

05/03/2019



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

Friday, May 3, 2019
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for HILLROCK 11HM
47-051-02173-00-00

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

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

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

James A. Martin
Chief

Operator's Well Number: HILLROCK 11HM
Farm Name: TERRY E. & DEBORAH SIMM
U.S. WELL NUMBER: 47-051-02173-00-00
Horizontal 6A New Drill
Date Issued: 5/3/2019

Promoting a healthy environment.

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.

05/03/2019

API Number: _____

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.

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 (05/24/2018) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

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

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

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

Permit well - Hillrock 10HM

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

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705101452	Tug Hill Operating	6584' TVD 11386' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101468	Tug Hill Operating	6599' TVD 12685' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101469	Tug Hill Operating	6631' TVD 12825' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101731	Tug Hill Operating	11492' TVD 16804' MD	Point Pleasant	Unknown	Yes, existing Point Pleasant producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Point Pleasant horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705170352	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
4705100576	Leatherwood Inc	2825' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation.	Well was plugged 10/15/2016
4705170348	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
4705130450	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705130373	Unknown	2843' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation.	Well was plugged 11/20/1956

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WV Department of
Environmental Protection

Well: County - 51 Permit - 01452

WV Geologic & Economic Survey

Well Information - View Map

WV COUNTY PERMIT NO. COUNTY COUNTY ID LACT LOG NO. URBIS URBIS

Formal Log Location Information

Well Information Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Completion Information Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Production Gas Information (Volumes in Mcf) Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Production Oil Information (Volumes in Bbl) Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Production Water Information (Volumes in Gallons) Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Wellbore Information Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Well: County - 51 Permit - 01468

WV Geologic & Economic Survey

Well Information - View Map

WV COUNTY PERMIT NO. COUNTY COUNTY ID LACT LOG NO. URBIS URBIS

Formal Log Location Information

Well Information Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Completion Information Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Production Gas Information (Volumes in Mcf) Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Production Oil Information (Volumes in Bbl) Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Production Water Information (Volumes in Gallons) Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

Wellbore Information Table with columns: WELLS, COUNTY, COUNTY ID, LACT, LOG NO., URBIS, URBIS

RECEIVED Office of Oil and Gas Page 3 of 3 JAN 13 2019 WV Department of Environmental Protection

Well: County = 51 Permit = 01469

Well: County = 51 Permit = 01469

Well Information View Map
COUNTY PERMIT NO. DISTRICT QUANTITY MONTH LAT DEE LOG DEE UTM UTMN

Region/State Location Information
EP FLDG UTM UTMN LOG DEE LAT DEE

Well Information
WELL NO. DATE COMPLETED WELL STATUS WELL TYPE WELL DEPTH (FT) WELL CLASS WELL CLASS TYPE

Completion Information
WELL NO. DATE COMPLETED WELL STATUS WELL TYPE WELL DEPTH (FT) WELL CLASS WELL CLASS TYPE

Table with columns: Well No., Date Completed, Well Status, Well Type, Well Depth (ft), Well Class, Well Class Type. Lists multiple wells with their respective details.

Production Data Information (Volumes in Bbl)
Table with columns: Well No., Production Operator, Prod Year, Ann Vol, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Production Data Information (Volumes in Bbl)
Table with columns: Well No., Production Operator, Prod Year, Ann Vol, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Production Data Information (Volumes in Bbl)
Table with columns: Well No., Production Operator, Prod Year, Ann Vol, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Production Data Information (Volumes in Bbl)
Table with columns: Well No., Production Operator, Prod Year, Ann Vol, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Stratigraphy Information
Table with columns: Well No., Depth (ft), Lithology, Well Status, Well Type, Well Depth (ft), Well Class, Well Class Type.

Well: County = 51 Permit = 01231

Well: County = 51 Permit = 01231

Well Information View Map
COUNTY PERMIT NO. DISTRICT QUANTITY MONTH LAT DEE LOG DEE UTM UTMN

Region/State Location Information
EP FLDG UTM UTMN LOG DEE LAT DEE

Well Information
WELL NO. DATE COMPLETED WELL STATUS WELL TYPE WELL DEPTH (FT) WELL CLASS WELL CLASS TYPE

Completion Information
WELL NO. DATE COMPLETED WELL STATUS WELL TYPE WELL DEPTH (FT) WELL CLASS WELL CLASS TYPE

Table with columns: Well No., Date Completed, Well Status, Well Type, Well Depth (ft), Well Class, Well Class Type. Lists multiple wells with their respective details.

Production Data Information (Volumes in Bbl)
Table with columns: Well No., Production Operator, Prod Year, Ann Vol, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

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Table with columns: Well No., Production Operator, Prod Year, Ann Vol, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec.

Stratigraphy Information
Table with columns: Well No., Depth (ft), Lithology, Well Status, Well Type, Well Depth (ft), Well Class, Well Class Type.

WV Geological & Economic Survey

Well: County = 51 Permit = 70152

Location Information - View Map

WV COUNTY PERMIT DISTRICT QUAD-75 QUAD-15 L-10 L-10-100 U-100 U-100

There is no Bottom Hole Location data for this well

Owner Information

WV WELLS OPERATOR SURFACE_OWNER WELL_NAME OPERATOR LEASE_OWNER MINERAL_OWNER OPERATOR_A1 COMPLETION_PROD_ID PROD_PROD_ID PROD_PROD_ID

Completion Information

WV WELLS OPERATOR SURFACE_OWNER WELL_NAME OPERATOR LEASE_OWNER MINERAL_OWNER OPERATOR_A1 COMPLETION_PROD_ID PROD_PROD_ID PROD_PROD_ID

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

There is no Wellbore (E-log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

WV Geological & Economic Survey

Well: County = 51 Permit = 00576

Location Information - View Map

WV COUNTY PERMIT DISTRICT QUAD-75 QUAD-15 L-10 L-10-100 U-100 U-100

There is no Bottom Hole Location data for this well

Owner Information

WV WELLS OPERATOR SURFACE_OWNER WELL_NAME OPERATOR LEASE_OWNER MINERAL_OWNER OPERATOR_A1 COMPLETION_PROD_ID PROD_PROD_ID PROD_PROD_ID

Completion Information

WV WELLS OPERATOR SURFACE_OWNER WELL_NAME OPERATOR LEASE_OWNER MINERAL_OWNER OPERATOR_A1 COMPLETION_PROD_ID PROD_PROD_ID PROD_PROD_ID

There is no Pay data for this well

There is no Production Gas information (columns in table)

Table with columns: PROD_YEAR, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC. Rows include various gas production data for different wells and operators.

There is no Production Oil information (columns in table)

Table with columns: PROD_YEAR, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC. Rows include various oil production data for different wells and operators.

There is no Production NGL information (columns in table)

Table with columns: PROD_YEAR, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC. Rows include various NGL production data for different wells and operators.

There is no Production Water data for this well

Stratigraphy Information

Table with columns: WELLS, SURFACE_OWNER, WELL_NAME, OPERATOR, LEASE_OWNER, MINERAL_OWNER, OPERATOR_A1, COMPLETION_PROD_ID, PROD_PROD_ID, PROD_PROD_ID.

There is no Wellbore (E-log) data for this well

Plugging Information

There is no Sample data for this well

WV Geological & Economic Survey

Well: County = 51 Permit = 70348

Location Information - View Map

WV COUNTY PERMIT DISTRICT QUAD-75 QUAD-15 L-10 L-10-100 U-100 U-100

There is no Bottom Hole Location data for this well

Owner Information

WV WELLS OPERATOR SURFACE_OWNER WELL_NAME OPERATOR LEASE_OWNER MINERAL_OWNER OPERATOR_A1 COMPLETION_PROD_ID PROD_PROD_ID PROD_PROD_ID

Completion Information

WV WELLS OPERATOR SURFACE_OWNER WELL_NAME OPERATOR LEASE_OWNER MINERAL_OWNER OPERATOR_A1 COMPLETION_PROD_ID PROD_PROD_ID PROD_PROD_ID

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

There is no Wellbore (E-log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

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WV Department of Environmental Protection

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705130450	Marshall	30450	Franklin	New Martinsville	New Martinsville	39.743407	-80.769788	522552.7	4592308.2

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705130450	Jul1603		Completed	Henry Yoho	2	1203		2655		Manufacturers Light & Heat Co			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT
4705130450	Jul1603	Jul1603	1203 Ground Level				unclassified	unclassified		not available	unknown	unknown					

There is no Pay data for this well

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

There is no Stratigraphy data for this well

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

There is no Plugging data for this well

There is no Sample data for this well

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

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705130373	Marshall	30373	Franklin	New Martinsville	New Martinsville	39.728927	-80.754688	521215.3	4592821.1

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TRGT_FM	TFM_EST_PR
4705130373	Jul1603		Completed	Timothy Yoho	1286		2857	unknown		Manufacturers Light & Heat Co			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTG	KOD	G_BEF	G_AFT
4705130373	Jul1603	Jul1603	1203 Ground Level	Carracon-Gamer	Uchee undr Br-Loh-KURH	Goodco	Development Well	unclassified	Gas	Cable Tool	unknown	2843		2843			

Pay/Show Water Information:

API	CMP_DT	ACTIVITY	PRODUCT	SECTION	DEPTH_TOP	FM_TOP	DEPTH_BOT	FM_BOT	G_BEF	G_AFT	O_BEF	O_AFT	WATER_GNTY
4705130373	Jul1603	Pay	Gas	Vertical			1103	undetermined unit					
4705130373	Jul1603	Pay	Gas	Vertical			1540	Salt Sands (undrft)					
4705130373	Jul1603	Water	Salt Water	Vertical			1850	Salt Sands (undrft)					

There is no Production Gas data for this well

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

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

There is no Production Water data for this well

Stratigraphy Information:

API	SUFFIX	FM	FM_QUALITY	DEPTH_TOP	DEPTH_QUALITY	THICKNESS	THICKNESS_QUALITY	ELEV DATUM
4705130373		Sewickley coal	Well Record	742	Reasonable			1228 Ground Level
4705130373		Pittsburgh coal	Well Record	840	Reasonable			1200 Ground Level
4705130373		Morganlown Sa	Well Record	912	Reasonable	25	Reasonable	1225 Ground Level
4705130373		Salt Sands (undrft)	Well Record	1540	Reasonable			1220 Ground Level
4705130373		Big Lame	Well Record	1550	Reasonable			1225 Ground Level
4705130373		Big Injun (undrft)	Well Record	1535	Reasonable	283	Reasonable	1220 Ground Level
4705130373		Geotian	Well Record	2833	Reasonable			1220 Ground Level

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

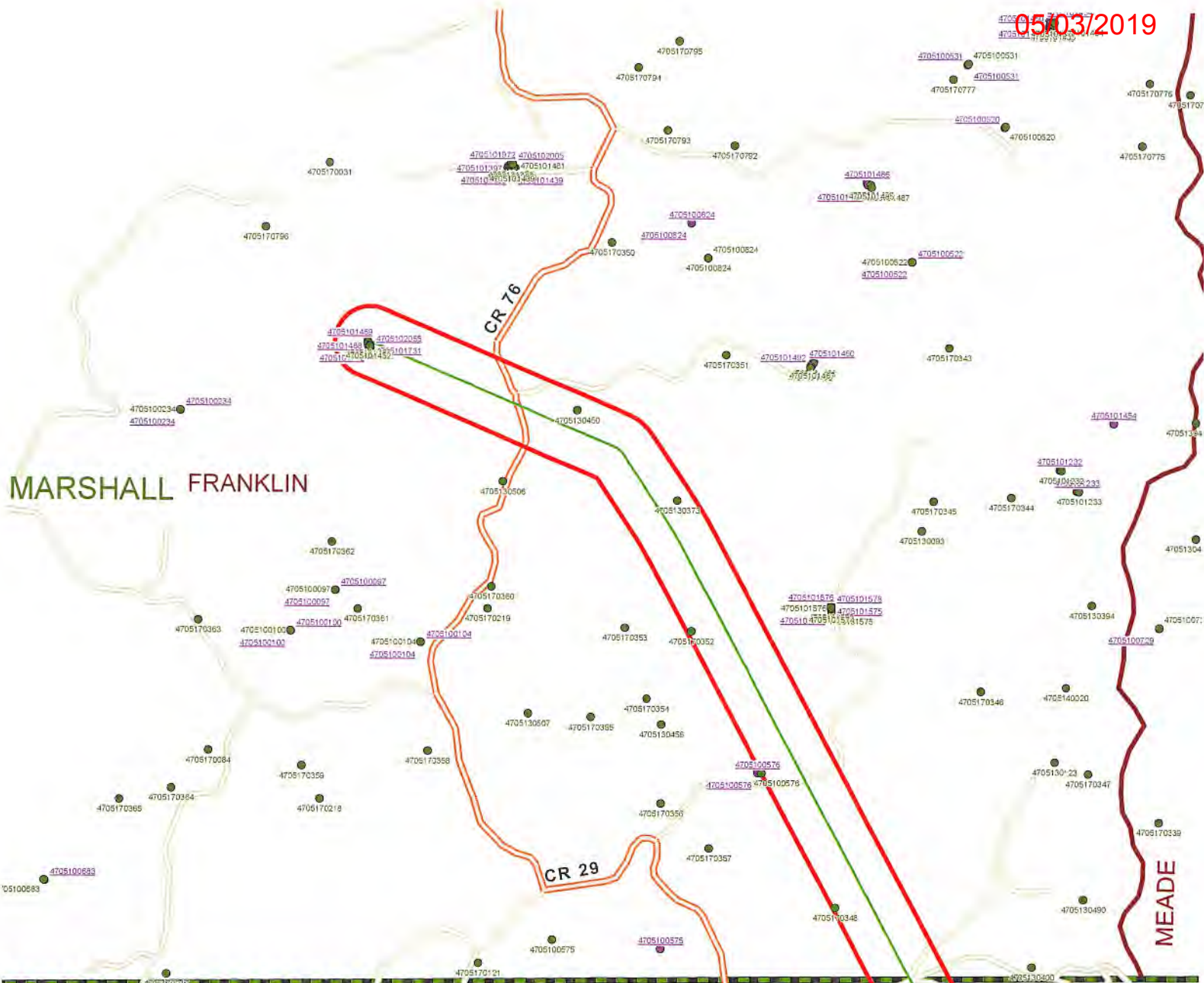
Plugging Information:

API	PLG_DT	DEPTR_PBT
4705130373	11/20/1958	0

There is no Sample data for this well

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 WV Department of
 Environmental Protection

05/03/2019



Legend

- Well Locations (ims.wvgs.wvnet.edu)
- WVDEP O & G Permits (tagis.dep.wv.gov)
- Hillrock - 11HM
- 500 Ft. Buffer
- Major Highways
- Major Roads
- ▭ Counties
- ▭ Districts



Hillrock - 11HM Franklin District Marshall County, WV



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JAN 15 2019
WV Department of
Environmental Protection



WW-6B
(04/15)

API NO. 47-051

OPERATOR WELL NO. Hillrock 11HM

Well Pad Name: Simms

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

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

2) Operator's Well Number: Hillrock 11HM Well Pad Name: Simms

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

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

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

Other _____

(b) If Gas Shallow Deep _____

Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6531' - 6582' thickness of 51' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,682'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 16,921'

11) Proposed Horizontal Leg Length: 8,625'

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

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

14) Approximate Saltwater Depths: 1,740' ✓

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

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

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

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

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APR 22 2019

WV Department of
Environmental Protection

WW-6B
(04/15)

4705102173
05/03/2019
API NO. 47- 051 -
OPERATOR WELL NO. Hillrock 11HM
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	13 3/8"	NEW	H40	48#	920'	920'	989ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	920'	920'	989ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,000'	2,000'	677ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	16,921'	16,921'	4343ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		8,428'	
Liners							

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

PACKERS

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

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WW-6B
(10/14)

4705102173
05/03/2019
API NO. 47-051
OPERATOR WELL NO. Hillrock 11HM
Well Pad Name: Simms

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

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

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

Well to be completed with approximately 21,562,500 lb proppant and 333,372 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

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

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

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

25) Proposed borehole conditioning procedures:

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

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*Note: Attach additional sheets as needed.

