

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

API Number: 47-051-02055

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

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

API Number: 47-051 - 02055

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, cessation of drilling, sending an email to DEPOOGNotify@wv.gov.

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

4705 * 0205 5

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

1) Well Operator: Tug Hill O	perating, L	LC	494510851	Marshall	Franklin	Glen Easton 7.5'
			Operator ID	County	District	Quadrangle
2) Operator's Well Number: H	illrock 4HM	1	Well F	ad Name: Sim	nms	
3) Farm Name/Surface Owner:	Simms, Terry	E. and I	Deborah Public R	oad Access: Ri	ines Ridge Ro	ad (County Route 76)
4) Elevation, current ground:	1,183.68'	E	levation, propose	d post-construc	ction: 1,183.	.68'
5) Well Type (a) Gas X Other	-	Oil _	Un	derground Stor	rage	
(b)If Gas Sh	allow x		Deep			
Но	orizontal X	(x	1 118
6) Existing Pad: Yes or No Yes	s				0	5/25/18
7) Proposed Target Formation(•		Pressure(s):	
Marcellus is the target formatio	n at a depth o	of 6464	- 6515' thickness	of 51' and anticip	ated pressure	of approx. 3800 psi
8) Proposed Total Vertical Dep	th: 6,615'					
9) Formation at Total Vertical I	Depth: On	ondag	ja			
10) Proposed Total Measured I	Depth: 18	,469'				
11) Proposed Horizontal Leg L	ength: 9,9	918'	1 /			
12) Approximate Fresh Water S		1S:	70', 812'			
13) Method to Determine Fresh			Use shallow offset wells to determine d	eepeat freshwater. Or determine p	sing predrill tests, lesting white	criting or petrophysical evaluation of resistivi
14) Approximate Saltwater Dej		/ -				
15) Approximate Coal Seam D			Coal - 706' and	Pittsburgh Coa	al - 806'	
16) Approximate Depth to Poss	sible void (coai m	iine, karst, other)	140110 artitorp	atou	
 Does Proposed well location directly overlying or adjacent to 			Yes	N	No X	
(a) If Yes, provide Mine Info	: Name:					
	Depth:					
	Seam:					
	Owner:					
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API NO. 47- 051

OPERATOR WELL NO. Hillrock 4HM

Well Pad Name: Simms

4705 102055

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							

Jus/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

July 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:

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*See Attachment

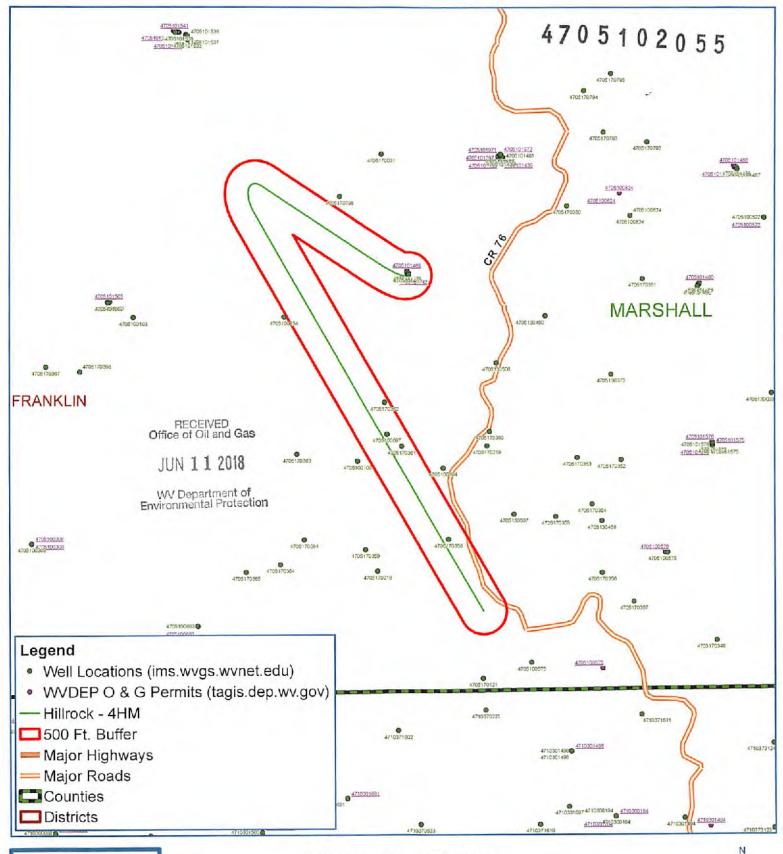
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25) Proposed borehole conditioning procedures:

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

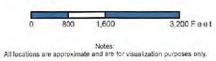
^{*}Note: Attach additional sheets as needed.





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

Hillrock - 4HM Franklin District Marshall County, WV





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, <u>dducoeur@dpslandservices.com</u> 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
- 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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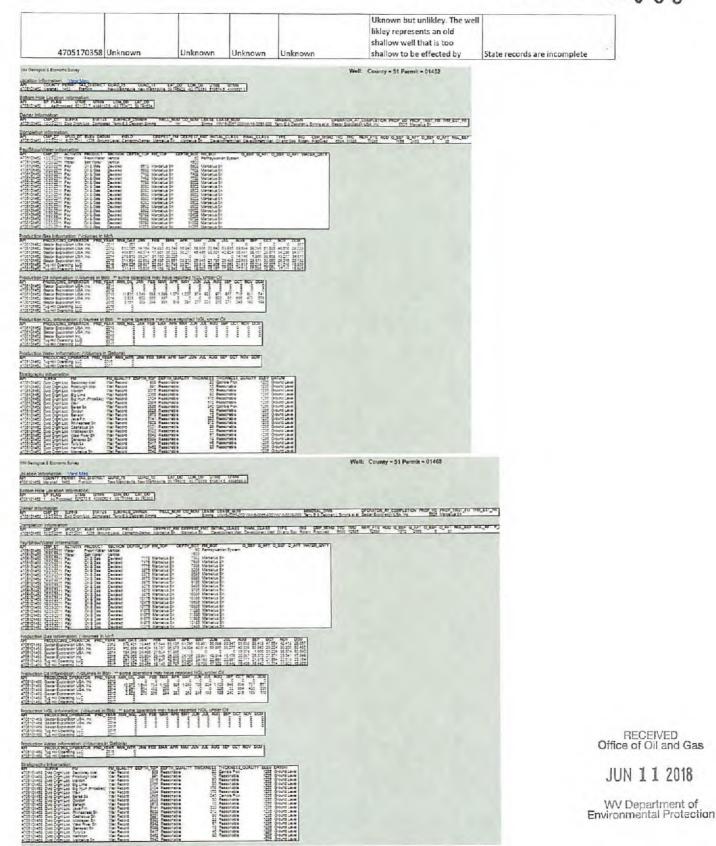


Note: Well spots depicted on Area of Review map (page 3) are derived from State held coordinates. The spots may differ from those depicted on the Well Plat because the Plat locations represent actual field surveyed locations. Please refer to the Plat for surveyed well spots

