



west virginia department of environmental protection

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

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

Thursday, August 9, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for HILLROCK 4HM
47-051-02055-00-00

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 4HM
Farm Name: TERRY E. & DEBORAH SIMM
U.S. WELL NUMBER: 47-051-02055-00-00
Horizontal 6A New Drill
Date Issued: 8/9/2018

PERMIT CONDITIONS

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

CONDITIONS

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

PERMIT CONDITIONS

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

4705 0205 E

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

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

2) Operator's Well Number: Hillrock 4HM 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: 1,183.68' Elevation, proposed post-construction: 1,183.68'

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

Other _____

(b) If Gas Shallow Deep _____

Horizontal

6) Existing Pad: Yes or No Yes

Handwritten signature and date: 5/25/18

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6464 - 6515' thickness of 51' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,615'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 18,469'

11) Proposed Horizontal Leg Length: 9,918'

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 reactivity.

14) Approximate Saltwater Depths: 2,167' ✓

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

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

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

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

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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#	2,905'	2,905' ✓	955ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	18,469'	18,469'	3996ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		8,032'	
Liners							

ju
5/25/18

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)

4705102055
API NO. 47-051
OPERATOR WELL NO. Hillrock 4HM
Well Pad Name: Simms

J
5/25/18

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

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

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

Well to be completed with approximately 24,795,675 lb proppant and 383,359 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

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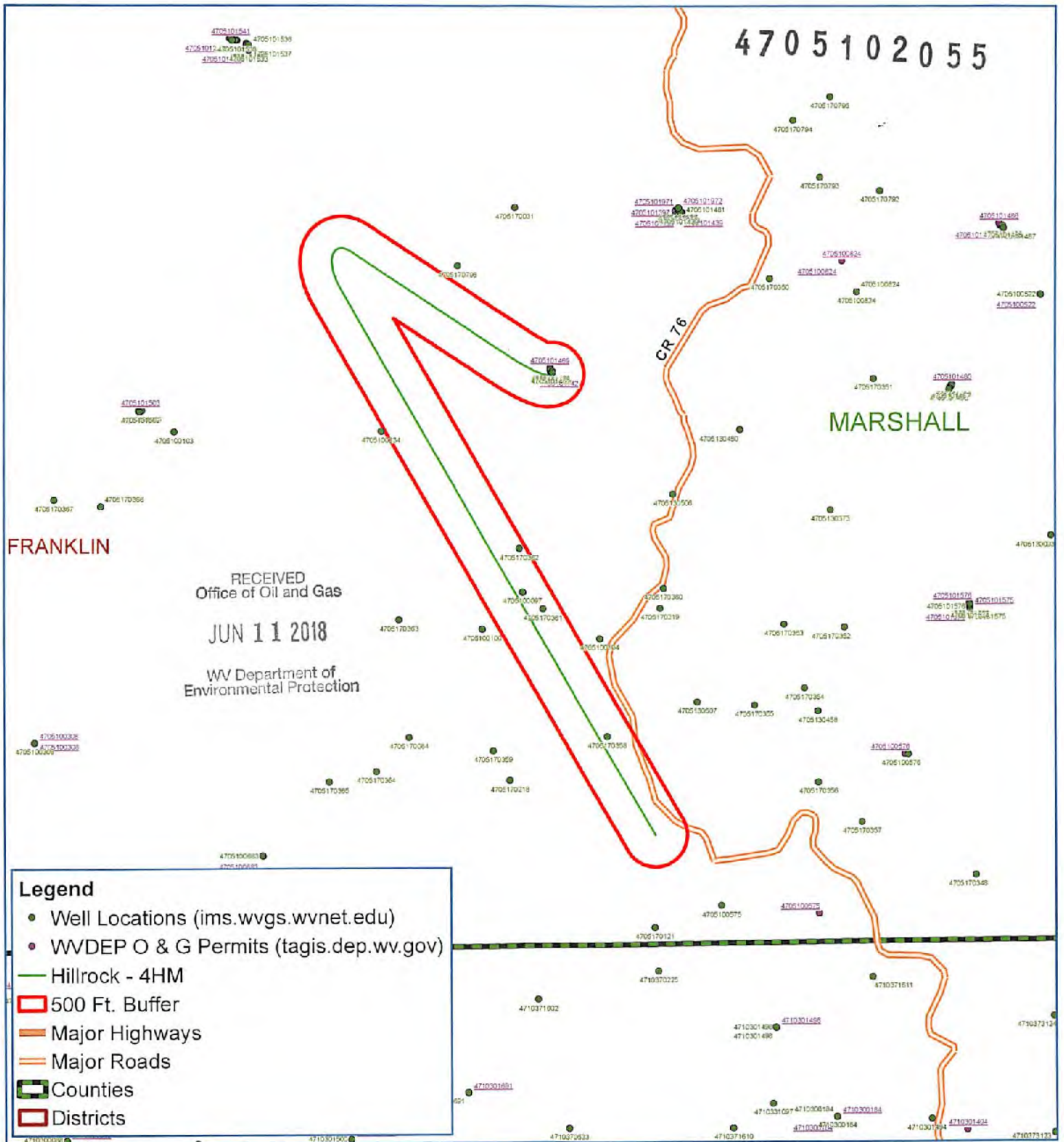
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25) Proposed borehole conditioning procedures:

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

*Note: Attach additional sheets as needed.



Legend

- Well Locations (ims.wvgs.wvnet.edu)
- WVDEP O & G Permits (tagis.dep.wv.gov)
- Hillrock - 4HM
- ▭ 500 Ft. Buffer
- ▬ Major Highways
- ▬ Major Roads
- ▭ Counties
- ▭ Districts



Hillrock - 4HM

Franklin District

Marshall County, WV



Map Created: May 24, 2018
Map Current As Of: May 24, 2018

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

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

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Permit well - Hillrock 4HM

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.
4705101505	Tug Hill Operating	6608' TVD 13102' 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.
4705101505	Tug Hill Operating	6511' TVD 12348' 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.
4705101524	Tug Hill Operating	6612' TVD 12503' 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.
4705101533	Tug Hill Operating	6509' TVD 9961' 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.
4705170362	Manufacturers Light & Heat	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
4705100097	Fauber & Henry	1152' TVD	1st Cow Run	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Marcellus stimulation.	Well was plugged 5/20/1949
4705170361	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by	State records are incomplete

Page 2 of 8

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Well: County = 51 Permit = 01501

Operator Information: WV Dept of Environmental Protection, Permit No. 01501, County = 51, State = WV, Date = 06/11/2018

System Name: WV Dept of Environmental Protection, Permit No. 01501, County = 51, State = WV, Date = 06/11/2018

Operator Information: WV Dept of Environmental Protection, Permit No. 01501, County = 51, State = WV, Date = 06/11/2018

Completion Information: WV Dept of Environmental Protection, Permit No. 01501, County = 51, State = WV, Date = 06/11/2018

Production Gas Information (Columns in Well): WV Dept of Environmental Protection, Permit No. 01501, County = 51, State = WV, Date = 06/11/2018

Production Oil Information (Columns in Well): WV Dept of Environmental Protection, Permit No. 01501, County = 51, State = WV, Date = 06/11/2018

Production Water Information (Columns in Well): WV Dept of Environmental Protection, Permit No. 01501, County = 51, State = WV, Date = 06/11/2018

Production Information: WV Dept of Environmental Protection, Permit No. 01501, County = 51, State = WV, Date = 06/11/2018

Well: County = 51 Permit = 01524

Operator Information: WV Dept of Environmental Protection, Permit No. 01524, County = 51, State = WV, Date = 06/11/2018

System Name: WV Dept of Environmental Protection, Permit No. 01524, County = 51, State = WV, Date = 06/11/2018

Operator Information: WV Dept of Environmental Protection, Permit No. 01524, County = 51, State = WV, Date = 06/11/2018

Completion Information: WV Dept of Environmental Protection, Permit No. 01524, County = 51, State = WV, Date = 06/11/2018

Production Gas Information (Columns in Well): WV Dept of Environmental Protection, Permit No. 01524, County = 51, State = WV, Date = 06/11/2018

Production Oil Information (Columns in Well): WV Dept of Environmental Protection, Permit No. 01524, County = 51, State = WV, Date = 06/11/2018

Production Water Information (Columns in Well): WV Dept of Environmental Protection, Permit No. 01524, County = 51, State = WV, Date = 06/11/2018

Production Information: WV Dept of Environmental Protection, Permit No. 01524, County = 51, State = WV, Date = 06/11/2018

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WV Department of Environmental Protection Well: County = 51 Permit = 01532

System Information - View Data

WELL ID	WELL NAME	DISTRICT	SUBD NO	WELL TYPE	STATUS	DATE	DEPTH	PERMITS	COMPLETION	PROF	THICK	FL
4705102055

System Information - View Data

WELL ID	WELL NAME	DISTRICT	SUBD NO	WELL TYPE	STATUS	DATE	DEPTH	PERMITS	COMPLETION	PROF	THICK	FL
4705102055

Production Data Information - Columns in Table

WELL ID	WELL NAME	DISTRICT	SUBD NO	WELL TYPE	STATUS	DATE	DEPTH	PERMITS	COMPLETION	PROF	THICK	FL
4705102055

Production Data Information - Columns in Table

WELL ID	WELL NAME	DISTRICT	SUBD NO	WELL TYPE	STATUS	DATE	DEPTH	PERMITS	COMPLETION	PROF	THICK	FL
4705102055

WV Department of Environmental Protection Well: County = 51 Permit = 01731

System Information - View Data

WELL ID	WELL NAME	DISTRICT	SUBD NO	WELL TYPE	STATUS	DATE	DEPTH	PERMITS	COMPLETION	PROF	THICK	FL
4705102055

System Information - View Data

WELL ID	WELL NAME	DISTRICT	SUBD NO	WELL TYPE	STATUS	DATE	DEPTH	PERMITS	COMPLETION	PROF	THICK	FL
4705102055

Production Data Information - Columns in Table

WELL ID	WELL NAME	DISTRICT	SUBD NO	WELL TYPE	STATUS	DATE	DEPTH	PERMITS	COMPLETION	PROF	THICK	FL
4705102055

Production Data Information - Columns in Table

WELL ID	WELL NAME	DISTRICT	SUBD NO	WELL TYPE	STATUS	DATE	DEPTH	PERMITS	COMPLETION	PROF	THICK	FL
4705102055

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Tug Hill Operating, LLC Casing and Cement Program

Hillrock 4HM

Handwritten signature and date: 5/25/18

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"	2,905'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	18,469'	CTS

Cement

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

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

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

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

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

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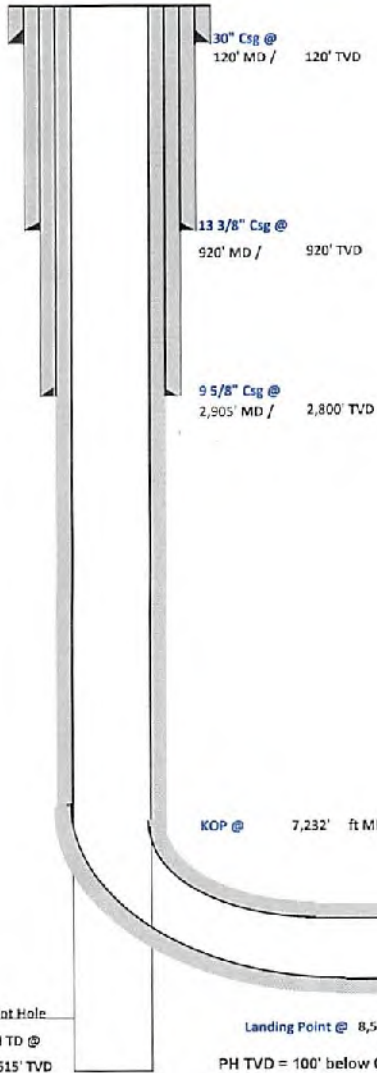


WELL NAME: Hillrock 4HM
STATE: WV **COUNTY:** Marshall
DISTRICT: Franklin
DF Elev: 1,219' **GL Elev:** 1,219'
TD: 18,469'
TH Latitude: 39.74587001
TH Longitude: -80.77026312 39.74955634
BH Latitude: -80.78214799

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	812
Sewickley Coal	705
Pittsburgh Coal	805
Big Lime	1610
Weir	1790
Berea	1897
Gordon	2018
Rhinestreet	3547
Genesco/Burkett	3779
Tully	3814
Hamilton	3832
Marcellus	6464
Landing Depth	6499
Onondaga	6515
Pilot Hole Depth	6615

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	2,905'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	18,469'	6,654'	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	948	A	15	Air	1 Centralizer every other jt
Production	4,165	A	14.5	Air / SOBM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



Pilot Hole
 PH TD @
 6,615' TVD

Landing Point @ 8,551' MD / 6,499' TVD
 PH TVD = 100' below Onondaga Top

Lateral TD @ 47,051' MD / 6,654' TVD

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Handwritten signature and date: 5/25/18

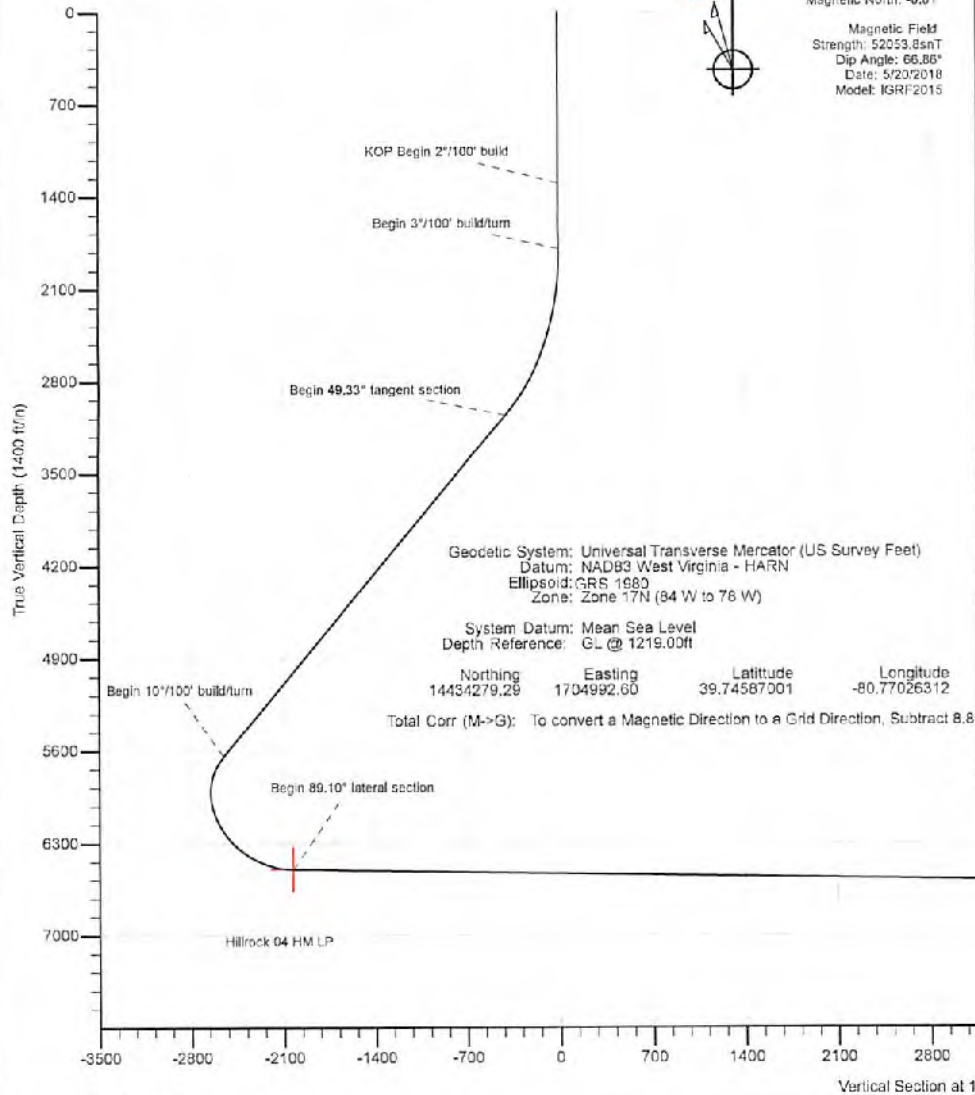
4705102055



Well: Hillrock 04 HM (D)
 Site: Hillrock/Simms
 Project: Marshall County, West Virginia.
 Design: rev0

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 2"/100' build
3	1800.00	10.00	250.00	1797.47	-14.89	-40.90	2.00	250.00	5.64	Begin 3"/100' build/turn
4	3263.37	49.33	303.26	3057.08	259.64	-654.68	3.00	61.24	-395.68	Begin 49.33° tangent section
5	7232.10	49.33	303.26	6643.33	1910.81	-3171.77	0.00	0.00	-2554.33	Begin 10"/100' build/turn
6	8550.59	89.10	150.00	6499.00	1333.94	-3343.95	10.00	-142.85	-2029.66	Begin 69.10° lateral section
7	18468.85	89.10	150.00	6654.00	-7254.33	1614.83	0.00	0.00	7431.89	P3H/LTD 18468.85 MD 6654.00 TVD



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

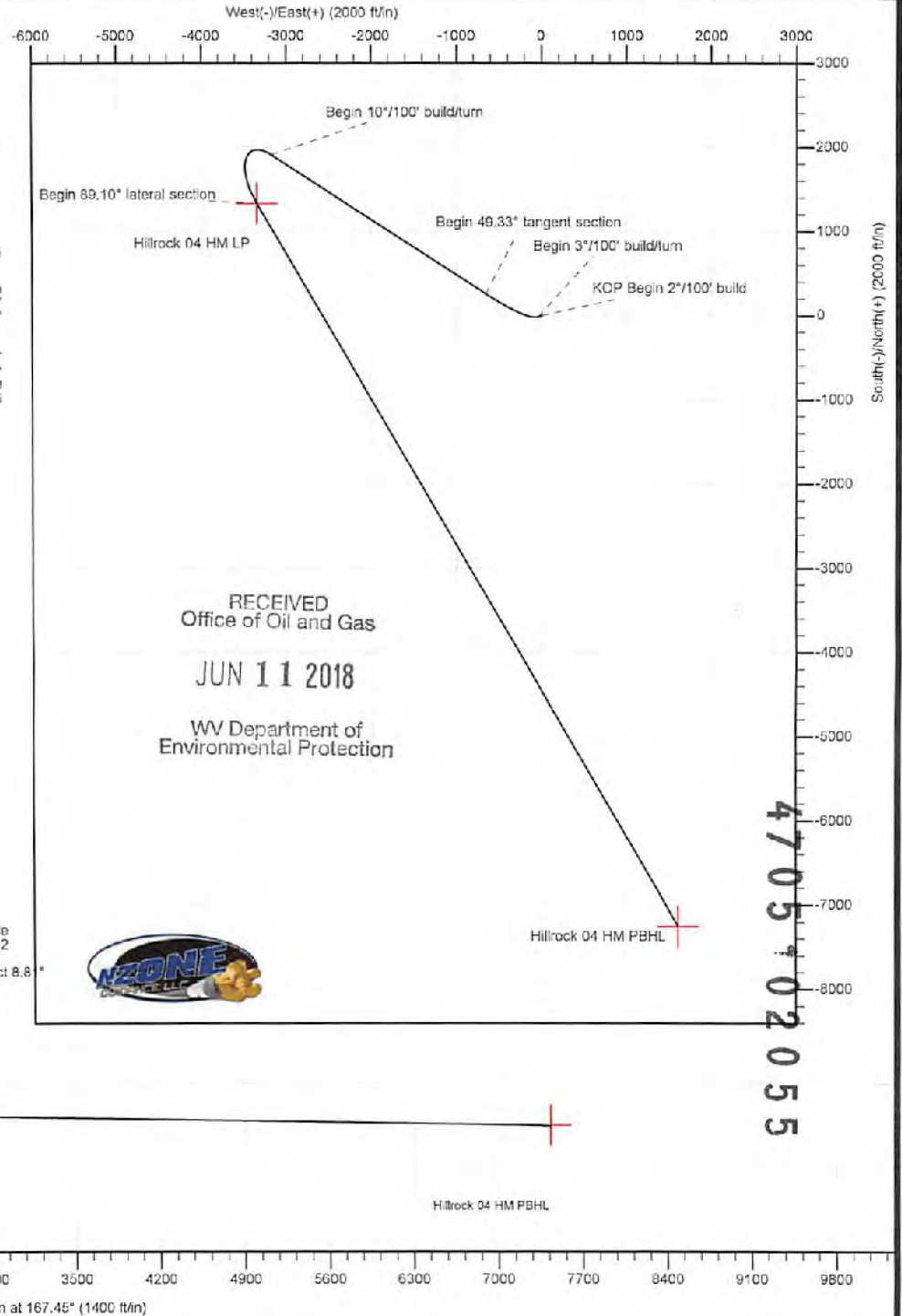
Magnetic Field
 Strength: 52053.85nT
 Dip Angle: 66.86°
 Date: 5/20/2018
 Model: IGRF2015

Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 76 W)

System Datum: Mean Sea Level
 Depth Reference: G.L. @ 1219.00ft

Northing: 14434279.29 Easting: 1704992.60 Latitude: 39.74587001 Longitude: -80.77026312

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.8°



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Planning Report - Geographic

Database:	DB_Aug0116_LT_v14	Local Co-ordinate Reference:	Well Hillrock 04 HM (D)
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 04 HM (D)	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 04 HM (D)					
Well Position	+N/-S	0.00 ft	Northing:	14,434,279.29 usft	Latitude:	39.74587001
	+E/-W	0.00 ft	Easting:	1,704,992.60 usft	Longitude:	-80.77026312
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	5/20/2018	-8.66	66.86	52,053.76512155

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	167.45

Plan Survey Tool Program	Date	5/23/2018		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,468.72 rev0 (Original Hole)	MWD	
			MWD - Standard	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,800.00	10.00	250.00	1,797.47	-14.89	-40.90	2.00	2.00	0.00	250.00	
3,263.37	49.33	303.26	3,057.08	259.64	-654.68	3.00	2.69	3.64	61.24	
7,232.10	49.33	303.26	5,643.33	1,910.81	-3,171.77	0.00	0.00	0.00	0.00	
8,550.59	89.10	150.00	6,499.00	1,333.94	-3,343.95	10.00	3.02	-11.62	-142.66	Hillrock 04 HM LP
18,468.86	89.10	150.00	6,654.00	-7,254.33	1,614.83	0.00	0.00	0.00	0.00	Hillrock 04 HM PBHL



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Planning Report - Geographic

JUN 11 2018

Database:	DB_Aug0116_LT_v14	Local Co-ordinate Reference:	Well Hillrock 04 HM (E)	WV Department of Environmental Protection
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 04 HM (D)	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	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
100.00	0.00	0.00	100.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
200.00	0.00	0.00	200.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
300.00	0.00	0.00	300.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
400.00	0.00	0.00	400.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
500.00	0.00	0.00	500.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
600.00	0.00	0.00	600.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
700.00	0.00	0.00	700.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
800.00	0.00	0.00	800.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
900.00	0.00	0.00	900.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026312	
KOP Begin 2°/100' build										
1,400.00	2.00	250.00	1,399.98	-0.80	-1.84	14,434,278.89	1,704,990.88	39.74586838	-80.77026896	
1,500.00	4.00	250.00	1,499.84	-2.39	-8.56	14,434,276.90	1,704,986.04	39.74586350	-80.77026847	
1,600.00	6.00	250.00	1,599.45	-5.37	-14.75	14,434,273.92	1,704,977.85	39.74585537	-80.77031563	
1,700.00	8.00	250.00	1,898.70	-9.54	-26.20	14,434,269.75	1,704,966.40	39.74584401	-80.77035641	
1,800.00	10.00	250.00	1,797.47	-14.89	-40.90	14,434,264.40	1,704,951.70	39.74582942	-80.77040875	
Begin 3°/100' build/turn										
1,900.00	11.74	263.03	1,895.68	-19.09	-59.16	14,434,260.20	1,704,933.44	39.74581800	-80.77047376	
2,000.00	13.91	272.41	1,993.19	-19.82	-81.27	14,434,259.47	1,704,911.33	39.74581615	-80.77055242	
2,100.00	16.34	279.17	2,089.73	-17.07	-107.17	14,434,262.22	1,704,885.43	39.74582388	-80.77064454	
2,200.00	18.93	284.18	2,185.03	-10.85	-136.79	14,434,268.44	1,704,855.81	39.74584117	-80.77074986	
2,300.00	21.62	288.00	2,278.83	-1.18	-170.05	14,434,278.11	1,704,822.55	39.74586796	-80.77086808	
2,400.00	24.39	291.01	2,370.87	11.92	-206.85	14,434,291.21	1,704,785.75	39.74590419	-80.77099889	
2,500.00	27.20	293.43	2,460.90	26.40	-247.10	14,434,307.89	1,704,745.50	39.74594975	-80.77114193	
2,600.00	30.04	295.42	2,548.68	48.24	-290.68	14,434,327.53	1,704,701.92	39.74800453	-80.77129681	
2,700.00	32.91	297.10	2,633.96	71.36	-337.48	14,434,350.65	1,704,655.12	39.74606836	-80.77146309	
2,800.00	35.80	298.54	2,716.51	97.71	-387.37	14,434,377.00	1,704,605.23	39.74614108	-80.77164033	
2,900.00	38.70	299.78	2,798.10	127.22	-440.21	14,434,406.51	1,704,552.39	39.74622248	-80.77182804	
3,000.00	41.62	300.88	2,872.52	159.80	-495.85	14,434,439.09	1,704,498.75	39.74631235	-80.77202570	
3,100.00	44.54	301.88	2,945.56	195.37	-554.15	14,434,474.66	1,704,438.45	39.74641043	-80.77223278	
3,200.00	47.47	302.75	3,015.01	233.82	-614.94	14,434,513.11	1,704,377.86	39.74651646	-80.77244870	
3,263.37	49.33	303.26	3,057.08	259.64	-654.68	14,434,538.93	1,704,337.92	39.74658764	-80.77258985	
Begin 49.33° tangent section										
3,300.00	49.33	303.26	3,080.95	274.88	-677.91	14,434,554.17	1,704,314.89	39.74662965	-80.77267236	
3,400.00	49.33	303.26	3,146.11	316.48	-741.33	14,434,595.77	1,704,251.27	39.74674435	-80.77289762	
3,500.00	49.33	303.26	3,211.28	358.09	-804.75	14,434,637.38	1,704,187.84	39.74685905	-80.77312288	
3,600.00	49.33	303.26	3,276.45	399.89	-868.18	14,434,678.98	1,704,124.42	39.74697375	-80.77334815	
3,700.00	49.33	303.26	3,341.61	441.30	-931.60	14,434,720.58	1,704,061.00	39.74708845	-80.77357341	
3,800.00	49.33	303.26	3,406.78	482.90	-995.02	14,434,762.19	1,703,997.58	39.74720314	-80.77379867	
3,900.00	49.33	303.26	3,471.94	524.50	-1,058.45	14,434,803.79	1,703,934.15	39.74731784	-80.77402394	
4,000.00	49.33	303.26	3,537.11	566.11	-1,121.87	14,434,845.40	1,703,870.73	39.74743254	-80.77424920	
4,100.00	49.33	303.26	3,602.27	607.71	-1,185.29	14,434,887.00	1,703,807.31	39.74754724	-80.77447447	
4,200.00	49.33	303.26	3,667.44	649.32	-1,248.72	14,434,928.61	1,703,743.88	39.74766193	-80.77469974	
4,300.00	49.33	303.26	3,732.60	690.92	-1,312.14	14,434,970.21	1,703,680.46	39.74777663	-80.77492501	
4,400.00	49.33	303.26	3,797.77	732.53	-1,375.56	14,435,011.82	1,703,617.04	39.74789132	-80.77515027	
4,500.00	49.33	303.26	3,862.94	774.13	-1,438.99	14,435,053.42	1,703,553.61	39.74800602	-80.77537554	
4,600.00	49.33	303.26	3,928.10	815.74	-1,502.41	14,435,095.02	1,703,490.19	39.74812071	-80.77560081	
4,700.00	49.33	303.26	3,993.27	857.34	-1,565.83	14,435,136.63	1,703,426.77	39.74823541	-80.77582609	
4,800.00	49.33	303.26	4,058.43	898.95	-1,629.26	14,435,178.23	1,703,363.34	39.74835010	-80.77605136	
4,900.00	49.33	303.26	4,123.60	940.55	-1,692.68	14,435,219.84	1,703,299.92	39.74846479	-80.77627663	

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Planning Report - Geographic

WV Department of
Environmental Protection

Database:	DB_Aug0116_LT_v14	Local Co-ordinate Reference:	Well Hillrock 04 HM (D)
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 04 HM (D)	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	
5,000.00	49.33	303.26	4,188.76	962.15	-1,756.10	14,435,261.44	1,703,236.50	39.74857949	-80.77650190	
5,100.00	49.33	303.26	4,253.93	1,023.76	-1,819.53	14,435,303.05	1,703,173.07	39.74869418	-80.77672718	
5,200.00	49.33	303.26	4,319.09	1,065.36	-1,882.95	14,435,344.65	1,703,109.65	39.74880887	-80.77695245	
5,300.00	49.33	303.26	4,384.26	1,108.97	-1,946.37	14,435,386.26	1,703,048.23	39.74892356	-80.77717773	
5,400.00	49.33	303.26	4,449.43	1,148.57	-2,009.80	14,435,427.86	1,702,982.81	39.74903825	-80.77740300	
5,500.00	49.33	303.26	4,514.59	1,190.18	-2,073.22	14,435,469.46	1,702,919.38	39.74915294	-80.77762828	
5,600.00	49.33	303.26	4,579.76	1,231.78	-2,136.64	14,435,511.07	1,702,855.96	39.74926763	-80.77785356	
5,700.00	49.33	303.26	4,644.92	1,273.39	-2,200.07	14,435,552.67	1,702,792.54	39.74938232	-80.77807884	
5,800.00	49.33	303.26	4,710.09	1,314.99	-2,263.49	14,435,594.28	1,702,729.11	39.74949701	-80.77830412	
5,900.00	49.33	303.26	4,775.25	1,356.60	-2,326.91	14,435,635.88	1,702,665.69	39.74961170	-80.77852940	
6,000.00	49.33	303.26	4,840.42	1,398.20	-2,390.34	14,435,677.49	1,702,602.27	39.74972639	-80.77875468	
6,100.00	49.33	303.26	4,905.59	1,439.80	-2,453.76	14,435,719.09	1,702,538.84	39.74984108	-80.77897996	
6,200.00	49.33	303.26	4,970.75	1,481.41	-2,517.18	14,435,760.70	1,702,475.42	39.74995576	-80.77920524	
6,300.00	49.33	303.26	5,035.92	1,523.01	-2,580.61	14,435,802.30	1,702,412.00	39.75007045	-80.77943052	
6,400.00	49.33	303.26	5,101.08	1,564.62	-2,644.03	14,435,843.91	1,702,348.57	39.75018514	-80.77965580	
6,500.00	49.33	303.26	5,166.25	1,606.22	-2,707.45	14,435,885.51	1,702,285.15	39.75029982	-80.77988109	
6,600.00	49.33	303.26	5,231.41	1,647.83	-2,770.88	14,435,927.11	1,702,221.73	39.75041451	-80.78010638	
6,700.00	49.33	303.26	5,296.58	1,689.43	-2,834.30	14,435,968.72	1,702,158.31	39.75052919	-80.78033166	
6,800.00	49.33	303.26	5,361.74	1,731.04	-2,897.72	14,436,010.32	1,702,094.88	39.75064388	-80.78055695	
6,900.00	49.33	303.26	5,426.91	1,772.64	-2,961.14	14,436,051.93	1,702,031.46	39.75075856	-80.78078224	
7,000.00	49.33	303.26	5,492.08	1,814.25	-3,024.57	14,436,093.53	1,701,968.04	39.75087325	-80.78100752	
7,100.00	49.33	303.26	5,557.24	1,855.85	-3,087.99	14,436,135.14	1,701,904.61	39.75098793	-80.78123281	
7,200.00	49.33	303.26	5,622.41	1,897.45	-3,151.41	14,436,176.74	1,701,841.19	39.75110261	-80.78145810	
7,232.10	49.33	303.26	5,643.33	1,910.81	-3,171.77	14,436,190.10	1,701,820.83	39.75113943	-80.78153043	
Begin 10°/100' build/turn										
7,300.00	44.06	297.37	5,669.90	1,935.82	-3,214.32	14,436,215.11	1,701,778.28	39.75120840	-80.78168159	
7,400.00	37.01	286.42	5,765.95	1,960.38	-3,274.22	14,436,239.66	1,701,718.38	39.75127624	-80.78189450	
7,500.00	31.33	271.70	5,848.79	1,969.68	-3,329.22	14,436,248.97	1,701,663.39	39.75130215	-80.78209008	
7,600.00	27.88	252.60	5,935.93	1,963.44	-3,377.63	14,436,242.73	1,701,614.97	39.75128535	-80.78228238	
7,700.00	27.52	231.00	6,024.69	1,941.86	-3,418.00	14,436,221.14	1,701,574.61	39.75122634	-80.78240618	
7,800.00	30.37	211.09	6,112.40	1,905.58	-3,449.08	14,436,184.87	1,701,543.52	39.75112692	-80.78251710	
7,900.00	35.66	195.44	6,196.38	1,855.71	-3,469.95	14,436,135.00	1,701,522.66	39.75099010	-80.78259176	
8,000.00	42.48	183.78	6,274.08	1,793.77	-3,479.96	14,436,073.05	1,701,512.65	39.75082005	-80.78262791	
8,100.00	50.20	174.96	6,343.14	1,721.63	-3,478.81	14,436,000.92	1,701,513.80	39.75062183	-80.78262445	
8,200.00	58.44	167.98	6,401.46	1,641.49	-3,466.54	14,435,920.78	1,701,526.07	39.75040176	-80.78258147	
8,300.00	67.01	162.17	6,447.27	1,555.78	-3,443.51	14,435,835.07	1,701,549.09	39.75016624	-80.78250029	
8,400.00	75.76	157.05	6,479.19	1,467.11	-3,410.43	14,435,746.40	1,701,582.17	39.74992251	-80.78238337	
8,500.00	84.61	152.32	6,496.23	1,378.18	-3,368.31	14,435,657.46	1,701,624.30	39.74967798	-80.78223427	
8,550.59	89.10	150.00	6,499.00	1,333.94	-3,343.95	14,435,613.23	1,701,648.65	39.74955634	-80.78214799	
Begin 89.10° lateral section										
8,600.00	89.10	150.00	6,499.77	1,291.16	-3,319.25	14,435,570.45	1,701,673.36	39.74943657	-80.78205047	
8,700.00	89.10	150.00	6,501.34	1,204.57	-3,289.25	14,435,483.88	1,701,723.36	39.74920054	-80.78188334	
8,800.00	89.10	150.00	6,502.90	1,117.98	-3,219.25	14,435,397.27	1,701,773.35	39.74896240	-80.78170622	
8,900.00	89.10	150.00	6,504.46	1,031.39	-3,169.26	14,435,310.68	1,701,823.35	39.74872426	-80.78152909	
9,000.00	89.10	150.00	6,506.02	944.80	-3,119.26	14,435,224.09	1,701,873.34	39.74848613	-80.78135197	
9,100.00	89.10	150.00	6,507.59	858.21	-3,069.26	14,435,137.49	1,701,923.34	39.74824799	-80.78117465	
9,200.00	89.10	150.00	6,509.15	771.62	-3,019.27	14,435,050.90	1,701,973.34	39.74800985	-80.78099773	
9,300.00	89.10	150.00	6,510.71	685.03	-2,969.27	14,434,964.31	1,702,023.33	39.74777171	-80.78082061	
9,400.00	89.10	150.00	6,512.27	598.43	-2,919.27	14,434,877.72	1,702,073.33	39.74753358	-80.78064349	
9,500.00	89.10	150.00	6,513.84	511.84	-2,869.28	14,434,791.13	1,702,123.33	39.74729544	-80.78048638	
9,600.00	89.10	150.00	6,515.40	425.25	-2,819.28	14,434,704.54	1,702,173.32	39.74705730	-80.78028928	
9,700.00	89.10	150.00	6,516.96	338.66	-2,769.28	14,434,617.95	1,702,223.32	39.74681916	-80.78011215	
9,800.00	89.10	150.00	6,518.53	252.07	-2,719.29	14,434,531.36	1,702,273.31	39.74658102	-80.77993504	
9,900.00	89.10	150.00	6,520.09	165.46	-2,669.29	14,434,444.77	1,702,323.31	39.74634288	-80.77975792	



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Site:	Hillrock/Simms	North Reference:	Grid	
Well:	Hillrock 04 HM (D)	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
10,000.00	89.10	150.00	6,521.65	78.89	-2,619.30	14,434,358.18	1,702,373.31	39.74610474	-80.77958081
10,100.00	89.10	150.00	6,523.21	-7.70	-2,569.30	14,434,271.59	1,702,423.30	39.74586660	-80.77940370
10,200.00	89.10	150.00	6,524.78	-84.29	-2,519.30	14,434,185.00	1,702,473.30	39.74562846	-80.77922660
10,300.00	89.10	150.00	6,526.34	-180.88	-2,469.31	14,434,098.41	1,702,523.30	39.74539032	-80.77904949
10,400.00	89.10	150.00	6,527.90	-267.47	-2,419.31	14,434,011.82	1,702,573.29	39.74515218	-80.77887238
10,500.00	89.10	150.00	6,529.47	-354.06	-2,369.31	14,433,925.23	1,702,623.29	39.74491404	-80.77869528
10,600.00	89.10	150.00	6,531.03	-440.85	-2,319.32	14,433,838.64	1,702,673.29	39.74467589	-80.77851818
10,700.00	89.10	150.00	6,532.59	-527.24	-2,269.32	14,433,752.05	1,702,723.28	39.74443775	-80.77834107
10,800.00	89.10	150.00	6,534.15	-613.83	-2,219.32	14,433,665.46	1,702,773.28	39.74419961	-80.77816397
10,900.00	89.10	150.00	6,535.72	-700.42	-2,169.33	14,433,578.87	1,702,823.27	39.74396147	-80.77798667
11,000.00	89.10	150.00	6,537.28	-787.01	-2,119.33	14,433,492.28	1,702,873.27	39.74372332	-80.77780978
11,100.00	89.10	150.00	6,538.84	-873.60	-2,069.33	14,433,405.69	1,702,923.27	39.74348518	-80.77763268
11,200.00	89.10	150.00	6,540.40	-960.19	-2,019.34	14,433,319.10	1,702,973.26	39.74324704	-80.77745558
11,300.00	89.10	150.00	6,541.97	-1,046.78	-1,969.34	14,433,232.51	1,703,023.26	39.74300889	-80.77727849
11,400.00	89.10	150.00	6,543.53	-1,133.37	-1,919.35	14,433,145.92	1,703,073.26	39.74277075	-80.77710139
11,500.00	89.10	150.00	6,545.09	-1,219.97	-1,869.35	14,433,059.33	1,703,123.25	39.74253261	-80.77692430
11,600.00	89.10	150.00	6,546.66	-1,306.56	-1,819.35	14,432,972.74	1,703,173.25	39.74229446	-80.77674721
11,700.00	89.10	150.00	6,548.22	-1,393.15	-1,769.36	14,432,886.15	1,703,223.25	39.74205632	-80.77657012
11,800.00	89.10	150.00	6,549.78	-1,479.74	-1,719.36	14,432,799.56	1,703,273.24	39.74181817	-80.77639303
11,900.00	89.10	150.00	6,551.34	-1,566.33	-1,669.36	14,432,712.97	1,703,323.24	39.74158003	-80.77621595
12,000.00	89.10	150.00	6,552.91	-1,652.92	-1,619.37	14,432,626.38	1,703,373.23	39.74134188	-80.77603886
12,100.00	89.10	150.00	6,554.47	-1,739.51	-1,569.37	14,432,539.79	1,703,423.23	39.74110373	-80.77586178
12,200.00	89.10	150.00	6,556.03	-1,826.10	-1,519.37	14,432,453.19	1,703,473.23	39.74086559	-80.77568469
12,300.00	89.10	150.00	6,557.59	-1,912.69	-1,469.38	14,432,366.60	1,703,523.22	39.74062744	-80.77550761
12,400.00	89.10	150.00	6,559.16	-1,999.28	-1,419.38	14,432,280.01	1,703,573.22	39.74038930	-80.77533053
12,500.00	89.10	150.00	6,560.72	-2,085.87	-1,369.38	14,432,193.42	1,703,623.22	39.74015115	-80.77515345
12,600.00	89.10	150.00	6,562.28	-2,172.46	-1,319.39	14,432,106.83	1,703,673.21	39.73991300	-80.77497637
12,700.00	89.10	150.00	6,563.85	-2,259.05	-1,269.39	14,432,020.24	1,703,723.21	39.73967485	-80.77479929
12,800.00	89.10	150.00	6,565.41	-2,345.64	-1,219.39	14,431,933.65	1,703,773.21	39.73943671	-80.77462221
12,900.00	89.10	150.00	6,566.97	-2,432.23	-1,169.40	14,431,847.06	1,703,823.20	39.73919856	-80.77444514
13,000.00	89.10	150.00	6,568.53	-2,518.82	-1,119.40	14,431,760.47	1,703,873.20	39.73896041	-80.77426807
13,100.00	89.10	150.00	6,570.10	-2,605.41	-1,069.41	14,431,673.88	1,703,923.19	39.73872226	-80.77409099
13,200.00	89.10	150.00	6,571.66	-2,692.00	-1,019.41	14,431,587.29	1,703,973.19	39.73848411	-80.77391392
13,300.00	89.10	150.00	6,573.22	-2,778.59	-969.41	14,431,500.70	1,704,023.19	39.73824596	-80.77373685
13,400.00	89.10	150.00	6,574.79	-2,865.18	-919.42	14,431,414.11	1,704,073.18	39.73800781	-80.77355978
13,500.00	89.10	150.00	6,576.35	-2,951.78	-869.42	14,431,327.52	1,704,123.18	39.73776966	-80.77338271
13,600.00	89.10	150.00	6,577.91	-3,038.37	-819.42	14,431,240.93	1,704,173.18	39.73753151	-80.77320565
13,700.00	89.10	150.00	6,579.47	-3,124.96	-769.43	14,431,154.34	1,704,223.17	39.73729336	-80.77302858
13,800.00	89.10	150.00	6,581.04	-3,211.55	-719.43	14,431,067.75	1,704,273.17	39.73705521	-80.77285152
13,900.00	89.10	150.00	6,582.60	-3,298.14	-669.43	14,430,981.16	1,704,323.17	39.73681706	-80.77267446
14,000.00	89.10	150.00	6,584.16	-3,384.73	-619.44	14,430,894.57	1,704,373.16	39.73657891	-80.77249739
14,100.00	89.10	150.00	6,585.72	-3,471.32	-569.44	14,430,807.98	1,704,423.16	39.73634076	-80.77232033
14,200.00	89.10	150.00	6,587.29	-3,557.91	-519.44	14,430,721.39	1,704,473.15	39.73610261	-80.77214327
14,300.00	89.10	150.00	6,588.85	-3,644.50	-469.45	14,430,634.80	1,704,523.15	39.73586446	-80.77196622
14,400.00	89.10	150.00	6,590.41	-3,731.09	-419.45	14,430,548.21	1,704,573.15	39.73562630	-80.77178916
14,500.00	89.10	150.00	6,591.98	-3,817.68	-369.46	14,430,461.62	1,704,623.14	39.73538815	-80.77161210
14,600.00	89.10	150.00	6,593.54	-3,904.27	-319.46	14,430,375.03	1,704,673.14	39.73515000	-80.77143505
14,700.00	89.10	150.00	6,595.10	-3,990.86	-269.46	14,430,288.44	1,704,723.14	39.73491185	-80.77125800
14,800.00	89.10	150.00	6,596.66	-4,077.45	-219.47	14,430,201.85	1,704,773.13	39.73467369	-80.77108094
14,900.00	89.10	150.00	6,598.23	-4,164.04	-169.47	14,430,115.26	1,704,823.13	39.73443554	-80.77090389
15,000.00	89.10	150.00	6,599.79	-4,250.63	-119.47	14,430,028.67	1,704,873.12	39.73419738	-80.77072684
15,100.00	89.10	150.00	6,601.35	-4,337.22	-69.48	14,429,942.08	1,704,923.12	39.73395923	-80.77054979
15,200.00	89.10	150.00	6,602.92	-4,423.81	-19.48	14,429,855.49	1,704,973.12	39.73372108	-80.77037275
15,300.00	89.10	150.00	6,604.48	-4,510.40	30.52	14,429,768.90	1,705,023.11	39.73348292	-80.77019570
15,400.00	89.10	150.00	6,606.04	-4,596.99	80.51	14,429,682.30	1,705,073.11	39.73324477	-80.77001866