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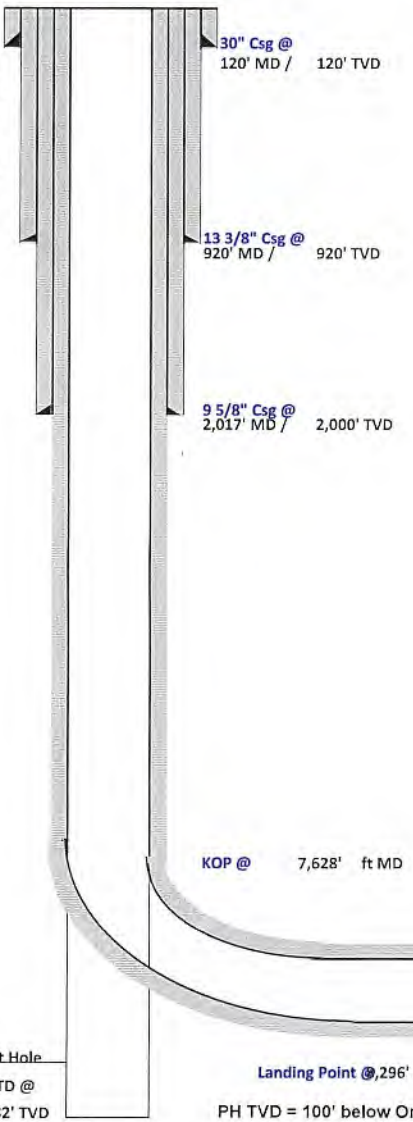


WELL NAME: Hillrock 11HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Franklin
 DF Elev: 1,219' GL Elev: 1,219'
 TD: 16,921'
 TH Latitude: 39.74610061
 TH Longitude: -80.77026615
 BH Latitude: 39.7200388
 BH Longitude: -80.74193752

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	812
Sewickley Coal	706
Pittsburgh Coal	806
Big Lime	2007
Weir	2366
Berea	2581
Gordon	2823
Rhinestreet	5881
Geneseo/Burkett	6344
Tully	6415
Hamilton	6451
Marcellus	6531
Landing Depth	6565
Onondaga	6582
Pilot Hole Depth	6682

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	920'	920'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,017'	2,000'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	16,921'	6,701'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	992	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	655	A	15	Air	1 Centralizer every other jt
Production	3,845	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



Pilot Hole
 PH TD @
 6,682' TVD

Landing Point @ 296' MD / 6,565' TVD
 PH TVD = 100' below Onondaga Top

Lateral TD @ 16,921' ft MD
 6,701' ft TVD

Signature 1/9/19

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Tug Hill Operating, LLC Casing and Cement Program

Hillrock 11HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	920'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,017'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4	16,921'	CTS

Cement

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

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

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

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

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

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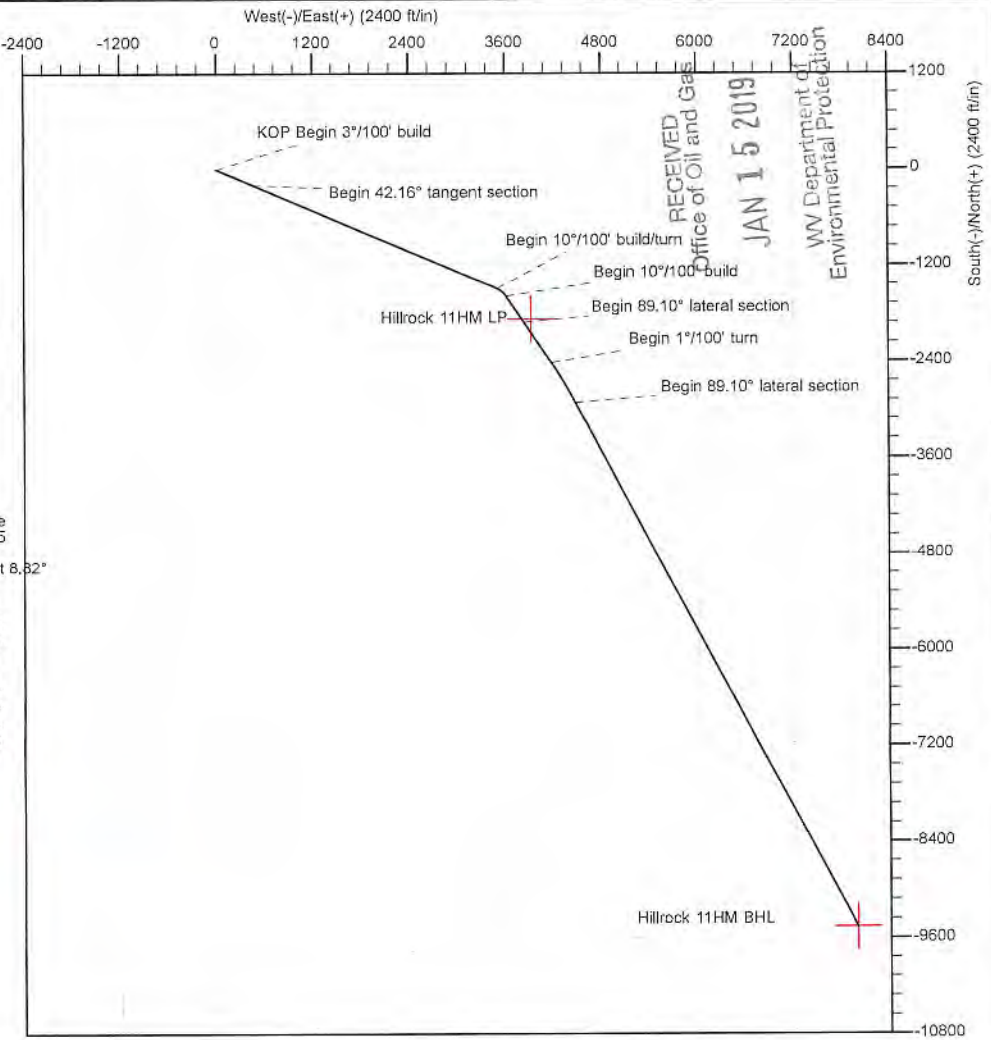
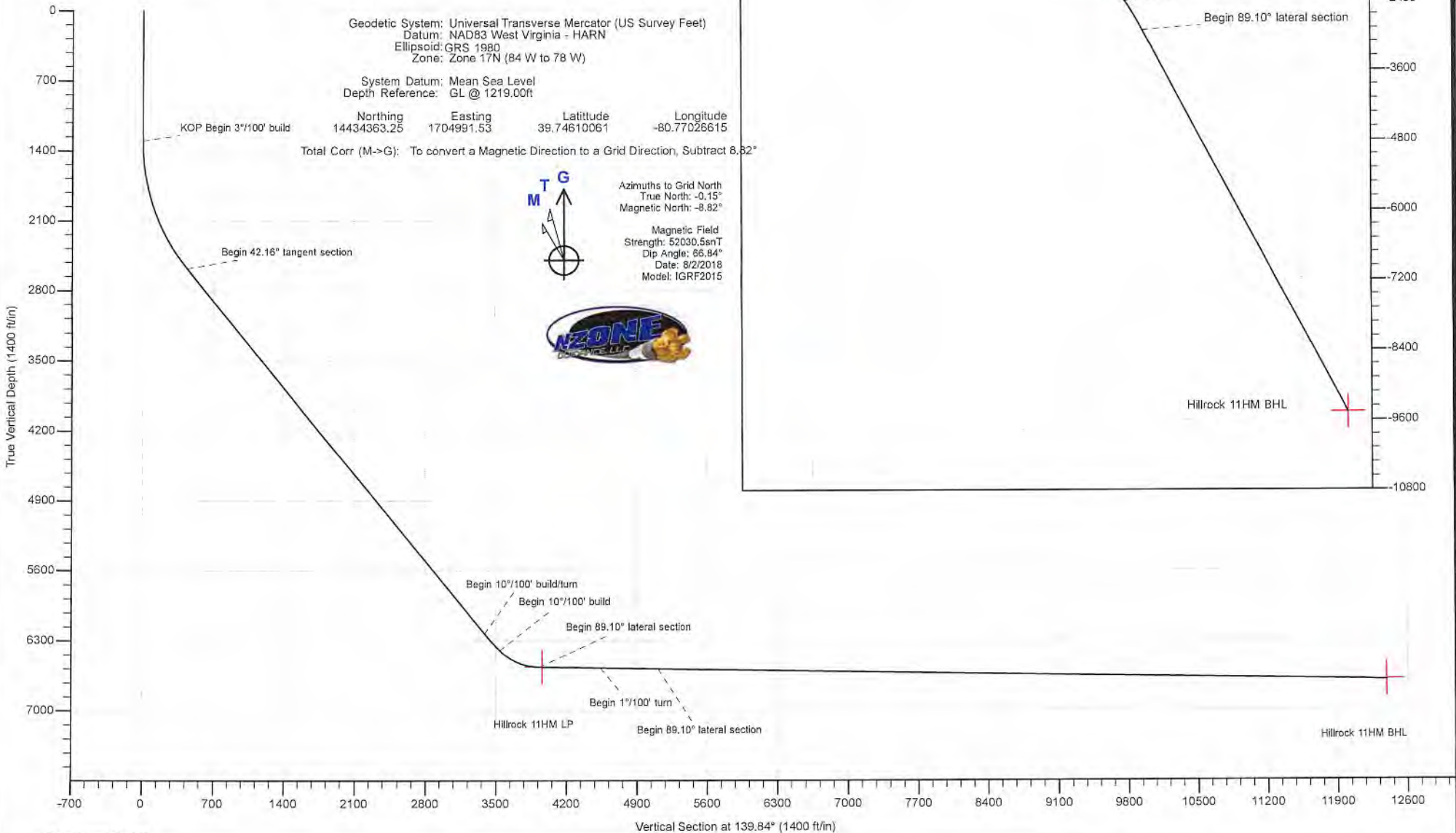
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Well: Hillrock 11 HM (O)
 Site: Hillrock/Simms
 Project: Marshall County, West Virginia.
 Design: rev0

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	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 3°/100' build
3	2705.33	42.16	113.11	2581.90	-193.95	454.48	3.00	113.11	441.33	Begin 42.16° tangent section
4	7628.07	42.16	113.11	6231.00	-1490.82	3493.49	0.00	0.00	3392.41	Begin 10°/100' build/turn
5	7854.84	45.00	146.00	6397.40	-1588.43	3609.84	10.00	95.13	3542.04	Begin 10°/100' build
6	8295.84	89.10	146.00	6565.14	-1916.85	3831.36	10.00	0.00	3935.90	Begin 89.10° lateral section
7	8905.84	89.10	146.00	6574.72	-2422.50	4172.42	0.00	0.00	4542.30	Begin 1°/100' turn
8	9481.28	89.10	151.76	6583.78	-2914.85	4469.69	1.00	90.07	5110.29	Begin 89.10° lateral section
9	16921.17	89.10	151.76	6701.00	-9468.08	7990.12	0.00	0.00	2388.97	PBHL/TD 16921.17 MD 6701.00 TVD





Database:	DB_Aug0116_LT_v14	Local Co-ordinate Reference:	Well Hillrock 11 HM (O)
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 11 HM (O)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

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

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

Well	Hillrock 11 HM (O)					
Well Position	+N/-S	0.00 ft	Northing:	14,434,363.26 usft	Latitude:	39.74610061
	+E/-W	0.00 ft	Easting:	1,704,991.53 usft	Longitude:	-80.77026615
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	52,030.47719838

Design	rev0			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	139.84

Plan Survey Tool Program	Date	8/2/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	16,920.65 rev0 (Original Hole)	MWD	MWD - Standard

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,705.33	42.16	113.11	2,581.90	-193.95	454.48	3.00	3.00	0.00	113.11	0.00
7,628.07	42.16	113.11	6,231.00	-1,490.82	3,493.49	0.00	0.00	0.00	0.00	0.00
7,854.84	45.00	146.00	6,397.40	-1,588.43	3,609.84	10.00	1.25	14.50	95.13	0.00
8,295.84	89.10	146.00	6,565.14	-1,916.85	3,831.36	10.00	10.00	0.00	0.00	0.00
8,905.84	89.10	146.00	6,574.72	-2,422.50	4,172.42	0.00	0.00	0.00	0.00	0.00
9,481.28	89.10	151.76	6,583.78	-2,914.85	4,469.69	1.00	0.00	1.00	90.07	0.00
16,921.17	89.10	151.76	6,701.00	-9,468.08	7,990.12	0.00	0.00	0.00	0.00	0.00 Hillrock 11HM BHL

