.73213591	-80.75978923
17,600.00	89.10	150.00	11,401.11	-5,043.82	3,007.04	14,429,199.49	1,708,000.07	39.73189773	-80.75961223
17,700.00	89.10	150.00	11,402.69	-5,130.41	3,057.04	14,429,112.90	1,708,050.06	39.73165956	-80.75943524
17,800.00	89.10	150.00	11,404.26	-5,217.00	3,107.03	14,429,026.31	1,708,100.06	39.73142139	-80.75925824
17,900.00	89.10	150.00	11,405.84	-5,303.60	3,157.03	14,428,939.72	1,708,150.05	39.73118321	-80.75908125
18,000.00	89.10	150.00	11,407.41	-5,390.19	3,207.02	14,428,853.13	1,708,200.04	39.73094504	-80.75890426
18,100.00	89.10	150.00	11,408.98	-5,476.78	3,257.01	14,428,766.54	1,708,250.04	39.73070686	-80.75872727
18,200.00	89.10	150.00	11,410.56	-5,563.37	3,307.01	14,428,679.94	1,708,300.03	39.73046868	-80.75855028
18,300.00	89.10	150.00	11,412.13	-5,649.96	3,357.00	14,428,593.35	1,708,350.03	39.73023051	-80.75837329
18,400.00	89.10	150.00	11,413.71	-5,736.55	3,407.00	14,428,506.76	1,708,400.02	39.72999233	-80.75819630
18,500.00	89.10	150.00	11,415.28	-5,823.15	3,456.99	14,428,420.17	1,708,450.01	39.72975415	-80.75801932
18,600.00	89.10	150.00	11,416.85	-5,909.74	3,506.98	14,428,333.58	1,708,500.01	39.72951598	-80.75784233
18,700.00	89.10	150.00	11,418.43	-5,996.33	3,556.98	14,428,246.99	1,708,550.00	39.72927780	-80.75766535
18,800.00	89.10	150.00	11,420.00	-6,082.92	3,606.97	14,428,160.40	1,708,599.99	39.72903962	-80.75748837
18,900.00	89.10	150.00	11,421.58	-6,169.51	3,656.97	14,428,073.80	1,708,649.99	39.72880145	-80.75731139
19,000.00	89.10	150.00	11,423.15	-6,256.10	3,706.96	14,427,987.21	1,708,699.98	39.72856327	-80.75713441
19,100.00	89.10	150.00	11,424.72	-6,342.70	3,756.95	14,427,900.62	1,708,749.98	39.72832509	-80.75695743
19,200.00	89.10	150.00	11,426.30	-6,429.29	3,806.95	14,427,814.03	1,708,799.97	39.72808691	-80.75678045
19,300.00	89.10	150.00	11,427.87	-6,515.88	3,856.94	14,427,727.44	1,708,849.96	39.72784873	-80.75660348
19,400.00	89.10	150.00	11,429.45	-6,602.47	3,906.94	14,427,640.85	1,708,899.96	39.72761055	-80.75642650
19,500.00	89.10	150.00	11,431.02	-6,689.06	3,956.93	14,427,554.25	1,708,949.95	39.72737237	-80.75624953
19,600.00	89.10	150.00	11,432.59	-6,775.66	4,006.92	14,427,467.66	1,708,999.95	39.72713419	-80.75607255
19,700.00	89.10	150.00	11,434.17	-6,862.25	4,056.92	14,427,381.07	1,709,049.94	39.72689601	-80.75589558



4705102273

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Hillrock/Simms
 Well: Hillrock 1S-13 HU (E)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Hillrock 1S-13 HU (E)
 TVD Reference: GL @ 1219.00ft
 MD Reference: GL @ 1219.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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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
19,800.00	89.10	150.00	11,435.74	-6,946.84	4,106.91	14,427,294.48	1,709,099.93	39.72665783	-80.75571861
19,900.00	89.10	150.00	11,437.32	-7,035.43	4,156.91	14,427,207.89	1,709,149.93	39.72641965	-80.75554165
20,000.00	89.10	150.00	11,438.89	-7,122.02	4,206.90	14,427,121.30	1,709,199.92	39.72618147	-80.75536468
20,100.00	89.10	150.00	11,440.46	-7,208.61	4,256.89	14,427,034.71	1,709,249.91	39.72594329	-80.75518771
20,200.00	89.10	150.00	11,442.04	-7,295.21	4,306.89	14,426,948.11	1,709,299.91	39.72570511	-80.75501075
20,300.00	89.10	150.00	11,443.61	-7,381.80	4,356.88	14,426,861.52	1,709,349.90	39.72546693	-80.75483378
20,400.00	89.10	150.00	11,445.19	-7,468.39	4,406.87	14,426,774.93	1,709,399.90	39.72522875	-80.75465682
20,500.00	89.10	150.00	11,446.76	-7,554.98	4,456.87	14,426,688.34	1,709,449.89	39.72499056	-80.75447986
20,600.00	89.10	150.00	11,448.33	-7,641.57	4,506.86	14,426,601.75	1,709,499.88	39.72475238	-80.75430290
20,700.00	89.10	150.00	11,449.91	-7,728.16	4,556.86	14,426,515.16	1,709,549.88	39.72451420	-80.75412594
20,800.00	89.10	150.00	11,451.48	-7,814.76	4,606.85	14,426,428.56	1,709,599.87	39.72427602	-80.75394898
20,900.00	89.10	150.00	11,453.06	-7,901.35	4,656.84	14,426,341.97	1,709,649.87	39.72403783	-80.75377203
21,000.00	89.10	150.00	11,454.63	-7,987.94	4,706.84	14,426,255.38	1,709,699.86	39.72379965	-80.75359507
21,100.00	89.10	150.00	11,456.20	-8,074.53	4,756.83	14,426,168.79	1,709,749.85	39.72356147	-80.75341812
21,200.00	89.10	150.00	11,457.78	-8,161.12	4,806.83	14,426,082.20	1,709,799.85	39.72332328	-80.75324116
21,300.00	89.10	150.00	11,459.35	-8,247.71	4,856.82	14,425,995.61	1,709,849.84	39.72308510	-80.75306421
21,400.00	89.10	150.00	11,460.93	-8,334.31	4,906.81	14,425,909.02	1,709,899.83	39.72284691	-80.75288726
21,500.00	89.10	150.00	11,462.50	-8,420.90	4,956.81	14,425,822.42	1,709,949.83	39.72260873	-80.75271031
21,600.00	89.10	150.00	11,464.07	-8,507.49	5,006.80	14,425,735.83	1,709,999.82	39.72237054	-80.75253336
21,700.00	89.10	150.00	11,465.65	-8,594.08	5,056.80	14,425,649.24	1,710,049.82	39.72213236	-80.75235642
21,800.00	89.10	150.00	11,467.22	-8,680.67	5,106.79	14,425,562.65	1,710,099.81	39.72189417	-80.75217947
21,900.00	89.10	150.00	11,468.80	-8,767.26	5,156.78	14,425,476.06	1,710,149.80	39.72165599	-80.75200253
22,000.00	89.10	150.00	11,470.37	-8,853.86	5,206.78	14,425,389.47	1,710,199.80	39.72141780	-80.75182559
22,100.00	89.10	150.00	11,471.94	-8,940.45	5,256.77	14,425,302.87	1,710,249.79	39.72117961	-80.75164864
22,200.00	89.10	150.00	11,473.52	-9,027.04	5,306.77	14,425,216.28	1,710,299.79	39.72094143	-80.75147170
22,300.00	89.10	150.00	11,475.09	-9,113.63	5,356.76	14,425,129.69	1,710,349.78	39.72070324	-80.75129476
22,400.00	89.10	150.00	11,476.66	-9,200.22	5,406.75	14,425,043.10	1,710,399.77	39.72046505	-80.75111782
22,500.00	89.10	150.00	11,478.24	-9,286.82	5,456.75	14,424,956.51	1,710,449.77	39.72022686	-80.75094089
22,600.00	89.10	150.00	11,479.81	-9,373.41	5,506.74	14,424,869.92	1,710,499.76	39.71998868	-80.75076395
22,700.00	89.10	150.00	11,481.39	-9,460.00	5,556.74	14,424,783.32	1,710,549.75	39.71975049	-80.75058702
22,800.00	89.10	150.00	11,482.96	-9,546.59	5,606.73	14,424,696.73	1,710,599.75	39.71951230	-80.75041008
22,900.00	89.10	150.00	11,484.53	-9,633.18	5,656.72	14,424,610.14	1,710,649.74	39.71927411	-80.75023315
23,000.00	89.10	150.00	11,486.11	-9,719.77	5,706.72	14,424,523.55	1,710,699.74	39.71903592	-80.75005622
23,056.64	89.10	150.00	11,487.00	-9,768.82	5,735.03	14,424,474.50	1,710,728.05	39.71890101	-80.74995601

PBHL/TD 23056.64 MD/11487.00 TVD

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Hillrock 1S-13HU LP - hit/miss target - Shape	0.00	0.00	11,312.00	-115.59	161.68	14,434,127.72	1,705,154.71	39.74545260	-80.76968779
- plan misses target center by 93.61ft at 11928.68ft MD (11311.72 TVD, -186.04 N, 100.03 E)									
- Point									
Hillrock 1S-13HU BHL r2 - plan hits target center - Point	0.00	0.00	11,487.00	-9,768.82	5,735.04	14,424,474.50	1,710,728.05	39.71890100	-80.74995600



4705 102273

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Hillrock 1S-13 HU (E)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1219.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1219.00ft
Site:	Hillrock/Simms	North Reference:	Grid
Well:	Hillrock 1S-13 HU (E)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,300.00	1,300.00	0.00	0.00	KOP Begin 2°/100' build
1,428.85	1,428.80	-2.05	-2.05	Begin 2.58° tangent section
2,872.70	2,871.20	-47.95	-47.95	Begin 2°/100' drop
3,001.55	3,000.00	-50.00	-50.00	Begin vertical hold section
7,251.55	7,250.00	-50.00	-50.00	Begin 3°/100' build
7,718.21	7,712.03	-17.46	-96.47	Begin 14.00° tangent section
10,261.73	10,180.00	335.48	-600.52	Begin 6°/100' build/turn
11,328.35	11,142.49	148.32	-349.92	Begin 8°/100' build
11,817.10	11,309.96	-116.93	12.49	Begin 3.75°/100' turn
12,451.69	11,320.08	-585.81	433.20	Begin 89.00° lateral section
23,056.64	11,487.00	-9,768.82	5,735.03	PBHL/TD 23056.64 MD/11487.00 TVD

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Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 11.63 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
Annual Ryegrass	40
Spring Oats	96

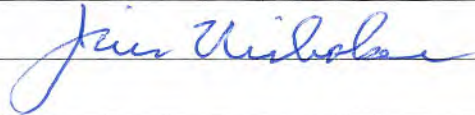
Seed Type	lbs/acre
Orchard Grass	12
Ladino	3
White Clover	2

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:



Comments:

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Title: Oil and Gas Inspector

Date:

8/18/19

WV Department of
Environmental Protection

Field Reviewed?