Planning Report - Geographic

Database:	DB_Aug0116_LT_v14	Local Co-ordinate Reference:	Well Hillrock 04 HM (D)
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 04 HM (D)	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	
15,500.00	89.10	150.00	6,607.60	-4,683.59	130.51	14,429,595.71	1,705,123.11	39.73300661	-80.76984161	
15,600.00	89.10	150.00	6,609.17	-4,770.18	180.51	14,429,509.12	1,705,173.10	39.73276846	-80.76966457	
15,700.00	89.10	150.00	6,610.73	-4,856.77	230.50	14,429,422.53	1,705,223.10	39.73253030	-80.76948753	
15,800.00	89.10	150.00	6,612.29	-4,943.36	280.50	14,429,335.94	1,705,273.10	39.73229214	-80.76931049	
15,900.00	89.10	150.00	6,613.85	-5,029.95	330.49	14,429,249.35	1,705,323.09	39.73205399	-80.76913345	
16,000.00	89.10	150.00	6,615.42	-5,116.54	380.49	14,429,162.76	1,705,373.09	39.73181583	-80.76895641	
16,100.00	89.10	150.00	6,616.98	-5,203.13	430.49	14,429,076.17	1,705,423.08	39.73157767	-80.76877938	
16,200.00	89.10	150.00	6,618.54	-5,289.72	480.48	14,428,989.58	1,705,473.08	39.73133952	-80.76860234	
16,300.00	89.10	150.00	6,620.11	-5,376.31	530.48	14,428,902.99	1,705,523.08	39.73110136	-80.76842531	
16,400.00	89.10	150.00	6,621.67	-5,462.90	580.48	14,428,816.40	1,705,573.07	39.73086320	-80.76824828	
16,500.00	89.10	150.00	6,623.23	-5,549.49	630.47	14,428,729.81	1,705,623.07	39.73062504	-80.76807124	
16,600.00	89.10	150.00	6,624.79	-5,636.08	680.47	14,428,643.22	1,705,673.07	39.73038689	-80.76789421	
16,700.00	89.10	150.00	6,626.36	-5,722.67	730.47	14,428,556.63	1,705,723.06	39.73014873	-80.76771719	
16,800.00	89.10	150.00	6,627.92	-5,809.26	780.46	14,428,470.04	1,705,773.06	39.72991057	-80.76754016	
16,900.00	89.10	150.00	6,629.48	-5,895.85	830.46	14,428,383.45	1,705,823.06	39.72967241	-80.76736313	
17,000.00	89.10	150.00	6,631.05	-5,982.44	880.46	14,428,296.86	1,705,873.05	39.72943425	-80.76718611	
17,100.00	89.10	150.00	6,632.61	-6,069.03	930.45	14,428,210.27	1,705,923.05	39.72919609	-80.76700908	
17,200.00	89.10	150.00	6,634.17	-6,155.62	980.45	14,428,123.68	1,705,973.04	39.72895793	-80.76683206	
17,300.00	89.10	150.00	6,635.73	-6,242.21	1,030.45	14,428,037.09	1,706,023.04	39.72871977	-80.76665504	
17,400.00	89.10	150.00	6,637.30	-6,328.80	1,080.44	14,427,950.50	1,706,073.04	39.72848161	-80.76647802	
17,500.00	89.10	150.00	6,638.86	-6,415.40	1,130.44	14,427,863.91	1,706,123.03	39.72824345	-80.76630100	
17,600.00	89.10	150.00	6,640.42	-6,501.99	1,180.43	14,427,777.32	1,706,173.03	39.72800529	-80.76612398	
17,700.00	89.10	150.00	6,641.98	-6,588.58	1,230.43	14,427,690.73	1,706,223.03	39.72776713	-80.76594696	
17,800.00	89.10	150.00	6,643.55	-6,675.17	1,280.43	14,427,604.14	1,706,273.02	39.72752896	-80.76576995	
17,900.00	89.10	150.00	6,645.11	-6,761.76	1,330.42	14,427,517.55	1,706,323.02	39.72729080	-80.76559293	
18,000.00	89.10	150.00	6,646.67	-6,848.35	1,380.42	14,427,430.96	1,706,373.02	39.72705264	-80.76541592	
18,100.00	89.10	150.00	6,648.24	-6,934.94	1,430.42	14,427,344.37	1,706,423.01	39.72681448	-80.76523891	
18,200.00	89.10	150.00	6,649.80	-7,021.53	1,480.41	14,427,257.78	1,706,473.01	39.72657632	-80.76506190	
18,300.00	89.10	150.00	6,651.36	-7,108.12	1,530.41	14,427,171.19	1,706,523.00	39.72633815	-80.76488489	
18,400.00	89.10	150.00	6,652.92	-7,194.71	1,580.41	14,427,084.60	1,706,573.00	39.72609999	-80.76470788	
18,488.86	89.10	150.00	6,654.00	-7,254.33	1,614.83	14,427,024.97	1,706,607.43	39.72593600	-80.76458600	

PBHL/TD 18468.85 MD 6654.00 TVD

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Hillrock 04 HM LP - hit/miss target - Shape - Point	0.00	0.01	6,499.00	1,333.94	-3,343.95	14,435,613.23	1,701,648.65	39.74955634	-80.78214799	
Hillrock 04 HM PBHL - plan hits target center - Point	0.00	0.00	6,654.00	-7,254.33	1,614.83	14,427,024.97	1,706,607.43	39.72593600	-80.76458600	

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Planning Report - Geographic

Database:	DB_Aug0116_LT_v14	Local Co-ordinate Reference:	Well Hillrock 04 HM (D)
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 04 HM (D)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev0		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,300.00	1,300.00	0.00	0.00	KOP Begin 2°/100' build
1,800.00	1,797.47	-14.89	-40.90	Begin 3°/100' build/tum
3,263.37	3,057.08	259.64	-654.66	Begin 49.33° tangent section
7,232.10	5,643.33	1,910.81	-3,171.77	Begin 10°/100' build/tum
8,550.59	6,499.00	1,333.94	-3,343.95	Begin 89.10° lateral section
18,468.86	6,654.00	-7,254.33	1,614.83	PBHL/TD 18468.86 MD 6654.00 TVD

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WW-9
(4/16)

JUN 11 2018

API Number 47 - 051

WV Department of
Environmental Protection

Operator's Well No. 4705102055

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#1385426)

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

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

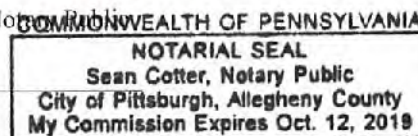
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is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

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

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Subscribed and sworn before me this 25 day of May, 20 18

My commission expires 10/12/2019



Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 11.63 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
Annual Ryegrass	40
Spring Oats	96

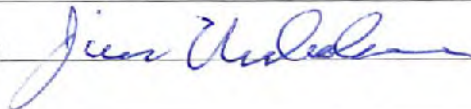
Seed Type	lbs/acre
Orchard Grass	12
Ladino	3
White Clover	2

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:



Comments:

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Title: Oil and Gas Inspector

Date: 5/25/18

Field Reviewed? () Yes

() No

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Environmental Protection

WW-9

**PROPOSED HILLROCK
4HM**

SUPPLEMENT PG 1

DRAWING NOT
TO SCALE

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

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

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

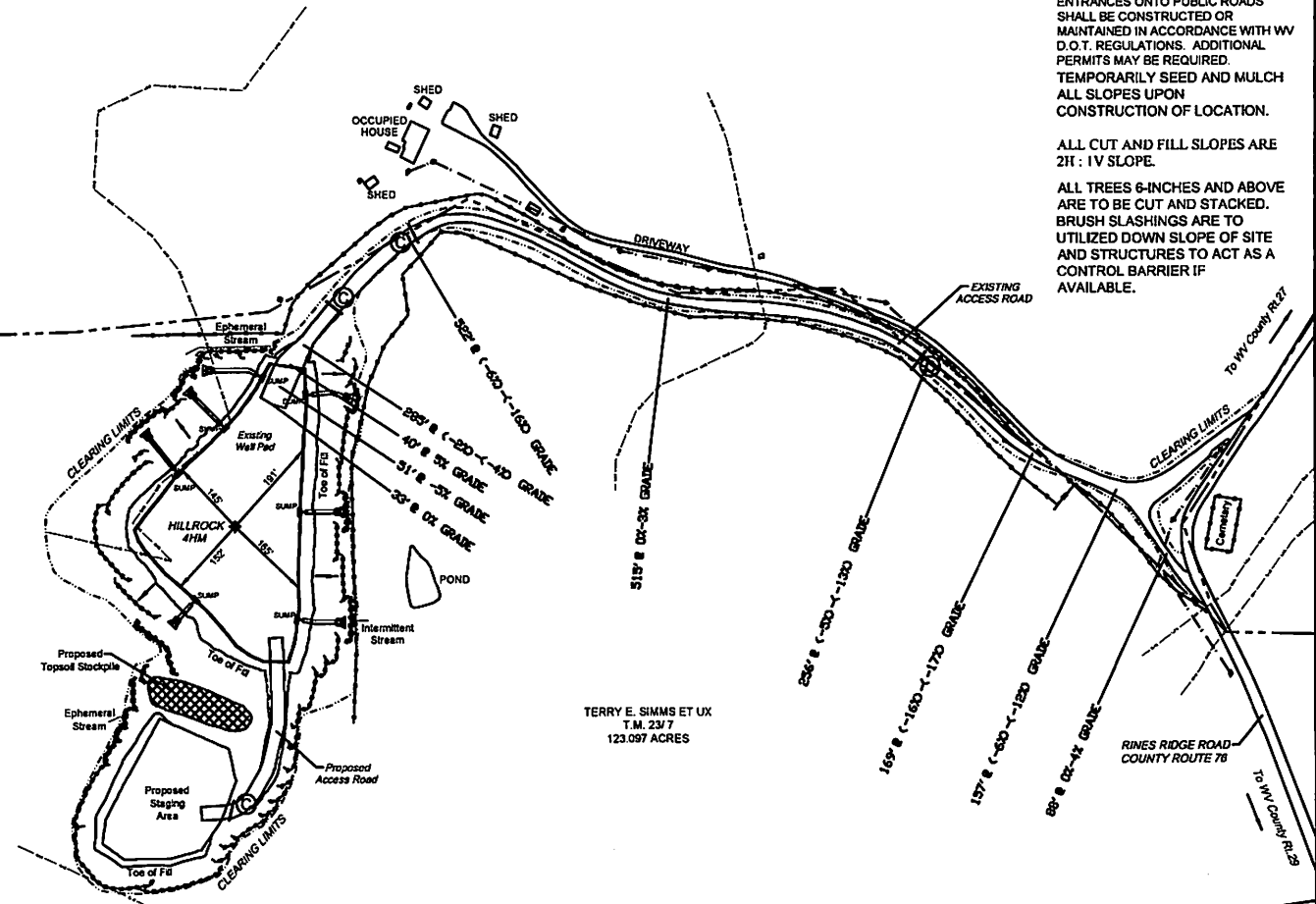
ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.

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

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

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

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



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WV Department of
Environmental Protection

LEGEND

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

4705 + 0205



Well Site Safety Plan
Tug Hill Operating, LLC

ju
5/25/18

Well Name: Hillrock 4HM

Pad Location: Simms Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,399,577.13

Easting: 519,682.78

May 2018

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Environmental Protection

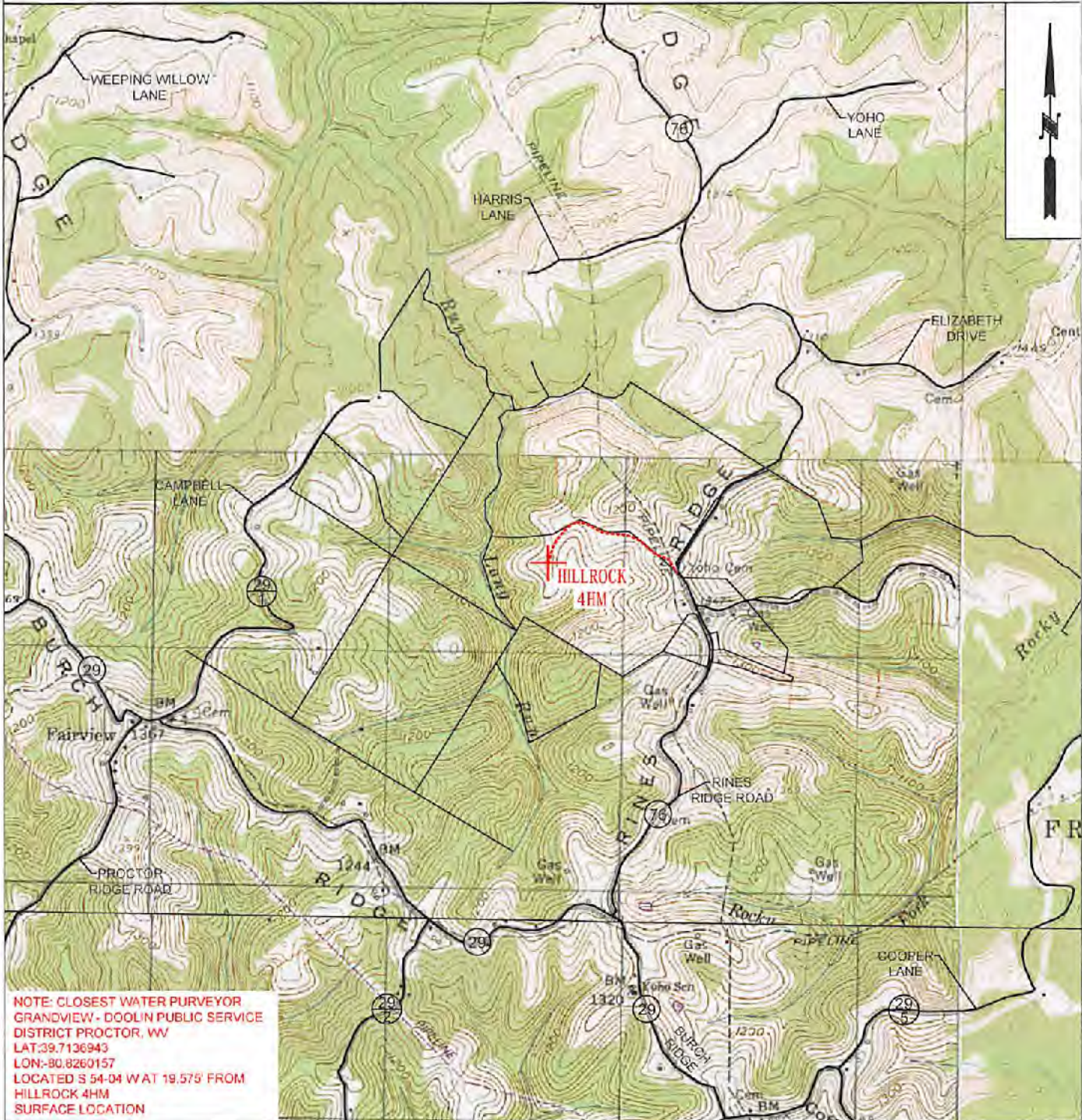
JUN 11 2018

WW-9

WV Department of
Environmental Protection

**PROPOSED
HILLROCK 4HM**

SUPPLEMENT PG 2



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT:39.7136943
LON:-80.8260157
LOCATED S 54-04 WAT 19.575' FROM
HILLROCK 4HM
SURFACE LOCATION



OPERATOR	494510851	TOPO SECTION	LEASE NAME
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		NEW MARTINSVILLE 7.5'	HILLROCK
		SCALE:	DATE:
		1" = 2000'	DATE: 05-24-2018