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Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1219.00ft
Site:	Hillrock/Simms	North Reference:	Grid
Well:	Hillrock 11 HM (O)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
100.00	0.00	0.00	100.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
200.00	0.00	0.00	200.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
300.00	0.00	0.00	300.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
400.00	0.00	0.00	400.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
500.00	0.00	0.00	500.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
600.00	0.00	0.00	600.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
700.00	0.00	0.00	700.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
800.00	0.00	0.00	800.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
900.00	0.00	0.00	900.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,434,363.26	1,704,991.53	39.74610061	-80.77026615	
KOP Begin 3°/100' build										
1,400.00	3.00	113.11	1,399.95	-1.03	2.41	14,434,362.23	1,704,993.94	39.74609777	-80.77025760	
1,500.00	6.00	113.11	1,499.63	-4.11	9.62	14,434,359.15	1,705,001.15	39.74608927	-80.77023195	
1,600.00	9.00	113.11	1,598.77	-9.23	21.63	14,434,354.03	1,705,013.16	39.74607511	-80.77018930	
1,700.00	12.00	113.11	1,697.08	-16.38	38.39	14,434,346.87	1,705,029.92	39.74605535	-80.77012974	
1,800.00	15.00	113.11	1,794.31	-25.54	59.85	14,434,337.71	1,705,051.39	39.74603004	-80.77005345	
1,900.00	18.00	113.11	1,890.18	-36.69	85.97	14,434,326.57	1,705,077.50	39.74599925	-80.76996062	
2,000.00	21.00	113.11	1,984.43	-49.79	116.67	14,434,313.47	1,705,108.20	39.74596305	-80.76985153	
2,100.00	24.00	113.11	2,076.81	-64.81	151.87	14,434,298.45	1,705,143.40	39.74592156	-80.76972646	
2,200.00	27.00	113.11	2,167.06	-81.70	191.46	14,434,281.55	1,705,182.99	39.74587488	-80.76958577	
2,300.00	30.00	113.11	2,254.93	-100.43	235.34	14,434,262.83	1,705,226.87	39.74582314	-80.76942983	
2,400.00	33.00	113.11	2,340.18	-120.94	283.39	14,434,242.32	1,705,274.92	39.74576649	-80.76925907	
2,500.00	36.00	113.11	2,422.59	-143.16	335.48	14,434,220.09	1,705,327.01	39.74570507	-80.76907396	
2,600.00	39.00	113.11	2,501.91	-167.05	391.47	14,434,196.20	1,705,383.00	39.74563907	-80.76887501	
2,700.00	42.00	113.11	2,577.95	-192.54	451.19	14,434,170.71	1,705,442.72	39.74556865	-80.76866276	
2,705.33	42.16	113.11	2,581.90	-193.95	454.48	14,434,169.31	1,705,446.01	39.74556477	-80.76865108	
Begin 42.16° tangent section										
2,800.00	42.16	113.11	2,652.08	-218.88	512.92	14,434,144.37	1,705,504.45	39.74549587	-80.76844340	
2,900.00	42.16	113.11	2,726.21	-245.23	574.65	14,434,118.03	1,705,566.18	39.74542308	-80.76822402	
3,000.00	42.16	113.11	2,800.33	-271.57	636.39	14,434,091.68	1,705,627.92	39.74535029	-80.76800463	
3,100.00	42.16	113.11	2,874.46	-297.92	698.12	14,434,065.34	1,705,689.65	39.74527750	-80.76778525	
3,200.00	42.16	113.11	2,948.59	-324.26	759.86	14,434,038.99	1,705,751.39	39.74520471	-80.76756587	
3,300.00	42.16	113.11	3,022.71	-350.61	821.59	14,434,012.65	1,705,813.12	39.74513192	-80.76734650	
3,400.00	42.16	113.11	3,096.84	-376.95	883.33	14,433,986.30	1,705,874.85	39.74505913	-80.76712712	
3,500.00	42.16	113.11	3,170.97	-403.30	945.06	14,433,959.96	1,705,936.59	39.74498634	-80.76690774	
3,600.00	42.16	113.11	3,245.10	-429.64	1,006.79	14,433,933.61	1,705,998.32	39.74491355	-80.76668836	
3,700.00	42.16	113.11	3,319.22	-455.99	1,068.53	14,433,907.27	1,706,060.06	39.74484076	-80.76646898	
3,800.00	42.16	113.11	3,393.35	-482.33	1,130.26	14,433,880.93	1,706,121.79	39.74476797	-80.76624961	
3,900.00	42.16	113.11	3,467.48	-508.68	1,192.00	14,433,854.58	1,706,183.52	39.74469517	-80.76603023	
4,000.00	42.16	113.11	3,541.61	-535.02	1,253.73	14,433,828.24	1,706,245.26	39.74462238	-80.76581085	
4,100.00	42.16	113.11	3,615.73	-561.36	1,315.46	14,433,801.89	1,706,306.99	39.74454959	-80.76559148	
4,200.00	42.16	113.11	3,689.86	-587.71	1,377.20	14,433,775.55	1,706,368.73	39.74447680	-80.76537210	
4,300.00	42.16	113.11	3,763.99	-614.05	1,438.93	14,433,749.20	1,706,430.46	39.74440400	-80.76515273	
4,400.00	42.16	113.11	3,838.12	-640.40	1,500.67	14,433,722.86	1,706,492.19	39.74433121	-80.76493335	
4,500.00	42.16	113.11	3,912.24	-666.74	1,562.40	14,433,696.51	1,706,553.93	39.74425841	-80.76471398	
4,600.00	42.16	113.11	3,986.37	-693.09	1,624.13	14,433,670.17	1,706,615.66	39.74418562	-80.76449461	
4,700.00	42.16	113.11	4,060.50	-719.43	1,685.87	14,433,643.82	1,706,677.40	39.74411282	-80.76427524	
4,800.00	42.16	113.11	4,134.62	-745.78	1,747.60	14,433,617.48	1,706,739.13	39.74404003	-80.76405586	
4,900.00	42.16	113.11	4,208.75	-772.12	1,809.34	14,433,591.14	1,706,800.86	39.74396723	-80.76383649	
5,000.00	42.16	113.11	4,282.88	-798.47	1,871.07	14,433,564.79	1,706,862.60	39.74389443	-80.76361712	

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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 11 HM (O)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,100.00	42.16	113.11	4,357.01	-824.81	1,932.81	14,433,538.45	1,706,924.33	39.74382164	-80.76339775	
5,200.00	42.16	113.11	4,431.13	-851.15	1,994.54	14,433,512.10	1,706,986.07	39.74374884	-80.76317838	
5,300.00	42.16	113.11	4,505.26	-877.50	2,056.27	14,433,485.76	1,707,047.80	39.74367604	-80.76295901	
5,400.00	42.16	113.11	4,579.39	-903.84	2,118.01	14,433,459.41	1,707,109.53	39.74360324	-80.76273964	
5,500.00	42.16	113.11	4,653.52	-930.19	2,179.74	14,433,433.07	1,707,171.27	39.74353044	-80.76252027	
5,600.00	42.16	113.11	4,727.64	-956.53	2,241.48	14,433,406.72	1,707,233.00	39.74345764	-80.76230090	
5,700.00	42.16	113.11	4,801.77	-982.88	2,303.21	14,433,380.38	1,707,294.74	39.74338484	-80.76208153	
5,800.00	42.16	113.11	4,875.90	-1,009.22	2,364.94	14,433,354.04	1,707,356.47	39.74331204	-80.76186217	
5,900.00	42.16	113.11	4,950.03	-1,035.57	2,426.68	14,433,327.69	1,707,418.20	39.74323924	-80.76164280	
6,000.00	42.16	113.11	5,024.15	-1,061.91	2,488.41	14,433,301.35	1,707,479.94	39.74316644	-80.76142343	
6,100.00	42.16	113.11	5,098.28	-1,088.26	2,550.15	14,433,275.00	1,707,541.67	39.74309364	-80.76120407	
6,200.00	42.16	113.11	5,172.41	-1,114.60	2,611.88	14,433,248.66	1,707,603.41	39.74302084	-80.76098470	
6,300.00	42.16	113.11	5,246.53	-1,140.94	2,673.61	14,433,222.31	1,707,665.14	39.74294804	-80.76076534	
6,400.00	42.16	113.11	5,320.66	-1,167.29	2,735.35	14,433,195.97	1,707,726.87	39.74287524	-80.76054597	
6,500.00	42.16	113.11	5,394.79	-1,193.63	2,797.08	14,433,169.62	1,707,788.61	39.74280243	-80.76032661	
6,600.00	42.16	113.11	5,468.92	-1,219.98	2,858.82	14,433,143.28	1,707,850.34	39.74272963	-80.76010724	
6,700.00	42.16	113.11	5,543.04	-1,246.32	2,920.55	14,433,116.93	1,707,912.08	39.74265683	-80.75988788	
6,800.00	42.16	113.11	5,617.17	-1,272.67	2,982.29	14,433,090.59	1,707,973.81	39.74258402	-80.75966852	
6,900.00	42.16	113.11	5,691.30	-1,299.01	3,044.02	14,433,064.25	1,708,035.54	39.74251122	-80.75944915	
7,000.00	42.16	113.11	5,765.43	-1,325.36	3,105.75	14,433,037.90	1,708,097.28	39.74243841	-80.75922979	
7,100.00	42.16	113.11	5,839.55	-1,351.70	3,167.49	14,433,011.56	1,708,159.01	39.74236561	-80.75901043	
7,200.00	42.16	113.11	5,913.68	-1,378.05	3,229.22	14,432,985.21	1,708,220.75	39.74229280	-80.75879107	
7,300.00	42.16	113.11	5,987.81	-1,404.39	3,290.96	14,432,958.87	1,708,282.48	39.74221999	-80.75857171	
7,400.00	42.16	113.11	6,061.94	-1,430.74	3,352.69	14,432,932.52	1,708,344.21	39.74214719	-80.75835235	
7,500.00	42.16	113.11	6,136.06	-1,457.08	3,414.42	14,432,906.18	1,708,405.95	39.74207438	-80.75813299	
7,600.00	42.16	113.11	6,210.19	-1,483.42	3,476.16	14,432,879.83	1,708,467.68	39.74200157	-80.75791363	
7,628.07	42.16	113.11	6,231.00	-1,490.82	3,493.49	14,432,872.44	1,708,485.01	39.74198113	-80.75785205	
Begin 10°/100' build/turn										
7,700.00	42.02	123.85	6,284.45	-1,513.73	3,535.74	14,432,849.53	1,708,527.26	39.74191790	-80.75770197	
7,800.00	43.46	138.45	6,358.08	-1,558.22	3,586.47	14,432,805.03	1,708,578.00	39.74179533	-80.75752192	
7,854.84	45.00	146.00	6,397.40	-1,588.43	3,609.84	14,432,774.82	1,708,601.36	39.74171219	-80.75743909	
Begin 10°/100' build										
7,900.00	49.52	146.00	6,428.04	-1,615.93	3,628.38	14,432,747.33	1,708,619.91	39.74163656	-80.75737339	
8,000.00	59.52	146.00	6,486.01	-1,683.35	3,673.86	14,432,679.91	1,708,665.38	39.74145106	-80.75721226	
8,100.00	69.52	146.00	6,528.99	-1,758.09	3,724.27	14,432,605.17	1,708,715.80	39.74124542	-80.75703364	
8,200.00	79.52	146.00	6,555.65	-1,837.88	3,778.09	14,432,525.38	1,708,769.62	39.74102588	-80.75684295	
8,295.84	89.10	146.00	6,565.14	-1,916.85	3,831.36	14,432,446.40	1,708,822.88	39.74080861	-80.75665422	
Begin 89.10° lateral section										
8,300.00	89.10	146.00	6,565.21	-1,920.30	3,833.69	14,432,442.96	1,708,825.21	39.74079912	-80.75664598	
8,400.00	89.10	146.00	6,566.78	-2,003.20	3,889.60	14,432,360.06	1,708,881.12	39.74057105	-80.75644788	
8,500.00	89.10	146.00	6,568.35	-2,086.09	3,945.51	14,432,277.17	1,708,937.04	39.74034299	-80.75624979	
8,600.00	89.10	146.00	6,569.92	-2,168.98	4,001.42	14,432,194.28	1,708,992.95	39.74011492	-80.75605169	
8,700.00	89.10	146.00	6,571.49	-2,251.88	4,057.34	14,432,111.38	1,709,048.86	39.73988685	-80.75585360	
8,800.00	89.10	146.00	6,573.06	-2,334.77	4,113.25	14,432,028.49	1,709,104.77	39.73965878	-80.75565551	
8,900.00	89.10	146.00	6,574.63	-2,417.66	4,169.16	14,431,945.60	1,709,160.68	39.73943072	-80.75545742	
8,905.84	89.10	146.00	6,574.72	-2,422.50	4,172.42	14,431,940.76	1,709,163.95	39.73941741	-80.75544586	
Begin 1°/100' turn										
9,000.00	89.10	146.94	6,576.20	-2,500.99	4,224.43	14,431,862.27	1,709,215.95	39.73920147	-80.75526162	
9,100.00	89.10	147.94	6,577.78	-2,585.26	4,278.24	14,431,778.00	1,709,269.76	39.73896963	-80.75507103	
9,200.00	89.10	148.94	6,579.35	-2,670.46	4,330.57	14,431,692.80	1,709,322.09	39.73873526	-80.75488571	
9,300.00	89.10	149.94	6,580.93	-2,756.56	4,381.40	14,431,606.70	1,709,372.92	39.73849842	-80.75470572	
9,400.00	89.10	150.94	6,582.50	-2,843.53	4,430.72	14,431,519.73	1,709,422.25	39.73825919	-80.75453112	
9,481.28	89.10	151.76	6,583.78	-2,914.85	4,469.69	14,431,448.41	1,709,461.21	39.73806305	-80.75439321	
Begin 89.10° lateral section										