Yes

No

WW-9

PROPOSED HILLROCK S-13HU

SUPPLEMENT PG 1

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

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

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED. TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

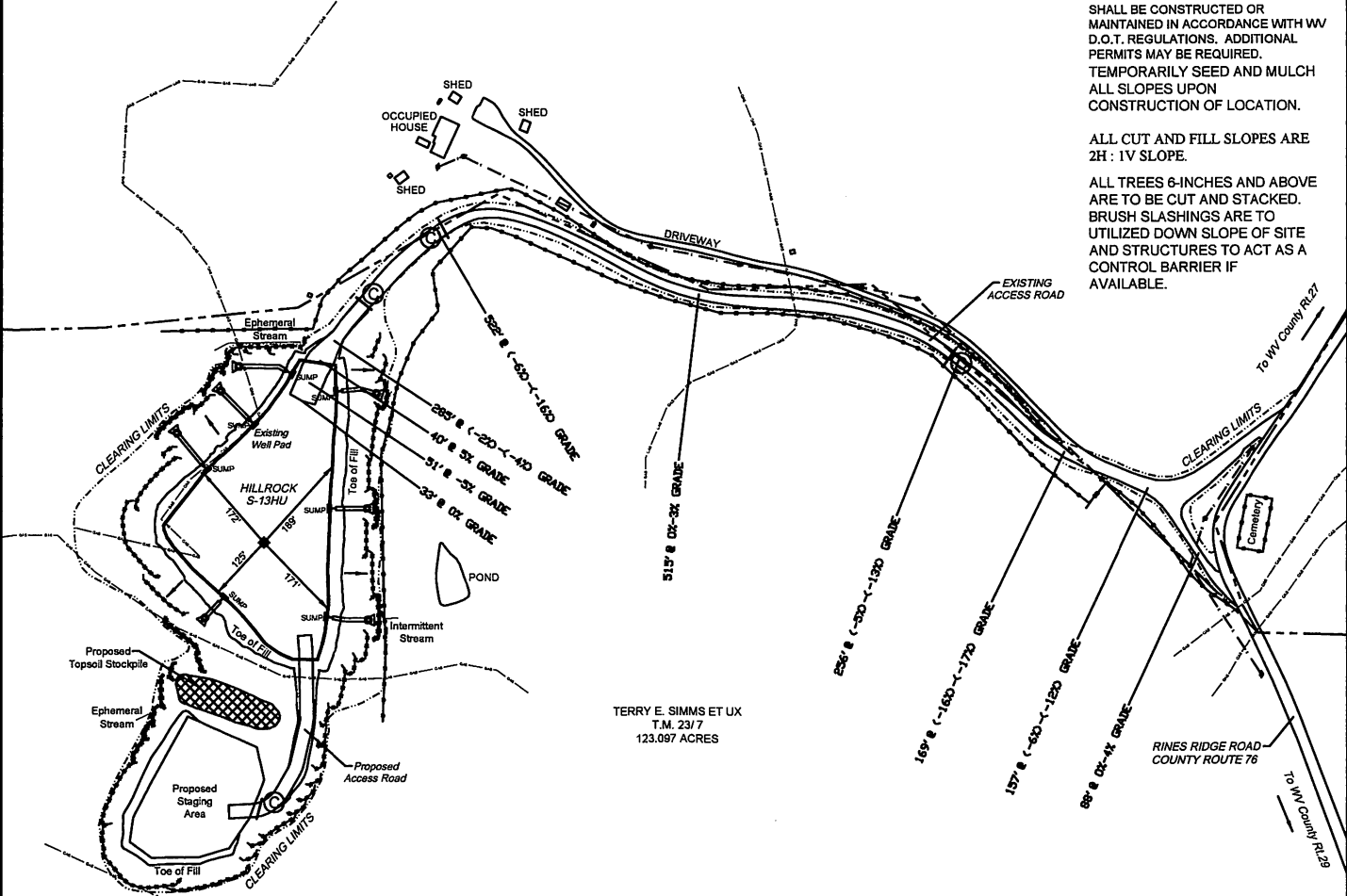
ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

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

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

TERRY E. SIMMS ET UX
T.M. 23/7
123.097 ACRES

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



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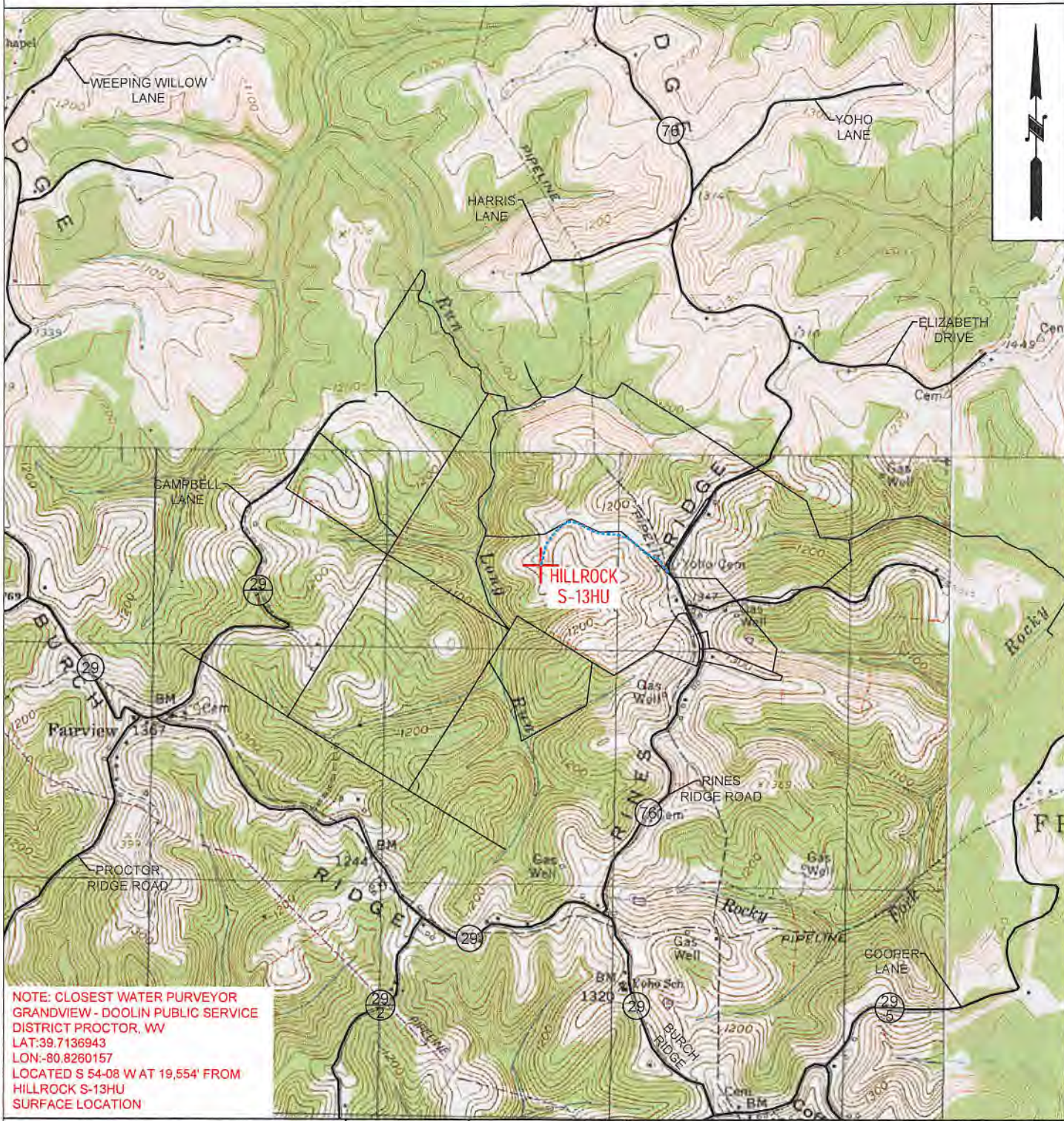
WV Department of
Environmental Protection

LEGEND

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

4705102273

PROPOSED HILLROCK S-13HU



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT: 39.7136943
LON: -80.8260157
LOCATED S 54-08 W AT 19,554' FROM
HILLROCK S-13HU
SURFACE LOCATION



TUG HILL
OPERATING

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

TOPO SECTION
NEW MARTINSVILLE 7.5'
SCALE:
1" = 2000'

LEASE NAME HILLROCK
DATE: SEP 16 2013
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WV Department of Environmental Protection

**HILLROCK LEASE
WELL S-13HU**

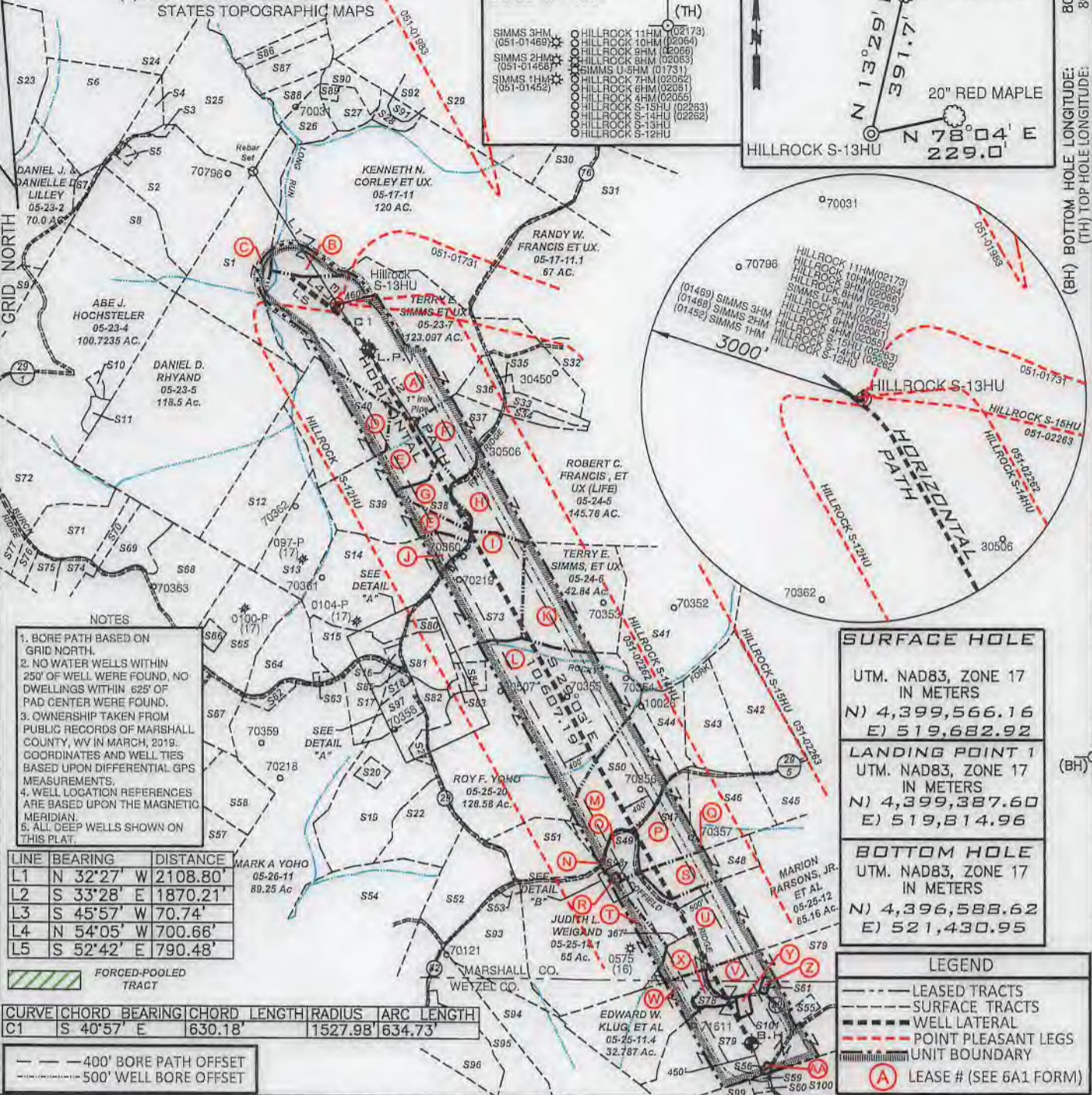
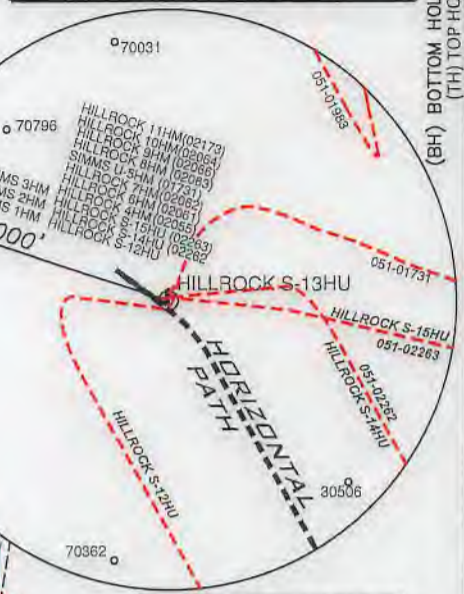
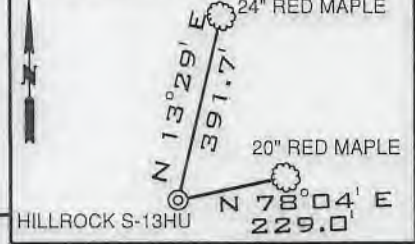
371.8352± ACRES