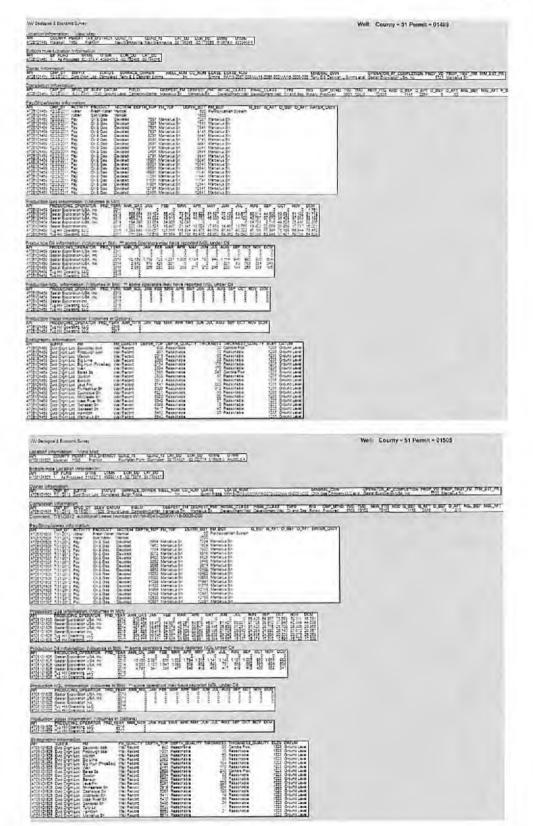
API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit! would assign to wells that might be within in range of fracture propagation	Comments
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 of the well plat.
	Tug Hill Operating Tug Hill Operating	6599' TVD 12685' MD	Marcellus Marcellus	Unknown Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore. 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 of the well plat. Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown of the well plat.
	Tug Hill Operating	6608' TVD	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 conducte to locate this well and it was foun producing at the location shown the well plat.
	Tug Hill Operating	6611' 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 conducte to locate this well and it was four producing at the location shown the well plat.
4705101524	Tug Hill Operating	6612' TVD 12508' 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 conducte to locate this well and it was four producing at the location shown 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 conducte to locate this well and it was four producing at the location shown the well plat.
	Tug Hill Operating	11492' TVD 16804' MD	Point Pleasar	Unknown	Yes, existing Point Pleasant producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Point Pleasant horizon well. A field survey was conducte to locate this well and it was four producing at the location shown the well plat.
4705170362	Manufacturers Light & Heat	Unknown	Unknown	Unknown	Uknown but unlikley. The well likley represents an old shallow well that is too shallow to be effected by fracturing in the planned Marcellus well.	State records are incomplete
	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. Uknown but unlikley. The well	Well was plugged 5/20/1949
4705170361	Unknown	Unknown	Unknown	Unknown	likley represents an old shallow well that is too shallow to be effected by	State records are incomplete

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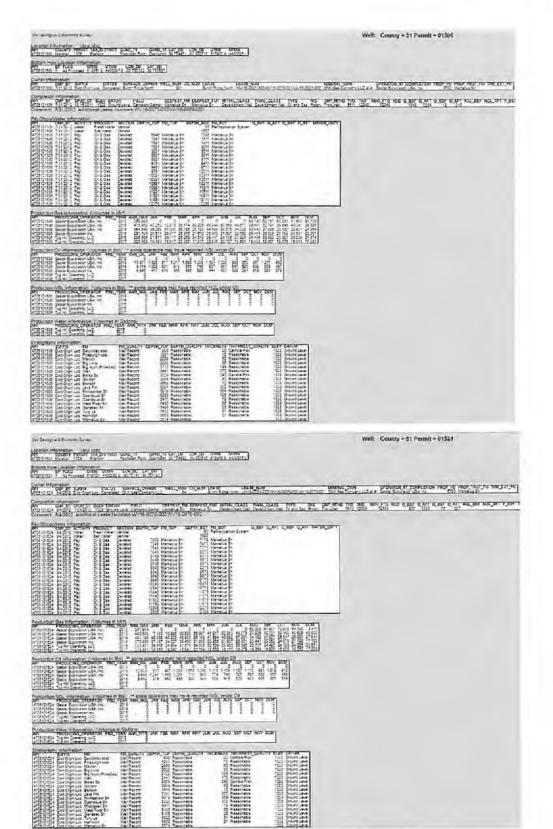