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 Office of Oil and Gas

Database:	DB_Aug0116_LT_v14	Local Co-ordinate Reference:	Well Hillrock 11 HM (O)
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 11 HM (O)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,500.00	89.10	151.76	6,584.08	-2,931.34	4,478.55	14,431,431.92	1,709,470.07	39.73801769	-80.75436185	
9,600.00	89.10	151.76	6,585.65	-3,019.42	4,525.87	14,431,343.84	1,709,517.39	39.73777544	-80.75419439	
9,700.00	89.10	151.76	6,587.23	-3,107.50	4,573.19	14,431,255.76	1,709,564.71	39.73753318	-80.75402693	
9,800.00	89.10	151.76	6,588.80	-3,195.59	4,620.50	14,431,167.67	1,709,612.03	39.73728092	-80.75385948	
9,900.00	89.10	151.76	6,590.38	-3,283.67	4,667.82	14,431,079.59	1,709,659.34	39.73704867	-80.75369202	
10,000.00	89.10	151.76	6,591.96	-3,371.75	4,715.14	14,430,991.51	1,709,706.66	39.73680641	-80.75352456	
10,100.00	89.10	151.76	6,593.53	-3,459.83	4,762.46	14,430,903.43	1,709,753.98	39.73656415	-80.75335711	
10,200.00	89.10	151.76	6,595.11	-3,547.92	4,809.78	14,430,815.35	1,709,801.30	39.73632190	-80.75318966	
10,300.00	89.10	151.76	6,596.68	-3,636.00	4,857.10	14,430,727.26	1,709,848.62	39.73607964	-80.75302220	
10,400.00	89.10	151.76	6,598.26	-3,724.08	4,904.41	14,430,639.18	1,709,895.93	39.73583738	-80.75285475	
10,500.00	89.10	151.76	6,599.83	-3,812.16	4,951.73	14,430,551.10	1,709,943.25	39.73559512	-80.75268730	
10,600.00	89.10	151.76	6,601.41	-3,900.25	4,999.05	14,430,463.02	1,709,990.57	39.73535286	-80.75251985	
10,700.00	89.10	151.76	6,602.98	-3,988.33	5,046.37	14,430,374.93	1,710,037.89	39.73511061	-80.75235241	
10,800.00	89.10	151.76	6,604.56	-4,076.41	5,093.69	14,430,286.85	1,710,085.21	39.73486835	-80.75218496	
10,900.00	89.10	151.76	6,606.14	-4,164.49	5,141.00	14,430,198.77	1,710,132.53	39.73462609	-80.75201752	
11,000.00	89.10	151.76	6,607.71	-4,252.58	5,188.32	14,430,110.69	1,710,179.84	39.73438383	-80.75185007	
11,100.00	89.10	151.76	6,609.29	-4,340.66	5,235.64	14,430,022.61	1,710,227.16	39.73414157	-80.75168263	
11,200.00	89.10	151.76	6,610.86	-4,428.74	5,282.96	14,429,934.52	1,710,274.48	39.73389931	-80.75151519	
11,300.00	89.10	151.76	6,612.44	-4,516.82	5,330.28	14,429,846.44	1,710,321.80	39.73365705	-80.75134775	
11,400.00	89.10	151.76	6,614.01	-4,604.91	5,377.60	14,429,758.36	1,710,369.12	39.73341479	-80.75118031	
11,500.00	89.10	151.76	6,615.59	-4,692.99	5,424.91	14,429,670.28	1,710,416.43	39.73317253	-80.75101287	
11,600.00	89.10	151.76	6,617.16	-4,781.07	5,472.23	14,429,582.19	1,710,463.75	39.73293027	-80.75084543	
11,700.00	89.10	151.76	6,618.74	-4,869.15	5,519.55	14,429,494.11	1,710,511.07	39.73268801	-80.75067800	
11,800.00	89.10	151.76	6,620.31	-4,957.23	5,566.87	14,429,406.03	1,710,558.39	39.73244575	-80.75051056	
11,900.00	89.10	151.76	6,621.89	-5,045.32	5,614.19	14,429,317.95	1,710,605.71	39.73220348	-80.75034313	
12,000.00	89.10	151.76	6,623.47	-5,133.40	5,661.51	14,429,229.87	1,710,653.02	39.73196122	-80.75017570	
12,100.00	89.10	151.76	6,625.04	-5,221.48	5,708.82	14,429,141.78	1,710,700.34	39.73171896	-80.75000827	
12,200.00	89.10	151.76	6,626.62	-5,309.56	5,756.14	14,429,053.70	1,710,747.66	39.73147670	-80.74984084	
12,300.00	89.10	151.76	6,628.19	-5,397.65	5,803.46	14,428,965.62	1,710,794.98	39.73123444	-80.74967341	
12,400.00	89.10	151.76	6,629.77	-5,485.73	5,850.78	14,428,877.54	1,710,842.30	39.73099217	-80.74950598	
12,500.00	89.10	151.76	6,631.34	-5,573.81	5,898.10	14,428,789.46	1,710,889.62	39.73074991	-80.74933856	
12,600.00	89.10	151.76	6,632.92	-5,661.89	5,945.41	14,428,701.37	1,710,936.93	39.73050765	-80.74917113	
12,700.00	89.10	151.76	6,634.49	-5,749.98	5,992.73	14,428,613.29	1,710,984.25	39.73026538	-80.74900371	
12,800.00	89.10	151.76	6,636.07	-5,838.06	6,040.05	14,428,525.21	1,711,031.57	39.73002312	-80.74883628	
12,900.00	89.10	151.76	6,637.65	-5,926.14	6,087.37	14,428,437.13	1,711,078.89	39.72978086	-80.74866886	
13,000.00	89.10	151.76	6,639.22	-6,014.22	6,134.69	14,428,349.04	1,711,126.21	39.72953859	-80.74850144	
13,100.00	89.10	151.76	6,640.80	-6,102.31	6,182.01	14,428,260.96	1,711,173.52	39.72929633	-80.74833402	
13,200.00	89.10	151.76	6,642.37	-6,190.39	6,229.32	14,428,172.88	1,711,220.84	39.72905406	-80.74816660	
13,300.00	89.10	151.76	6,643.95	-6,278.47	6,276.64	14,428,084.80	1,711,268.16	39.72881180	-80.74799919	
13,400.00	89.10	151.76	6,645.52	-6,366.55	6,323.96	14,427,996.72	1,711,315.48	39.72856953	-80.74783177	
13,500.00	89.10	151.76	6,647.10	-6,454.63	6,371.28	14,427,908.63	1,711,362.80	39.72832727	-80.74766436	
13,600.00	89.10	151.76	6,648.67	-6,542.72	6,418.60	14,427,820.55	1,711,410.11	39.72808500	-80.74749694	
13,700.00	89.10	151.76	6,650.25	-6,630.80	6,465.91	14,427,732.47	1,711,457.43	39.72784274	-80.74732953	
13,800.00	89.10	151.76	6,651.83	-6,718.88	6,513.23	14,427,644.39	1,711,504.75	39.72760047	-80.74716212	
13,900.00	89.10	151.76	6,653.40	-6,806.96	6,560.55	14,427,556.30	1,711,552.07	39.72735820	-80.74699471	
14,000.00	89.10	151.76	6,654.98	-6,895.05	6,607.87	14,427,468.22	1,711,599.39	39.72711594	-80.74682730	
14,100.00	89.10	151.76	6,656.55	-6,983.13	6,655.19	14,427,380.14	1,711,646.71	39.72687367	-80.74665989	
14,200.00	89.10	151.76	6,658.13	-7,071.21	6,702.51	14,427,292.06	1,711,694.02	39.72663140	-80.74649249	
14,300.00	89.10	151.76	6,659.70	-7,159.29	6,749.82	14,427,203.98	1,711,741.34	39.72638913	-80.74632508	
14,400.00	89.10	151.76	6,661.28	-7,247.38	6,797.14	14,427,115.89	1,711,788.66	39.72614687	-80.74615768	
14,500.00	89.10	151.76	6,662.85	-7,335.46	6,844.46	14,427,027.81	1,711,835.98	39.72590460	-80.74599028	
14,600.00	89.10	151.76	6,664.43	-7,423.54	6,891.78	14,426,939.73	1,711,883.30	39.72566233	-80.74582287	
14,700.00	89.10	151.76	6,666.01	-7,511.62	6,939.10	14,426,851.65	1,711,930.61	39.72542006	-80.74565547	
14,800.00	89.10	151.76	6,667.58	-7,599.71	6,986.42	14,426,763.56	1,711,977.93	39.72517779	-80.74548807	
14,900.00	89.10	151.76	6,669.16	-7,687.79	7,033.73	14,426,675.48	1,712,025.25	39.72493553	-80.74532068	

Office 99.72493553

Database:	DB_Aug0116_LT_v14	Local Co-ordinate Reference:	Well Hillrock 11 HM (O)
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 11 HM (O)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
15,000.00	89.10	151.76	6,670.73	-7,775.87	7,081.05	14,426,587.40	1,712,072.57	39.72469326	-80.74515328
15,100.00	89.10	151.76	6,672.31	-7,863.95	7,128.37	14,426,499.32	1,712,119.89	39.72445099	-80.74498588
15,200.00	89.10	151.76	6,673.88	-7,952.04	7,175.69	14,426,411.24	1,712,167.20	39.72420872	-80.74481849
15,300.00	89.10	151.76	6,675.46	-8,040.12	7,223.01	14,426,323.15	1,712,214.52	39.72396645	-80.74465109
15,400.00	89.10	151.76	6,677.03	-8,128.20	7,270.32	14,426,235.07	1,712,261.84	39.72372418	-80.74448370
15,500.00	89.10	151.76	6,678.61	-8,216.28	7,317.64	14,426,146.99	1,712,309.16	39.72348191	-80.74431631
15,600.00	89.10	151.76	6,680.18	-8,304.36	7,364.96	14,426,058.91	1,712,356.48	39.72323964	-80.74414892
15,700.00	89.10	151.76	6,681.76	-8,392.45	7,412.28	14,425,970.82	1,712,403.79	39.72299736	-80.74398153
15,800.00	89.10	151.76	6,683.34	-8,480.53	7,459.60	14,425,882.74	1,712,451.11	39.72275509	-80.74381414
15,900.00	89.10	151.76	6,684.91	-8,568.61	7,506.92	14,425,794.66	1,712,498.43	39.72251282	-80.74364676
16,000.00	89.10	151.76	6,686.49	-8,656.69	7,554.23	14,425,706.58	1,712,545.75	39.72227055	-80.74347937
16,100.00	89.10	151.76	6,688.06	-8,744.78	7,601.55	14,425,618.50	1,712,593.07	39.72202828	-80.74331199
16,200.00	89.10	151.76	6,689.64	-8,832.86	7,648.87	14,425,530.41	1,712,640.39	39.72178601	-80.74314461
16,300.00	89.10	151.76	6,691.21	-8,920.94	7,696.19	14,425,442.33	1,712,687.70	39.72154373	-80.74297722
16,400.00	89.10	151.76	6,692.79	-9,009.02	7,743.51	14,425,354.25	1,712,735.02	39.72130146	-80.74280984
16,500.00	89.10	151.76	6,694.36	-9,097.11	7,790.82	14,425,266.17	1,712,782.34	39.72105919	-80.74264246
16,600.00	89.10	151.76	6,695.94	-9,185.19	7,838.14	14,425,178.09	1,712,829.66	39.72081692	-80.74247508
16,700.00	89.10	151.76	6,697.52	-9,273.27	7,885.46	14,425,090.00	1,712,876.98	39.72057464	-80.74230771
16,800.00	89.10	151.76	6,699.09	-9,361.35	7,932.78	14,425,001.92	1,712,924.29	39.72033237	-80.74214033
16,900.00	89.10	151.76	6,700.67	-9,449.44	7,980.10	14,424,913.84	1,712,971.61	39.72009010	-80.74197296
16,921.17	89.10	151.76	6,701.00	-9,468.08	7,990.12	14,424,895.19	1,712,981.63	39.72003880	-80.74193752

PBHL/TD 16921.17 MD 6701.00 TVD

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Hillrock 11HM LP - hit/miss target - Shape - Point	0.00	0.00	6,566.00	-1,885.29	3,917.37	14,432,477.97	1,708,908.89	39.74089466	-80.75634796
- plan misses target center by 88.96ft at 8317.77ft MD (6565.49 TVD, -1935.04 N, 3843.63 E)									
Hillrock 11HM BHL - plan hits target center - Point	0.00	0.00	6,701.00	-9,468.08	7,990.12	14,424,895.19	1,712,981.63	39.72003880	-80.74193752

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
1,300.00	1,300.00	0.00	0.00	KOP Begin 3°/100' build
2,705.33	2,581.90	-193.95	454.48	Begin 42.16° tangent section
7,628.07	6,231.00	-1,490.82	3,493.49	Begin 10°/100' build/turn
7,854.84	6,397.40	-1,588.43	3,609.84	Begin 10°/100' build
8,295.84	6,565.14	-1,916.85	3,831.36	Begin 89.10° lateral section
8,905.84	6,574.72	-2,422.50	4,172.42	Begin 1°/100' turn
9,481.28	6,583.78	-2,914.85	4,469.69	Begin 89.10° lateral section
16,921.17	6,701.00	-9,468.08	7,990.12	PBHL/TD 16921.17 MD 6701.00 TVD

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WW-9
(4/16)

4705102173

API Number 47 - 051 -

05/03/2019

Operator's Well No. Hillrock 11HM

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

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

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1388426)

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

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

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

Company Official Signature Jim Pancake

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President - Geoscience

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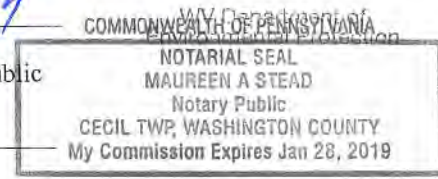
JAN 15 2019

Subscribed and sworn before me this 9 day of JANUARY, 2019

Maureen A Stead

Notary Public

My commission expires 1/28/19



Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 11.63 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jan Vukobratovic*

Comments: _____

Title: Oil and Gas Inspector

Date: 1/9/19

Field Reviewed? Yes No

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JAN 15 2019
WV Department of
Environmental Protection

WW-9

PROPOSED HILLROCK 11HM

SUPPLEMENT PG 1

DRAWING NOT
TO SCALE

REFERENCE IS HEREBY MADE TO THE WY 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 WY D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED. TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