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

**DETAIL
SKETCH "A"
SCALE 1"=100'**

- SIMMS 3HM (051-01468)
- SIMMS 2HM (051-01468)
- SIMMS 1HM (051-01452)
- HILLROCK 11HM (02173)
- HILLROCK 10HM (02064)
- HILLROCK 9HM (02058)
- HILLROCK 8HM (02055)
- SIMMS U-5HM (01731)
- HILLROCK 7HM (02052)
- HILLROCK 6HM (02051)
- HILLROCK 5HM (02055)
- HILLROCK S-15HU (02283)
- HILLROCK S-14HU (02262)
- HILLROCK S-13HU
- HILLROCK S-12HU

**REFERENCES
SCALE 1"=400'**



- NOTES**
- BORE PATH BASED ON GRID NORTH.
 - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 - OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2019. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 - ALL DEEP WELLS SHOWN ON THIS PLAT.

LINE	BEARING	DISTANCE
L1	N 32°27' W	2108.80'
L2	S 33°28' E	1870.21'
L3	S 45°57' W	70.74'
L4	N 54°05' W	700.66'
L5	S 52°42' E	790.48'

FORCED-POOLED TRACT

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 40°57' E	630.18'	1527.98'	634.73'

--- 400' BORE PATH OFFSET
- - - 500' WELL BORE OFFSET

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,566.16
E) 519,682.92

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,387.60
E) 519,814.96

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,396,588.62
E) 521,430.95

- LEGEND**
- LEASE TRACTS
 - - - SURFACE TRACTS
 - - - WELL LATERAL
 - - - POINT PLEASANT LEGS
 - - - UNIT BOUNDARY
 - (A) LEASE # (SEE 6A1 FORM)

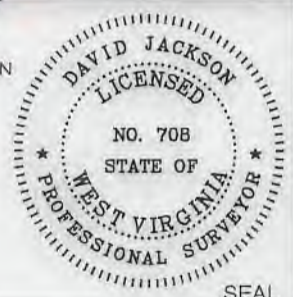
FILE NUMBER _____
DRAWING NUMBER: **HILLROCK S-13HU REV 2**
SCALE: **1" = 2000'**
MINIMUM DEGREE OF ACCURACY: **1/200**
PROVEN SOURCE OF ELEVATION: **SUBMETER MAPPING
GRADE GPS**

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



David L. Jackson

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



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 X SHALLOW ___

LOCATION ELEVATION 1219.5' WATERSHED (HUC 10) FISH CREEK

DISTRICT FRANKLIN COUNTY MARSHALL

QUADRANGLE NEW MARTINSVILLE 7.5' LEASE NUMBER SEE WW-6A1 Form

SURFACE OWNER TERRY E. & DEBORAH SIMMS ACREAGE 123.09

OIL & GAS ROYALTY OWNER TERRY E. & DEBORAH L. SIMMS, ET AL LEASE ACREAGE 123.09

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

TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,540' TMD: 23,057'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
CT CORPORATION SYSTEM

ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
FORT WORTH, TX 76107 ADDRESS 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

DATE: SEPTEMBER 13, 2019
OPERATORS WELL NO. HILLROCK S-13HU
API WELL NO. 47-051-02273 H6A
STATE COUNTY PERMIT

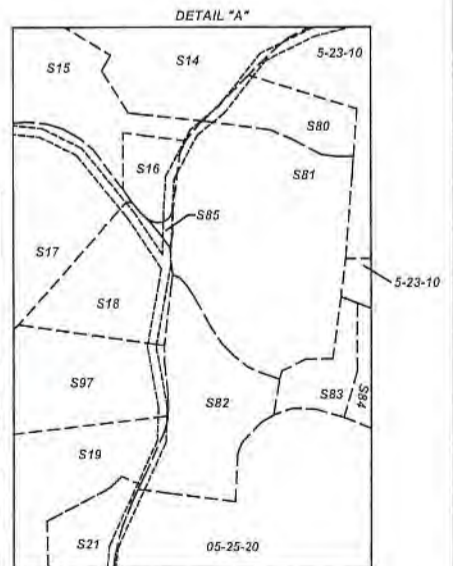
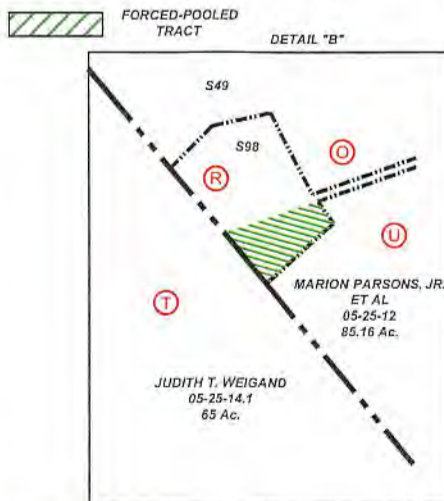
form wv6

**HILLROCK LEASE
WELL S-13HU
371.8352± ACRES**

47-051-02273-H6A

Number	TAX MAP-PARCEL	SURFACE OWNER	ACRES
S1 C	05-23-06	James A. Channing, et al	48.0
S2	05-18-21	Curtis E. & Michelle J. Hall	43.119
S3	05-18-21.3	XCL Midstream Operation, LLC	0.811
S4	05-18-21.1	Rodney & Rhonda Jackson	5.47
S5	05-18-21.2	David P. Lassan, Sr. (Life), David P. Lassan II & Julius L. Lassan	1.0
S6	05-18-22	Rodney & Rhonda Jackson	30.345
S7	05-23-2.1	William L. & Janice M. Wayne	2.364
S8	05-23-03	Abe J. Hochstetler	50.0
S9	05-23-2.2	Jessica N. & Andrew L. Jones	7.636
S10	05-23-4.2	XCL Midstream Operation, LLC	1.169
S11 J	05-23-4.1	XCL Midstream Operation, LLC	2.1575
S12	05-23-08	Carl David & Suzanne L. Guseman	29.5
S13	05-23-9.3	Linda D. Greathouse	17.5
S14	05-23-11.1	John H. & Sonya D. Holliday	46.482
S15	05-23-11.4	Evelyn L. Hudson	10.879
S16	05-23-11.2	Evelyn Hudson	1.154
S17	05-23-11.3	Colin R. Yoho	11.29
S18	05-23-11.5	Roy F. Yoho	2.25
S19	05-25-18	Joseph Johnson, et ux (Life)	37.746
S20	05-25-18.1	Pamela Joan Ferrell, et vir	2.491
S21	05-25-19	Joseph Johnson, et ux (Life)	1.973
S22	05-25-17	Craig R. & Ashley Ferrell	22.790
S23	05-18-24	Duane Brunn	102.0
S24	05-18-23	XCL Midstream Operation, LLC	110.0
S25	05-18-20	Wayne E. Channing, et al	75.60
S26	05-18-31	Kenneth E. Rastall	6.94
S27	05-18-32	Kenneth E. Rastall	5.335
S28	05-17-12	James A. & Jill C. Corley	3.33
S29	05-17-10	James A. Corley, et al	92.61
S30	05-17-9.3	James A. Corley, et ux	12.478
S31	05-17-9.4	Vicki L. Bowen	60.3
S32	05-24-01	Linda L. Hendrickson	175.0
S33	05-24-5.1	James D. Watkins, et ux	4.60
S34	05-24-5.2	James D. Watkins, et ux	3.151
S35	05-23-7.1	Lisa Ann Nelson	0.549
S36	05-23-7.2	Lisa Ann Nelson	6.354
S37 F	05-24-5.5	Linda Lou Tagg	17.194
S38 G	05-24-5.3	Thomas V. Tuttle, et ux	8.543
S39 E	05-24-5.4	Thomas V. Tuttle, et ux	38.224
S40 D	05-23-8.1	William & Virginia Roupe	34.0
S41	05-24-04	Terry E. Simms, et ux	84.05
S42	05-25-1.3	Michael E. & Annie A. Chapman	26.20
S43	05-25-1.2	William Jr. & Andrea J. Dubiel	20.10
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
S46 Q	05-25-1.5	Ryan J. Bratton	21.35
S47 P	05-25-13	William M. Ferda, Jr. & Stephanie L. Palicka	16.014
S48 S	05-25-12.1	Kent & Betty Mason	15.0
S49 O	05-25-13.2	David A. Klug	5.89
S50 M	05-25-01	Michael L. Mason	35.43
S51 N	05-25-14	Roy F. Yoho	23.0

Number	TAX MAP-PARCEL	SURFACE OWNER	ACRES
S52	05-25-16	Craig R. & Ashley Ferrell	23.5
S53	05-25-16.2	Rodney J. Loy	1.087
S54	05-26-12	Marjorie Ann Stoneking (Life)	153.969
S55	12-03-43	Adam W. Ferrell & Brittany M. Loy	1.97
S56 AA	12-03-01	James W. Klug	0.375
S57	05-26-09	Theresa H. Walton, as Trustee of Robert D. & Bonnie L. Oliver Family Trust	21.75
S58	05-26-08	Richard Joseph Otte, et ux	18.27
S59	12-03-4.5	Hazel M. Blair	0.451
S60	12-03-4.6	Steven P. Wayman	1.009
S61 Z	12-03-47	Wetzel County Emergency Ambulance	0.50
S62	05-23-12	Mark A. Yoho	3.05
S63	05-23-13.1	James R. & Pamela J. Ferrell	0.7625
S64	05-23-13	Linda D. Greathouse	14.24
S65	05-23-9.2	Linda D. Greathouse	25.58
S66	05-23-9.4	Jackson R. Sr. & Deanna L. Davis	2.087
S67	05-23-9.1	John W. Van Orden, et ux	23.376
S68	05-23-14	Dominion Transmission, Inc.	59.5
S69	05-23-15	Virginia Ethel Henry Est.	15.5
S70	05-23-16.1	Donald B. Henry	1.97
S71	05-23-16	Roy Friend Yoho Sr.	18.03
S72	05-23-18	Abe J. Hochstetler	35.382
S73 I	05-23-10	Terry E. Simms, et ux	37.95
S74	05-23-17.3	William & Katherine Flewelling	5.018
S75	05-23-17	Tammy & Thomas E. Brown	4.62
S76	05-23-17.4	Tammy D. Meadows	2.605
S77	05-23-17.2	Dick Jr. & Carol J. Rowan	14.920
S78 X	05-25-11.1	Edward W. & Dianna Klug	2.343
S79 V	05-25-11.2	Edward W. Klug	114.305
S80	05-23-11.7	Bryan L. Huggins	1.835
S81	05-23-11	Roy F. Yoho	9.475
S82	05-25-20.3	James A. & Jo C. Estep	4.49
S83	05-25-20.2	James M. Zombotti	1.347
S84	05-25-20.1	James M. Zombotti	2.746
S85	05-23-11.6	T.H. Exploration II, LLC & Atinum Marchellus I, LLC	0.094
S86	05-18-30	Jon Schmidt, et al	5.46
S87	05-18-13.10	Carl Berg	10.88
S88	05-18-29	Carl B. Berg	5.319
S89	05-18-32.1	Lori D. Carpenter	1.165
S90	05-18-13.8	Lori D. Carpenter	5.545
S91	05-17-12.1	Williams Ohio Valley Midstream, LLC	1.67
S92	05-17-10.5	Williams Ohio Valley Midstream, LLC	4.24
S93	05-25-16.1	David L. Cunningham	6.34
S94	12-02-14	David L. Cunningham	56.23
S95	12-02-14.2	John G. Jr. & Geraldine M. Rogers	25.1
S96	12-02-14.1	Sammy J. Greathouse, Sr. (Life) and Sammy J. Greathouse, Jr.	18.67
S97	05-23-11.8	Zachary R. Stevey	7.00
S98 R	05-25-13.4	Parsons Cemetery	0.38
S99	12-03-4.7	Joseph P. & Barbara A. Cain	67.3
S100	12-03-04	Albert L. & Mary Hohman, et al	85.0
S101 Y	12-03-44	James A. & Jo C. Estep	1.10