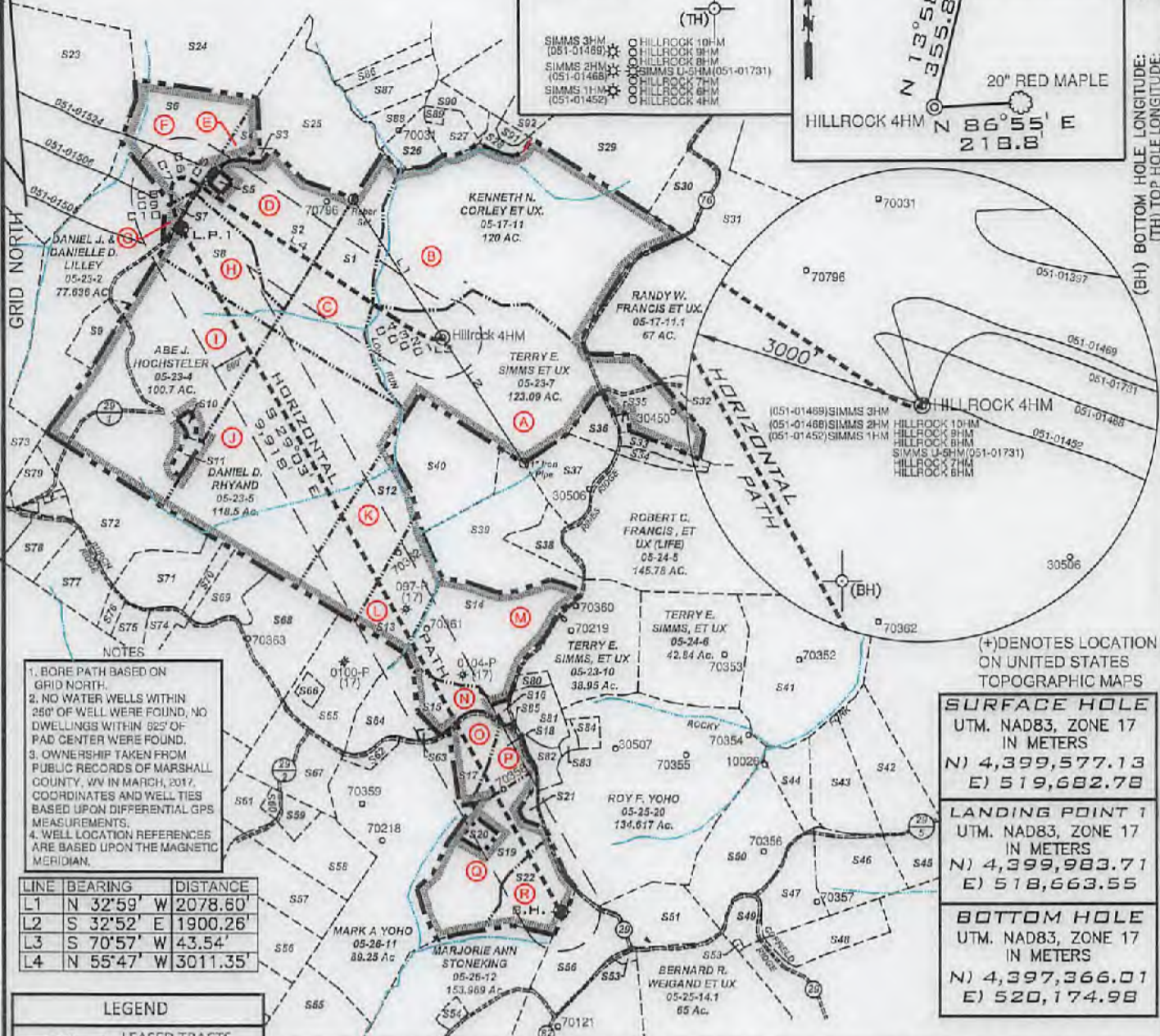
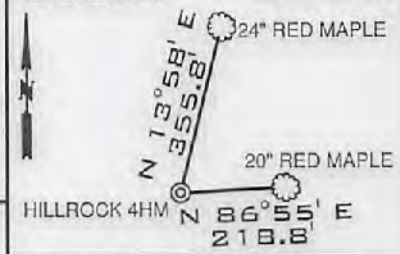
**HILLROCK LEASE
WELL 4HM
827.025± ACRES**

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

DETAIL SKETCH "A"
SCALE 1"=100'

REFERENCES SCALE 1"=400'

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



- NOTES
- BORE PATH BASED ON GRID NORTH.
 - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 825' 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 32°59' W	2078.60'
L2	S 32°52' E	1900.26'
L3	S 70°57' W	43.54'
L4	N 55°47' W	3011.35'

LEGEND

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

NUMBER	CHORD DIRECTION	RADIUS	ARC LENGTH	CHORD LENGTH	NUMBER	CHORD DIRECTION	RADIUS	ARC LENGTH	CHORD LENGTH
C1	S 89°04' W	147.19	66.90	66.33	C6	S 76°42' W	143.07	121.95	110.29
C2	N 71°02' W	619.88	147.53	147.18	C7	S 32°03' W	163.86	102.28	100.63
C3	N 61°57' W	1997.52	217.10	217.00	C8	S 04°44' W	383.64	195.13	134.43
C4	N 57°21' W	4241.65	252.17	252.14	C9	S 12°36' E	800.76	216.72	216.06
C5	N 65°47' W	373.50	148.15	148.28	C10	S 24°24' E	1169.42	196.95	196.72

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,577.13
E) 519,682.78

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,983.71
E) 518,663.55

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,397,366.01
E) 520,174.98

FILE NUMBER _____

DRAWING NUMBER HILLROCK_WP_4HM

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 1480
Clarksburg, WV 26302
304-623-8851

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

DATE: JUNE 4, 2018

REVISED DATE: AUGUST 3, 2018

OPERATORS WELL NO. HILLROCK 4HM

API WELL NO. 47-051-02055 H6A

STATE WV COUNTY MARSHALL PERMIT _____

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

LOCATION ELEVATION 1219.50' WATERSHED (HUC 10) FISH CREEK

DISTRICT FRANKLIN COUNTY MARSHALL

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

SURFACE OWNER TERRY E. & DEBORAH SIMMS ACREAGE 123.09

OIL & GAS ROYALTY OWNER TERRY E. & DEBORAH L. SIMMS, ET AL - SEE WW-6A1 FORM LEASE ACREAGE 319.91

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

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD 8,615' TMD: 18,469'

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

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

COUNTY NAME PERMIT

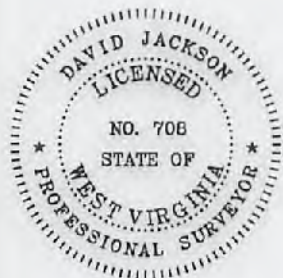
47-051-02055

farm wwg

PG 2 OF 2 HILLROCK LEASE
WELL 4HM
827.025± ACRES

Number	TAX MAP-PARCEL	ADJOINER OWNER	ACRES
S1	05-23-06	James A. Channing, et al	48.0
S2	05-18-21	Curtis E. & Michelle J. Hall	43.119
S3	05-18-21.3	T.H. Exploration, LLC	0.811
S4	05-18-21.1	Rodney & Rhonda Jackson	5.47
S5	05-18-21.2	David P. Lissan, et ux (Life)	1.0
S6	05-18-22	Rodney & Rhonda Jackson	30.345
S7	05-23-2.1	William L. Janice M. Wayne	2.364
S8	05-23-03	Abe J. Hochstetler	50.0
S9	05-23-2.2	Jessica N. & Andrew L. Jones	7.636
S10	05-23-4.2	James S. & Jeanne B. Hall	1.169
S11	05-23-4.1	James S. & Jeanne B. Hall	2.1575
S12	05-23-08	Carl David & Suzanne L. Guseman	29.5
S13	05-23-9.3	Linda D. Greathouse	17.5
S14	05-23-11.1	John H. & Sonya D. Holliday	46.482
S15	05-23-11.4	Evelyn L. Hudson	10.879
S16	05-23-11.2	Evelyn Hudson	1.154
S17	05-23-11.3	Colin R. Yoho	11.29
S18	05-23-11.5	Roy F. Yoho	9.25
S19	05-25-18	Joseph Johnson, et ux (Life)	37.746
S20	05-25-18.1	Pamela Joan Ferrell, et vir	2.491
S21	05-25-19	Joseph Johnson, et ux (Life)	1.973
S22	05-25-17	Emily Jones Irrevocable Trust	22.79
S23	05-18-24	Duane Brunn	102.0
S24	05-18-23	Blaine E. Channing, et al	110.0
S25	05-18-20	Wayne E. Channing, et al	75.6
S26	05-18-31	Kenneth E. Rastall	6.94
S27	05-18-32	Kenneth E. Rastall	5.335
S28	05-17-12	James A. & Jill C. Corley	3.33
S29	05-17-10	James A. Corley, et al	92.61
S30	05-17-9.3	James A. Corley, et ux	12.478
S31	05-17-9.4	Vicki L. Bowen	60.3
S32	05-24-01	Linda L. Hendrickson	175.0
S33	05-24-5.1	James D. Watkins, et ux	4.6
S34	05-24-5.2	James D. Watkins, et ux	3.151
S35	05-23-7.1	H.J. Weigand, et ux	0.549
S36	05-23-7.2	H.J. Weigand, et ux	6.354
S37	05-24-5.5	H.J. Weigand, et ux	17.194
S38	05-24-5.3	Thomas V. Tuttle, et ux	8.543
S39	05-24-5.4	Thomas V. Tuttle, et ux	38.224
S40	05-23-8.1	William & Virginia Roupe	34.0
S41	05-23-04	Abe J. Hochstetler	100.7235
S42	05-25-1.3	Michael E. & Annie A. Chapman	26.2
S43	05-25-1.2	William Jr. & Andrea J. Dubiel	20.1
S44	05-25-1.1	Ryan A. & Jacqueline E. Layman	9.79
S45	05-25-13.3	William M. Sr. & Cynthia A. Ferda	17.21
S46	05-25-1.5	Ryan J. Bratton	21.35
S47	05-25-1.3	Nicholas J. & Debra L. Klug	16.014
S48	05-25-12.1	Kent & Betty Mason	15.0
S49	05-25-13.2	David A. Klug	5.89

Number	TAX MAP-PARCEL	ADJOINER OWNER	ACRES
S50	05-25-01	Michael L. Mason	35.43
S51	05-25-14	Roy F. Yoho	23.0
S52	05-25-16	Emily Jones Irrevocable Trust	23.5
S53	05-25-16.2	Rodney J. Loy	1.087
S54	05-26-12.1	Alvin F. Jr. & Kristen R. Stoneking	2.011
S55	05-26-13	Marjorie Ann Stoneking (Life)	40.0
S56	05-26-10	Robert D. & Bonnie L. Oliver Family Trust	24.94
S57	05-26-09	Robert D. & Bonnie L. Oliver Family Trust	21.75
S58	05-26-08	Richard Joseph Otte, et ux	18.27
S59	05-26-20	Donald Lee Anderson, et al	4.2
S60	05-26-21	Richard Joseph Otte, et ux	1.25
S61	05-26-22	Richard Joseph Otte, et ux	8.3
S62	05-23-12	Mark A. Yoho	3.05
S63	05-23-13.1	James R. & Pamela J. Ferrell	0.7625
S64	05-23-13	Linda D. Greathouse	14.24
S65	05-23-9.2	Linda D. Greathouse	25.58
S66	05-23-9.4	Jackson R. Sr. & Deanna L. Davis	2.087
S67	05-23-9.1	John W. Van Orden	23.376
S68	05-23-14	Dominion Transmission, Inc.	59.5
S69	05-23-15	Virginia Ethel Henry Est.	15.5
S70	05-23-16.1	Donald B. Henry	1.97
S71	05-23-16	Roy Friend Yoho Sr.	18.03
S72	05-23-18	Abe J. Hochstetler	35.382
S73	05-23-01	Patricia Accettolo, et al	146.66
S74	05-23-17.3	William & Katherine Flewelling	5.018
S75	05-23-17	Tammy & Thomas E. Brown	4.62
S76	05-23-17.4	Tammy D. Meadows	2.605
S77	05-23-17.2	Dick Jr. & Carol J. Rowan	14.92
S78	05-23-17.1	Curtis E. Hall, et ux	10.051
S79	05-23-18.1	Mark A. Yoho	7.8
S80	05-25-11.9	Bryan L. Huggins	1.835
S81	05-25-11	Roy F. Yoho	3.445
S82	05-25-20.3	James A. & Jo C. Estep	4.49
S83	05-25-20.2	James M. Zombatti	1.347
S84	05-25-20.1	James M. Zombatti	2.746
S85	05-23-11.6	T.H. Exploration II, LLC & Atinum Marcellus I, LLC	0.094
S86	05-18-30	Jon Schmidt, et al	5.46
S87	05-18-13.10	Carl Berg	10.88
S88	05-18-29	Carl B. Berg	5.319
S89	05-18-32.1	Lori D. Carpenter	1.165
S90	05-18-13.8	Lori D. Carpenter	5.545
S91	05-17-12.1	Williams Ohio Valley Midstream, LLC	1.67
S92	05-17-10.5	Williams Ohio Valley Midstream, LLC	4.24



P.S. 708

David L Jackson



TUG HILL
OPERATING

OPERATOR'S
WELL #: Hillrock 4HM
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

WELL PLAT
PAGE 2 OF 2
DATE: 06/04/2018
REVISED DATE:
08/03/2018

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

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

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

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
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*See attached pages

RECEIVED
Office of Oil and Gas

JUN 11 2018

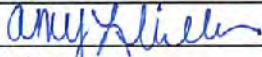
WV Department of
Environmental Protection

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

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

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

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

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

WW-6A1 Supplement

Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*14140	A	5-23-7	TERRY E SIMMS AND DEBORAH L SIMMS	TRIENERGY, INC	1/8+	666	529	NA	20/348 Trienergy, Inc to AB Resources LLC	21/491 AB Resources LLC to Chief Exploration & Development LLC	685/643 Chief Exploration & Development and Radler 2000 Limited Partnership to Enerplus Resources Corp	24/39 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources Corp to 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*14126	B	5-17-11	SHARON MIDCAP	GASTAR EXPLORATION USA, INC	1/8+	697	152	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*17186	C	5-23-6	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	708	51	NA	NA	NA	NA	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17145	D	5-18-21	JAMES J. CAMPBELL BETTY J. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17146	D	5-18-21	CAROLYN CAMPBELL BRITTON ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17147	D	5-18-21	JOANN J. PARSONS GARY D. PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17148	D	5-18-21	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17149	D	5-18-21	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17150	D	5-18-21	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*22169	D	5-18-21	BARBARA KITTLE	TH EXPLORATION, LLC	1/8+	954	641	NA	NA	NA	NA	NA	NA	NA
10*22169	E	5-18-21.1	BARBARA KITTLE	TH EXPLORATION, LLC	1/8+	954	641	NA	NA	NA	NA	NA	NA	NA
10*17145	E	5-18-21.1	JAMES J. CAMPBELL BETTY J. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17146	E	5-18-21.1	CAROLYN CAMPBELL BRITTON ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17147	E	5-18-21.1	JOANN J. PARSONS GARY D. PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17148	E	5-18-21.1	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17149	E	5-18-21.1	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17150	E	5-18-21.1	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*14022	F	5-18-22	HOWARD N WAYNE SR AND WIFE	GASTAR EXPLORATION USA, INC	1/8+	665	384	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*14943	G	5-23-2.1	WILLIAM L WAYNE AND JANICE M W	TRIENERGY HOLDINGS, LLC	1/8+	706	87	NA	NA	NA	24/180 Trienergy Holdings LLC to NPAR LLC	756/332 NPAR LLC to Chevron USA Inc	32/370 Chevron USA Inc to Gastar Exploration Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*21415	H	5-23-3	ABE J HOCHSTETLER AND ANNA E HOCHSTETLER	TH EXPLORATION, LLC	1/8+	957	7	NA	NA	NA	NA	NA	NA	NA
10*17145	H	5-23-3	JAMES J. CAMPBELL BETTY J. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17146	H	5-23-3	CAROLYN CAMPBELL BRITTON ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC

RECEIVED
 Office of Oil and Gas
 JUN 11 2018
 4705 # 02055
 WV Department of Environmental Protection

4705102055

WW-6A1 Supplement

Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*17147	H	5-23-3	JOANN J. PARSONS GARY D. PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17148	H	5-23-3	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17149	H	5-23-3	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17150	H	5-23-3	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17145	I	5-23-4	JAMES J. CAMPBELL BETTY J. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17146	I	5-23-4	CAROLYN CAMPBELL BRITTON ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17147	I	5-23-4	JOANN J. PARSONS GARY D. PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17148	I	5-23-4	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17149	I	5-23-4	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17150	I	5-23-4	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*22332	I	5-23-4	DORIS WEST AND ROBERT WEST	TH EXPLORATION, LLC	1/8+	962	542	NA	NA	NA	NA	NA	NA	NA
10*22339	I	5-23-4	BETTY LEE HOWARD LOY	TH EXPLORATION, LLC	1/8+	963	392	NA	NA	NA	NA	NA	NA	NA
10*21222	I	5-23-4	PATRICIA J SHAW KELLER	TH EXPLORATION, LLC	1/8+	946	43	NA	NA	NA	NA	NA	NA	NA
10*21774	I	5-23-4	JOYCE KAY BURTON AND SAMUEL C BURTON	TH EXPLORATION, LLC	1/8+	957	467	NA	NA	NA	NA	NA	NA	NA
10*21415	I	5-23-4	ABE J HOCHSTETLER AND ANNA E HOCHSTETLER	TH EXPLORATION, LLC	1/8+	957	7	NA	NA	NA	NA	NA	NA	NA
10*22180	I	5-23-4	ANTHONY M AND CHANDRA TAYLOR	TH EXPLORATION, LLC	1/8+	949	186	NA	NA	NA	NA	NA	NA	NA
10*14845	I	5-23-4	STANLEY GUSTELY	GASTAR EXPLORATION USA, INC	1/8+	805	88	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration IL, LLC
10*14846	I	5-23-4	FAYE CAMPBELL	GASTAR EXPLORATION USA, INC	1/8+	805	91	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration IL, LLC
10*14849	I	5-23-4	DAVID GUSTELY	GASTAR EXPLORATION USA, INC	1/8+	806	265	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration IL, LLC
10*14850	I	5-23-4	CLARENCE EMERY	GASTAR EXPLORATION USA, INC	1/8+	805	94	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration IL, LLC
10*14851	I	5-23-4	JOHN OBLON	GASTAR EXPLORATION USA, INC	1/8+	806	262	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration IL, LLC
10*14852	I	5-23-4	JOHN A. EMERY	GASTAR EXPLORATION USA, INC	1/8+	806	259	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration IL, LLC

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Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*14853	I	5-23-4	DURWOOD WRIGHT	GASTAR EXPLORATION USA, INC	1/8+	809	507	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14854	I	5-23-4	CATHERINE HUMMEL	GASTAR EXPLORATION USA, INC	1/8+	809	512	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14855	I	5-23-4	JAMES D. DRAKE	GASTAR EXPLORATION USA, INC	1/8+	808	445	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14856	I	5-23-4	GATHA CHAMBERS	GASTAR EXPLORATION USA, INC	1/8+	808	454	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14860	I	5-23-4	KATHLEEN ROBERTSON	GASTAR EXPLORATION USA, INC	1/8+	809	522	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14861	I	5-23-4	NANCY WHITLATCH	GASTAR EXPLORATION USA, INC	1/8+	809	526	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14862	I	5-23-4	ANN GUSTELY	GASTAR EXPLORATION USA, INC	1/8+	809	568	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14863	I	5-23-4	WILLIAM DAVIS CULLUM	GASTAR EXPLORATION USA, INC	1/8+	809	561	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14864	I	5-23-4	CAROLYN DURWAY	GASTAR EXPLORATION USA, INC	1/8+	810	330	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14865	I	5-23-4	VICKY STRAUSS	GASTAR EXPLORATION USA, INC	1/8+	810	325	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14866	I	5-23-4	GARY CARMICHAEL	GASTAR EXPLORATION USA, INC	1/8+	810	316	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14868	I	5-23-4	WOODROW CAMPBELL, JR.	GASTAR EXPLORATION USA, INC	1/8+	813	454	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14869	I	5-23-4	RALPH VAUGHN TAYLOR	GASTAR EXPLORATION USA, INC	1/8+	813	561	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14870	I	5-23-4	DAVID CARMICHAEL	GASTAR EXPLORATION USA, INC	1/8+	816	16	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14871	I	5-23-4	BETTY PYSSELL	GASTAR EXPLORATION USA, INC	1/8+	816	348	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14872	I	5-23-4	DWVG OIL AND GAS ACQUISITIONS,	GASTAR EXPLORATION USA, INC	1/8+	817	312	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14877	I	5-23-4	GARY OBLOY	GASTAR EXPLORATION, INC	1/8+	836	112	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14878	I	5-23-4	ARTHUR BRUCE COULTER	GASTAR EXPLORATION, INC	1/8+	839	519	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14879	I	5-23-4	RAYMOND MILLER	GASTAR EXPLORATION USA, INC	1/8+	821	44	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14874	I	5-23-4	RICHARD MILLER	GASTAR EXPLORATION, INC	1/8+	822	260	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14875	I	5-23-4	DAVID DRAKE	GASTAR EXPLORATION, INC	1/8+	827	273	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14876	I	5-23-4	SHIRLEY LARGENT	GASTAR EXPLORATION, INC	1/8+	827	228	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC

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WV Department of
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WW-6A1 Supplement

Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*14879	I	5-23-4	THERESA RINE	GASTAR EXPLORATION, INC	1/8+	840	162	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14880	I	5-23-4	IRIS LUCAS	GASTAR EXPLORATION, INC	1/8+	849	545	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14881	I	5-23-4	MARY WHITLATCH	GASTAR EXPLORATION, INC	1/8+	849	548	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14882	I	5-23-4	GARY RINE	GASTAR EXPLORATION, INC	1/8+	849	551	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14883	I	5-23-4	PAUL WISE	GASTAR EXPLORATION, INC	1/8+	852	252	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14884	I	5-23-4	RENEE HAGERTY	GASTAR EXPLORATION, INC	1/8+	852	255	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14885	I	5-23-4	HOWARD RINE	GASTAR EXPLORATION, INC	1/8+	854	601	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14886	I	5-23-4	JODI YOHO	GASTAR EXPLORATION, INC	1/8+	854	604	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14887	I	5-23-4	CHRISTINA ROBERTS	GASTAR EXPLORATION, INC	1/8+	867	392	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14888	I	5-23-4	DARLENE BUTLER	GASTAR EXPLORATION, INC	1/8+	867	395	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14889	I	5-23-4	HAROLD YOHO	GASTAR EXPLORATION, INC	1/8+	870	37	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14890	I	5-23-4	HENRY MALONE JR	GASTAR EXPLORATION, INC	1/8+	870	40	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14891	I	5-23-4	NANCY F FYE AND STEPHEN M FYE	GASTAR EXPLORATION, INC	1/8+	885	606	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*16034	I	5-23-4	GASTON FAMILY INVESTMENTS LLC	TH EXPLORATION, LLC	1/8+	959	502	NA	NA	NA	NA	NA	NA
10*17502	I	5-23-4	PATRICIA E GUSTELY	TH EXPLORATION, LLC	1/8+	942	334	NA	NA	NA	NA	NA	NA
10*17532	I	5-23-4	DONALD S BOBOVNIK AND DOLORES J BOBOVNIK	TH EXPLORATION, LLC	1/8+	942	346	NA	NA	NA	NA	NA	NA
10*17539	I	5-23-4	JOANN HAGERTY	TH EXPLORATION, LLC	1/8+	942	342	NA	NA	NA	NA	NA	NA
10*17535	I	5-23-4	RONALD L MAYER AND DEBRA A MAYER	TH EXPLORATION, LLC	1/8+	929	580	NA	NA	NA	NA	NA	NA
10*17593	I	5-23-4	REBECCA HAGERTY	TH EXPLORATION, LLC	1/8+	942	350	NA	NA	NA	NA	NA	NA
10*17594	I	5-23-4	MEGAN HAGERTY	TH EXPLORATION, LLC	1/8+	942	362	NA	NA	NA	NA	NA	NA
10*17595	I	5-23-4	THOMAS E RINE AND MARY F RINE	TH EXPLORATION, LLC	1/8+	929	572	NA	NA	NA	NA	NA	NA
10*17640	I	5-23-4	PATRICIA A GARCAR	TH EXPLORATION, LLC	1/8+	942	8	NA	NA	NA	NA	NA	NA

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WV Department of
Environmental Protection

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WW-6A1 Supplement

Operator's Well No. Hillrock - 4HM

Lease No.	Tag	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*17679	I	5-23-4	NORMA J ASH	TH EXPLORATION, LLC	1/8+	944	130	NA	NA	NA	NA	NA	NA	NA
10*17680	I	5-23-4	DAVID E CHURCH	TH EXPLORATION, LLC	1/8+	932	424	NA	NA	NA	NA	NA	NA	NA
10*17681	I	5-23-4	WALTER E LOSEY AND CINDY L LOSEY	TH EXPLORATION, LLC	1/8+	942	338	NA	NA	NA	NA	NA	NA	NA
10*17682	I	5-23-4	JAMES E GARLOCH AND MARY K GARLOCH	TH EXPLORATION, LLC	1/8+	935	68	NA	NA	NA	NA	NA	NA	NA
10*17683	I	5-23-4	PATRICK HAGERTY AND DALANE HAGERTY	TH EXPLORATION, LLC	1/8+	942	358	NA	NA	NA	NA	NA	NA	NA
10*17715	I	5-23-4	ROBERT A SANDS AND JOYCE A SANDS	TH EXPLORATION, LLC	1/8+	942	354	NA	NA	NA	NA	NA	NA	NA
10*17719	I	5-23-4	ROBERT R DARROW	TH EXPLORATION, LLC	1/8+	942	380	NA	NA	NA	NA	NA	NA	NA
10*17720	I	5-23-4	WILLIAM KOTSON AND DEBRA KOTSON	TH EXPLORATION, LLC	1/8+	938	507	NA	NA	NA	NA	NA	NA	NA
10*17775	I	5-23-4	HAROLD H HAGERTY AND DEBORAH M HAGERTY	TH EXPLORATION, LLC	1/8+	942	370	NA	NA	NA	NA	NA	NA	NA
10*17776	I	5-23-4	JAMES GARCAR AND MELISSA GARCAR	TH EXPLORATION, LLC	1/8+	941	627	NA	NA	NA	NA	NA	NA	NA
10*17824	I	5-23-4	SARA FULTON	TH EXPLORATION, LLC	1/8+	942	384	NA	NA	NA	NA	NA	NA	NA
10*17901	I	5-23-4	ROBYN HAGERTY	TH EXPLORATION, LLC	1/8+	924	602	NA	NA	NA	NA	NA	NA	NA
10*17965	I	5-23-4	ROBERT DAVID BARNES AND RHONDA BARNES	TH EXPLORATION, LLC	1/8+	942	366	NA	NA	NA	NA	NA	NA	NA
10*18042	I	5-23-4	JOSEPH J ONORE	TH EXPLORATION, LLC	1/8+	927	101	NA	NA	NA	NA	NA	NA	NA
10*18043	I	5-23-4	JAMES M ONORE AND CINDY L ONORE	TH EXPLORATION, LLC	1/8+	927	105	NA	NA	NA	NA	NA	NA	NA
10*18176	I	5-23-4	CRYSTAL M HOOKER AND JAMES HOOKER	TH EXPLORATION, LLC	1/8+	929	568	NA	NA	NA	NA	NA	NA	NA
10*18247	I	5-23-4	MILDRED S KIRKPATRICK	TH EXPLORATION, LLC	1/8+	917	132	NA	NA	NA	NA	NA	NA	NA
10*18320	I	5-23-4	SAMUEL F HENRY	TH EXPLORATION, LLC	1/8+	931	246	NA	NA	NA	NA	NA	NA	NA
10*18598	I	5-23-4	MARK E GUSTELY	TH EXPLORATION, LLC	1/8+	935	52	NA	NA	NA	NA	NA	NA	NA
10*18329	I	5-23-4	COLLEEN HAGERTY	TH EXPLORATION, LLC	1/8+	929	560	NA	NA	NA	NA	NA	NA	NA
10*18367	I	5-23-4	WALTER C SCHUBERT AND BARBARA A SCHUBERT	TH EXPLORATION, LLC	1/8+	931	377	NA	NA	NA	NA	NA	NA	NA
10*18368	I	5-23-4	ROBERTA K MILLER	TH EXPLORATION, LLC	1/8+	931	457	NA	NA	NA	NA	NA	NA	NA

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JUN 11 2018

WV Department of
Environmental Protection

4705102055

WW-6A1 Supplement

Operator's Well No. Hillrock - 4HM

Lessee No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*18386	I	5-23-4	JOSEPH R RINE AND JENNIFER M RINE	TH EXPLORATION, LLC	1/8+	932	492	NA	NA	NA	NA	NA	NA	NA
10*18795	I	5-23-4	GASTON FAMILY INVESTMENTS LLC	TH EXPLORATION, LLC	1/8+	959	502	NA	NA	NA	NA	NA	NA	NA
10*21217	I	5-23-4	KEITH JAY FISCHER AND DAWN M FISCHER	TH EXPLORATION, LLC	1/8+	952	643	NA	NA	NA	NA	NA	NA	NA
10*18994	I	5-23-4	SHIRLEY ANN DRAKE	TH EXPLORATION, LLC	1/8+	940	137	NA	NA	NA	NA	NA	NA	NA
10*19736	I	5-23-4	DOROTHY HLINKA	TH EXPLORATION, LLC	1/8+	944	571	NA	NA	NA	NA	NA	NA	NA
10*21425	I	5-23-4	ORIE N YOUNG AND BERNIE A YOUNG	TH EXPLORATION, LLC	1/8+	957	29	NA	NA	NA	NA	NA	NA	NA
10*21428	I	5-23-4	FRANCIS R SMITH AND ANNA M SMITH	TH EXPLORATION, LLC	1/8+	957	37	NA	NA	NA	NA	NA	NA	NA
10*21434	I	5-23-4	CATHERINE HUMMEL	TH EXPLORATION, LLC	1/8+	957	35	NA	NA	NA	NA	NA	NA	NA
10*21451	I	5-23-4	RICHARD RICH AND KAREN RICH	TH EXPLORATION, LLC	1/8+	954	254	NA	NA	NA	NA	NA	NA	NA
10*21452	I	5-23-4	KIMBERLY COX	TH EXPLORATION, LLC	1/8+	954	262	NA	NA	NA	NA	NA	NA	NA
10*21457	I	5-23-4	WARREN L COULTER AND ROSUNA A COULTER	TH EXPLORATION, LLC	1/8+	954	249	NA	NA	NA	NA	NA	NA	NA
10*21458	I	5-23-4	HUSTON A SMITH JR AND ANN C SMITH	TH EXPLORATION, LLC	1/8+	957	45	NA	NA	NA	NA	NA	NA	NA
10*21459	I	5-23-4	JAMES L CHURCH	TH EXPLORATION, LLC	1/8+	957	41	NA	NA	NA	NA	NA	NA	NA
10*21498	I	5-23-4	MABEL SHILLINGBURG AND CLIFFORD SHILLINGBURG	TH EXPLORATION, LLC	1/8+	954	258	NA	NA	NA	NA	NA	NA	NA
10*21500	I	5-23-4	MATTHEW COULTER AND SIMONE COULTER	TH EXPLORATION, LLC	1/8+	954	245	NA	NA	NA	NA	NA	NA	NA
10*21501	I	5-23-4	EUGENIA E HOUSER	TH EXPLORATION, LLC	1/8+	954	241	NA	NA	NA	NA	NA	NA	NA
10*21502	I	5-23-4	DEBRA MURIN	TH EXPLORATION, LLC	1/8+	954	237	NA	NA	NA	NA	NA	NA	NA
10*21503	I	5-23-4	DARLENE M DAVIS	TH EXPLORATION, LLC	1/8+	954	233	NA	NA	NA	NA	NA	NA	NA
10*21626	I	5-23-4	CLARENCE RANDALL EMERY AND PAULA JEAN EMERY	TH EXPLORATION, LLC	1/8+	958	944	NA	NA	NA	NA	NA	NA	NA
10*21631	I	5-23-4	FAYE CAMPBELL	TH EXPLORATION, LLC	1/8+	959	943	NA	NA	NA	NA	NA	NA	NA
10*21632	I	5-23-4	JOHN ARLES EMERY	TH EXPLORATION, LLC	1/8+	959	339	NA	NA	NA	NA	NA	NA	NA
10*21655	I	5-23-4	STANLEY GUSTELY	TH EXPLORATION, LLC	1/8+	959	335	NA	NA	NA	NA	NA	NA	NA

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WV Department of
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4705102055

WW-6A1 Supplement

Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*21656	I	5-23-4	JOHN OBLON AND JANET L OBLON	TH EXPLORATION, LLC	1/8+	959	331	NA	NA	NA	NA	NA	NA	NA
10*21657	I	5-23-4	RONALD J SALKOVICK JR & SANDRA SALKOVICK	TH EXPLORATION, LLC	1/8+	958	373	NA	NA	NA	NA	NA	NA	NA
10*21813	I	5-23-4	STUART WHITE AND BETTY WHITE	TH EXPLORATION, LLC	1/8+	958	352	NA	NA	NA	NA	NA	NA	NA
10*21815	I	5-23-4	JAMES NEAL EMERY AND RENEE R EMERY	TH EXPLORATION, LLC	1/8+	958	348	NA	NA	NA	NA	NA	NA	NA
10*21816	I	5-23-4	CINDY GREEN AND LARRY GREEN	TH EXPLORATION, LLC	1/8+	958	356	NA	NA	NA	NA	NA	NA	NA
10*21817	I	5-23-4	MARY LOU HLINKA AND RICHARD G HLINKA SR	TH EXPLORATION, LLC	1/8+	959	514	NA	NA	NA	NA	NA	NA	NA
10*21819	I	5-23-4	MARY CATHERINE THOMS OTT	TH EXPLORATION, LLC	1/8+	958	360	NA	NA	NA	NA	NA	NA	NA
10*21820	I	5-23-4	MARION DAVID OTT & JANICE L OTT	TH EXPLORATION, LLC	1/8+	959	506	NA	NA	NA	NA	NA	NA	NA
10*21832	I	5-23-4	MARQUITA CLYBURN	TH EXPLORATION, LLC	1/8+	959	510	NA	NA	NA	NA	NA	NA	NA
10*21948	I	5-23-4	BARBARA H COAKLEY	TH EXPLORATION, LLC	1/8+	960	66	NA	NA	NA	NA	NA	NA	NA
10*21949	I	5-23-4	ROBIN ADAIR GUMP AND LOUIS M GUMP	TH EXPLORATION, LLC	1/8+	960	70	NA	NA	NA	NA	NA	NA	NA
10*21951	I	5-23-4	CHARLES DOUGLAS LANE	TH EXPLORATION, LLC	1/8+	960	77	NA	NA	NA	NA	NA	NA	NA
10*21994	I	5-23-4	MELISSA L DARRROW	TH EXPLORATION, LLC	1/8+	954	328	NA	NA	NA	NA	NA	NA	NA
10*22026	I	5-23-4	KEVIN D CHURCH	TH EXPLORATION, LLC	1/8+	957	49	NA	NA	NA	NA	NA	NA	NA
10*22013	I	5-23-4	CHARLES J KNOX	TH EXPLORATION, LLC	1/8+	966	112	NA	NA	NA	NA	NA	NA	NA
10*22014	I	5-23-4	SHERMAN E KNOX JR	TH EXPLORATION, LLC	1/8+	966	108	NA	NA	NA	NA	NA	NA	NA
10*22028	I	5-23-4	KATHLEEN ROBERTSON	TH EXPLORATION, LLC	1/8+	960	539	NA	NA	NA	NA	NA	NA	NA
10*22027	I	5-23-4	STEPHEN C EMERY AND CATHY J EMERY	TH EXPLORATION, LLC	1/8+	954	310	NA	NA	NA	NA	NA	NA	NA
10*22093	I	5-23-4	TODD LEARN AND KENDA LEARN	TH EXPLORATION, LLC	1/8+	954	314	NA	NA	NA	NA	NA	NA	NA
10*22102	I	5-23-4	BONNIE LOU GRUBER	TH EXPLORATION, LLC	1/8+	954	302	NA	NA	NA	NA	NA	NA	NA
10*22178	I	5-23-4	ANGELA AND WILLIAM R HENTHORN	TH EXPLORATION, LLC	1/8+	949	196	NA	NA	NA	NA	NA	NA	NA
10*22128	I	5-23-4	BETTY PSELL	TH EXPLORATION, LLC	1/8+	961	433	NA	NA	NA	NA	NA	NA	NA

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Operator's Well No. Hillrock - 4HM

Lease No.	Tag	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*22144	I	5-23-4	VICKY AND DENNIS STRAUSS	TH EXPLORATION, LLC	1/8+	961	429	NA	NA	NA	NA	NA	NA
10*22165	I	5-23-4	DEBRA L LYESKI AND GERALD A LYESKI	TH EXPLORATION, LLC	1/8+	954	306	NA	NA	NA	NA	NA	NA
10*22181	I	5-23-4	BRIAN S AND CAROLYN SUE TAYLOR	TH EXPLORATION, LLC	1/8+	949	191	NA	NA	NA	NA	NA	NA
10*22779	I	5-23-4	STEVEN WADE	TH EXPLORATION, LLC	1/8+	968	424	NA	NA	NA	NA	NA	NA
10*22436	I	5-23-4	TESSEAN FAMILY REVOCABLE TRUST	TH EXPLORATION, LLC	1/8+	963	626	NA	NA	NA	NA	NA	NA
10*22443	I	5-23-4	GATHA CHAMBERS	TH EXPLORATION, LLC	1/8+	963	622	NA	NA	NA	NA	NA	NA
10*22503	I	5-23-4	KENNETH R AND DONNA K SHAW	TH EXPLORATION, LLC	1/8+	966	518	NA	NA	NA	NA	NA	NA
10*22505	I	5-23-4	JAMES D AND DONNA K DRAKE	TH EXPLORATION, LLC	1/8+	964	425	NA	NA	NA	NA	NA	NA
10*22594	I	5-23-4	JAMES WADE	TH EXPLORATION, LLC	1/8+	965	481	NA	NA	NA	NA	NA	NA
10*22609	I	5-23-4	KATHY JO CULLUM	TH EXPLORATION, LLC	1/8+	966	514	NA	NA	NA	NA	NA	NA
10*22613	I	5-23-4	JEWEL L CAMPBELL	TH EXPLORATION, LLC	1/8+	966	510	NA	NA	NA	NA	NA	NA
10*22809	I	5-23-4	MARGARET AND WILLIAM MCMURRAY	TH EXPLORATION, LLC	1/8+	972	54	NA	NA	NA	NA	NA	NA
10*22812	I	5-23-4	JOSEPH F GOBLOWSKY	TH EXPLORATION, LLC	1/8+	968	428	NA	NA	NA	NA	NA	NA
10*22861	I	5-23-4	LAURINE C AND EDGAR A CURTIS	TH EXPLORATION, LLC	1/8+	976	147	NA	NA	NA	NA	NA	NA
10*17145	J	5-23-5	JAMES J. CAMPBELL BETTY J. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	NA	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*17192	K	5-23-8	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	193	NA	29/325 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC merge SWN Production Company LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC
10*19722	K	5-23-8	MASTER MINERAL HOLDINGS I LP	AMERICAN PETROLEUM PARTNERS LLC	1/8+	912	105	NA	NA	NA	NA	NA	40/408 American Petroleum Partners Operating LLC to TH Exploration LLC
10*17189	L	5-23-9.3	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	197	NA	NA	29/325 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*19903	M	5-23-11.1	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA
10*22441	M	5-23-11.1	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA
10*22510	M	5-23-11.1	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA
10*19652	M	5-23-11.1	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	103	NA	NA	NA	NA	NA	NA

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Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*22129	M	5-23-11.1	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA
10*22008	M	5-23-11.1	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA
10*22025	M	5-23-11.1	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA
10*14785	M	5-23-11.1	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14797	M	5-23-11.1	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	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	M	5-23-11.1	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14815	M	5-23-11.1	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14822	M	5-23-11.1	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14823	M	5-23-11.1	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*18275	M	5-23-11.1	BETTY JEAN NEELY	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA
10*18366	M	5-23-11.1	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA
10*18369	M	5-23-11.1	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA
10*18370	M	5-23-11.1	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA
10*18379	M	5-23-11.1	DAVID H DEVACK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA
10*19540	M	5-23-11.1	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA
10*19903	N	5-23-11.4	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA
10*22441	N	5-23-11.4	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA
10*22510	N	5-23-11.4	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA
10*19652	N	5-23-11.4	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA
10*22334	N	5-23-11.4	JOHN BRYANT	TH EXPLORATION, LLC	1/8+	962	540	NA	NA	NA	NA	NA	NA
10*22718	N	5-23-11.4	WILLIAM R AND CONNIE RICHMOND	TH EXPLORATION, LLC	1/8+	963	389	NA	NA	NA	NA	NA	NA
10*19662	N	5-23-11.4	CHESTNUT HOLDINGS INC	TH EXPLORATION, LLC	1/8+	949	311	NA	NA	NA	NA	NA	NA