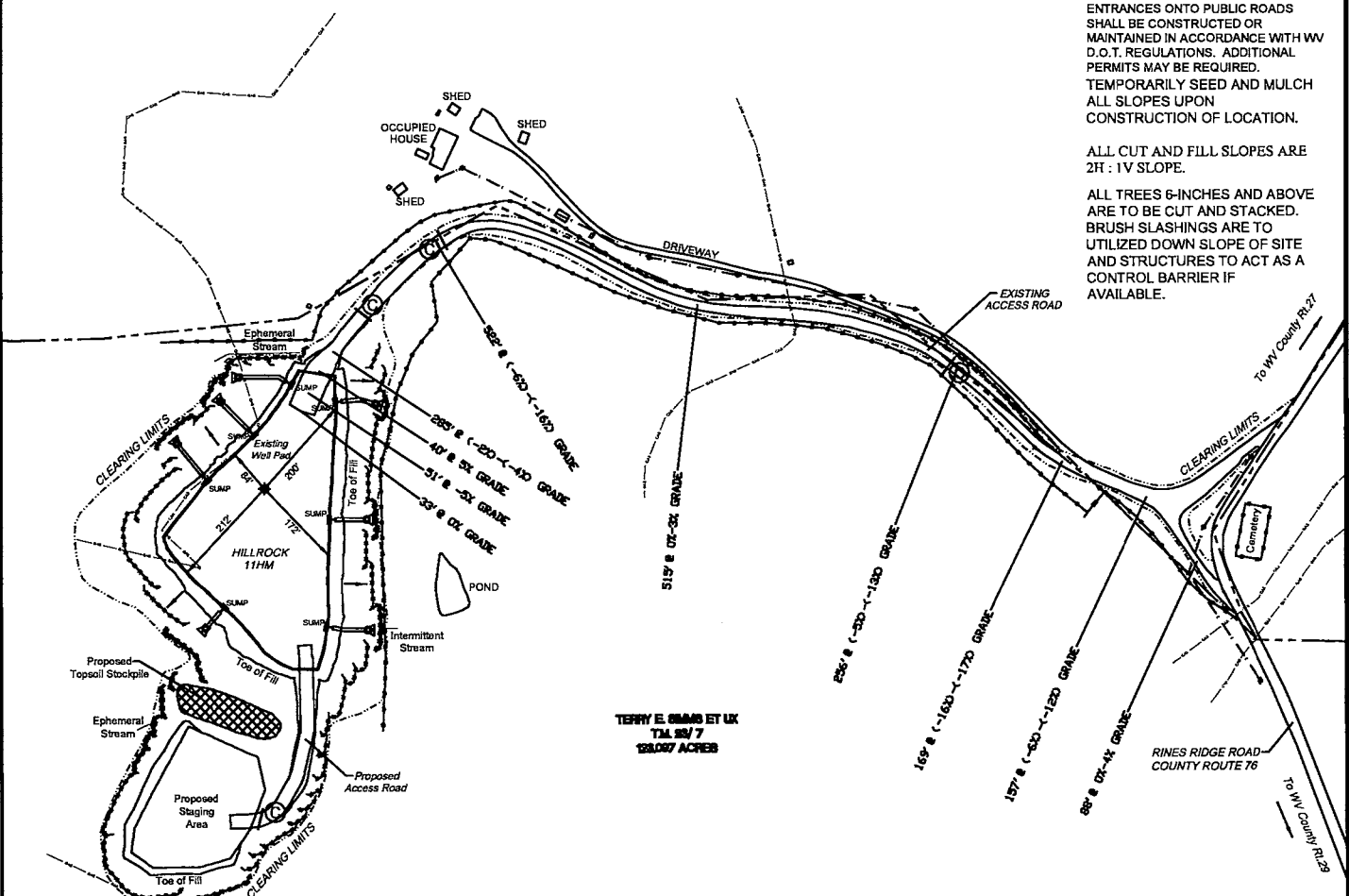
ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

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. CONLEY et al.
T.M. 17/11
120 Acres

TERRY E. GRANT ET UX
T.M. 22/ 7
120.027 ACRES

WILLIAM + VIKENIA ROUPE
T.M. 22/21
84 Acres



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WY 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



Well Site Safety Plan

Tug Hill Operating, LLC

JW
1/9/19

Well Name: Hillrock 11HM

Pad Location: Simms Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,399,602.72

Easting: 519,682.49

August 2018

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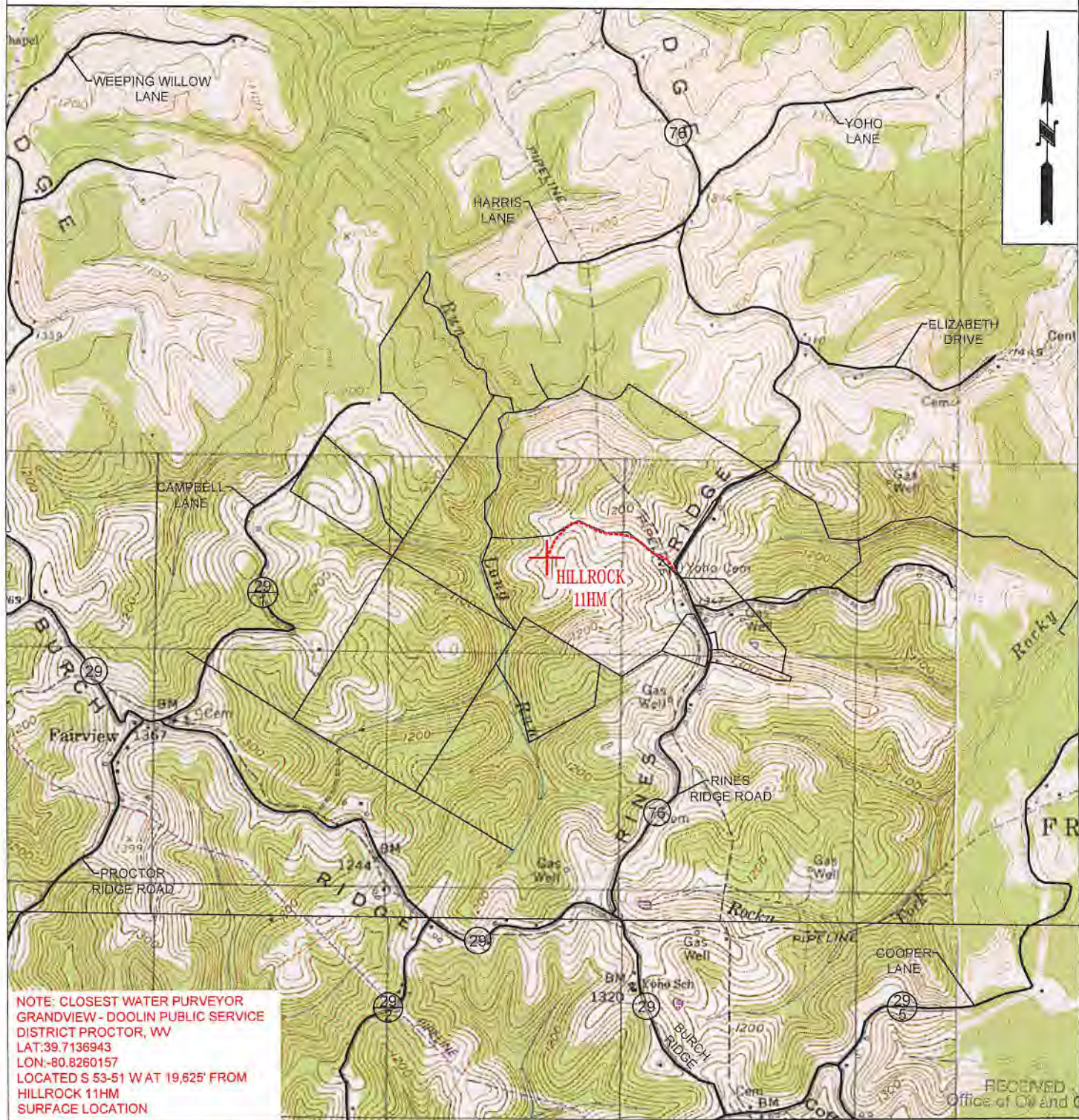
JAN 15 2019

WV Department of
Environmental Protection

WW-9

PROPOSED HILLROCK 11HM

SUPPLEMENT PG 2



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT:39.7136943
LON:-80.8260157
LOCATED S 53-51' W AT 19,625' FROM
HILLROCK 11HM
SURFACE LOCATION

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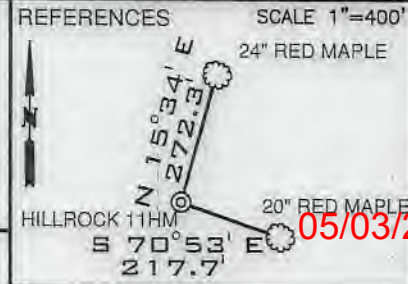
OPERATOR	494510851	TOPO SECTION	LEASE NAME
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		NEW MARTINSVILLE 7.5'	HILLROCK WV Department of Environmental Protection
		SCALE:	DATE:
		1" = 2000'	DATE: 08-28-2018

HILLROCK LEASE WELL 11HM 780.323± ACRES

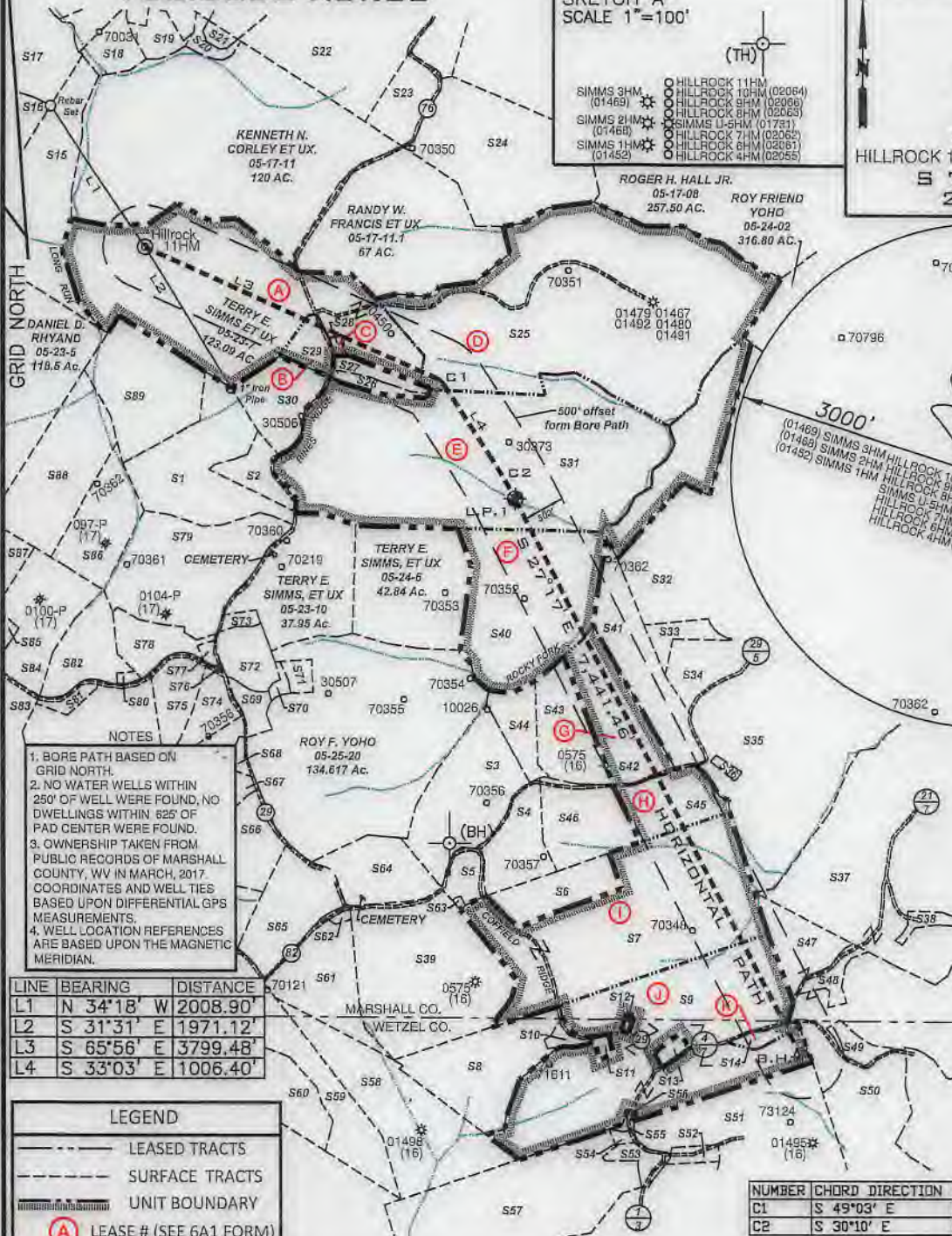
form ww6

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

DETAIL
SKETCH "A"
SCALE 1"=100'



- HILLROCK 11HM (02054)
- HILLROCK 10HM (02055)
- HILLROCK 8HM (02056)
- HILLROCK 7HM (02057)
- HILLROCK 6HM (02058)
- HILLROCK 4HM (02055)
- SIMMS 3HM (01469)
- SIMMS 2HM (01452)
- SIMMS 1HM (01452)



- NOTES
- BORE PATH BASED ON GRID NORTH.
 - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 - OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2017. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.