P.S. 708 *David L Jackson*



**TUG HILL
OPERATING**

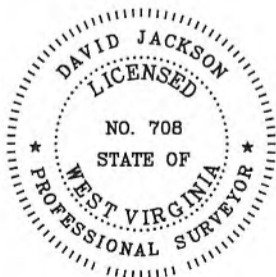
OPERATOR'S
WELL #: HILLROCK S-13HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

WELL PLAT
PAGE 2 OF 3
DATE: 09/13/2019

**HILLROCK LEASE
WELL S-13HU
371.8352± ACRES**

Lessee No.	Tags	Parcel	Grantor, Lessor, Etc.	Book	Page
10*14140	A	5-23-7	TERRY E SIMMS AND DEBORAH L SIMMS	666	529
10*22496	AA	12-3-1	JAMES W KLUG	923	543
10*14126	B	5-17-11	SHARON MIDCAP	697	152
10*17186	C	5-23-6	ROBERT J HENRY	708	51
10*17191	D	5-23-8.1	ROBERT J HENRY ET AL	715	463
10*14797	E	5-24-5.4	ORVILLE YOUNG ET AL	800	598
10*14797	F	5-24-5.5	ORVILLE YOUNG ET AL	800	598
10*14797	G	5-24-5.3	ORVILLE YOUNG ET AL	800	598
10*14797	H	5-24-5	ORVILLE YOUNG ET AL	800	598
10*14786	I	5-23-10	TWILA O WHIPKEY ET AL	799	61
10*14786	J	5-23-11.1	TWILA O WHIPKEY ET AL	799	61
10*14558	K	5-24-6	KLOVA ANN MORRIS ET AL	765	434
10*14786	L	5-25-20	TWILA O WHIPKEY ET AL	799	61
10*14728	M	5-25-1	IRIS K MOELLENDICK ET AL	839	509
10*19727	N	5-25-14	S RICHARD MELLON ET AL	944	465
10*14728	O	5-25-13.2	IRIS K MOELLENDICK ET AL	839	509
10*14728	P	5-25-13	IRIS K MOELLENDICK ET AL	839	509
10*14728	Q	5-25-1.5	IRIS K MOELLENDICK ET AL	839	509
10*27612	R	5-25-13.4	HELEN M THAYER ET AL	1060	566
10*18120	S	5-25-12.1	KENT & BETTY MASON	927	75
10*19727	T	5-25-14.1	S RICHARD MELLON ET AL	944	465
10*14926	U	5-25-12	NILA JUNE MASON ET AL	842	394
10*22496	V	5-25-11.2	JAMES W KLUG	923	543
10*22494	W	5-25-11.4	EDWARD W KLUG & DIANNA KLUG	920	109
10*22494	X	5-25-11.1	EDWARD W KLUG & DIANNA KLUG	920	109
10*23287	Y	12-3-44	JAMES A ESTEP AND JO C ESTEP	211A	221
10*22984	Z	12-3-47	WETZEL COUNTY EMERGENCY AMBULANCE AUTHORITY INC	209A	748

47-051-02273 H6A



P.S.
708

David L Jackson



TUG HILL
OPERATING

OPERATOR'S
WELL #: HILLROCK S-13HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

WELL PLAT
PAGE 3 OF 3
DATE: 09/13/2019

WW-6A1
(5/13)

Operator's Well No. Hillrock S-13HU

**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
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*See attached pages

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

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

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

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

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

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

WW-6A1 Supplement

Operator's Well No. Hillrock S 13HU

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*14140	A	5-23-7	TERRY E SIMMS AND DEBORAH L SIMMS	TRIENERGY HOLDINGS, LLC	1/8+	666	529	20/348 TriEnergy Inc to AB Resources LLC	21/148 TriEnergy Inc to TriEnergy Holdings LLC	21/491 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	685/643 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources (USA)	720/214 TriEnergy Holdings LLC to AB Resources LLC	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources (USA) to Gaster Exploration USA Inc and Athnum Marcellus I LLC	21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger	36/9 Gaster Exploration Inc to TH Exploration II LLC
10*22496	AA	12-3-1	JAMES W KLUG	AMERICAN PETROLEUM PARTNERS LLC	1/8+	923	543	NA	NA	NA	NA	NA	NA	42/109 American Petroleum Partners LLC to TH Exploration, LLC	
10*14126	B	5-17-11	SHARON MIDCAP	GASTAR EXPLORATION USA INC	1/8+	697	152	NA	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC 850/397 Statoil USA Onshore Properties Inc and SWN Production Company LLC agreement	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger 850/235 Statoil USA Onshore Properties Inc and SWN Production Company LLC agreement	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17186	C	5-23-6	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	708	51	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC agreement	19/624 SWN Exchange Titleholder LLC and SWN Production Company, LLC to TH Exploration, LLC	
10*17191	D	5-23-8.1	ROBERT J HENRY WILLIAM N ROUPE AND VIRGINIA A ROUPE	CHESAPEAKE APPALACHIA LLC	1/8+	715	463	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company, LLC to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC	
10*17290	D	5-23-8.1	VIRGINIA A ROUPE	TH EXPLORATION, LLC	1/8+	942	402	NA	NA	NA	NA	NA	NA	NA	
10*14797	E	5-24-5.4	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	806/1 Gaster Exploration, USA Inc to Athnum Marcellus I LLC	21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger	36/9 Gaster Exploration Inc to TH Exploration II, LLC	
10*14817	E	5-24-5.4	DONNA V YOHO	GASTAR EXPLORATION USA INC	1/8+	874	351	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC	
10*14818	E	5-24-5.4	DEWEY A MILICIA AND ROBIN MILICIA	GASTAR EXPLORATION INC	1/8+	875	591	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC	
10*14819	E	5-24-5.4	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION INC	1/8+	875	593	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC	
10*14820	E	5-24-5.4	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION INC	1/8+	875	595	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC	
10*14821	E	5-24-5.4	JANICE N HAUDENSCHILT	GASTAR EXPLORATION INC	1/8+	875	597	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC	

10*14822	E	5-24-5.4	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14823	E	5-24-5.4	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	NA	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC	
10*17181	E	5-24-5.4	PAUL F HAMMERS	CHESAPEAKE APPALACHIA LLC	1/8+	705	593	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Trieholder LLC	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17182	E	5-24-5.4	TWILA ORA WHIRKEY	CHESAPEAKE APPALACHIA LLC	1/8+	715	505	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Trieholder LLC	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17195	E	5-24-5.4	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Trieholder LLC	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		
10*17196	E	5-24-5.4	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Trieholder LLC	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		
10*17197	E	5-24-5.4	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Trieholder LLC	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		
10*17199	E	5-24-5.4	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Trieholder LLC	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		
10*17200	E	5-24-5.4	STEPHANIE L. HALL	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Trieholder LLC	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		
10*17201	E	5-24-5.4	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Trieholder LLC	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		

10*17202	E	5-24-5-4	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titledholder LLC	19/624 SWN Exchange Titledholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17203	E	5-24-5-4	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titledholder LLC	19/624 SWN Exchange Titledholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	E	5-24-5-4	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titledholder LLC	19/624 SWN Exchange Titledholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	E	5-24-5-4	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titledholder LLC	19/624 SWN Exchange Titledholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	E	5-24-5-4	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titledholder LLC	19/624 SWN Exchange Titledholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	E	5-24-5-4	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titledholder LLC	19/624 SWN Exchange Titledholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	E	5-24-5-4	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Titledholder LLC	19/624 SWN Exchange Titledholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17212	E	5-24-5-4	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Titledholder LLC	19/624 SWN Exchange Titledholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17213	E	5-24-5.4	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	697	154	23/353 Gaster Athnum Marcellus I LLC	Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*18275	E	5-24-5.4	BETTY JEAN NEELY MARY LOU WILSON AND STANLEY D WILSON MICHAEL WILSON	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA	NA
10*18366	E	5-24-5.4	ATTORNEY IN FACT CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA	NA
10*18369	E	5-24-5.4	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA	NA
10*18370	E	5-24-5.4	DAVID N DEVICK TRUSTEE OF THE TOM JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA	NA
10*18379	E	5-24-5.4	LIVING TRUST ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA	NA
10*19540	E	5-24-5.4	JACK R HAWMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA	NA
10*21183	E	5-24-5.4	DONALD R NEWLAND AND SUZANNE NEWLAND	GASTAR EXPLORATION USA INC	1/8+	952	205	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*23325	E	5-24-5.4	BRADLEY W YOHO	TH EXPLORATION, LLC	1/8+	966	482	NA	NA	NA	NA	NA	NA	NA	NA
10*25627	E	5-24-5.4	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1034	548	NA	NA	NA	NA	NA	NA	NA	NA
10*27078	E	5-24-5.4	CECILIA D NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	381	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*27085	E	5-24-5.4	DAPHNE HUFFMAN AND CHARLES HUFFMAN	GASTAR EXPLORATION USA INC	1/8+	697	383	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14797	F	5-24-5.5	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	806/1 Gaster Exploration USA Inc to Athnum Marcellus I LLC	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14817	F	5-24-5.5	DONNA V YOHO	GASTAR EXPLORATION INC	1/8+	874	351	NA	NA	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14818	F	5-24-5.5	DREWY A MILICIA AND ROBIN MILICIA	GASTAR EXPLORATION INC	1/8+	875	591	NA	NA	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14819	F	5-24-5.5	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION INC	1/8+	875	593	NA	NA	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC

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10*14820	F	5-24-5.5	DANA MILICA HUMPHREYS	GASTAR EXPLORATION INC	1/8+	875	595	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14821	F	5-24-5.5	JANICE N HAUDENSCHILT	GASTAR EXPLORATION INC	1/8+	875	597	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14822	F	5-24-5.5	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14823	F	5-24-5.5	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*17181	F	5-24-5.5	PAUL F HAMMERS	CHESAPEAKE APPALACHIA LLC	1/8+	705	593	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17182	F	5-24-5.5	TWILA ORA WHIPKEY	CHESAPEAKE APPALACHIA LLC	1/8+	715	505	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17195	F	5-24-5.5	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17196	F	5-24-5.5	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17197	F	5-24-5.5	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17199	F	5-24-5.5	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17200	F	5-24-5.5	STEPHANIE L. HALL	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	

10*17201	F	5-24-5-5	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gaster Exploration USA Inc to Statoil USA Onshore Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17202	F	5-24-5-5	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17203	F	5-24-5-5	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	F	5-24-5-5	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	F	5-24-5-5	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	F	5-24-5-5	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	F	5-24-5-5	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	F	5-24-5-5	GARY WAYNE ZESIGER & VICIE ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	