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There is no Production Circles for this use: If some operation may have registed NGL under Qir. There is no Production (vGL calls for this well. ** some operators may have reported NGL under Oil There is no Production Water date for the well Street and internation (III) FU COULTY DEFIN TO DEFIN TO THE FOR THE COURTY DEFIN TO There is no Wireline (6-Log) data for this well PLEASE STATE STATE OF THE PERSON OF THE PERS There is no Sample data for this well Well: County - 51 Permit - 70361 Williampas & Entrema Survey CALASTON INTO THE COLUMN TANKS AND INTEREST COURT IS COLUMN CAT IN FRANCE AND UNITED THE COLUMN TANKS AND INTEREST COURT IN COLUMN CAT INTO AND THE COLUMN TANKS AND THE COLUMN T There is no goody mole Location data for this well Constitution of the control of the c Companies of the control of the cont There is no Proposition Ges data for this well. There is no Production Or data for this well. In some operators may have recorded NOL visiter Or There is no Arbayesian NGL sata for this was. ** some occretion may have reported NGL under D4. There is no Production Water date for the well There is no Window (E-Loo) data for this well There is no Plugging data for this well There is no Sample para for this well Well: County = 51 Permit = 70358 Open intended to the sum of the control of the cont SCHOOLS THE STATE OF THE PARTY PARTY BEAUTION SERVICION WITH COST FAIL COST FAIL THAT HAS COST SIZE FOR THE MENTING FOR COST COST COST COST FAIL FOR THAT THE PARTY FOR THE MENTING FOR COST There is no Production NGL date for this well. In some operators may have reported NGL similar Cir. There is no Production Water data for this mol These is to Witeline (EL paridets for this well

There is no Plugging dets for the well. There is no 5 emple data for this less. Office of Oil and Gas

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Tug Hill Operating, LLC Casing and Cement Program

Hillrock 4HM

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
1 Todaction	0 1/2	01111 110	0 110 10 0014	10,400	

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 + 48.5% 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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30" Csg @ 120' MD / 120' TVD 13 3/8" Csg @ 920' TVD 920' MD / 9 5/8" Csg @

WELL NAME: Hillrock 4HM STATE: WV

Franklin

1,219

Marshall 1,219

DISTRICT: DF Elev:

GL Elev:

COUNTY:

18,469 TD: TH Latitude:

39.74587001

TH Longitude:

-80.77026312 39.74955634 BH Latitude:

-80.78214799 BH Longitude:

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				
Geneseo/Burkett	3779				
Tully	3814				
Hamilton	3832				
Marcellus	6464				
Landing Depth	6499				
Onondaga	6515				
Pilot Hole Depth	6615				

			CASING SUMM	IARY			
Туре	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Ceme
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	155	Surface
Production	87/8×83/4	51/2	18,469'	6,654'	20	CYHP110	Surface

	CEMENT SUMM	ARY		DRILLING DETAILS		
	Sacks	Class	Density	Fluid Type	Centralizer Notes	
Conductor	338	Α	15.6	Air	None	
Surface	992	A	15.6	Air	3 Centralizers at equal distance	
Intermediate 1	948	Α	15	Air	1 Contralizer 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	