LINE	BEARING	DISTANCE
L1	N 34°18' W	2008.90'
L2	S 31°31' E	1971.12'
L3	S 65°56' E	3799.48'
L4	S 33°03' E	1006.40'

LEGEND

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

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

SURFACE HOLE	UTM. NAD83, ZONE 17 IN METERS N) 4,399,602.72 E) 519,682.49
LANDING POINT 1	UTM. NAD83, ZONE 17 IN METERS N) 4,398,714.27 E) 521,044.82
BOTTOM HOLE	UTM. NAD83, ZONE 17 IN METERS N) 4,396,716.85 E) 522,117.85

NUMBER	CHORD DIRECTION	CHORD LENGTH	RADIUS	ARC LENGTH
C1	S 49°03' E	151.93	263.93	154.11
C2	S 30°10' E	575.32	5730.45	575.57

FILE NUMBER _____

DRAWING NUMBER HILLROCK_11HM_REV 0

SCALE 1" = 2000'

MINIMUM DEGREE OF ACCURACY 1/200

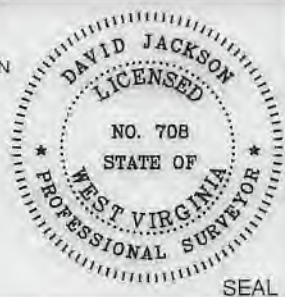
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

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
304-623-6851



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

DATE: AUGUST 24, 2018

OPERATORS WELL NO. HILLROCK 11HM

API WELL NO. 47-051-02173 HGA

STATE WV COUNTY FRANKLIN PERMIT SEE WW-6A1 Form

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION STORAGE DEEP 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 - SEE WW-6A1 FORM LEASE AGREEMENT 319.91

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

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD TMD: _____

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

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

COUNTY NAME
PERMIT

**HILLROCK LEASE
WELL 11HM
780.323± ACRES**

05/03/2019

Number	TAX MAP-PARCEL	ADJOINER OWNER	ACRES
S1	05-24-5.4	Thomas V. Tuttle, et ux	38.224
S2	05-24-5.3	Thomas V. Tuttle, et ux	8.543
S3	05-25-01	Michael L. Mason	35.43
S4	05-25-13	Nicolas J. & Debra L. Klug	16.014
S5	05-25-13.2	David A. Klug	5.89
S6	05-25-12.1	Kent & Betty Mason	15.0
S7 (I)	05-25-12	Marion Parsons Jr., et al	85.16
S8	05-25-11.4	Edward W. Klug, et ux	32.787
S9 (J)	05-25-11.2	James W. Klug	114.305
S10	05-25-11.1	Edward W. Klug et ux	2.343
S11	12-03-44	James A. & Jo C. Estep	1.10
S12	12-03-47	Wetzel County Emergency Ambulance	0.50
S13	12-03-43	Adam W. Ferrell & Brittany M. Loy	1.97
S14 (K)	12-03-42	J. M. Klug	2.617
S15	05-23-06	James A. Channing, et al	48.0
S16	05-18-21	Curtis E. & Michelle J. Hall	43.119
S17	05-18-20	Wayne E. Channing, et al	75.6
S18	05-18-31	Kenneth E. Rastall	6.94
S19	05-18-32	Kenneth E. Rastall	5.335
S20	05-17-12	James A. & Jill C. Corley	3.33
S21	05-17-12.1	Williams Ohio Valley Midstream, LLC	1.67
S22	05-17-10	James A. Corley, et al	92.61
S23	05-17-9.3	James A. Corley, et ux	12.478
S24	05-17-9.4	Vicki L. Bowen	60.3
S25 (D)	05-24-1	Linda L. Hendrickson & Donald Roy Pickering	175.0
S26	05-24-5.2	James D. Watkins, et ux	3.151
S27	05-24-5.1	James D. Watkins, et ux	4.6
S28 (C)	05-23-7.1	H.J. Weigand, et ux	0.549
S29 (B)	05-23-7.2	H.J. Weigand, et ux	6.354
S30	05-24-5.5	H.J. Weigand, et ux	17.194
S31 (E)	05-24-5	Robert C. Francis et ux (Life)	145.788
S32	05-24-3.2	T.H. Exploration II, LLC	49.0
S33	05-24-3.1	T.H. Exploration II, LLC	5.50
S34	05-25-2.2	John G. Klug, Sr. et ux	10.0
S35	05-25-2	James W. Klug	122.3
S36	05-25-2.1	Nancy Jackson	1.0
S37	05-25-3	S.D. Fertitta, et ux	181.548
S38	05-25-3.1	S.D. Fertitta, et ux	3.022
S39	05-25-14.1	Bernard R. Weigand, et ux	65.0
S40 (F)	05-24-04	Terry E. Simms, et ux	84.05
S41	05-25-1.4	Samantha J. & Philip A. Namlik	100.7235
S42 (G)	05-25-1.3	Michael E. & Annie A. Chapman	26.2
S43	05-25-1.2	William Jr. & Andrea J. Dubiel	20.1
S44	05-25-1.1	Ryan A. & Jacqueline E. Layman	9.79
S45 (H)	05-25-13.3	William M. Sr. & Cynthia A. Ferda	17.21

Number	TAX MAP-PARCEL	ADJOINER OWNER	ACRES
S46	05-25-1.5	Ryan J. Bratton	21.35
S47	05-25-10	Terry L. & Tammy J. Kirkland	18.75
S48	05-25-10.1	Terry L. & Tammy J. Kirkland (Life)	5.250
S49	12-03-41	Carl L. Kirkland	4.102
S50	12-03-41.1	Terry L. & Tammy J. Kirkland	74.138
S51	12-03-4	Albert L. & Mary Hohman et al	85.0
S52	12-03-02	Robert Lee & Diana G. Smith	2.48
S53	12-03-4.3	Joseph P. & Barbara A. Cain	3.619
S54	12-03-4.6	Steven P. Wayman	1.009
S55	12-03-4.5	Hazel M. Blair	0.451
S56	12-03-01	James W. Klug	0.375
S57	12-03-4.7	Joseph P. & Barbara A. Cain	67.3
S58	12-02-14	David L. Cunningham	56.23
S59	12-02-14.2	Donald Lee Anderson, et al	4.2
S60	12-02-14.1	Richard Joseph Otte, et ux	1.25
S61	15-25-16.1	David L. Cunningham	6.34
S62	05-25-16.2	Rodney J. Loy	1.087
S63	05-25-13.1	Morgan Chad Gump, et ux	0.9
S64	05-25-14	Roy F. Yoho	23.0
S65	05-25-16	Emily Jones Irrevocable Trust	23.5
S66	05-25-17	Emily Jones Irrevocable Trust	22.79
S67	05-25-18	Joseph Johnson, et ux (Life)	37.746
S68	05-25-19	Joseph Johnson, et ux (Life)	1.973
S69	05-25-20.3	James A. & Jo C. Estep	4.49
S70	05-25-20.2	James M. Zombatti	1.347
S71	05-25-20.1	James M. Zombatti	2.746
S72	05-23-11	Roy F. Yoho	3.445
S73	05-23-11.7	Bryan L. Huggins	1.835
S74	05-23-11.5	Roy F. Yoho	9.25
S75	05-23-11.3	Colin R. Yoho	11.29
S76	05-23-11.6	T.H. Exploration II, LLC & Atinum Marcellus I, LLC	0.094
S77	05-23-11.2	Evelyn Hudson	1.154
S78	05-23-11.4	Evelyn Hudson	10.879
S79	05-23-11.1	John H. & Sonya D. Holliday	46.482
S80	05-23-13.1	James R. & Pamela J. Ferrell	0.7625
S81	05-23-12	Mark A. Yoho	3.05
S82	05-23-13	Linda D. Greathouse	14.24
S83	05-23-9.1	John W. Van Orden et ux	23.376
S84	05-23-9.2	Linda D. Greathouse	25.58
S85	05-23-9.4	Jackson R. Sr. & Deanna L. Davis	2.087
S86	05-23-9.3	Linda D. Greathouse	17.5
S87	05-23-14	Dominion Transmission, Inc.	59.5
S88	05-23-08	Carl David & Suzanne L. Guseman	29.5
S89	05-23-8.1	William & Virginia Roupe	34.0



P.S. 708

David L Jackson



TUG HILL
OPERATING

OPERATOR'S
WELL #: HILLROCK 11HM
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

WELL PLAT
PAGE 2 OF 2
DATE: 08/24/2018

WW-6A1
(5/13)

Operator's Well No. Hillrock 11HM

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

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

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

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


*See attached pages

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

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

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

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

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

WW-6A1 Supplement

Operator's Well No. Hillrock 11HM

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	NA	NA	20/348 Trienergy, Inc to AB Resources LLC	21/491 AB Resources LLC to Chief Exploration & Development LLC	685/643 Chief Exploration & Development and Radler 2000 Limited Partnership to Enerplus Resources Corp	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources Corp to Gastar Exploration USA, Inc	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓
10*14130	B	5-23-7.2	JANE ELLEN MARCUM	GASTAR EXPLORATION USA INC	1/8+	708	185	NA	NA	NA	NA	NA	23/353 Gastar Exploraiton USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓
10*14131	B	5-23-7.2	NOEL S YOHO	GASTAR EXPLORATION USA INC	1/8+	708	191	NA	NA	NA	NA	NA	23/353 Gastar Exploraiton USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓
10*14132	B	5-23-7.2	CHRISTA JO DAVIES, DEALING IN	GASTAR EXPLORATION USA INC	1/8+	710	65	NA	NA	NA	NA	NA	24/335 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓
10*14133	B	5-23-7.2	THOMAS S YOHO, DEALING IN HIS	GASTAR EXPLORATION USA INC	1/8+	708	199	NA	NA	NA	NA	NA	24/335 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓
10*14130	C	5-23-7.1	JANE ELLEN MARCUM	GASTAR EXPLORATION USA INC	1/8+	708	185	NA	NA	NA	NA	NA	24/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓
10*14131	C	5-23-7.1	NOEL S YOHO	GASTAR EXPLORATION USA INC	1/8+	708	191	NA	NA	NA	NA	NA	23/353 Gastar Exploraiton USA, Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓
10*14132	C	5-23-7.1	CHRISTA JO DAVIES, DEALING IN	GASTAR EXPLORATION USA INC	1/8+	710	65	NA	NA	NA	NA	NA	24/335 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓
10*14133	C	5-23-7.1	THOMAS S YOHO, DEALING IN HIS	GASTAR EXPLORATION USA INC	1/8+	708	199	NA	NA	NA	NA	NA	24/335 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓

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10*14138	D	5-24-1	LINDA AND DONALD HENDRICKSON	TRIENERGY, INC.	1/8+	666	528	20/348 TriEnergy, Inc to AB Resources LLC	21/148 TriEnergy, Inc to TriEnergy Holdings, LLC	21/491 AB Resources LLC to Chief Exploration & Development, LLC and Radler 2000 Limited Partnership	685/643 Chief Exploration & Development, LLC and Radler 2000 Limited Partnership to Enerplus Resources (USA) Corp	720/214 TriEnergy Holdings LLC to AB Resources LLC	24/39 AB Resources LLC, Chief Exploration & Development, LLC, Radler 2000 Limited Partnership, Enerplus Resources (USA) Corp to Gastar Exploration USA, Inc. and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓	
10*14797	E	5-24-5	ORVILLE YOUNG	GASTAR EXPLORATION USA INC	1/8+	800	598	NA	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC ✓
10*14814	E	5-24-5	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	537	NA	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14815	E	5-24-5	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14817	E	5-24-5	DONNA V YOHO	GASTAR EXPLORATION INC	1/8+	874	351	NA	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14818	E	5-24-5	DEWEY A MILICIA	GASTAR EXPLORATION INC	1/8+	875	591	NA	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14819	E	5-24-5	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION INC	1/8+	875	593	NA	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14820	E	5-24-5	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION INC	1/8+	875	595	NA	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14821	E	5-24-5	JANICE HAUDENSCHILT	GASTAR EXPLORATION INC	1/8+	875	597	NA	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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10*14822	E	5-24-5	ONWARD E BURGE TRUST	WV Department of Environmental Protection GASTAR EXPLORATION INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14823	E	5-24-5	SARAH L BURGE TRUST	GASTAR EXPLORATION INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*17181	E	5-24-5	PAUL F HAMMERS	CHESAPEAKE APPALACHIA LLC	1/8+	705	593	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merger SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	TWILA ORA WHIPKEY	CHESAPEAKE APPALACHIA LLC	1/8+	715	505	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merger SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17184	E	5-24-5	KERMIT L. PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	716	83	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merger SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	695	317	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA INC	1/8+	695	311	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA INC	1/8+	695	313	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA INC	1/8+	695	315	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	STEPHANIE L. HALL	GASTAR EXPLORATION USA INC	1/8+	697	156	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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10*17201	E	5-24-5	DENISE A GALE	Environmental Protection	GASTAR EXPLORATION USA INC	1/8+	697	395	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	JANE GALE		GASTAR EXPLORATION USA INC	1/8+	697	385	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	BARRY RAY MOORE		GASTAR EXPLORATION USA INC	1/8+	697	387	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	CLARENCE RICHARD ZESIGER & MARY ZESIGER		GASTAR EXPLORATION USA INC	1/8+	697	391	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	M VIRGINIA & EDWARD C MARSH		GASTAR EXPLORATION USA INC	1/8+	697	399	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.		GASTAR EXPLORATION USA INC	1/8+	697	389	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	MARILYN NOEL		GASTAR EXPLORATION USA INC	1/8+	697	393	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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10*17211	E	5-24-5	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA INC	1/8+	697	397	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA INC	1/8+	697	158	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	697	154	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	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	BETTY JEAN NEELY	TH EXPLORATION LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18366	E	5-24-5	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18369	E	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
10*18370	E	5-24-5	SAMUEL D YOHO	TH EXPLORATION LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18379	E	5-24-5	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19540	E	5-24-5	ERICA M MASON	TH EXPLORATION LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19652	E	5-24-5	JACK R HAMMERS	TH EXPLORATION LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*19903	E	5-24-5	PAUL F HAMMERS	TH EXPLORATION LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*23325	E	5-24-5	BRADLEY W YOHO	TH EXPLORATION LLC	1/8+	966	482	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*14462	F	5-24-4	JERRY ELDON RICHMOND	GASTAR EXPLORATION USA, INC.	1/8+	744	57	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC	
10*14463	F	5-24-4	CHERYL ANN COCHRAN	GASTAR EXPLORATION USA, INC.	1/8+	744	231	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC	
10*14464	F	5-24-4	NIKA JEAN COCHRAN	GASTAR EXPLORATION USA, INC.	1/8+	744	59	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC	
10*14465	F	5-24-4	LARRY RICHMOND	GASTAR EXPLORATION USA, INC.	1/8+	744	61	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC	