10*17212	F	5-24-5.5	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511t gastar Athnum Marcellus I LLC and Statoli USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoli USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoli USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoli USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17213	F	5-24-5.5	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	697	154	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511t gastar Athnum Marcellus I LLC and Statoli USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoli USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoli USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoli USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*18275	F	5-24-5.5	BETTY JEAN NEELY MARY LOU WILSON AND STANLEY D WILSON BY	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA	NA
10*18366	F	5-24-5.5	MICHAEL WILSON AIF CRAIG ALAN YOHO AND	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA	NA
10*18369	F	5-24-5.5	DONNA M YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA	NA
10*18370	F	5-24-5.5	SAMUEL D YOHO DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA	NA
10*18379	F	5-24-5.5	LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA	NA
10*19540	F	5-24-5.5	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA	NA
10*19652	F	5-24-5.5	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA	NA
10*19903	F	5-24-5.5	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA	NA
10*23325	F	5-24-5.5	BRADLEY W YOHO	TH EXPLORATION, LLC	1/8+	966	482	NA	NA	NA	NA	NA	NA	NA	NA
10*25627	F	5-24-5.5	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1034	548	NA	z77511t gastar Athnum Marcellus I LLC and Statoli USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoli USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoli USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoli USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*27078	F	5-24-5.5	CECILIA D NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	381	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511t gastar Athnum Marcellus I LLC and Statoli USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoli USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoli USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoli USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*27085	F	5-24-5.5	DAPHNE HUFFMAN AND CHARLES HUFFMAN	GASTAR EXPLORATION USA INC	1/8+	697	383	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511t gastar Athnum Marcellus I LLC and Statoli USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoli USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoli USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoli USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*27086	F	5-24-5.5	DONALD R NEWLAND AND SUZANNE NEWLAND	GASTAR EXPLORATION USA INC	1/8+	698	639	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511t gastar Athnum Marcellus I LLC and Statoli USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoli USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoli USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoli USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14797	G	5-24-5.3	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Athnum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 TH Exploration II, LLC
10*14817	G	5-24-5.3	DONNA V YOHO	GASTAR EXPLORATION USA INC	1/8+	874	351	NA	NA	NA	NA	NA	NA	35/144 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 TH Exploration II, LLC

10*14818	G	5-24-5.3	DEWEY A MILICIA AND ROBIN MILICIA	GASTAR EXPLORATION USA INC	1/8+	875	591	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 TH Exploration II, LLC
10*14819	G	5-24-5.3	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA INC	1/8+	875	593	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 TH Exploration II, LLC
10*14820	G	5-24-5.3	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA INC	1/8+	875	595	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 TH Exploration II, LLC
10*14821	G	5-24-5.3	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA INC	1/8+	875	597	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 TH Exploration II, LLC
10*14822	G	5-24-5.3	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	463	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 TH Exploration II, LLC
10*14823	G	5-24-5.3	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	459	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 TH Exploration II, LLC
10*17181	G	5-24-5.3	PAUL F HAMMERS	CHESAPEAKE APPALACHIA LLC	1/8+	705	593	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17182	G	5-24-5.3	TWILA ORA WHIRKEY	CHESAPEAKE APPALACHIA LLC	1/8+	715	505	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17195	G	5-24-5.3	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17196	G	5-24-5.3	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17197	G	5-24-5.3	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	

10*17210	G	5-24-5.3	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	27/311 Gaster Athnum Marcellus I LLC	Exploration USA inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	G	5-24-5.3	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	27/311 Gaster Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17212	G	5-24-5.3	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	27/311 Gaster Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*17213	G	5-24-5.3	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	697	154	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	27/311 Gaster Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*18275	G	5-24-5.3	BETTY JEAN NEELY MARY LOU WILSON STANLEY D WILSON	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*18366	G	5-24-5.3	MICHAEL WILSON ATTORNEY IN FACT CRAIG ALAN YOHIO AND DONNA M YOHIO	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*18369	G	5-24-5.3	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*18370	G	5-24-5.3	ERICA M MAASON JACK R HAMMERS PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*18379	G	5-24-5.3	BRADLEY V YOHIO CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*19540	G	5-24-5.3	LIVING TRUST	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*19652	G	5-24-5.3	ERICA M MAASON	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*19903	G	5-24-5.3	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*23925	G	5-24-5.3	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	966	482	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*25627	G	5-24-5.3	BRADLEY V YOHIO	TH EXPLORATION, LLC	1/8+	1034	548	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*27078	G	5-24-5.3	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	697	381	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	27/311 Gaster Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*27085	G	5-24-5.3	CECILIA D NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	383	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	27/311 Gaster Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*27086	G	5-24-5.3	DARHNE HUFFMAN AND CHARLES HUFFMAN	GASTAR EXPLORATION USA INC	1/8+	698	639	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	23/353 Gaster Athnum Marcellus I LLC	27/311 Gaster Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC	
10*14797	H	5-24-5	DONALD R NEWLAND AND SUZANNE NEWLAND	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	NA	NA	806/1 Gaster Exploration USA inc to Athnum Marcellus I LLC	21/41 Gaster Exploration USA inc and Gaster Exploration Inc merger	36/9 Gaster Exploration Inc to TH Exploration ll, LLC	

10*14817	H	5-24-5	DONNA V VOHO	GASTAR EXPLORATION USA INC	1/8+	874	351	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14818	H	5-24-5	DEWEY A MILICIA AND ROBIN MILICIA	GASTAR EXPLORATION INC	1/8+	875	591	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14819	H	5-24-5	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION INC	1/8+	875	593	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14820	H	5-24-5	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION INC	1/8+	875	595	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14821	H	5-24-5	JANICE N HAUDENSCHILT ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	875	597	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14822	H	5-24-5	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*14823	H	5-24-5	PAUL F HAMMERS	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II, LLC
10*17181	H	5-24-5	TWILA ORA WHIPKEY	CHEESAPEAKE APPALACHIA LLC	1/8+	715	505	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17182	H	5-24-5	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	H	5-24-5	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	H	5-24-5	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	NA	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	NA	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17199	H	5-24-5	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	H	5-24-5	STEPHANIE L. HALL	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17201	H	5-24-5	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17202	H	5-24-5	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17203	H	5-24-5	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	H	5-24-5	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	H	5-24-5	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	H	5-24-5	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titheholder LLC	19/624 SWN Exchange Titheholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17210	H	5-24-5	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511 gastar	Exploration USA Inc and Athnum Marcellus I LLC	Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	Titlerholder LLC	19/624 SWN Exchange Titlerholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	H	5-24-5	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511 gastar	Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titlerholder LLC	19/624 SWN Exchange Titlerholder LLC and SWN Production Coompany LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		
10*17212	H	5-24-5	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511 gastar	Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titlerholder LLC	19/624 SWN Exchange Titlerholder LLC and SWN Production Coompany LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		
10*17213	H	5-24-5	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	697	154	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511 gastar	Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titlerholder LLC	19/624 SWN Exchange Titlerholder LLC and SWN Production Coompany LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		
10*18275	H	5-24-5	BETTY JEAN NEELEY MARYTOD WILSON AND STANLEY D WILSON	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
10*18366	H	5-24-5	MICHAEL WILSON ATTORNEY IN FACT	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18369	H	5-24-5	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18370	H	5-24-5	SAMUEL D YOHO DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18379	H	5-24-5	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	439	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19540	H	5-24-5	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19652	H	5-24-5																
10*21183	H	5-24-5	DONALD R NEWLAND AND SUZANNE NEWLAND	GASTAR EXPLORATION USA INC	1/8+	952	205	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511 gastar	Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titlerholder LLC	19/624 SWN Exchange Titlerholder LLC and SWN Production Coompany LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		
10*23325	H	5-24-5	BRADLEY W YOHO	TH EXPLORATION, LLC	1/8+	966	482	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*25627	H	5-24-5	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1034	548	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*27078	H	5-24-5	CECILIA D NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	381	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	z77511 gastar	Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titlerholder LLC	19/624 SWN Exchange Titlerholder LLC and SWN Production Coompany LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC		