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JUN 11 2018

WV Department of
Environmental Protection

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WW-6A1 Supplement

Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*17195	N	5-23-11.4	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17196	N	5-23-11.4	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17197	N	5-23-11.4	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17199	N	5-23-11.4	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17200	N	5-23-11.4	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17201	N	5-23-11.4	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17202	N	5-23-11.4	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17203	N	5-23-11.4	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	287	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17204	N	5-23-11.4	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17206	N	5-23-11.4	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17207	N	5-23-11.4	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17210	N	5-23-11.4	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17211	N	5-23-11.4	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17212	N	5-23-11.4	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17213	N	5-23-11.4	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*19652	N	5-23-11.4	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA
10*19903	N	5-23-11.4	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
10*21073	N	5-23-11.4	ARDITH R ROSE AND TOMMY E ROSE	TH EXPLORATION, LLC	1/8+	951	608	NA	NA	NA	NA	NA	NA	NA
10*21944	N	5-23-11.4	HILL A BECK	TH EXPLORATION, LLC	1/8+	960	101	NA	NA	NA	NA	NA	NA	NA
10*22454	N	5-23-11.4	EDWIN NELSON WOOD	TH EXPLORATION, LLC	1/8+	963	637	NA	NA	NA	NA	NA	NA	NA
10*22585	N	5-23-11.4	CYNTHIA L CHICK	TH EXPLORATION, LLC	1/8+	966	102	NA	NA	NA	NA	NA	NA	NA
10*14969	N	5-23-11.4	REBECCA S WORD	GASTAR EXPLORATION, INC	1/8+	872	219	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC

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WW-6A1 Supplement

Operator's Well No. Hillrock - 4HM

Lease No.	Trgs	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*14970	N	5-23-11.4	GRACE EXLINE	GASTAR EXPLORATION, INC	1/8+	872	623	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC	
10*18541	N	5-23-11.4	PATRICK P MCHENRY	TH EXPLORATION, LLC	1/8+	933	649	NA	NA	NA	NA	NA	NA	NA	
10*18818	N	5-23-11.4	LUCILLE R MCHENRY	TH EXPLORATION, LLC	1/8+	937	624	NA	NA	NA	NA	NA	NA	NA	
10*19732	N	5-23-11.4	CARL M MCHENRY AND PAMELA MCHENRY	TH EXPLORATION, LLC	1/8+	944	469	NA	NA	NA	NA	NA	NA	NA	
10*19996	N	5-23-11.4	CHARLES D WOOD	TH EXPLORATION, LLC	1/8+	947	589	NA	NA	NA	NA	NA	NA	NA	
10*21074	N	5-23-11.4	MALCOLM E WOOD AND JOAN J WOOD	TH EXPLORATION, LLC	1/8+	951	610	NA	NA	NA	NA	NA	NA	NA	
10*21174	N	5-23-11.4	SHAWN M WOOD	TH EXPLORATION, LLC	1/8+	952	190	NA	NA	NA	NA	NA	NA	NA	
10*22025	N	5-23-11.4	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA	
10*14786	N	5-23-11.4	TWILA ORA WHEPKY	GASTAR EXPLORATION USA, INC	1/8+	799	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
10*14785	N	5-23-11.4	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	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*14792	N	5-23-11.4	TIMOTHY YOHO	GASTAR EXPLORATION USA, INC	1/8+	799	536	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*14796	N	5-23-11.4	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC	1/8+	799	540	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*14806	N	5-23-11.4	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	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*14807	N	5-23-11.4	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	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*14809	N	5-23-11.4	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	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*14805	N	5-23-11.4	HAROLD C. SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	803	148	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*14808	N	5-23-11.4	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	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*14810	N	5-23-11.4	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	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*14812	N	5-23-11.4	DENISE ANN GALE	GASTAR EXPLORATION USA, INC	1/8+	815	224	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*14813	N	5-23-11.4	DEBRA JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	818	568	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*14822	N	5-23-11.4	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC	
10*14823	N	5-23-11.4	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC	

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*17822	N	5-23-11.4	ANTOINE E GERALD	TH EXPLORATION, LLC	1/8+	943	560	NA	NA	NA	NA	NA	NA
10*18114	N	5-23-11.4	DARRELL NEWLAND	TH EXPLORATION, LLC	1/8+	927	66	NA	NA	NA	NA	NA	NA
10*18115	N	5-23-11.4	DONALD R NEWLAND AND SUZANNE NEWLAND	TH EXPLORATION, LLC	1/8+	927	73	NA	NA	NA	NA	NA	NA
10*18369	N	5-23-11.4	CRAIG ALAN YOHO AND DOKNA M YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA
10*18370	N	5-23-11.4	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA
10*18379	N	5-23-11.4	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA
10*19486	N	5-23-11.4	BARBARA ANN MAYNARD	TH EXPLORATION, LLC	1/8+	941	229	NA	NA	NA	NA	NA	NA
10*19540	N	5-23-11.4	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA
10*19543	N	5-23-11.4	ROBERT I BONAR SR	TH EXPLORATION, LLC	1/8+	942	61	NA	NA	NA	NA	NA	NA
10*19640	N	5-23-11.4	MARGARET F RICHMOND	TH EXPLORATION, LLC	1/8+	944	120	NA	NA	NA	NA	NA	NA
10*19641	N	5-23-11.4	BRADFORD D LOWERY & DEBORAH BRADFORD	TH EXPLORATION, LLC	1/8+	944	122	NA	NA	NA	NA	NA	NA
10*19650	N	5-23-11.4	CLAUDIA LOWERY MALLOY	TH EXPLORATION, LLC	1/8+	944	99	NA	NA	NA	NA	NA	NA
10*19657	N	5-23-11.4	JANET LEE SPARKS	TH EXPLORATION, LLC	1/8+	964	440	NA	NA	NA	NA	NA	NA
10*19858	N	5-23-11.4	JAMES MICHAEL YOHO	TH EXPLORATION, LLC	1/8+	960	388	NA	NA	NA	NA	NA	NA
10*21419	N	5-23-11.4	DAPHNE HUFFMAN AND CHARLES HUFFMAN	TH EXPLORATION, LLC	1/8+	957	59	NA	NA	NA	NA	NA	NA
10*21436	N	5-23-11.4	CECILIA D NEWLAND	TH EXPLORATION, LLC	1/8+	957	55	NA	NA	NA	NA	NA	NA
10*21439	N	5-23-11.4	M VIRGINIA & EDWARD C MARSH	TH EXPLORATION, LLC	1/8+	957	53	NA	NA	NA	NA	NA	NA
10*21431	N	5-23-11.4	GARY WAYNE ZESIGER & VICKIE ZESIGER	TH EXPLORATION, LLC	1/8+	957	57	NA	NA	NA	NA	NA	NA
10*21469	N	5-23-11.4	KIMBERLY S DENNY AND JAMES E DENNY	TH EXPLORATION, LLC	1/8+	957	244	NA	NA	NA	NA	NA	NA
10*21471	N	5-23-11.4	RICHARD ROSS WILSON	TH EXPLORATION, LLC	1/8+	960	190	NA	NA	NA	NA	NA	NA
10*21620	N	5-23-11.4	ROBERT CRAIG MONTGOMERY AND CYNTHIA R MONTGOMERY	TH EXPLORATION, LLC	1/8+	959	496	NA	NA	NA	NA	NA	NA
10*21621	N	5-23-11.4	MARILYN NOEL	TH EXPLORATION, LLC	1/8+	959	494	NA	NA	NA	NA	NA	NA

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Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*21658	N	5-23-11.4	CLARENCE RICHARD ZESIGER & MARY ZESIGER	TH EXPLORATION, LLC	1/8+	959	490	NA	NA	NA	NA	NA	NA	NA
10*21659	N	5-23-11.4	DEBORAH BLOUGH	TH EXPLORATION, LLC	1/8+	958	392	NA	NA	NA	NA	NA	NA	NA
10*21660	N	5-23-11.4	PAMELA L DRAZIC AND JEFFREY DRAZIC	TH EXPLORATION, LLC	1/8+	958	390	NA	NA	NA	NA	NA	NA	NA
10*21830	N	5-23-11.4	MARISSA MASON	TH EXPLORATION, LLC	1/8+	960	200	NA	NA	NA	NA	NA	NA	NA
10*22008	N	5-23-11.4	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA
10*21831	N	5-23-11.4	MATTHEW MASON	TH EXPLORATION, LLC	1/8+	966	122	NA	NA	NA	NA	NA	NA	NA
10*21834	N	5-23-11.4	GEORGE DANIEL KRUGER	TH EXPLORATION, LLC	1/8+	960	204	NA	NA	NA	NA	NA	NA	NA
10*22129	N	5-23-11.4	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA
10*21947	N	5-23-11.4	WALLACE LYNN WENDEL	TH EXPLORATION, LLC	1/8+	965	59	NA	NA	NA	NA	NA	NA	NA
10*22007	N	5-23-11.4	DEBORAH K KLIMASZEWSKI AND FRANK KLIMASZEWSKI	TH EXPLORATION, LLC	1/8+	959	492	NA	NA	NA	NA	NA	NA	NA
10*22031	N	5-23-11.4	PHILIP YOHO AND PATRICIA YOHO	TH EXPLORATION, LLC	1/8+	960	555	NA	NA	NA	NA	NA	NA	NA
10*22032	N	5-23-11.4	IOANNE E RAY	TH EXPLORATION, LLC	1/8+	960	537	NA	NA	NA	NA	NA	NA	NA
10*22106	N	5-23-11.4	BARRY RAY MOORE	TH EXPLORATION, LLC	1/8+	954	643	NA	NA	NA	NA	NA	NA	NA
10*22137	N	5-23-11.4	CONNIE L NEELY	TH EXPLORATION, LLC	1/8+	961	466	NA	NA	NA	NA	NA	NA	NA
10*22285	N	5-23-11.4	DONALD J AND SANDY L WILSON	TH EXPLORATION, LLC	1/8+	962	193	NA	NA	NA	NA	NA	NA	NA
10*22561	N	5-23-11.4	MARY ROSE YOHO	TH EXPLORATION, LLC	1/8+	968	200	NA	NA	NA	NA	NA	NA	NA
10*22562	N	5-23-11.4	HAROLD C SIMMONS	TH EXPLORATION, LLC	1/8+	966	100	NA	NA	NA	NA	NA	NA	NA
10*22563	N	5-23-11.4	KIMBERLY D STRAUCH	TH EXPLORATION, LLC	1/8+	966	522	NA	NA	NA	NA	NA	NA	NA
10*14807	N	5-23-11.4	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14786	N	5-23-11.4	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14796	N	5-23-11.4	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC	1/8+	799	540	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14806	N	5-23-11.4	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC

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Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
10*14809	N	5-23-11.4	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	NA	NA	NA	NA	NA	21/41 Gestar Exploration USA Inc to Gestar Exploration, Inc	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14808	N	5-23-11.4	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA	NA	NA	NA	NA	21/41 Gestar Exploration USA Inc to Gestar Exploration, Inc	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14810	N	5-23-11.4	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA	NA	NA	NA	NA	21/41 Gestar Exploration USA Inc to Gestar Exploration, Inc	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*22008	N	5-23-11.4	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA
10*22025	N	5-23-11.4	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA
10*22129	N	5-23-11.4	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA
10*14785	N	5-23-11.4	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA	NA	NA	NA	NA	21/41 Gestar Exploration USA Inc to Gestar Exploration, Inc	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14797	N	5-23-11.4	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	NA	NA	NA	NA	21/41 Gestar Exploration USA Inc to Gestar Exploration, Inc	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14814	N	5-23-11.4	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	NA	NA	NA	NA	NA	NA	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14815	N	5-23-11.4	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14822	N	5-23-11.4	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14823	N	5-23-11.4	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*18275	N	5-23-11.4	BETTY JEAN NEELY	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA
10*18366	N	5-23-11.4	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA
10*18369	N	5-23-11.4	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA
10*18370	N	5-23-11.4	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA
10*18379	N	5-23-11.4	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
10*19540	N	5-23-11.4	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA
10*14785	O	5-23-11.3	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA	NA	NA	NA	NA	21/41 Gestar Exploration USA Inc to Gestar Exploration, Inc	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14797	O	5-23-11.3	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	NA	NA	NA	NA	21/41 Gestar Exploration USA Inc to Gestar Exploration, Inc	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14814	O	5-23-11.3	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	NA	NA	NA	NA	NA	NA	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC
10*14815	O	5-23-11.3	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	36/9 Gestar Exploration, Inc. to TH Exploration II, LLC

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Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*14822	O	5-23-11.3	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14823	O	5-23-11.3	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*18275	O	5-23-11.3	BETTY JEAN NEELY	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA
10*18366	O	5-23-11.3	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA
10*18369	O	5-23-11.3	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA
10*18370	O	5-23-11.3	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA
10*18379	O	5-23-11.3	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA	NA
10*19540	O	5-23-11.3	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA
10*14808	O	5-23-11.3	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14806	O	5-23-11.3	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA	NA	NA	NA	NA	22/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14807	O	5-23-11.3	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14809	O	5-23-11.3	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14786	O	5-23-11.3	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14810	O	5-23-11.3	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14796	O	5-23-11.3	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC	1/8+	799	540	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*22129	O	5-23-11.3	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA
10*22008	O	5-23-11.3	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA
10*22025	O	5-23-11.3	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA
10*17195	O	5-23-11.3	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC	41/238 Statoil USA Onshore Properties Inc. to TH Exploration, LLC
10*17196	O	5-23-11.3	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC	41/238 Statoil USA Onshore Properties Inc. to TH Exploration, LLC
10*17197	O	5-23-11.3	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC	41/238 Statoil USA Onshore Properties Inc. to TH Exploration, LLC
10*17199	O	5-23-11.3	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC	41/238 Statoil USA Onshore Properties Inc. to TH Exploration, LLC

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*17200	O	5-23-11.3	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17201	O	5-23-11.3	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17202	O	5-23-11.3	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17203	O	5-23-11.3	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17204	O	5-23-11.3	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17206	O	5-23-11.3	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17207	O	5-23-11.3	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17210	O	5-23-11.3	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17211	O	5-23-11.3	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17212	O	5-23-11.3	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17213	O	5-23-11.3	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*19652	D	5-23-11.3	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA
10*22441	O	5-23-11.3	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA	NA
10*22510	O	5-23-11.3	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA	NA
10*19903	D	5-23-11.3	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
10*14785	P	5-23-11.5	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14797	P	5-23-11.5	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14814	P	5-23-11.5	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14815	P	5-23-11.5	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14822	P	5-23-11.5	ORWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14823	P	5-23-11.5	SARAH I. BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*18275	P	5-23-11.5	BETTY JEAN NEELY	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA

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Lease No.	Type	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*18356	P	5-23-11.5	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA
10*18369	P	5-23-11.5	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA
10*18370	P	5-23-11.5	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA
10*18379	P	5-23-11.5	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
10*19540	P	5-23-11.5	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA	NA
10*14807	P	5-23-11.5	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*22129	P	5-23-11.5	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA
10*14808	P	5-23-11.5	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14809	P	5-23-11.5	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14806	P	5-23-11.5	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14786	P	5-23-11.5	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14810	P	5-23-11.5	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14796	P	5-23-11.5	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC	1/8+	799	540	NA	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*22025	P	5-23-11.5	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA
10*22008	P	5-23-11.5	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA
10*17195	P	5-23-11.5	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17196	P	5-23-11.5	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17197	P	5-23-11.5	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17199	P	5-23-11.5	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17200	P	5-23-11.5	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17201	P	5-23-11.5	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17202	P	5-23-11.5	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gatar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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10*17203	P	5-23-11.5	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17204	P	5-23-11.5	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17206	P	5-23-11.5	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17207	P	5-23-11.5	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17210	P	5-23-11.5	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17211	P	5-23-11.5	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17212	P	5-23-11.5	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17213	P	5-23-11.5	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gastar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*19652	P	5-23-11.5	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA
10*22441	P	5-23-11.5	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA	NA
10*22510	P	5-23-11.5	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA	NA
10*19903	P	5-23-11.5	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
10*14785	Q	5-25-18	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14797	Q	5-25-18	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14814	Q	5-25-18	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14815	Q	5-25-18	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14822	Q	5-25-18	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14823	Q	5-25-18	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*18275	Q	5-25-18	BETTY JEAN NEELY	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA	NA
10*18366	Q	5-25-18	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA	NA
10*18369	Q	5-25-18	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA	NA
10*18370	Q	5-25-18	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA	NA

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*18379	Q	5-25-18	DAVID N DEVICK TRUSTEE OF THE YONJI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	459	NA	NA	NA	NA	NA	NA
10*19540	Q	5-25-18	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA
10*22129	Q	5-25-18	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA
10*14809	Q	5-25-18	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14810	Q	5-25-18	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14786	Q	5-25-18	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14796	Q	5-25-18	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC	1/8+	799	540	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14806	Q	5-25-18	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14807	Q	5-25-18	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*14808	Q	5-25-18	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA	NA	NA	NA	21/41 Gatar Exploration USA Inc to Gatar Exploration, Inc	36/9 Gatar Exploration, Inc. to TH Exploration II, LLC
10*22008	Q	5-25-18	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA
10*22025	Q	5-25-18	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA
10*17195	Q	5-25-18	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC	41/238 Statoil USA Onshore Properties Inc. to TH Exploration, LLC
10*17196	Q	5-25-18	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17197	Q	5-25-18	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17199	Q	5-25-18	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17200	Q	5-25-18	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17201	Q	5-25-18	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17202	Q	5-25-18	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17203	Q	5-25-18	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17204	Q	5-25-18	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17206	Q	5-25-18	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	23/353 Gatar Exploration USA Inc to Atinum Marcellus L LLC	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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10*17207	Q	5-25-18	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17210	Q	5-25-18	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17211	Q	5-25-18	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17212	Q	5-25-18	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17213	Q	5-25-18	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*19652	Q	5-25-18	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA
10*22441	Q	5-25-18	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA	NA
10*22510	Q	5-25-18	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA	NA
10*19903	Q	5-25-18	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
10*19903	R	5-25-17	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
10*22441	R	5-25-17	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA	NA	NA	NA	NA	NA	NA
10*22510	R	5-25-17	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA	NA	NA	NA	NA	NA	NA
10*19652	R	5-25-17	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA	NA	NA	NA	NA	NA	NA
10*17195	R	5-25-17	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17196	R	5-25-17	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17197	R	5-25-17	GLORIA J. SIMMONS HAROLD SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17199	R	5-25-17	PAMELA L DRAZIC AND JEFFREY DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17200	R	5-25-17	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17201	R	5-25-17	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17202	R	5-25-17	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17203	R	5-25-17	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17204	R	5-25-17	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	23/353 Gaster Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC

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10*17206	R	5-25-17	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	23/353 Gaster Exploration USA Inc to Atrium Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atrium Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17207	R	5-25-17	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	23/353 Gaster Exploration USA Inc to Atrium Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atrium Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17210	R	5-25-17	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gaster Exploration USA Inc to Atrium Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atrium Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17211	R	5-25-17	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	23/353 Gaster Exploration USA Inc to Atrium Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atrium Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17212	R	5-25-17	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	23/353 Gaster Exploration USA Inc to Atrium Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atrium Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17213	R	5-25-17	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	23/353 Gaster Exploration USA Inc to Atrium Marcellus L LLC	27/311 Gaster Exploration USA, Inc and Atrium Marcellus L LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*14810	R	5-25-17	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*22025	R	5-25-17	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA	NA	NA	NA	NA	NA	NA
10*14809	R	5-25-17	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14786	R	5-25-17	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14796	R	5-25-17	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC	1/8+	799	540	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14806	R	5-25-17	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14807	R	5-25-17	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14808	R	5-25-17	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*22129	R	5-25-17	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA	NA	NA	NA
10*22008	R	5-25-17	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA	NA	NA	NA
10*14785	R	5-25-17	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14797	R	5-25-17	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	NA	NA	NA	NA	21/41 Gaster Exploration USA Inc to Gaster Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14814	R	5-25-17	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	597	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14815	R	5-25-17	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14822	R	5-25-17	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
10*14823	R	5-25-17	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA	NA	NA	NA	NA	NA	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC

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4705102055

WW-6A1 Supplement

Operator's Well No. Hillrock - 4HM

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*18275	R	5-25-17	BETTY JEAN NEELY	TH EXPLORATION, LLC	1/8+	929	60	NA	NA	NA	NA	NA	NA
10*18366	R	5-25-17	MARY LOU WILSON AND STANLEY D WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA
10*18369	R	5-25-17	CRAIG ALAN YOHO AND DONNA M YOHO	TH EXPLORATION, LLC	1/8+	931	303	NA	NA	NA	NA	NA	NA
10*18370	R	5-25-17	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300	NA	NA	NA	NA	NA	NA
10*18379	R	5-25-17	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	NA	NA	NA	NA	NA	NA
10*19540	R	5-25-17	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA	NA	NA	NA	NA	NA

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WV Department of
Environmental Protection



TUG HILL

4705102055

May 17, 2018

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

RE: Hillrock 4HM

Subject: Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC will not be drilling, extracting or producing any minerals under any WV County or State Routes in the area reflected on the Hillrock 4HM well plat.