KOP @ 7,232' ft MD

2,905' MD / 2,800' TVD

(J) Y

Pilot Hole PH TD @ 6,515' TVD

Landing Point @ 8,551' MD / 6,499' TVD

PH TVD = 100' below Onondaga Top

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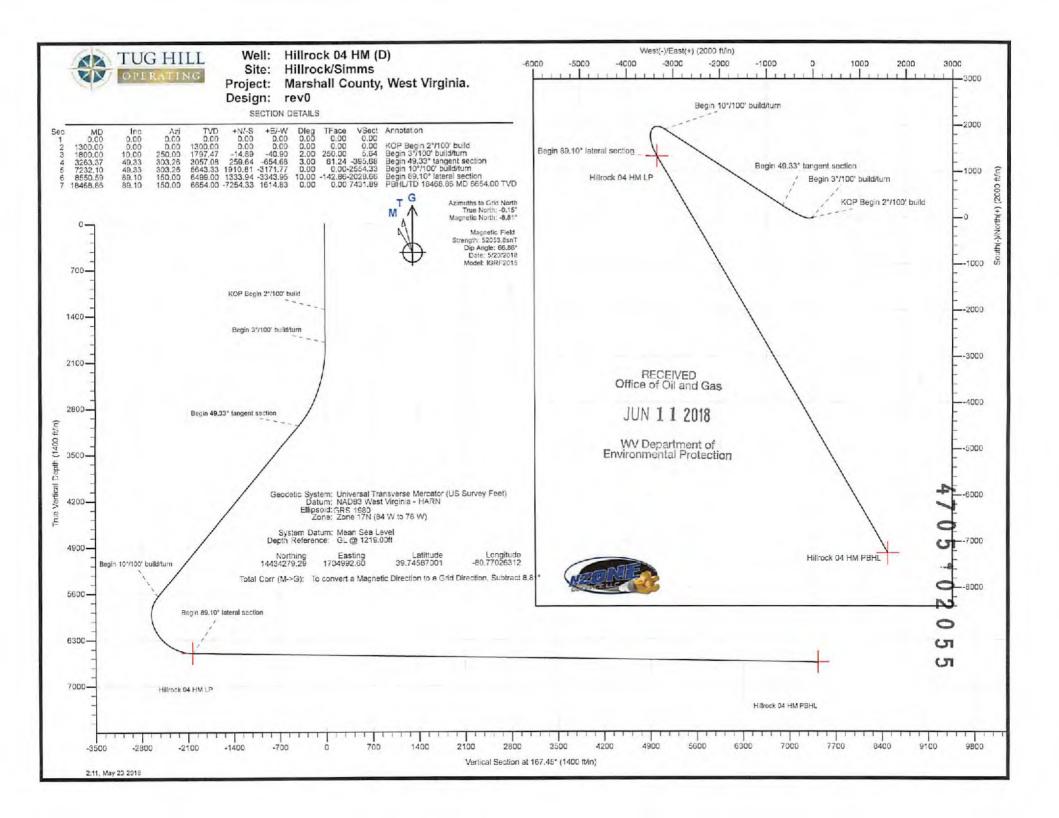
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Lateral TD @ 48,469' ft MD 6,654 ft TVD

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Database: Company: Project:

DB_Aug0116_LT_v14 Tuo Hill Operating LLC Marshall County, West Virginia.

Hillrock/Simms Site: Well: Hillrock 04 HM (D) Wellbore: Original Hole

revo

Local Co-ordinate Reference: TVD Reference:

MD Reference: North Reference:

Survey Calculation Method:

GL@ 1219.00ft GL @ 1219.00ft

Grid

Minimum Curvature

Project

Design:

Marshall County, West Virginia.

Map System:

Universal Transverse Mercator (US Survey Feet)

NAD83 West Virginia - HARN Geo Datum:

System Datum:

Mean Sea Level

Map Zone:

Zone 17N (84 W to 78 W)

Site Hillrock/Simms

Site Position:

Lat/Long

Northing: Easting:

14,434,279.29 usft

1,704,992,60 usft

Latitude: Longitude: 39.74587001

Position Uncertainty:

0.00 ft

Slot Radius:

13-3/16 "

Grid Convergence:

-80.77026312

0.15°

Well **Well Position** Hillrock 04 HM (D)

+N/-S +E/-W 0.00 ft 0.00 ft Northing: Easting:

14,434,279,29 usft 1,704,992.60 usft

-8.66

Latitude: Longitude:

39.74587001 -80.77026312

Position Uncertainty

0.00 ft

Wellhead Elevation:

5/20/2018

Ground Level:

66.86

Turn

Rate

0.00

Direction

(°)

167.45

TFO

1,219.00 ft

Wellbore

Original Hole

Magnetics

Model Name

Sample Date

Declination (°)

Dip Angle (°)

Tie On Depth:

Remarks

Rate

+E/-W

(ft)

0.00

Field Strength

(nT) 52.053.76512155

rev0 Design

Audit Notes:

Version:

Phase:

Vertical Section: Depth From (TVD) (ft) 0.00

IGRF2015

Date 5/23/2018

Depth To (ft) Survey (Wellbore)

Azimuth

Tool Name

+E/-W

MWD - Standard

MWD

+N/-S

(ft)

0.00

PLAN

Rate

Depth From (ft)

Plan Sections Measured

Depth

Plan Survey Tool Program

0.00

Inclination

18,468.72 rev0 (Original Hole)

Depth

111.111		
Vertical	Dogleg	Build

+N/-S

(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	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	-142.86	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
The second secon										



RECEIVED Office of Oil and Gas

JUN 1 1 2018

Database: Company: Project:

DB_Aug0116_LT_v14 Tug Hill Operating LLC Marshall County, West Virginia,

Site: Hillrock/Simms Well: Hillrock 04 HM (D) Wellbore: Original Hole

Design: revo Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference: Survey Calculation Method: Well Hillrock 04 HM (Environmental Protection GL @ 1219.00ft

GL @ 1219.00ft Grid

Minimum Curvature

anned 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	14,434,279.29	1,704,992.60	39.74587001	-80.770263
100.00	0.00	0.00	100.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80,770263
			200.00	0.00	0.00		10 70 A R 7 A DECCE ST	39,74587001	-80.770263
200,00	0.00	0.00	300.00	0.00	0.00	14,434,279.29	1,704,992.60 1,704,992.60	39,74587001	-80.77026
300,00	0.00	0.00	400.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026
400.00	0.00	0.00	500.00	0.00	0.00	14,434,279.29	1,704,992.60	39,74587001	-80,77026
500.00	0.00	0.00	600.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026
600.00 700.00	0.00	0.00	700.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026
800.00	0.00	0.00	800.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026
					0.00		1,704,992.60	39.74587001	-80.77026
900.00	0.00	0.00	900.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,434,279.29	1,704,992.60	39.74587001	-80.77026
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,434,279.29 14,434,279.29	1,704,992.60	39.74587001	-80.77026
1,200.00	0.00		1,200.00		0.00		1,704,992.60	39.74587001	-80.77026
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,434,279.29	1,704,882.00	30.7 4307 001	-30.77020
	in 2º/100' bui						1 701 000 00	20.74505020	-80,77026
1,400.00	2.00	250.00	1,399.98	-0.60	-1.64	14,434,278.69	1,704,990.96	39.74586838	-80.77028
1,500.00	4.00	250.00	1,499.84	-2.39	-6.56	14,434,276.90	1,704,986.04	39.74586350	-80.77031
1,600.00	6.00	250.00	1,599.45	-5.37	-14.75	14,434,273.92	1,704,977.85	39.74585537	-80.77035
1,700.00	8.00	250.00	1,698.70	-9.54	-26.20	14,434,269.75	1,704,966.40	39.74584401	
1,800.00	10.00	250.00	1,797.47	-14.89	-40.90	14,434,264.40	1,704,951.70	39.74582942	-80.77040
Begin 3°	/100' build/tur								00 770 47
1,900.00	11.74	263.03	1,895.68	-19.09	-59.16	14,434,260.20	1,704,933.44	39.74581800	-80.77047
2,000.00	13.91	272.41	1,993.19	-19.82	-81.27	14,434,259.47	1,704,911.33	39.74581615	-80.77055
2,100.00	16.34	279.17	2,089.73	-17.07	-107.17	14,434,262.22	1,704,885.43	39.74582388	-80.77084
2,200.00	18.93	284,18	2,185.03	-10.85	-136.79	14,434,268.44	1,704,855.81	39.74584117	-80.77074
2,300.00	21.62	288.00	2,278.83	-1.18	-170.05	14,434,278.11	1,704,822.55	39.74586796	-80.77086 -80.77099
2,400.00	24.39	291.01	2,370.87	11.92	-206.85	14,434,291.21	1,704,785.75	39.74590419	-80.77114
2,500,00	27.20	293.43	2,460.90	28.40	-247.10	14,434,307.69	1,704,745.50	39.74594975	-80.771129
2,600.00	30.04	295.42	2,548.68	48.24	-290,68	14,434,327.53	1,704,701.92	39,74600453	-80.77146
2,700.00	32.91	297.10	2,633.96	71.36	-337.48	14,434,350.65	1,704,655.12	39.74606836	
2,800,00	35.80	298.54	2,716.51	97.71	-387.37	14,434,377,00	1,704,605.23	39,74614108	-80,77164
2,900.00	38.70	299.78	2,796.10	127.22	-440.21	14,434,406.51	1,704,552.39	39.74622248	-80.77182 -80.77202
3,000,00	41.62	300.88	2,872.52	159,80	-495.85	14,434,439,09	1,704,496.75	39.74631235	
3,100.00	44.54	301.86	2,945.56	195.37	-554.15	14,434,474.66	1,704,438.45	39.74641043	-80.77223
3,200.00	47.47	302.75	3,015.01	233.82	-614.94	14,434,513.11	1,704,377.66	39.74651646	-80.77244
3,263.37	49.33	303.26	3,057.08	259.64	-654.68	14,434,538.93	1,704,337.92	39.74658764	-80.77258
Begin 49	.33° tangent					and the same of the same of	000000000		
3,300.00	49.33	303,26	3,080.95	274.88	-677.91	14,434,554.17	1,704,314.69	39.74662965	-80.77267
3,400.00	49.33	303,26	3,146,11	316.48	-741.33	14,434,595,77	1,704,251.27	39.74674435	-80.77289
3,500.00	49.33	303.26	3,211.28	358.09	-804.75	14,434,637,38	1,704,187.84	39.74685905	-80.77312
3,600.00	49.33	303.26	3,276.45	399.69	-868.18	14,434,678.98	1,704,124.42	39.74697375	-80.77334
3,700.00	49.33	303.26	3,341.61	441.30	-931.60	14,434,720.58	1,704,061.00	39,74708845	-80.77357
3,800.00	49.33	303.26	3,406.78	482.90	-995.02	14,434,762.19	1,703,997.58	39.74720314	-80.77379
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	-80.77402
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	-80.77424
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	-80,77447
4,200.00	49.33	303.26	3,667.44	649.32	-1,248.72	14,434,928.61	1,703,743.88	39.74768193	-80.77469
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	-80,77492
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	-80.77515
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	-80,77537
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	-80.77560
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	-80.77582
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	-80.77605
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	-80.77627