10*27085	H	5-24-5	DAPHNE HUFFMAN AND CHARLES HUFFMAN	GASTAR EXPLORATION USA INC	1/8+	697	383	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	27/511 GASTAR Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14786	I	5-23-10	TWILA O WHIRKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Athnum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14797	I	5-23-10	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Athnum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14822	I	5-23-10	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	35/144 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14823	I	5-23-10	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	35/144 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*17195	I	5-23-10	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	27/511 GASTAR Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	I	5-23-10	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	27/511 GASTAR Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	I	5-23-10	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	27/511 GASTAR Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17199	I	5-23-10	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	27/511 GASTAR Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	I	5-23-10	STEPHANIE L. HALL	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	27/511 GASTAR Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17201	1	5-23-10	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titholder LLC	19/624 SWN Exchange Titholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17202	1	5-23-10	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titholder LLC	19/624 SWN Exchange Titholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17203	1	5-23-10	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titholder LLC	19/624 SWN Exchange Titholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	1	5-23-10	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titholder LLC	19/624 SWN Exchange Titholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	1	5-23-10	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titholder LLC	19/624 SWN Exchange Titholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	1	5-23-10	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titholder LLC	19/624 SWN Exchange Titholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	1	5-23-10	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titholder LLC	19/624 SWN Exchange Titholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	1	5-23-10	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Titholder LLC	19/624 SWN Exchange Titholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17212	1	5-23-10	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	2/7/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoil USA Onshore Properties	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Coompany LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17213	1	5-23-10	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	697	154	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	2/7/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoil USA Onshore Properties	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Coompany LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*18275	1	5-23-10	BETTY JEAN NEELY MARYLOU WILSON AND STANLEY D WILSON	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA	NA
10*18366	1	5-23-10	MICHAEL WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA	NA
10*18369	1	5-23-10	ATTORNEY IN FACT CRAIG ALAN YOHIO AND DONNA M YOHIO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA	NA
10*18370	1	5-23-10	SAWUEL D YOHIO	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA	NA
10*18379	1	5-23-10	DAVID N DEWICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA	NA
10*19540	1	5-23-10	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA	NA
10*19652	1	5-23-10	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA	NA
10*19903	1	5-23-10	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA	NA
10*22008	1	5-23-10	COLIN R YOHIO AND NORMA L YOHIO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA	NA
10*22025	1	5-23-10	MARK EUGENE YOHIO & MARY YOHIO	TH EXPLORATION, LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA	NA
10*22129	1	5-23-10	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA	NA
10*22441	1	5-23-10	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA	NA	NA
10*22510	1	5-23-10	DONNA V YOHIO	TH EXPLORATION, LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA	NA	NA
10*23372	1	5-23-10	DEWEY A MILICIA AND ROBIN MILICIA	TH EXPLORATION, LLC	1/8+	1008	320	NA	NA	NA	NA	NA	NA	NA	NA
10*23373	1	5-23-10	DANA MILICIA HUMPHREYS	TH EXPLORATION, LLC	1/8+	988	429	NA	NA	NA	NA	NA	NA	NA	NA
10*23446	1	5-23-10	NICOLETTA MILICIA	TH EXPLORATION, LLC	1/8+	1008	316	NA	NA	NA	NA	NA	NA	NA	NA
10*25627	1	5-23-10	BLOODWORTH	TH EXPLORATION, LLC	1/8+	1034	548	NA	NA	NA	NA	NA	NA	NA	NA
10*27078	1	5-23-10	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	697	381	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	2/7/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoil USA Onshore Properties	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Coompany LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*27085	1	5-23-10	CECILIA D NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	383	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	2/7/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoil USA Onshore Properties	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Coompany LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*27086	I	5-23-10	DONALD R NEWLAND AND SUZANNE NEWLAND	GASTAR EXPLORATION USA INC	1/8+	698	639	23/353 Gaster Exploration USA Inc to Athlum Marcellus LLC	Z7/511 Gaster Exploration USA Inc and Athlum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14786	J	5-23-11.1	TWILA O WHIRKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	NA	806/1 Gaster Exploration USA Inc to Athlum Marcellus I LLC	21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger	36/9 Gaster Exploration Inc to TH Exploration II LLC
10*14797	J	5-23-11.1	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	806/1 Gaster Exploration USA Inc to Athlum Marcellus I LLC	21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger	36/9 Gaster Exploration Inc to TH Exploration II LLC
10*14822	J	5-23-11.1	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athlum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II LLC
10*14823	J	5-23-11.1	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	35/144 Gaster Exploration Inc to Athlum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II LLC
10*17195	J	5-23-11.1	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	23/353 Gaster Exploration USA Inc to Athlum Marcellus I LLC	Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	J	5-23-11.1	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	23/353 Gaster Exploration USA Inc to Athlum Marcellus I LLC	Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	J	5-23-11.1	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	23/353 Gaster Exploration USA Inc to Athlum Marcellus I LLC	Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17199	J	5-23-11.1	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	23/353 Gaster Exploration USA Inc to Athlum Marcellus I LLC	Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	J	5-23-11.1	STEPHANIE L. HALL	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	23/353 Gaster Exploration USA Inc to Athlum Marcellus I LLC	Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17201	J	5-23-11.1	DENISE A GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17202	J	5-23-11.1	JANE GALE	GASTAR EXPLORATION USA INC	1/8+	697	385	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17203	J	5-23-11.1	BARRY RAY MOORE	GASTAR EXPLORATION USA INC	1/8+	697	387	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17204	J	5-23-11.1	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	391	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17206	J	5-23-11.1	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA INC	1/8+	697	399	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17207	J	5-23-11.1	DEBORAH K KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA INC	1/8+	697	389	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17210	J	5-23-11.1	MARILYN NOEL	GASTAR EXPLORATION USA INC	1/8+	697	393	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	Z/7/511 Gaster Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties to SWN Exchange	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17211	J	5-23-11.1	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC and Appalachia LLC and Statoil USA Onshore Properties Inc	Z/7/511 Gaster Athnum Marcellus I LLC and Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Exchange	19/624 SWN Exchange Trieholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*17212	J	5-23-11.1	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoll USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoll USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Coompany LLC merger	41/238 Statoll USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17213	J	5-23-11.1	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	697	154	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC to Statoll USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoll USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Coompany LLC merger	41/238 Statoll USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*18275	J	5-23-11.1	BETTY JEAN NEEBY MARY LOU WILSON AND STANLEY D WILSON MICHAEL WILSON	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA	NA
10*18366	J	5-23-11.1	ATORNEY IN FACT CRANG ALAN YOHIO AND DONNA M YOHIO	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA	NA
10*18369	J	5-23-11.1	DONNA M YOHIO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA	NA
10*18370	J	5-23-11.1	SAMUEL D YOHIO DAVID N DEVICK TRUSTEE OF THE TONI JO MASON	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA	NA
10*18379	J	5-23-11.1	LIVING TRUST ERICA M MASON	TH EXPLORATION, LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA	NA
10*19540	J	5-23-11.1	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA	NA
10*19652	J	5-23-11.1	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA	NA
10*19652	J	5-23-11.1	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA	NA
10*19903	J	5-23-11.1	PAUL F HAMMERS COLIN R YOHIO AND NORMA L YOHIO	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA	NA
10*22008	J	5-23-11.1	MARK EUGENE YOHIO & MARY YOHIO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA	NA
10*22025	J	5-23-11.1	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA	NA
10*22129	J	5-23-11.1	JOHN BRYANT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA	NA
10*22334	J	5-23-11.1	APRIL ROSE FOOSTLETHWAT	TH EXPLORATION, LLC	1/8+	962	540	NA	NA	NA	NA	NA	NA	NA	NA
10*22441	J	5-23-11.1	DONNA V YOHIO DEWEY A MILICIA AND ROBIN MILICIA	TH EXPLORATION, LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA	NA	NA
10*22510	J	5-23-11.1	DANA MILICIA HUMPHREYS NICOLETTA MILICIA	TH EXPLORATION, LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA	NA	NA
10*23372	J	5-23-11.1	BLOODWORTH CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1008	320	NA	NA	NA	NA	NA	NA	NA	NA
10*23373	J	5-23-11.1	CECILIA D NEWLAND	TH EXPLORATION, LLC	1/8+	988	429	NA	NA	NA	NA	NA	NA	NA	NA
10*23446	J	5-23-11.1	GASTAR EXPLORATION USA INC	TH EXPLORATION, LLC	1/8+	1008	316	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC to Statoll USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoll USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Coompany LLC merger	41/238 Statoll USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*27078	J	5-23-11.1	DAPHNE HUFFMAN AND CHARLES HUFFMAN	GASTAR EXPLORATION USA INC	1/8+	697	381	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC and Statoll USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoll USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Coompany LLC merger	41/238 Statoll USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*27085	J	5-23-11.1	GASTAR EXPLORATION USA INC	GASTAR EXPLORATION USA INC	1/8+	697	383	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	27/511 Gaster Exploration USA Inc and Athnum Marcellus I LLC	29/325 Chesapeake Appalachia LLC to Statoll USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoll USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Coompany LLC merger	41/238 Statoll USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

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10*27086	J	5-23-11.1	DONALD R NEWLAND AND SUZANNE NEWLAND	GASTAR EXPLORATION USA INC	1/8+	698	639	23/353 Gastar Exploration USA Inc to Athium Marcellus I LLC	27/311,363B* Exploration USA Inc and Athium Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Titholder LLC	19/624 SWN Exchange Titholder LLC and SWN Production Company LLC merger	41/236 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14558	K	5-24-6	KLOVA ANN MORRIS	GASTAR EXPLORATION USA INC	1/8+	765	434	NA	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Athium 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*14559	K	5-24-6	WILLIAM L LITMAN	GASTAR EXPLORATION USA INC	1/8+	767	258	NA	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Athium 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	K	5-24-6	AARON DEAN LITMAN	GASTAR EXPLORATION USA INC	1/8+	767	262	NA	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Athium 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	K	5-24-6	THE ESTATE OF MIERNA NELSON C/O ULA NELSON	GASTAR EXPLORATION USA INC	1/8+	770	474	NA	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Athium 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	K	5-24-6	MARY VOLTZ	GASTAR EXPLORATION USA INC	1/8+	773	575	NA	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Athium 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	K	5-24-6	JACK MICHAEL FOREMAN	GASTAR EXPLORATION USA INC	1/8+	796	44	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Athium 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	K	5-24-6	JULIE SPRINGWATER JOHN P ICARD AND REVA J ICARD	GASTAR EXPLORATION USA INC	1/8+	799	57	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Athium 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	K	5-24-6	VICKI LYNN AND RICHARD FRANKLIN WOOD	TH EXPLORATION, LLC	1/8+	957	129	NA	NA	NA	NA	NA	NA	NA	NA
10*17626	K	5-24-6	THE ESTATE OF ROY JOSEPH LEACH	TH EXPLORATION, LLC	1/8+	917	60	NA	NA	NA	NA	NA	NA	NA	NA
10*18174	K	5-24-6	MELISSA MILLER GIBSON AND JAMES GIBSON	TH EXPLORATION, LLC	1/8+	927	647	NA	NA	NA	NA	NA	NA	NA	NA
10*21455	K	5-24-6		TH EXPLORATION, LLC	1/8+	953	308	NA	NA	NA	NA	NA	NA	NA	NA
10*14786	L	5-25-20	TWILLA O WHIPKEY	GASTAR EXPLORATION USA INC	1/8+	799	61	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Athium 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*14792	L	5-25-20	TIMOTHY YOHO	GASTAR EXPLORATION USA INC	1/8+	799	536	NA	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Athium 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*14797	L	5-25-20	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	21/41 Gaster Exploration USA Inc and Gaster Exploration Inc merger	36/9 Gaster Exploration II Inc to TH Exploration II LLC
10*14815	L	5-25-20	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	535	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	32/428 Gaster Exploration to Athnum Marcellus I LLC	36/9 Gaster Exploration II Inc to TH Exploration II LLC
10*14822	L	5-25-20	ONWARD E BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	463	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II LLC
10*14823	L	5-25-20	SARAH L BURGE TRUST STEPHEN W BURGE AS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	876	459	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	35/144 Gaster Exploration Inc to Athnum Marcellus I LLC	36/9 Gaster Exploration Inc to TH Exploration II LLC
10*17195	L	5-25-20	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	41/238 Staroil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17196	L	5-25-20	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	41/238 Staroil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17197	L	5-25-20	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	41/238 Staroil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17199	L	5-25-20	PAMELA L. DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	41/238 Staroil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17200	L	5-25-20	STEPHANIE L. HALL	GASTAR EXPLORATION USA INC	1/8+	697	156	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	41/238 Staroil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*17201	L	5-25-20	DENISE A. GALE	GASTAR EXPLORATION USA INC	1/8+	697	395	NA	NA	23/353 Gaster Exploration USA Inc to Athnum Marcellus I LLC	NA	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Staroil USA Onshore Properties to SWN Exchange Titlholder LLC	19/624 SWN Exchange Titlholder LLC and SWN Production Company	41/238 Staroil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

10*27085	L	5-25-20	DAPHNE HUFFMAN AND CHARLES HUFFMAN	GASTAR EXPLORATION USA INC	1/8+	697	383	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	27/511 GASTAR Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*27086	L	5-25-20	DONALD R NEWMAN AND SUZANNE NEWMAN	GASTAR EXPLORATION USA INC	1/8+	698	639	23/353 Gastar Exploration USA Inc to Athnum Marcellus I LLC	Exploration USA Inc and Athnum Marcellus I LLC to Chesapeake Appalachia LLC and Statoil USA Onshore Properties Inc	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company	33/424 Statoil USA Onshore Properties Inc to SWN Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC
10*14728	M	5-25-1	IRIS K MOELLENDICK	GASTAR EXPLORATION USA INC	1/8+	839	509	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14729	M	5-25-1	BONNIE S SHANNON, INDIVIDUALLY	GASTAR EXPLORATION USA INC	1/8+	839	511	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14730	M	5-25-1	CATHIE K LAKE	GASTAR EXPLORATION USA INC	1/8+	839	513	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14731	M	5-25-1	RICHARD KLUG	GASTAR EXPLORATION USA INC	1/8+	839	515	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14734	M	5-25-1	CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF	GASTAR EXPLORATION USA INC	1/8+	842	376	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14725	M	5-25-1	GLENNALEE COZART	GASTAR EXPLORATION USA INC	1/8+	842	378	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14737	M	5-25-1	MARION PARSONS JR	GASTAR EXPLORATION USA INC	1/8+	844	83	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19144	M	5-25-14	MICHAEL L MASON	TH EXPLORATION, LLC	1/8+	945	436	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19177	N	5-25-14	S RICHARD WELTON	TH EXPLORATION, LLC	1/8+	944	465	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19178	N	5-25-14	KATHLEEN I FRANCIOS	TH EXPLORATION, LLC	1/8+	944	463	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19179	N	5-25-14	JANICE F BROOKOVER	TH EXPLORATION, LLC	1/8+	944	90	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*191729	N	5-25-14	JENNETTE M HEATH	TH EXPLORATION, LLC	1/8+	944	577	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*191730	N	5-25-14	ARELENA B HORNER AND QUAY ALLEN HORNER	TH EXPLORATION, LLC	1/8+	944	467	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19844	N	5-25-14	BARBARA BARNHART AND DAVID BELL	TH EXPLORATION, LLC	1/8+	946	40	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19895	N	5-25-14	WALTER BARNHART	TH EXPLORATION, LLC	1/8+	948	589	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19896	N	5-25-14	ISABEL GEORGE AND HENSLER J GEORGE	TH EXPLORATION, LLC	1/8+	949	231	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19897	N	5-25-14	ROSE BELL	TH EXPLORATION, LLC	1/8+	949	223	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19898	N	5-25-14	NANCY J TODD	TH EXPLORATION, LLC	1/8+	949	226	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19899	N	5-25-14	WILLIAM H BELL	TH EXPLORATION, LLC	1/8+	948	228	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19900	N	5-25-14	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	948	580	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*19901	N	5-25-14	MIRIAM D LYDICK	TH EXPLORATION, LLC	1/8+	948	585	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Athnum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