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10*14466	F	5-24-4	BETTY R YOHO	GASTAR EXPLORATION USA INC	1/8+	749	580	NA	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14467	F	5-24-4	DANA HUMPHREYS	CHESAPEAKE APPALACHIA LLC	1/8+	694	351	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14468	F	5-24-4	TWILA ORA WHIPKEY	CHESAPEAKE APPALACHIA LLC	1/8+	692	416	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14469	F	5-24-4	JACK R HAMMERS	CHESAPEAKE APPALACHIA LLC	1/8+	690	547	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14470	F	5-24-4	DONNA V YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	690	645	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14471	F	5-24-4	JANICE N HAUDENSCHILT	CHESAPEAKE APPALACHIA LLC	1/8+	691	501	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14472	F	5-24-4	O E BURGE AND SARAH LOU BURGE	CHESAPEAKE APPALACHIA LLC	1/8+	692	582	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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10*14473	F	5-24-4	IMA LEE YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	693	293	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14474	F	5-24-4	ROY FRIEND YOHO SR.	CHESAPEAKE APPALACHIA LLC	1/8+	693	298	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14475	F	5-24-4	LAWRENCE ELDON YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	693	303	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14476	F	5-24-4	MARK W YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	693	308	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14477	F	5-24-4	NICOLETTA MILICIA BLOODWORTH	CHESAPEAKE APPALACHIA LLC	1/8+	694	117	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14478	F	5-24-4	DEWEY A MILICIA	CHESAPEAKE APPALACHIA LLC	1/8+	694	347	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14479	F	5-24-4	PAUL F HAMMERS	CHESAPEAKE APPALACHIA LLC	1/8+	697	148	NA	NA	NA	NA	NA	27/321 Chesapeake Appalachia LLC and Stat Oil USA Onshore Properties Inc to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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Operator's Well No. Hillrock 11HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*18379	F	5-24-4	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA	NA
10*19540	F	5-24-4	ERICA M MASON	TH EXPLORATION LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA	NA
10*14728	G	5-25-1.3	IRIS K MOELLENDICK	GASTAR EXPLORATION INC	1/8+	839	509	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14729	G	5-25-1.3	BONNIE S SHANNON	GASTAR EXPLORATION INC	1/8+	839	511	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14730	G	5-25-1.3	CATHIE K LAKE	GASTAR EXPLORATION INC	1/8+	839	513	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14731	G	5-25-1.3	RICHARD KLUG	GASTAR EXPLORATION INC	1/8+	839	515	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14734	G	5-25-1.3	CLARENCE BAXTER, BY AIF RODNEY BAXTER	GASTAR EXPLORATION INC	1/8+	842	376	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14735	G	5-25-1.3	GLENNALEE COZART	GASTAR EXPLORATION INC	1/8+	842	378	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14737	G	5-25-1.3	MARION PARSONS JR	GASTAR EXPLORATION INC	1/8+	844	83	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14738	G	5-25-1.3	MICHAEL E & ANNIE A CHAPMAN	GASTAR EXPLORATION USA INC	1/8+	787	627	NA	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14664	H	5-25-13.3	CHRISTINA L MILLER	GASTAR EXPLORATION USA INC	1/8+	779	496	NA	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14728	H	5-25-13.3	IRIS K MOELLENDICK	GASTAR EXPLORATION INC	1/8+	839	509	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14729	H	5-25-13.3	BONNIE S SHANNON	GASTAR EXPLORATION INC	1/8+	839	511	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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Operator's Well No. Hillrock 11HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*14730	H	5-25-13.3	CATHIE K LAKE	GASTAR EXPLORATION INC	1/8+	839	513	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14731	H	5-25-13.3	RICHARD KLUG	GASTAR EXPLORATION INC	1/8+	839	515	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14734	H	5-25-13.3	CLARENCE BAXTER, BY AIF RODNEY BAXTER	GASTAR EXPLORATION INC	1/8+	842	376	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14735	H	5-25-13.3	GLENNALEE COZART	GASTAR EXPLORATION INC	1/8+	842	378	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14737	H	5-25-13.3	MARION PARSONS JR	GASTAR EXPLORATION INC	1/8+	844	83	NA	NA	NA	NA	NA	NA	NA	33/308 Gastar Exploration Inc to Atinum Marcellus I, LLC	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14926	I	5-25-12	NILA JUNE MASON	GASTAR EXPLORATION INC	1/8+	842	394	NA	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14927	I	5-25-12	MARION PARSONS JR	GASTAR EXPLORATION INC	1/8+	842	396	NA	NA	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*18535	I	5-25-12	WILLAJEAN NEVA HORES AND DONALD HORES	TH EXPLORATION LLC	1/8+	933	639	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18536	I	5-25-12	MIRIAM D LYDICK	TH EXPLORATION LLC	1/8+	933	637	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18599	I	5-25-12	JANICE F BROOKOVER	TH EXPLORATION LLC	1/8+	935	56	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18600	I	5-25-12	KATHLEEN I FRANCIS	TH EXPLORATION LLC	1/8+	935	58	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18601	I	5-25-12	BARBARA BARNHART AND WALTER BARNHART	TH EXPLORATION LLC	1/8+	935	60	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18602	I	5-25-12	JEANETTE M HEATH	TH EXPLORATION LLC	1/8+	935	62	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18603	I	5-25-12	ARELENA B HORNER AND QUAY ALLEN HORNER	TH EXPLORATION LLC	1/8+	935	64	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18604	I	5-25-12	SARA JANE RINEHART AND JAMES RINEHART	TH EXPLORATION LLC	1/8+	935	66	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18690	I	5-25-12	S RICHARD MELLON	TH EXPLORATION LLC	1/8+	936	89	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18691	I	5-25-12	MADelyn E MOSSOR DO NOT USE	TH EXPLORATION LLC	1/8+	936	126	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18746	I	5-25-12	ELSIE KAREN PADGELEK	TH EXPLORATION LLC	1/8+	938	456	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18815	I	5-25-12	GEORGE CUMBERLEDGE	TH EXPLORATION LLC	1/8+	938	30	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18995	I	5-25-12	THOMAS JACOB BELL	TH EXPLORATION LLC	1/8+	940	135	NA	NA	NA	NA	NA	NA	NA	NA	NA
10*18996	I	5-25-12	CHARLES R PARSONS AND LINDA R PARSONS	TH EXPLORATION LLC	1/8+	940	141	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Operator's Well No. Hillrock 11HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*19389	I	5-25-12	MICHELLE E OVERALL AND JAMES E OVERALL	TH EXPLORATION LLC	1/8+	940	268	NA	NA	NA	NA	NA	NA	NA	NA
10*19541	I	5-25-12	CHERYL RIDGELY	TH EXPLORATION LLC	1/8+	941	645	NA	NA	NA	NA	NA	NA	NA	NA
10*19651	I	5-25-12	CAROL JUNE MILLER	TH EXPLORATION LLC	1/8+	944	95	NA	NA	NA	NA	NA	NA	NA	NA
10*19895	I	5-25-12	DAVID BELL	TH EXPLORATION LLC	1/8+	948	589	NA	NA	NA	NA	NA	NA	NA	NA
10*19896	I	5-25-12	ISABEL GEORGE AND HENSLEY J GEORGE	TH EXPLORATION LLC	1/8+	949	231	NA	NA	NA	NA	NA	NA	NA	NA
10*19897	I	5-25-12	ROSE BELL	TH EXPLORATION LLC	1/8+	949	223	NA	NA	NA	NA	NA	NA	NA	NA
10*19898	I	5-25-12	NANCY J TODD	TH EXPLORATION LLC	1/8+	949	226	NA	NA	NA	NA	NA	NA	NA	NA
10*19899	I	5-25-12	WILLIAM H BELL	TH EXPLORATION LLC	1/8+	948	228	NA	NA	NA	NA	NA	NA	NA	NA
10*19965	I	5-25-12	HARRY R BELL	TH EXPLORATION LLC	1/8+	948	221	NA	NA	NA	NA	NA	NA	NA	NA
10*19969	I	5-25-12	MATTHEW E WEAR AND LEIGH ANN WEAR	TH EXPLORATION LLC	1/8+	948	232	NA	NA	NA	NA	NA	NA	NA	NA
10*21128	I	5-25-12	BARBARA J CONWAY AND JAMES G CONWAY	TH EXPLORATION LLC	1/8+	952	218	NA	NA	NA	NA	NA	NA	NA	NA
10*22193	I	5-25-12	CAROLE PARSONS	TH EXPLORATION LLC	1/8+	952	625	NA	NA	NA	NA	NA	NA	NA	NA
10*22331	I	5-25-12	TIMOTHY J CAROLL AND KATHLEEN A CARROLL	TH EXPLORATION LLC	1/8+	957	472	NA	NA	NA	NA	NA	NA	NA	NA
10*22454	I	5-25-12	NANCY ELAINE BELL	TH EXPLORATION LLC	1/8+	958	385	NA	NA	NA	NA	NA	NA	NA	NA
10*22841	I	5-25-12	AARON PATRICK WEAR	TH EXPLORATION LLC	1/8+	962	313	NA	NA	NA	NA	NA	NA	NA	NA
10*22983	I	5-25-12	SEAN MICHAEL WEAR	TH EXPLORATION LLC	1/8+	962	318	NA	NA	NA	NA	NA	NA	NA	NA
10*22496	J	5-25-11.2	JAMES W KLUG	AMERICAN PETROLEUM PARTNERS LLC	1/8+	923	543	NA	NA	NA	NA	NA	NA	NA	42/109 American Petroleum Partners Operating, LLC to TH Exploration, LLC
10*22496	K	12-3-42	JAMES W KLUG	AMERICAN PETROLEUM PARTNERS LLC	1/8+	923	543	NA	NA	NA	NA	NA	NA	NA	42/109 American Petroleum Partners Operating, LLC to TH Exploration, LLC

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4/23/19

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AFFIDAVIT

COPY 05/03/2019

STATE OF TEXAS §
COUNTY OF TARRANT § SS

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

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

FURTHER, AFFIANT SAITH NOT.

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

David D. Kalish
Affiant: David D. Kalish

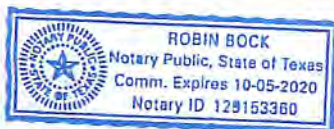
JURAT

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

STATE OF TEXAS §
COUNTY OF TARRANT § SS

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

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



My Commission Expires: 10-05-2020

Signature/Notary Public: Robin Bock

Name/Notary Public (Print): Robin Bock

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Environmental Protection

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*") IN SO FAR AND ONLY IN SO FAR as they cover those lands described on Exhibit A (the "*Leasehold Rights*") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "*Conveyed Assets*").

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

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

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

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

Section 2.2 Disclaimers of Warranties and Representations.

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

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WV Department of
Environmental Protection



June 28, 2017

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

RE: Hillrock 11HM

Subject: Marshall County Route 29/5 and 27/7 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 Route 29/5 and 2/7 in the area reflected on the Hillrock 11HM 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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WW-PN
(11-18-2015)**Horizontal Natural Gas Well Work Permit
Application Notice By Publication****Notice is hereby given:**

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

Paper: Moundsville Daily Echo**Public Notice Date:** 1/9/2019; 1/16/2019

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

Applicant: Tug Hill Operating, LLC **Well Number:** Hillrock 11HM**Address:** 380 Southpointe Blvd, Southpointe Plaza II, Suite 200
Canonsburg, PA 15317**Business Conducted:** Natural gas production.**Location –**

State:	<u>West Virginia</u>	County:	<u>Marshall</u>
District:	<u>Franklin</u>	Quadrangle:	<u>New Martinsville 7.5'</u>
UTM Coordinate NAD83 Northing:	<u>4,399,602.72</u>		
UTM coordinate NAD83 Easting:	<u>519,682.49</u>		
Watershed:	<u>Fish Creek</u>		

Coordinate Conversion:

To convert the coordinates above into longitude and latitude, visit: http://tagis.dep.wv.gov/convert/llutm_conus.php

Electronic notification:

To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx> to sign up.

Reviewing Applications:

Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE Charleston, WV 25304 (304-926-0450). Full copies or scans of the proposed permit application will cost \$15, whether mailed or obtained at DEP headquarters. Copies may be requested by calling the office or by sending an email to DEP.comments@wv.gov.

Submitting Comments:

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57th Street, SE Charleston, WV 25304. Please reference the county, well number, and operator when using this option.

Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

For information related to horizontal drilling visit: www.dep.wv.gov/oil-and-gas/pages/default.aspx

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Environmental Protection



(304) 845-2660
P.O. BOX 369
MOUNDSVILLE
WEST VIRGINIA
26041

AFFIDAVIT OF PUBLICATION

STATE OF WEST VIRGINIA,
COUNTY OF MARSHALL, to wit

I, Melanie S. Murdock being first duly sworn upon my oath, do depose and say:

- that I am Legal Advertising Manager of the MOUNDSVILLE DAILY ECHO, a Republican newspaper;
- that I have been duly authorized to execute this affidavit;
- that such newspaper has been published for over 119 years, is regularly published afternoons daily except Saturdays and Sundays, for at least fifty weeks during the calendar year, in the municipality of Moundsville, Marshall County, West Virginia.
- that such newspaper is a newspaper of "general circulation" as defined in Art. 3, Chap. 59 of the Code of West Virginia 1931 as amended, within Moundsville and Marshall County;
- that such newspaper averages in length four or more pages, exclusive of any cover, per issue;
- that such newspaper is circulated to the general public at a definite price or consideration;
- that such newspaper is a newspaper to which the general public resorts for passing events of a political, religious, commercial and social nature and for current happenings, announcements, miscellaneous reading matters, advertisements and other notices;
- and that the annexed notice described as follows:

Legal Advertisement

PARTY(ies)

Gas Well Permit / Hillrock 11HM

NATURE (and agency if heard before one)

CERTIF-BILL TO

Tug Hill Operating Amy Miller 380 Southpointe Blvd. Southpointe Plaza II, Suite 200 Canonsburg, PA 15317
--

WAS PUBLISHED IN SAID NEWSPAPER AS FOLLOWS

Times	Dates
2	January 9, 16, 2019

BY WORDS 502.25	PUBLICATION CHARGES \$101.05
--------------------	---------------------------------

(signed)

Melanie S. Murdock

NOTARIZATION

17th

14th

January 16, 2019

Notary Public

Amy Miller

My Commission Expires August 26, 2023

PAGE SIX--Moundsville Daily E
LEGAL ADVERTISEMENT

Horizontal Natural Gas Well Work Permit

Application Notice By Publication
Notice is hereby given:

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

Paper: Moundsville Daily Echo
Public Notice Date: January 9, 2019 & January 16, 2019.

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

Applicant: Tug Hill Operating, LLC
Address: 380 Southpointe Blvd., Southpointe Plaza II, Suite 200, Canonsburg, PA 15317

Well Number: Hillrock 11HM

Business Conducted: Natural gas production.

Location --

State: West Virginia

County: Marshall

District: Franklin

Quadrangle: New Martinsville 7.5'

UTM Coordinate NAD83 Northing:

4,399,602.72

UTM coordinate NAD83 Easting:

519,682.49

Watershed: Fish Creek

Coordinate Conversion:

To convert the coordinates above into longitude and latitude, visit: http://tagis.dep.wv.gov/convert/utm_cons.php.

Electronic notification:

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headquarters. Copies may be requested by calling the office or by sending an email to DEP.comments@wv.gov.

Submitting Comments:

WW-6AC
(1/12)

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

Date of Notice Certification: 01/11/2019

API No. 47- 051
Operator's Well No. Hillcock 1111M
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>519,682.49</u>
County:	<u>Marshall</u>		Northing:	<u>4,399,602.72</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 (e), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

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

*PLEASE CHECK ALL THAT APPLY

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

OOG OFFICE USE ONLY

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

Required Attachments:

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

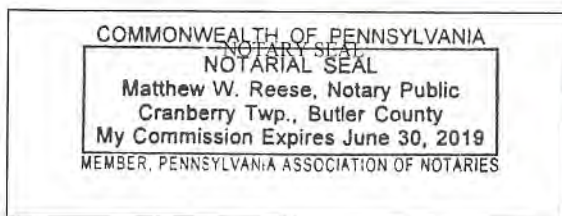
JAN 15 2019

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>[Signature]</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 11 day of January 2019
[Signature] Notary Public
 My Commission Expires 6-30-2019

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.