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

Sincerely,

Amy L. Miller
Permitting Specialist – Appalachia Region

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

Date of Notice Certification: 06/08/2018

API No. 47- 051

Operator's Well No. Hillrock 4HM

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>519,682.78</u>
County: <u>Marshall</u>		Northing: <u>4,399,577.13</u>
District: <u>Franklin</u>	Public Road Access: <u>Rines Ridge Road (County Route 76)</u>	
Quadrangle: <u>New Martinsville 7.5'</u>	Generally used farm name: <u>Terry E. and Deborah Simms</u>	
Watershed: <u>Fish Creek (HUC 10)</u>		

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

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED <input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION <input checked="" type="checkbox"/> 5. PUBLIC NOTICE <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		OOG OFFICE USE ONLY <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED
RECEIVED Office of Oil and Gas JUN 11 2018 WV Department of Environmental Protection		

Required Attachments:

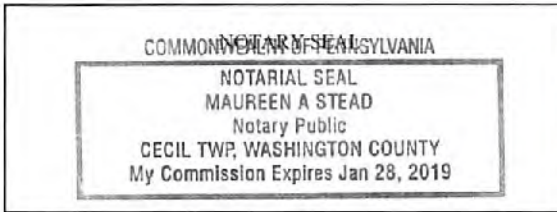
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

4705 + 02055

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-hilltop.com</u>



Subscribed and sworn before me this 8 day of JUNE 2018.
Maureen A Stead Notary Public
 My Commission Expires 1/28/19

Oil and Gas Privacy Notice:

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

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

4705102055

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

Date of Notice: 6/1/2018 Date Permit Application Filed: 6/1/2018

Notice of:

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

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

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

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

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

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

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

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: _____
Address: _____

Name: _____
Address: _____

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

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

COAL OPERATOR
Name: _____
Address: _____

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

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

*Please attach additional forms if necessary

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Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

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

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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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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.**

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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WW-6A
(8-13)

API NO. 47-051 -
OPERATOR WELL NO. Hillrock 4HM
Well Pad Name: Simms

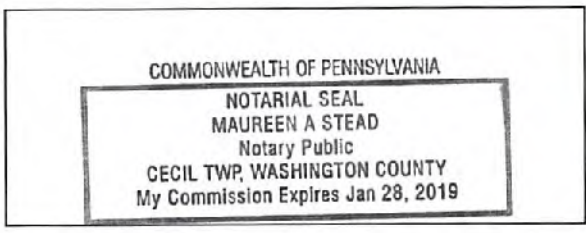
Notice is hereby given by:

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

Address: 380 Southpointe Boulevard, Plaza I, Suite 200
Canonsburg, PA 15317
Facsimile: 724-338-2030
4705102055

Oil and Gas Privacy Notice:

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



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

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JUN 11 2018
WV Department of
Environmental Protection

WW-6A

Supplement Pg. 1A

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

WATER WELL REPORT

Well: HILLROCK 4HM
 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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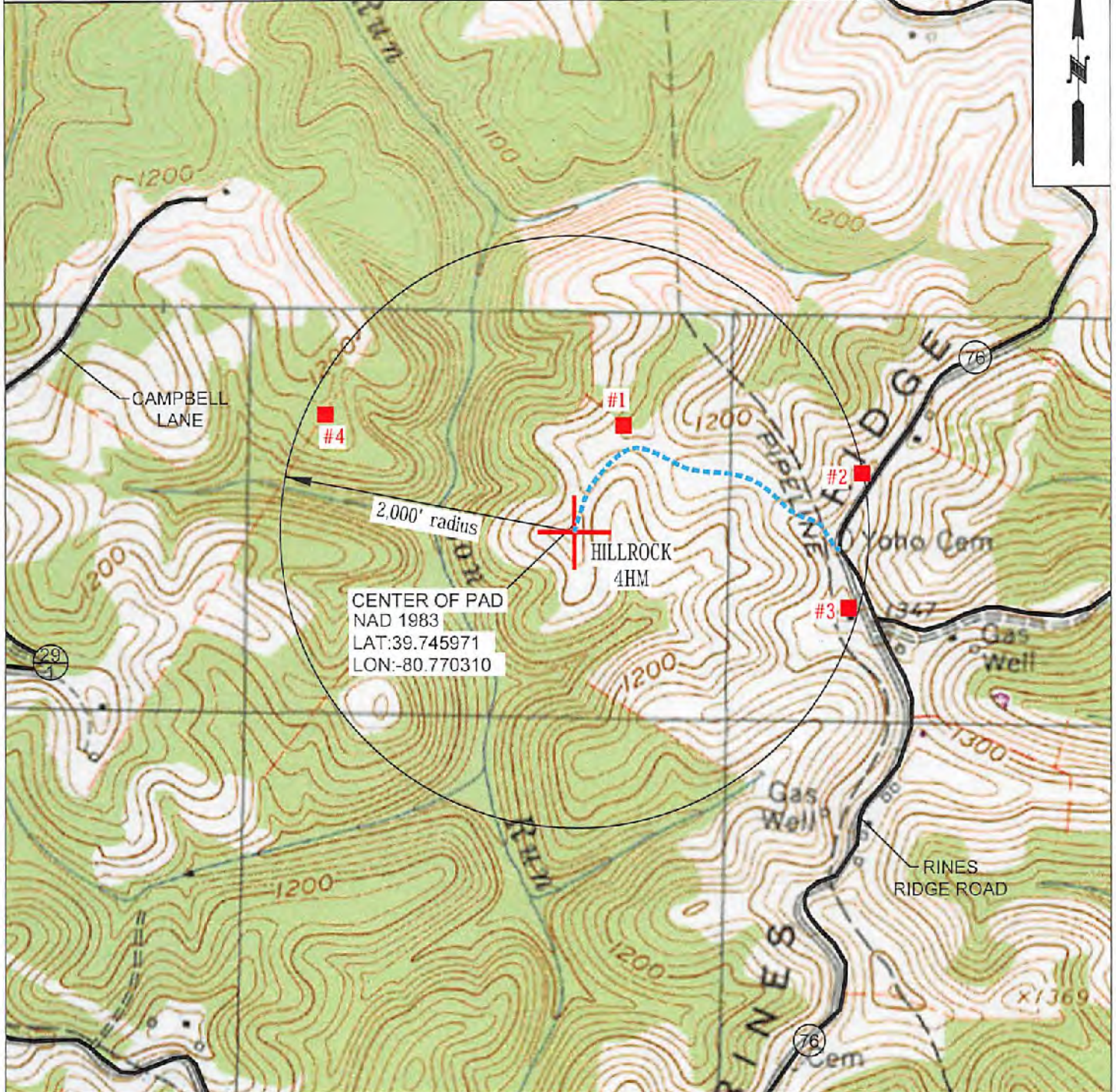
PROPOSED

SUPPLEMENT PG 1

WV Department of
Environmental Protection

HILLROCK 4HM

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:
DATE: 05-24-2018

4705 02055

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

MINERAL OWNER(s)

Name: Terry and Deborah L. Simms
Address: 7175 Rines Ridge Road
Proctor, WV 26055
*please attach additional forms if necessary

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JUN 11 2018

WV Department of
Environmental Protection

Notice is hereby given:

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

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

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

Notice is hereby given by:

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

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-333-2030

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.

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

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

Date of Notice: 06/07/2018 **Date Permit Application Filed:** 06/08/2018

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

- CERTIFIED MAIL HAND
- RETURN RECEIPT REQUESTED DELIVERY

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

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

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

Name: Kenneth and Nadine Corley (Access Road)
Address: 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>519,682.78</u>
County:	<u>Marshall</u>		Northing:	<u>4,399,577.13</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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Environmental Protection



4705 * 02055

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

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

May 16, 2018

Jill M. Newman
Deputy Commissioner

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

Subject: DOH Permits for the Simms Well Pad, Marshall County
Hillrock 4HM Well

Dear Mr. Martin,

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

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

Very Truly Yours,

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

Cc: Jonathan White
Tug Hill Operating
CH, OM, D-6
File

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WV Department of
Environmental Protection



TUG HILL 4705 • 02055

PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Hillrock 4HM

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

JUN 11 2018

WV Department of
Environmental Protection

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

WVDEP OOG
ACCEPTED AS-BUILT

WJ 7/3/2018

WEST VIRGINIA COUNTY MAP

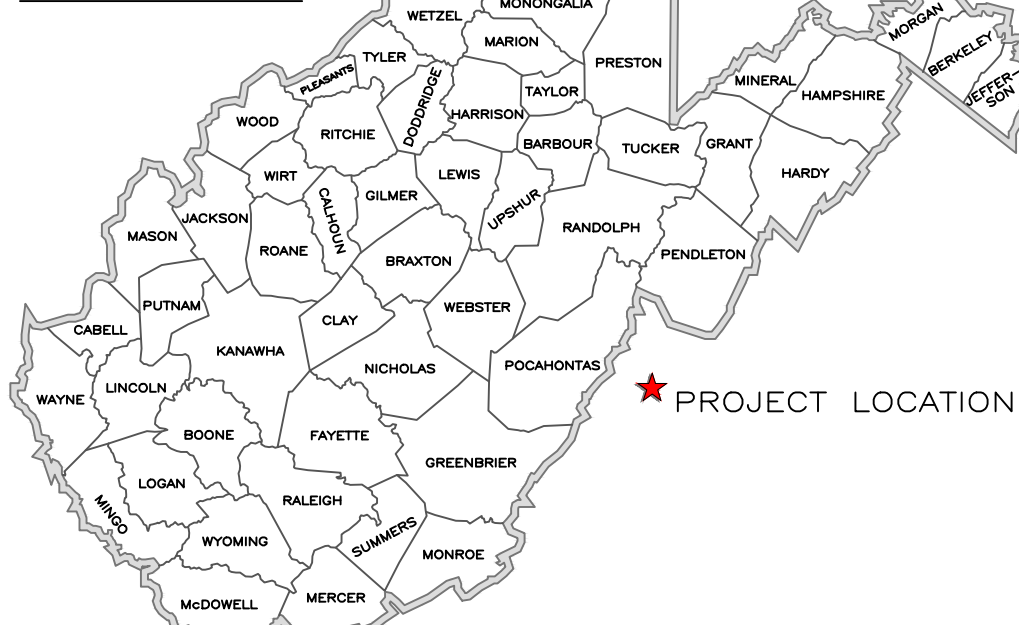


Exhibit A: Final Design: Issue for Permitting

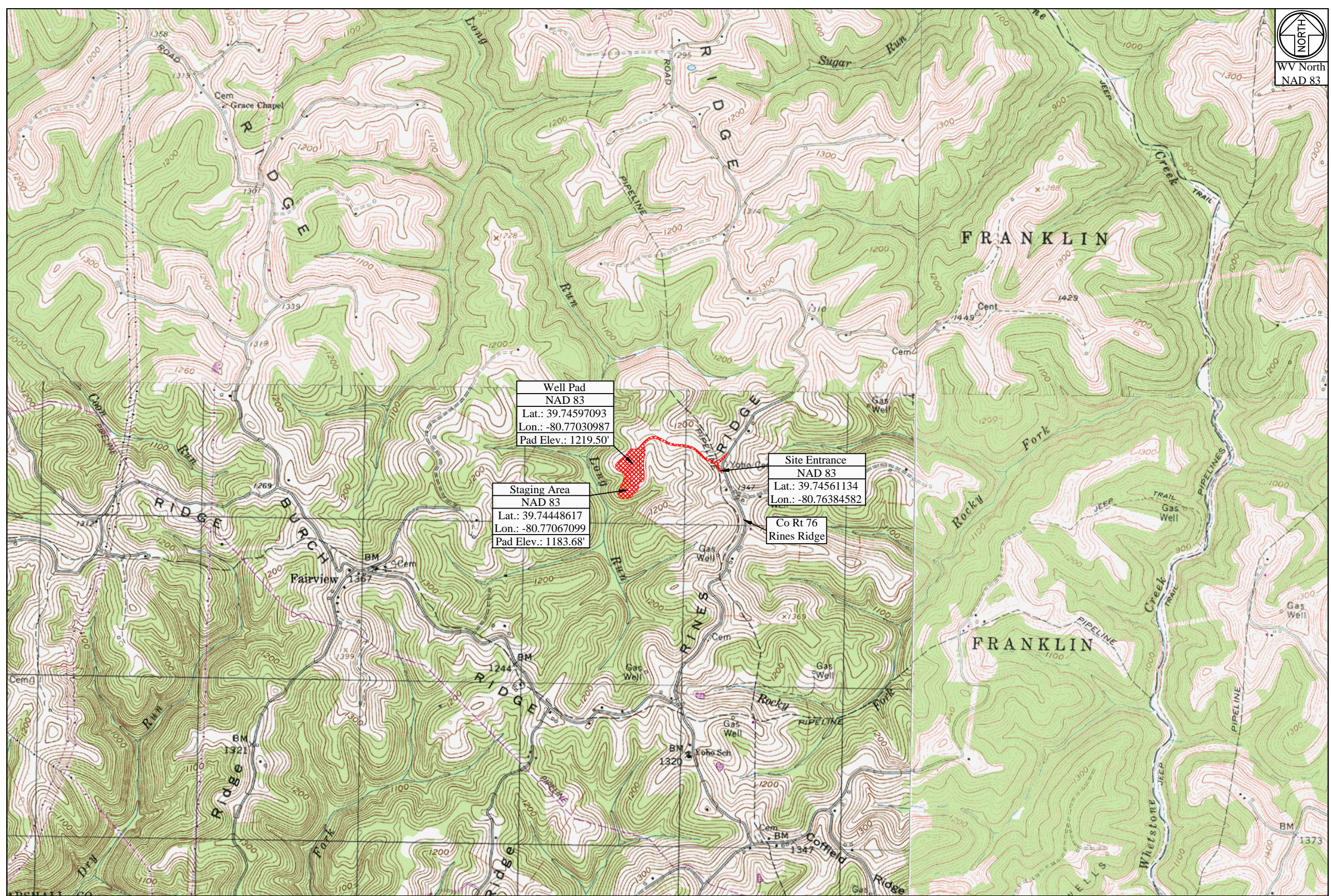
Property Owner Information - Simms Well Site							
Franklin District - Marshall County							
Owner	TM - Parcel	Well Pad	Staging	Access Road	Topsoil/Excess	Add. Clearing	Total Disturbed
Kenneth Corley et ux	17-11	0.00	0.00	0.67	0.00	0.64	1.31
Terry Simms et ux	23-7	3.19	1.34	0.66	0.24	4.87	10.30
Site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

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

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

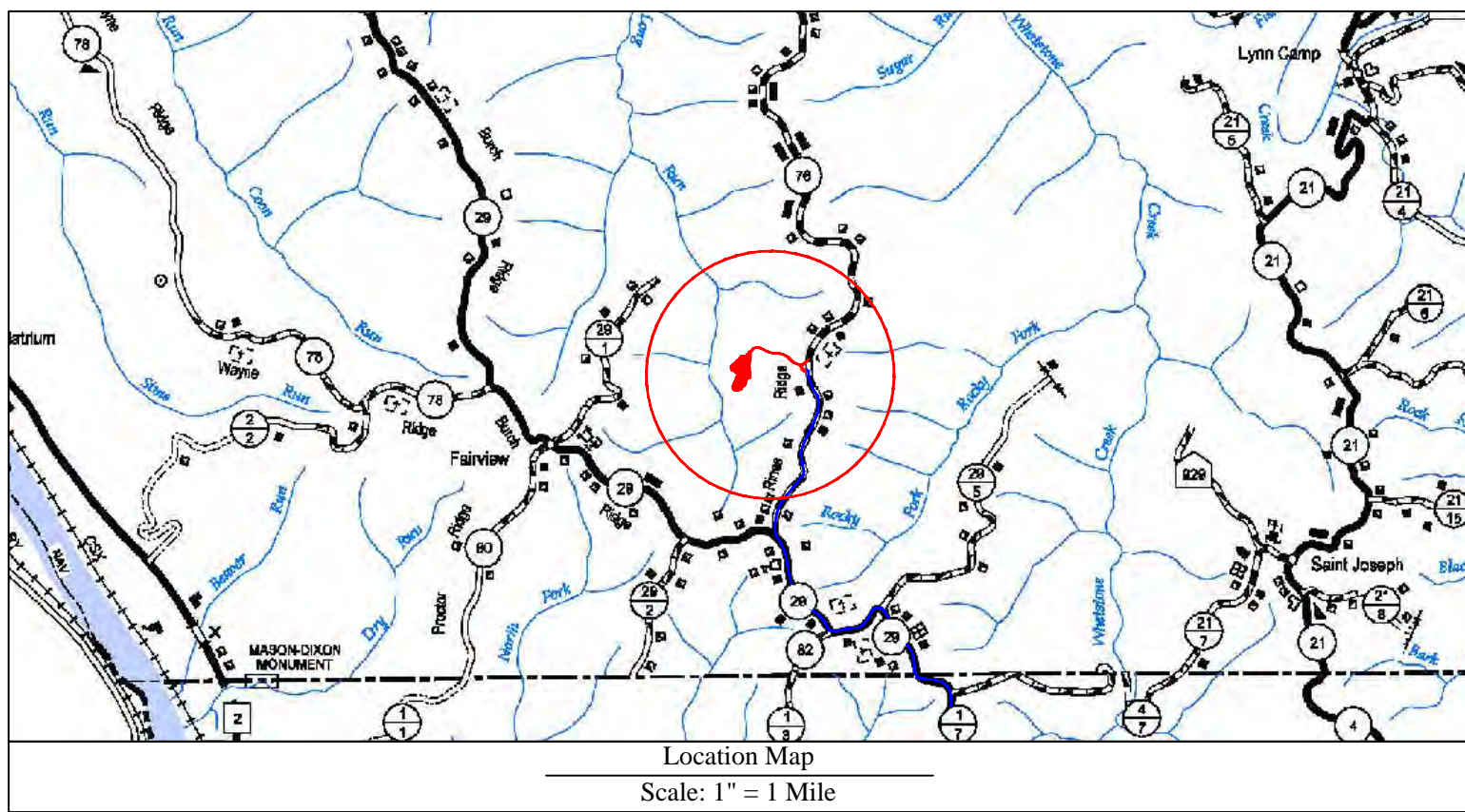
Disturbed Area	
Well Pad Construction	3.19 Ac
Staging Area Construction	1.34 Ac
Access Road Construction	1.33 Ac
Topsoil / Excess Material	0.24 Ac
Additional Clearing	5.51 Ac
Total Disturbed Area	11.61 Ac
Additional Information	
Total Wasted Acres Disturbed	0.00 Ac
Total Linear Feet of Access Road	2,525.60'

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



USGS 7.5' Quadrangle: New Martinsville
 Watershed: Lower Fish Creek

Site Locations (NAD 27)			Site Locations (NAD 83)	
Structure	Latitude (DD)	Longitude (DD)	Structure	Longitude (DD)
Site Entrance	39.74553374	-80.76403326	Site Entrance	39.74561134
Center of Well Pad	39.74589345	-80.77049703	Center of Well Pad	-80.77039987
Center of Staging Area	39.74440868	-80.77085805	Center of Staging Area	39.74448617

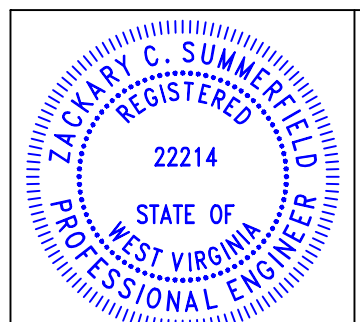


Approach Routes:

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

Well Location Restrictions

- All Pad construction complies with the following restrictions.
 - *250' from an existing well or developed spring used for human or domestic animals.
 - *625' from an occupied dwelling or barn greater than 2,500 SF used for poultry or dairy measured from the center of the pad.
 - *100' from the edge of disturbance to wetlands, perennial streams, natural or artificial lake, pond or reservoir.
 - *300' from the edge of disturbance to a naturally reproducing trout stream.
 - *1,000' of a surface or ground water intake to a public water supply.
- (Well Location Restrictions of WV Code 22-6A-12)