10*14729	O	5-25-13.2	BONNIE S SHANNON, INDIVIDUALLY	GASTAR EXPLORATION INC	1/8+	839	511	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14730	O	5-25-13.2	CATHIE K LAKE	GASTAR EXPLORATION INC	1/8+	839	513	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14732	O	5-25-13.2	DAVID KLUG	GASTAR EXPLORATION INC	1/8+	839	517	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14734	O	5-25-13.2	CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF	GASTAR EXPLORATION INC	1/8+	842	376	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14735	O	5-25-13.2	GLENNALEE COZART	GASTAR EXPLORATION INC	1/8+	842	378	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14737	O	5-25-13.2	MARION PARSONS JR	GASTAR EXPLORATION INC	1/8+	844	83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
10*14728	P	5-25-13	IRIS K MOELLENDICK	GASTAR EXPLORATION INC	1/8+	839	509	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14729	P	5-25-13	BONNIE S SHANNON, INDIVIDUALLY	GASTAR EXPLORATION INC	1/8+	839	511	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14730	P	5-25-13	CATHIE K LAKE	GASTAR EXPLORATION INC	1/8+	839	513	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14733	P	5-25-13	NICHOLAS J KLUG & DEBRA L KLUG	GASTAR EXPLORATION INC	1/8+	842	374	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14734	P	5-25-13	CLARENCE BAXTER BY RODNEY C BAXTER, AGENT AND AIF	GASTAR EXPLORATION INC	1/8+	842	376	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14735	P	5-25-13	GLENNALEE COZART	GASTAR EXPLORATION INC	1/8+	842	378	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14737	P	5-25-13	MARION PARSONS JR	GASTAR EXPLORATION INC	1/8+	844	83	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14728	Q	5-25-1.5	IRIS K MOELLENDICK	GASTAR EXPLORATION USA INC	1/8+	839	509	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II, LLC
10*14729	Q	5-25-1.5	BONNIE S SHANNON, INDIVIDUALLY	GASTAR EXPLORATION USA INC	1/8+	839	511	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atrinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II, LLC

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10*22494	W	5-25-11.4	EDWARD W KLUG & DIANNA KLUG	AMERICAN PETROLEUM PARTNERS LLC	1/8+	920	109	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42/109 American Petroleum Partners LLC to TH Exploration, LLC
10*22494	X	5-25-11.1	EDWARD W KLUG & DIANNA KLUG	AMERICAN PETROLEUM PARTNERS LLC	1/8+	920	109	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42/109 American Petroleum Partners LLC to TH Exploration, LLC
10*23287	Y	12-3-44	JAMES A ESTEP AND JO C ESTEP	TH EXPLORATION, LLC	1/8+	211A	221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*22984	Z	12-3-47	WETZEL COUNTY EMERGENCY AMBULANCE AUTHORITY INC	TH EXPLORATION, LLC	1/8+	209A	748	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

*** FORCED POOL

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

STATE OF WEST VIRGINIA §
§
COUNTY OF MARSHALL §

ASSIGNMENT AND CONVEYANCE

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

WITNESSETH:

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

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

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

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

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

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

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

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WV-ABIR-0009

ASSIGNMENT AND CONVEYANCE

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

**ARTICLE 1
ASSIGNMENT OF ASSETS**

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

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

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

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

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

Section 2.2 Disclaimers of Warranties and Representations.

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



September 13, 2019

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

RE: Hillrock S-13HU

Subject: Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Routes 75, 29/5, 1/7 and 29 in the area reflected on the Hillrock S-13HU well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

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

Sincerely,

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

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

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(1/12)

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

Date of Notice Certification: 09/13/2019

API No. 47- 051

Operator's Well No. Hillrock S-12HU

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>519,682.96</u>
County:	<u>Marshall</u>		Northing:	<u>4,399,562.50</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.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p align="center">OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED RECEIVED Office of Oil and Gas SEP 16 2019</p>
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Required Attachments:

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

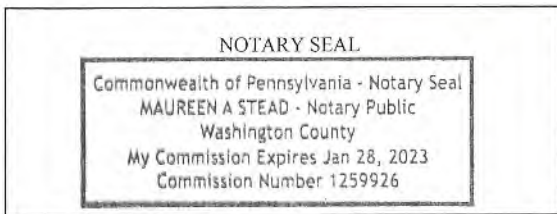
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WW-6AC
(1/12)

Certification of Notice is hereby given:

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

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



Subscribed and sworn before me this 13 day of SEPT., 2019.
Maureen Stead Notary Public
 My Commission Expires 1/28/23

Oil and Gas Privacy Notice:

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

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API NO. 47-05-02273
OPERATOR WELL NO. Hillrock S-13HU
Well Pad Name: Simms

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

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

Date of Notice: 9/10/2019 **Date Permit Application Filed:** 9/13/2019

Notice of:

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

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

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

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

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

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

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

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

Name: _____
Address: _____

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

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

COAL OPERATOR
Name: _____
Address: _____

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

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

*Please attach additional forms if necessary

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Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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

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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4705 02273
API NO. 47-051
OPERATOR WELL NO. Hillrock S-13HU
Well Pad Name: Simms

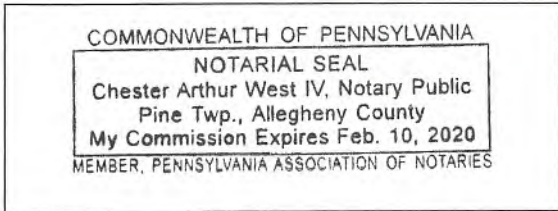
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 10th day of Sept., 2019.
[Signature] Notary Public
My Commission Expires 2-10-2020

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Supplement Pg. 1A

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

WATER WELL REPORT

Well: HILLROCK S-13HU
 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		

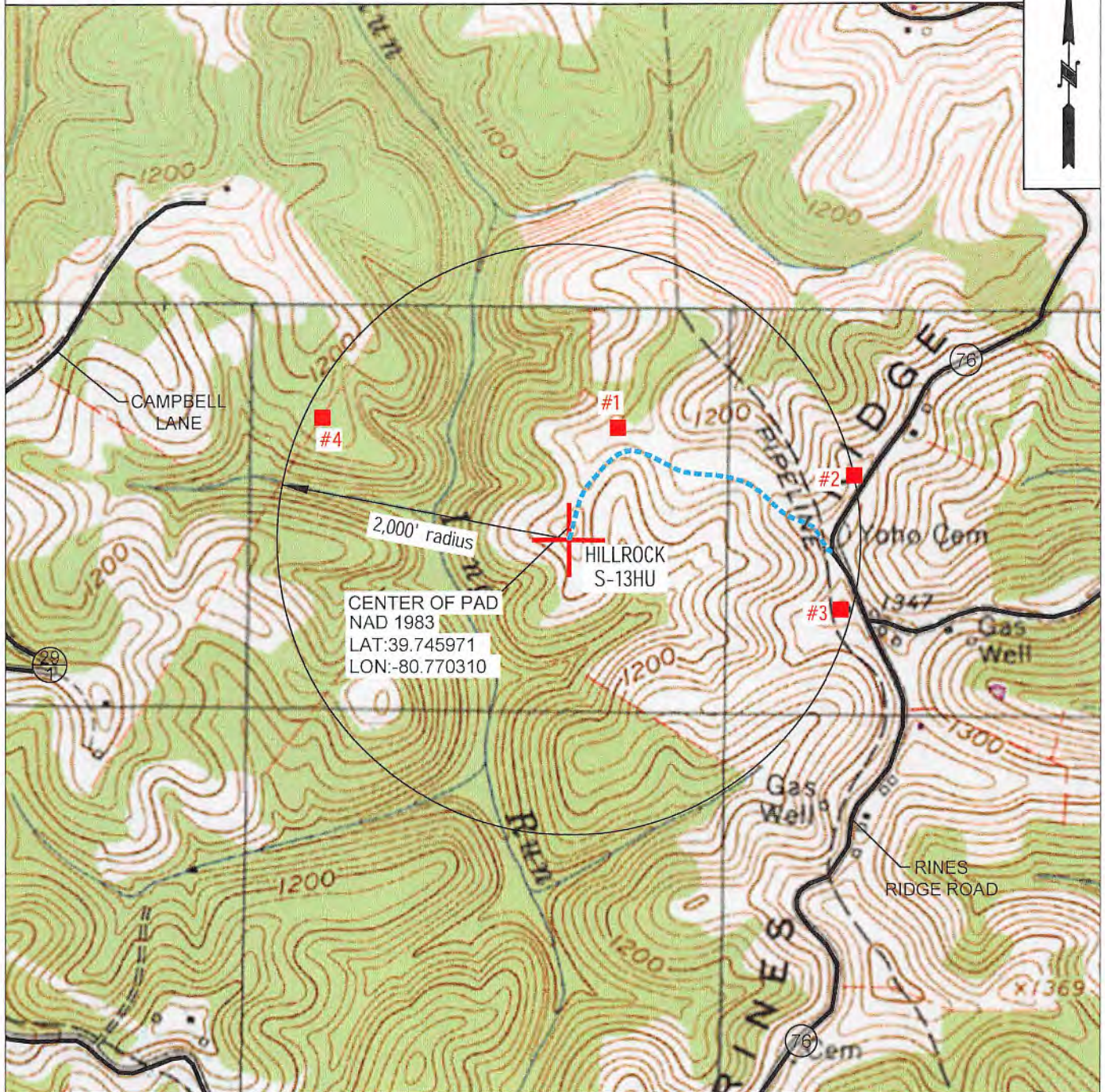
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 Environmental Protection

WW-6A

PROPOSED HILLROCK S-13HU

SUPPLEMENT PG 1

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



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



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: SEP 16 2019
DATE: 03-13-2019

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Environmental Protection

WW-6A3
(1/12)

Operator Well No. Hillrock S-13HU

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

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

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

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

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

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

Notice is hereby provided to:

SURFACE OWNER(s)

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

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

Name: _____
 Address: _____

COAL OWNER OR LESSEE

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

MINERAL OWNER(s)

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

**please attach additional forms if necessary*

Notice is hereby given:

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

State: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>39.7459021; -80.7702858</u>
County: <u>Marshall</u>	Public Road Access: <u>Rines Ridge Road (County Route 76)</u>
District: <u>Franklin</u>	Watershed: <u>Fish Creek (HUC 10)</u>
Quadrangle: <u>New Martinsville 7.5'</u>	Generally used farm name: <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 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC

Telephone: 724-749-8388

Email: amiller@tug-hillop.com

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

Facsimile: 724-338-2030

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Oil and Gas Privacy Notice:

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



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

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

January 11, 2019 ✓

Jill M. Newman
Deputy Commissioner

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

Subject: DOH Permits for the Simms Well Pad, Marshall County
Hillrock 13HU Well

Dear Mr. Martin,

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

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

Very Truly Yours,

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

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

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PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Hillrock S-13HU

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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Well Site

Construction Plan, &
 Erosion Control Plans
 for Permitting
 Franklin District
 Marshall County
 Tug Hill District
 39.74597093°
 -80.77030987°
 Lower Fish Creek Watershed