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 WV Department of
 Environmental Protection

05/03/2019

WW-6A
(9-13)

API NO. 47- 051 -
OPERATOR WELL NO. Hillrock 11HM
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: 1/10/2019 **Date Permit Application Filed:** 1/11/2019

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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Office of Oil and Gas

JAN 15 2019

WV Department of
Environmental Protection

WW-6A
(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. Hillrock 11HM
Well Pad Name: Simms

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.

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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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API NO. 47-051 -
OPERATOR WELL NO. Hillrock 11HM
Well Pad Name: Simms

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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WV Department of
Environmental Protection

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.**

05/03/2019

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(8-13)

API NO. 47- 051 - _____
OPERATOR WELL NO. Hillrock 11HM
Well Pad Name: Simms _____

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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(8-13)

API NO. 47-051 -
OPERATOR WELL NO. Hillrock 11HM
Well Pad Name: Simms

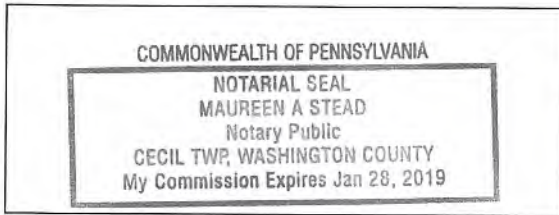
Notice is hereby given by:

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



Subscribed and sworn before me this 10 day of JANUARY 2018
Maureen A Stead Notary Public

My Commission Expires 1/28/19

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Supplement Pg. 1A

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

WATER WELL REPORT

Well: HILLROCK 11HM
 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		

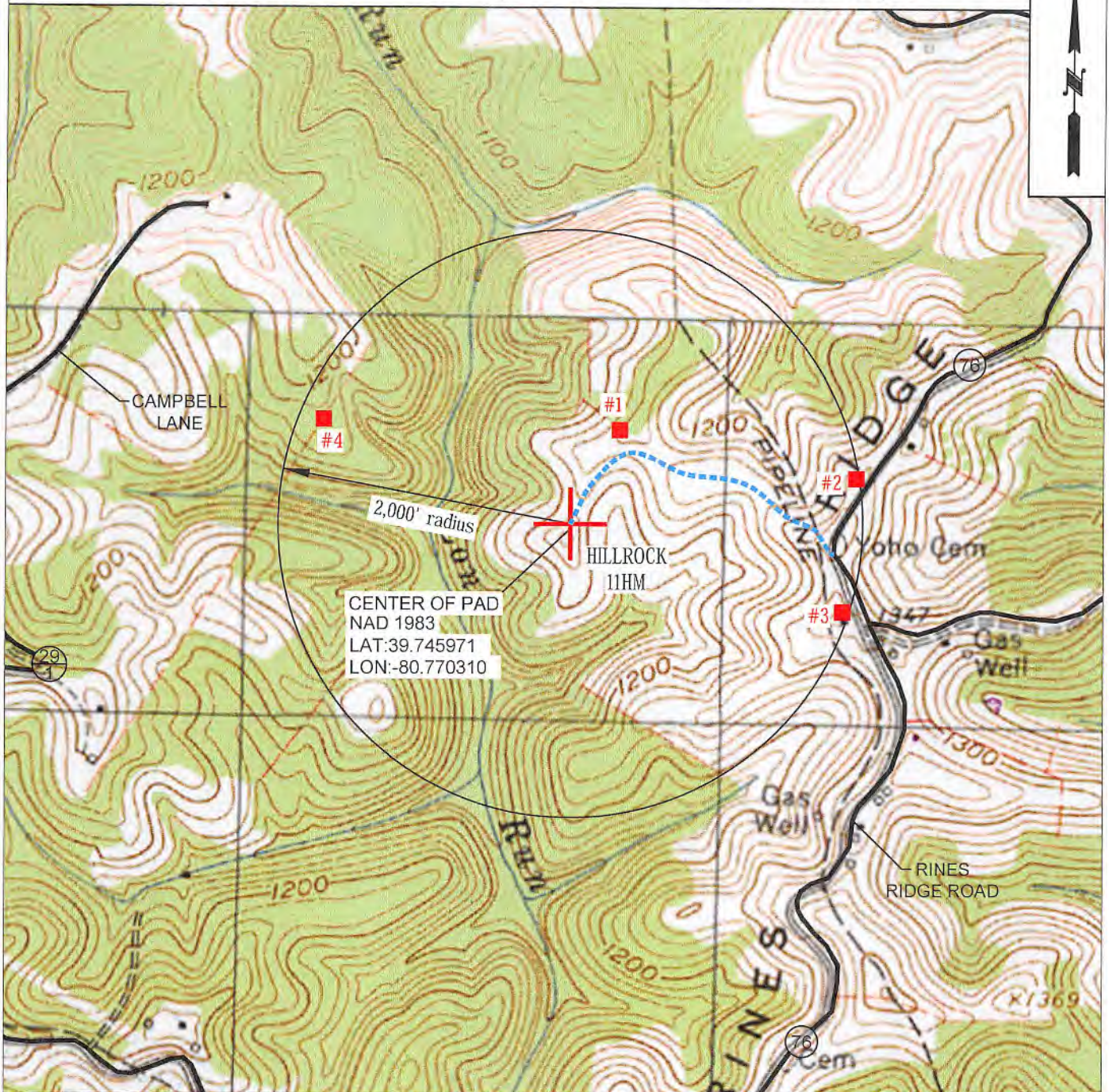
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WW-6A

PROPOSED HILLROCK 11HM

SUPPLEMENT PG 1

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



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: JAN 15 2019
 RECEIVED
 Office of Oil and Gas
 Environmental Protection

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

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

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

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

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

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

Notice is hereby provided to:

SURFACE OWNER(s)

Name: Kenneth and Nadine Corley (Access Road)
 Address: 7089 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 Atn: Casey Saunders
 Address: 1000 CONSOL Energy Drive
Canonsburg, PA 15317

MINERAL OWNER(s)

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

*please attach additional forms if necessary

Notice is hereby given:

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

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

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

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

Notice is hereby given by:

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

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

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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.

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

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

Date of Notice: 01/10/2019

Date Permit Application Filed: 01/11/2019

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

- CERTIFIED MAIL
RETURN RECEIPT REQUESTED
- HAND
DELIVERY

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

Notice is hereby provided to the SURFACE OWNER(s)

(at the address listed in the records of the sheriff at the time of notice):

Name: Terry and Deborah Simms (Access Road and Well Pad)

Address: 7175 Rines Ridge Road

Proctor, WV 26055

Name: Kenneth and Nadine Corley (Access Road)

Address: 7069 Rines Ridge Road

Proctor, WV 26055

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>519,682.49</u>
County:	<u>Marshall</u>		Northing:	<u>4,399,602.72</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>	
Quadrangle:	<u>New Martinsville 7.5'</u>	Generally used farm name:	<u>Simms, Terry E. and Deborah</u>	
Watershed:	<u>Fish Creek (HUC 10)</u>			

This Notice Shall Include:

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

Well Operator: Tug Hill Operating, LLC

Telephone: 724-749-8388

Email: amiller@tug-hilltop.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200

Canonsburg, PA 15317

Facsimile: 724-338-2030

Oil and Gas Privacy Notice:

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

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JAN 15 2019

WV Department of
Environmental Protection



4705 - 02173 05/03/2019

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 11HM 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



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

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

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Office of Oil and Gas

JAN 15 2019

WV Department of
Environmental Protection

WEST VIRGINIA COUNTY MAP



**WVDEP OOG
ACCEPTED AS-BUILT**

WJ 7/3/2018

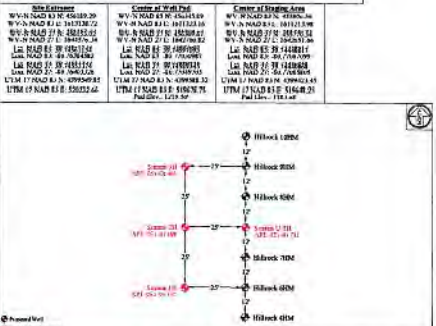
Simms Well Site
Site Design, Construction Plan, &
Erosion and Sediment Control Plans
Tug Hill Operating
Marshall County
Franklin District
Latitude 39.74597093°
Longitude -80.77030987°
Lower Fish Creek Watershed

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

Property Owner Information - Simms Well Site

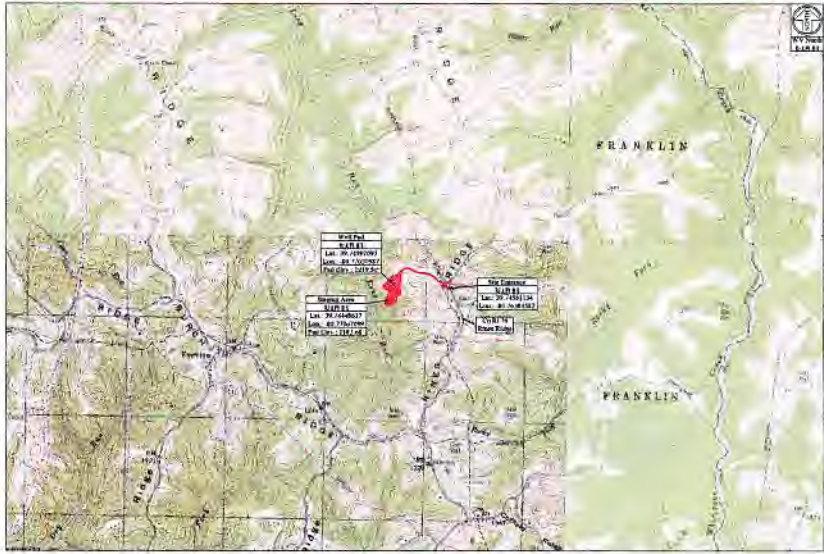
Owner	EM Parcel	2010 Parcel	2014 Parcel	2018 Parcel	2019 Parcel	2020 Parcel	2021 Parcel	2022 Parcel
Franklin District	101	101	101	101	101	101	101	101
Lower Fish Creek Watershed	101	101	101	101	101	101	101	101

Exhibit A: Final Design: Issue for Permitting



Well Table

Well ID	Well Type	Well Depth	Well Diameter	Well Location
Well 1
Well 2
Well 3
Well 4
Well 5
Well 6
Well 7
Well 8
Well 9
Well 10



WV State Plane Coordinate System
North Zone, NAD 83
Elevation Based on NAVD83
Established by Survey Grade GPS
and CORS Post-Processing

Access Road

Access Road	Width	Length	Area
Access Road 1	10'	100'	1,000 sq ft
Access Road 2	10'	100'	1,000 sq ft

Disturbed Area

Disturbed Area	Area
Disturbed Area 1	100 sq ft
Disturbed Area 2	100 sq ft

Simms Well Site Quantities

Description	Quantity	Unit
Well Pad	10	sq ft
Access Road	200	sq ft
Disturbed Area	200	sq ft

Project Contacts

Site Preparation
Joshua White - Regulatory Analyst
724.423.2000 Ext. 404
jwhite@wvde.gov

Site Construction
Jeff Fisher - VP Production
610.662.0000 Ext. 100

Site Inspection
Tug Hill Operating, LLC
1000 Mountain Road
Martinsburg, WV 26150-3000
October, PA 15111

WVDEP Information
The topographic information shown herein is based on aerial photography by the West Virginia Aerial Mapping Service, WV.

MISS UTILITY OF WEST VIRGINIA
1-800-245-4848

811
Know what's below. Call before you dig.

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

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

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

Approach Routes

From the intersection of OH Rt 17 and WV Rt 2 near New Martinsville, WV. Follow WV Rt 2 North for 4.5 mi. Turn Right onto Co Rd 89 (Process Creek Rd). Follow Co Rd 89 for 0.9 mi. Turn Left onto Co Rd 177 (Coffield Ridge). Follow Co Rd 177 for 3.1 mi. Co Rd 177 becomes Co Rd 29 (Coffield Ridge). Follow Co Rd 29 for 1.4 mi. Turn Right onto Co Rd 76 (Bison Ridge Rd). Follow Co Rd 76 for 1.1 mi. The site entrance will be on the Left (West) side of the road.

Floodplain Conditions

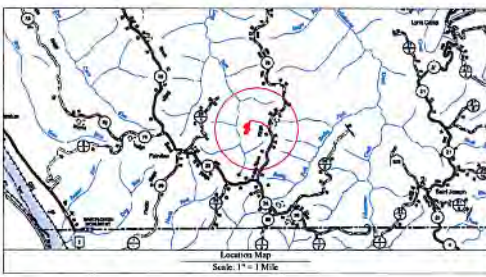
Site location is not within a floodplain.

Site Location (NAD 83)

Well ID	Latitude (NAD 83)	Longitude (NAD 83)
Well 1	39.74597093	-80.77030987
Well 2	39.74597093	-80.77030987

Site Location (NAD 83)

Well ID	Latitude (NAD 83)	Longitude (NAD 83)
Well 3	39.74597093	-80.77030987
Well 4	39.74597093	-80.77030987



Well Location Restrictions

All Well construction activities shall be in accordance with the following restrictions:

- *10' from the edge of disturbance to any structure, utility, or other well.
- *10' from the edge of disturbance to any structure, utility, or other well.
- *10' from the edge of disturbance to any structure, utility, or other well.



Sheet Description

Sheet	Description
1	Cover Sheet
V1	Schedule of Quantities
N1-N4	Site Notes
5	Pre-Construction Site Conditions
3	Site Soil Map
4	Clearing Exhibit
5	Overall Plan View
6-7	EAS Plan View
8	Top Key Exhibit
9-10	Plan View
11	Cross Sections - Well Pad
12	Cross Sections - Well Pad Access Road
13	Cross Sections - Staging Area
14	Disturbed Area Exhibit
15	Landowner Disturbed Area Exhibit
16-17	Production Exhibit
18-19	Erosion and Sediment Control Details
20	Access Road Details
21	Pad Details

TUG HILL OPERATING
 PREPARING FOR TUG HILL OPERATING
 K+S
 THIS DOCUMENT PREPARED FOR TUG HILL OPERATING
 DATE: 05/24/2018
 SCALE: AS SHOWN
 DRAWN BY: JES
 SHEET NO.: 25
 SHEET 1 OF 13