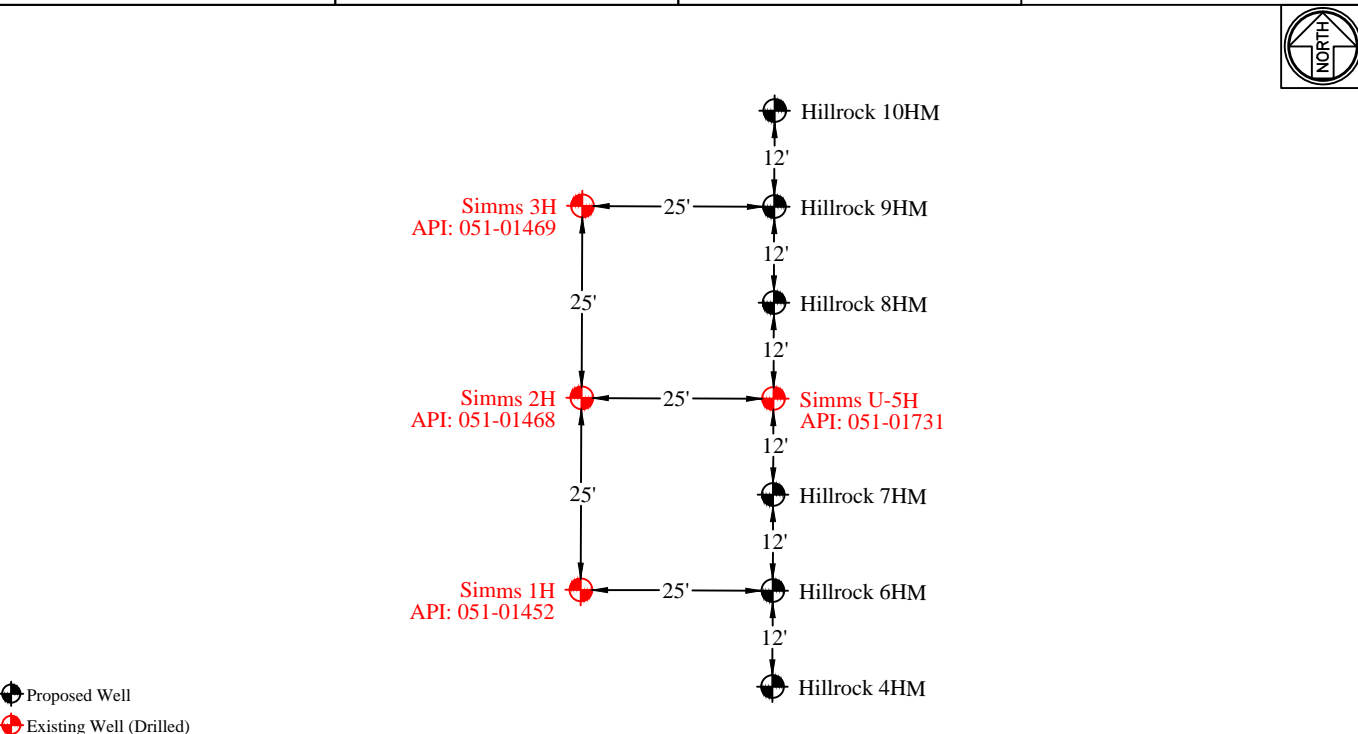


Design Certification
 The drawings, construction notes and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas (OC&G).
 All Plans, Sheets, and/or Reference Diagrams included in this design constitute a complete set of plans. A complete set of plans is necessary to construct the site in accordance with the design.
 Zackary C. Summerfield
 RPE 22214
 Kelly Surveying PLLC
 COA: C0423-09
 Date: 05-24-2018

Sheet	Description
1	Cover Sheet
V1	Schedule of Quantities
N1-N4	Site Notes
2	Pre-Construction Site Conditions
3	Site Soil Map
4	Clearing Exhibit
5	Overall Plan View
6-7	E&S Plan View
8	Toe Key Exhibit
9-10	Plan View
11	Cross Sections - Well Pad
12	Cross Sections - Well Pad Access Road
13	Cross Sections - Staging Area
G1-G2	Geotechnical Exhibit
L1	Landowner Disturbed Area Exhibit
S1	Site Reclamation
M1-M3	Production Exhibit
D1-D2	Erosion and Sediment Control Details
R1	Access Road Details
P1	Pad Details

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

Site Entrance	Center of Well Pad	Center of Staging Area
WV-N NAD 83 N: 456189.29 WV-N NAD 83 E: 1613138.72 WV-N NAD 27 N: 456153.02 WV-N NAD 27 E: 1644576.34 Lat. NAD 83: 39.74561134 Lon. NAD 83: -80.76384582 Lat. NAD 27: 39.74553374 Lon. NAD 27: -80.76403326 UTM 17 NAD 83 N: 4399549.85 UTM 17 NAD 83 E: 520232.66	WV-N NAD 83 N: 456345.89 WV-N NAD 83 E: 1611323.16 WV-N NAD 27 N: 456399.67 WV-N NAD 27 E: 1642760.82 Lat. NAD 83: 39.74597093 Lon. NAD 83: -80.77030987 Lat. NAD 27: 39.74589345 Lon. NAD 27: -80.77049703 UTM 17 NAD 83 N: 4399588.32 UTM 17 NAD 83 E: 519678.75 Pad Elev.: 1219.50'	WV-N NAD 83 N: 458906.56 WV-N NAD 83 E: 1611213.98 WV-N NAD 27 N: 455770.34 WV-N NAD 27 E: 1642631.66 Lat. NAD 83: 39.74448617 Lon. NAD 83: -80.77067099 Lat. NAD 27: 39.74440868 Lon. NAD 27: -80.77085805 UTM 17 NAD 83 N: 4399423.45 UTM 17 NAD 83 E: 519648.25 Pad Elev.: 1183.68'



Well Table			
Simms 1H	Simms 2H	Simms 3H	Simms U-5H
WV-N NAD 83 N: 456320.03 WV-N NAD 83 E: 1611310.62 WV-N NAD 27 N: 456283.80 WV-N NAD 27 E: 1642748.27 Lat. NAD 83: 39.74589944 Lon. NAD 83: -80.77055318 Lat. NAD 27: 39.74582196 Lon. NAD 27: -80.77054033 UTM 17 NAD 83 (m) N: 4399580.37 UTM 17 NAD 83 (m) E: 519675.06	WV-N NAD 83 N: 456345.42 WV-N NAD 83 E: 1611310.85 WV-N NAD 27 N: 456309.19 WV-N NAD 27 E: 1642748.47 Lat. NAD 83: 39.74596914 Lon. NAD 83: -80.77055362 Lat. NAD 27: 39.74589166 Lon. NAD 27: -80.77054078 UTM 17 NAD 83 (m) N: 4399588.17 UTM 17 NAD 83 (m) E: 519675.00	WV-N NAD 83 N: 456370.02 WV-N NAD 83 E: 1611310.81 WV-N NAD 27 N: 456333.79 WV-N NAD 27 E: 1642748.47 Lat. NAD 83: 39.74603667 Lon. NAD 83: -80.77035500 Lat. NAD 27: 39.74595919 Lon. NAD 27: -80.77054216 UTM 17 NAD 83 (m) N: 4399595.60 UTM 17 NAD 83 (m) E: 519674.86	WV-N NAD 83 N: 456344.95 WV-N NAD 83 E: 1611335.95 WV-N NAD 27 N: 456308.73 WV-N NAD 27 E: 1642773.61 Lat. NAD 83: 39.74599884 Lon. NAD 83: -80.77026434 Lat. NAD 27: 39.74589136 Lon. NAD 27: -80.77051569 UTM 17 NAD 83 (m) N: 4399591.59 UTM 17 NAD 83 (m) E: 519682.09
Hillrock 4HM	Hillrock 6HM	Hillrock 7HM	Hillrock 8HM
WV-N NAD 83 N: 456308.95 WV-N NAD 83 E: 1611335.79 WV-N NAD 27 N: 456272.73 WV-N NAD 27 E: 1642773.44 Lat. NAD 83: 39.74587001 Lon. NAD 83: -80.77026312 Lat. NAD 27: 39.74579253 Lon. NAD 27: -80.77045028 UTM 17 NAD 83 (m) N: 4399577.13 UTM 17 NAD 83 (m) E: 519682.78	WV-N NAD 83 N: 456320.95 WV-N NAD 83 E: 1611335.84 WV-N NAD 27 N: 456284.73 WV-N NAD 27 E: 1642773.50 Lat. NAD 83: 39.74590295 Lon. NAD 83: -80.77026353 Lat. NAD 27: 39.74582547 Lon. NAD 27: -80.77045069 UTM 17 NAD 83 (m) N: 4399580.78 UTM 17 NAD 83 (m) E: 519682.74	WV-N NAD 83 N: 456332.95 WV-N NAD 83 E: 1611335.90 WV-N NAD 27 N: 456296.73 WV-N NAD 27 E: 1642773.55 Lat. NAD 83: 39.74593590 Lon. NAD 83: -80.77026393 Lat. NAD 27: 39.74585841 Lon. NAD 27: -80.77045109 UTM 17 NAD 83 (m) N: 4399584.44 UTM 17 NAD 83 (m) E: 519682.70	WV-N NAD 83 N: 456356.95 WV-N NAD 83 E: 1611336.01 WV-N NAD 27 N: 456320.73 WV-N NAD 27 E: 1642773.66 Lat. NAD 83: 39.74600178 Lon. NAD 83: -80.77034714 Lat. NAD 27: 39.74592430 Lon. NAD 27: -80.77045191 UTM 17 NAD 83 (m) N: 4399591.75 UTM 17 NAD 83 (m) E: 519682.61
Hillrock 9HM	Hillrock 10HM		
WV-N NAD 83 N: 456368.95 WV-N NAD 83 E: 1611336.03 WV-N NAD 27 N: 456333.73 WV-N NAD 27 E: 1642773.68 Lat. NAD 83: 39.74603472 Lon. NAD 83: -80.77026528 Lat. NAD 27: 39.74595724 Lon. NAD 27: -80.77045244 UTM 17 NAD 83 (m) N: 4399595.41 UTM 17 NAD 83 (m) E: 519682.55	WV-N NAD 83 N: 456380.95 WV-N NAD 83 E: 1611336.12 WV-N NAD 27 N: 456344.72 WV-N NAD 27 E: 1642773.77 Lat. NAD 83: 39.74606767 Lon. NAD 83: -80.77026555 Lat. NAD 27: 39.74599919 Lon. NAD 27: -80.77045272 UTM 17 NAD 83 (m) N: 4399599.06 UTM 17 NAD 83 (m) E: 519682.52		

Project Contacts

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

Tug Hill Operating, LLC
 380 Southpointe Blvd
 Southpointe Plaza II, Suite 200
 Canonsburg, PA 15317

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

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

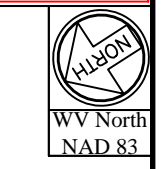
MISS UTILITY OF WEST VIRGINIA
 1-800-245-4848
 West Virginia State Law
 Section XIV, Chapter 24-C requires that you call two business days before you dig in the state of West Virginia.
IT'S THE LAW
 Know what's below. Call before you dig.

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

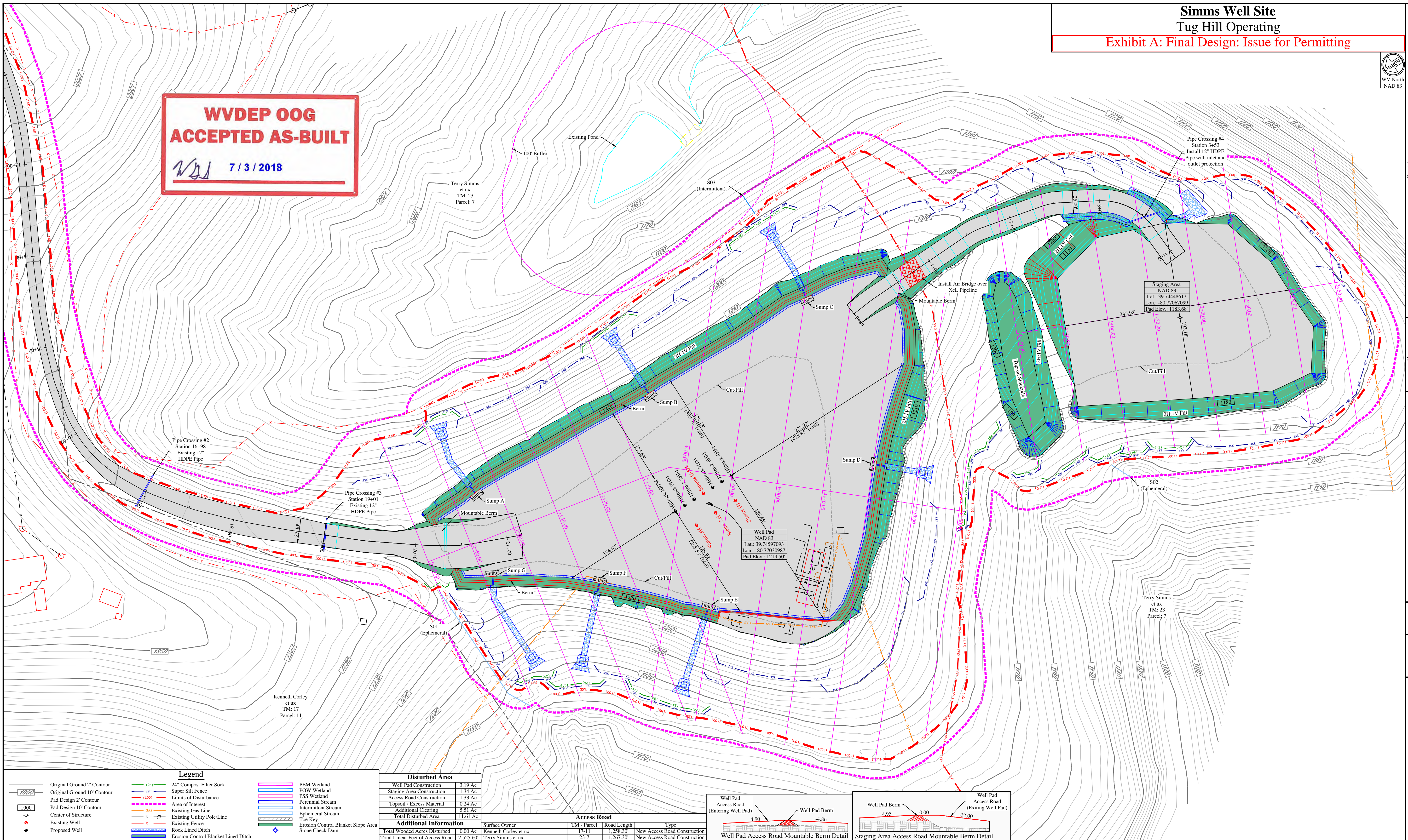
The WV Mines Website was consulted. Previous (Current) mining activities are not within the AOI.

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

Floodplain Conditions	
Do site construction activities take place in a floodplain:	NO
Permit needed from county floodplain coordinator:	NO
Flood Hazard Zone:	X
HEC-RAS Study completed:	N/A
Floodplain shown on drawings:	N/A
FIRM Map Number(s) for site:	S401C 0210E
Acres of construction in floodplain:	N/A



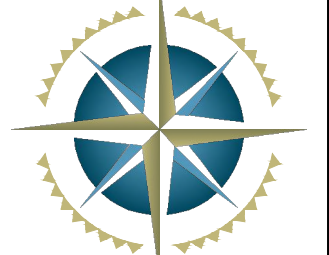
WVDEP OOG
ACCEPTED AS-BUILT
WJ 7/3/2018



Revision
 Design
 Design: WVDEP Corrections

Date
 05-24-2018
 07-02-2018

TUG HILL
OPERATING



THIS DOCUMENT
 PREPARED FOR
 TUG HILL
 OPERATING

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

Site Plan
Simms Well Site
 Franklin District
 Marshall County, WV

Legend

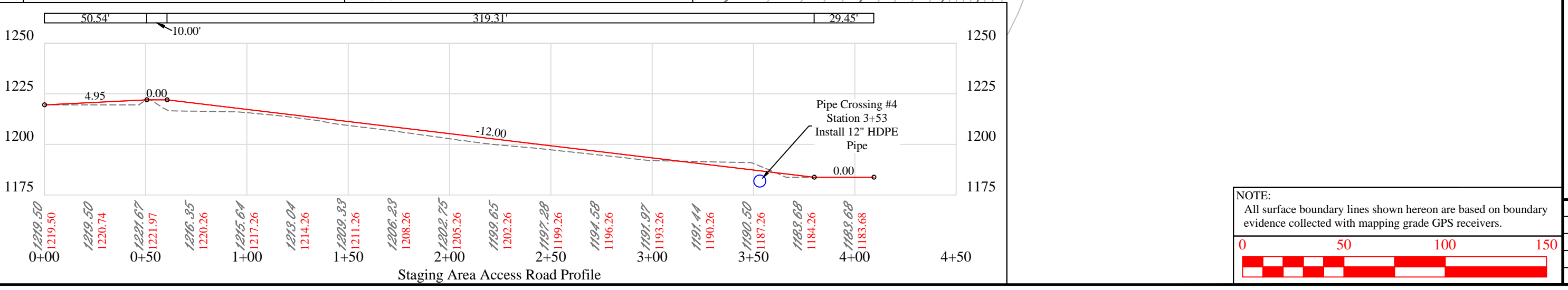
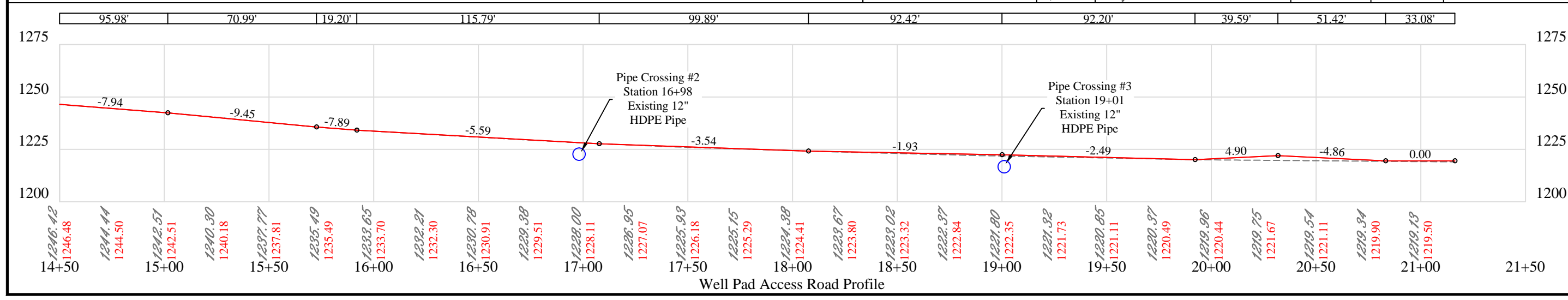
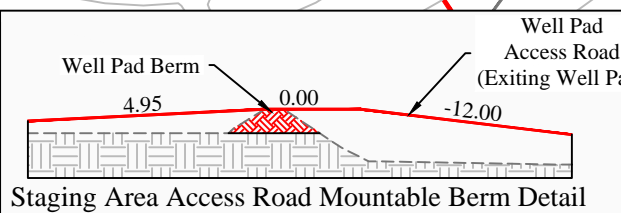
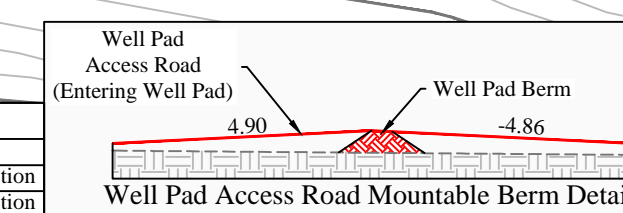
Original Ground 2' Contour	124' Composite Filter Sock	PEM Wetland
Original Ground 10' Contour	Super Silt Fence	POW Wetland
Pad Design 2' Contour	Limits of Disturbance	PSS Wetland
Pad Design 10' Contour	Area of Interest	Perennial Stream
Center of Structure	Existing Gas Line	Intermittent Stream
Existing Well	Existing Utility Pole/Line	Ephemeral Stream
Proposed Well	Existing Fence	Toe Key
	Rock Lined Ditch	Erosion Control Blanket Slope Area
	Erosion Control Blanket Lined Ditch	Stone Check Dam

Disturbed Area

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

Additional Information

Surface Owner	TM - Parcel	Road Length	Type
Kenneth Corley et ux	17-11	1,238.30'	New Access Road Construction
Terry Simms et ux	23-7	1,267.30'	New Access Road Construction
Total Worsened Acres Disturbed	0.00 Ac		
Total Linear Feet of Access Road	2,525.60'		



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