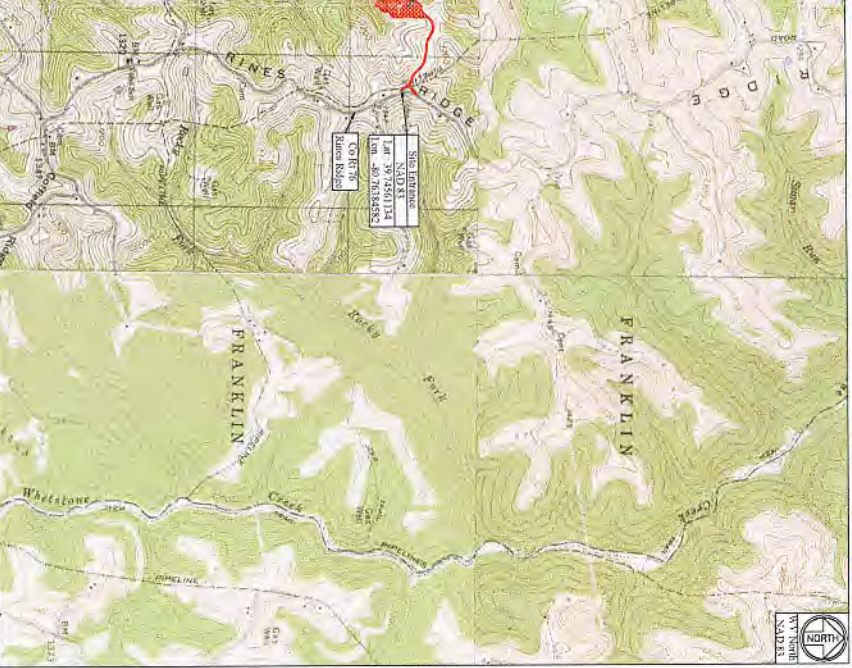
Sign: Issue for Permitting

Pertinent Site Information
 Simms Well Site
 Emergency Number: 304-845-1970
 Franklin District, Marshall County, WV
 Watershed: Lower Fish Creek Watershed
 Tug Hill Contact Number: 1-817-632-3400

Property Owner Information - Simms Well Site

Owner	MI - Inval	Well Foot	Shading	Access Road	Topsoil Excess	Final Clearing	Total Disturbed
Kenneth Carter et al	1741	0.00	0.67	0.00	0.64	1.31	3.13
Travis Simms et al	324	3.19	1.54	0.56	0.24	4.87	10.38
Site Total (GSI)	3.19	1.54	1.33	0.24	5.51	11.61	

WV State Plane Coordinate System
 North Zone, NAD 83
 Elevation Based on NAVAR
 Established by State's Geodetic
 and GPS Network



Access Road

Surface Elevation	MI - Inval	Final Length	Type
Kenneth Carter et al	1741	1287.09	New Access Road Construction
Travis Simms et al	324	1287.09	New Access Road Construction

Disturbed Area

Well Pad Construction	3,192.66
Shading Area Construction	1,317.66
Access Road Construction	1,323.66
Access Road Maintenance	0.24
Additional Clearing	5.51
Total Disturbed Area	11.61

Additional Information
 Final Wood Area Disturbance: 0.00 AC
 Final Linear Feet of Access Road: 1,252.50'

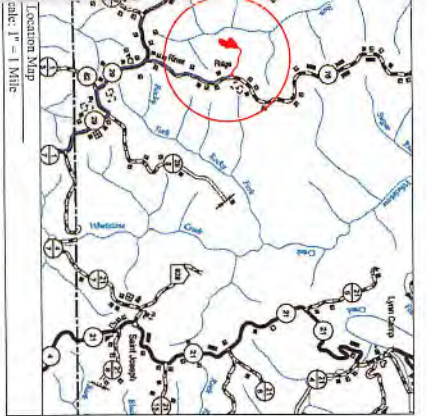
Simms Well Site Quantities

Description	Code	Quantity	Unit	Reference (D11) Max Slope (1 unit of Slope)	Max Slope
Well Pad Construction	586.12	3,192.66	Sq Ft	N/A	N/A
Access Road Maintenance	0.38	255.00	Sq Ft	35:1	35:1
Shading Area Access Road	1,533.80	709.44	Sq Ft	N/A	N/A
Topsoil Invoiced	2,097.21	11,200.00	Cu Yd	N/A	25:1
Total Spoil (Cu Yd)		11,200.00			

(Excess Spoil Quantities)

Site Locations (NAD 83)

Structure	Latitude (DD)	Longitude (DD)
Well Pad	39.74597093	-80.76834582
Center of Well Pad	39.74597093	-80.77030987
Center of Shading Area	39.74597093	-80.77030987



Well Location Restrictions
 All Well locations comply with the following restrictions:
 *250' from an existing well or developed spring used for human or domestic animals
 *25' from an occupied dwelling or human structure that is 2,500 SF or less for poultry or dairy
 *100' from the edge of freshwater or wetlands, perennial streams, natural or artificial lakes, ponds or reservoirs
 *100' from the edge of discharge to a naturally reproducing trout stream
 *1 mile of a surface or ground water table to a public water supply
 (Per All Location Restrictions of WV Code 22-6A-12)

ZACKARY C. SIMMS
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF WEST VIRGINIA
 No. 22214

The plans, specifications and reference diagrams contained herein have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Geology and Mapping.

All Plans, Sheets, and/or References / Programs included in this design constitute a complete set of plans for the project. No other plans, specifications, or references are to be used in conjunction with the design.

As a registered professional engineer, I am responsible for the design and construction of the project.

Signature: *Zackary C. Simms*
 Date: 05-24-2018

Sheet	Description
1	Cover Sheet
VI	Schedule of Quantities
MI-N4	Site Notes
2	Pre-Construction Site Conditions
3	Site Soil Map
4	Clearing Exhibit
5	Overall Plan View
6	Topsoil Plan View
7	Disturbance Exhibit
8	Final Plan View
9-10	Plan View
11	Cross Sections - Well Pad
12	Cross Sections - Well Pad Access Road
13	Cross Sections - Shading Area
GI-G2	Geotechnical Exhibit
LI	Landowner Disturbed Area Exhibit
SI	Site Reclamation
MI-M3	Production Exhibit
DI-D2	Erosion and Sediment Control Details
RI	Access Road Details
PI	Well Details

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 WV Department of Environmental Protection

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

Kelly Surveying
 2000 University Blvd
 Morgantown, WV 26505
 Phone: 304-249-1111

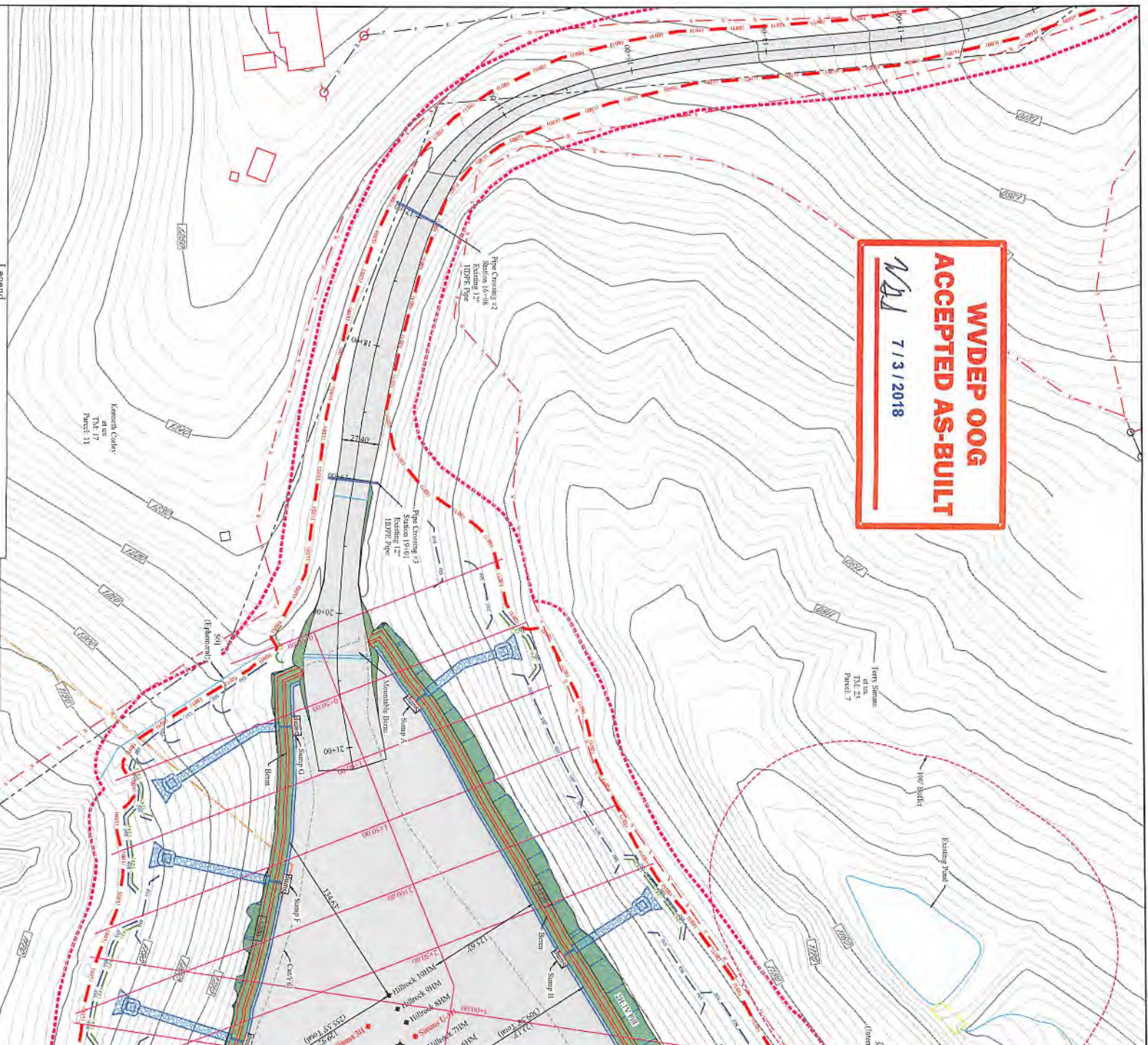
THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

TUG HILL OPERATING

Date	Revision
05-24-2018	Design
07-02-2018	Design: WVDEP Corrections

4705
 02273

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



Legend

- Original Ground 2' Contour
- Proposed Ground 2' Contour
- Center of Structure
- Proposed Well
- 2" Composite Filter Stock
- Super Silt Fence
- Line of Disturbance
- Area of Forest
- Existing Utility Profile Line
- Existing Easement
- Rock Lined Ditch
- Existing Control Channel/Sheet Pile
- PM/Wetland
- P/W Wetland
- PM/Wetland
- Impervious Stream
- Flow Control Device Slope/Flow Sheet Check Dam
- Disturbed Area
- Wetland Construction
- Staging Area Construction
- Access Road Construction
- Topsoil Erosion Control
- Final Proposed Area
- Structure/Impervious
- Wetland Construction
- Staging Area Construction
- Access Road Construction
- Topsoil Erosion Control
- Final Proposed Area
- Structure/Impervious

Additional Information

Wetland Construction	3.30 AC
Staging Area Construction	1.31 AC
Access Road Construction	1.31 AC
Topsoil Erosion Control	0.21 AC
Final Proposed Area	11.61 AC
Structure/Impervious	10.00 AC
Wetland Construction	1.31 AC
Staging Area Construction	1.31 AC
Access Road Construction	1.31 AC
Topsoil Erosion Control	0.21 AC
Final Proposed Area	11.61 AC
Structure/Impervious	10.00 AC
Wetland Construction	1.31 AC
Staging Area Construction	1.31 AC
Access Road Construction	1.31 AC
Topsoil Erosion Control	0.21 AC
Final Proposed Area	11.61 AC
Structure/Impervious	10.00 AC