4705102055 JUN 1 1 2018



Planning Report - Geographic

WV Department of Environmental Protection

Database: Company: Project: Site:

Well:

DB_Aug0116_LT_v14 Tug Hill Operating LLC Marshall County, West Virginia.

Hillrock/Simms Hillrock 04 HM (D) Wellbore: Original Hole

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference: Survey Calculation Method: Well Hillrock 04 HM (D) GL @ 1219.00ft GL @ 1219.00ft

Grid Minimum Curvature

anned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
		- 60					4 700 000 50		TAN CARCAN
5,000.00	49,33	303.26	4,188.76	982,15	-1,756.10	14,435,261.44	1,703,236.50	39.74857949	-80.77650
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	-80.77672
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	-80.77695 -80.77717
5,300.00	49,33	303.26	4,384.26	1,106,97	-1,946.37	14,435,386,26	1,703,048.23	39.74892356	
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 39.74915294	-80.7774
5,500.00	49.33	303.26	4,514.59	1,190.18	-2,073.22	14,435,469.46	1,702,919.38		-80.7776: -80.7778:
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	-80.7780
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	-80.7783
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 39.74961170	-80.7785
5,900.00	49.33	303.26	4,775.25	1,356.60	-2,326.91	14,435,635.88	1,702,665.69		
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	-80.7787 -80.7789
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	-80.7792
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 39.75007045	-80.7794
6,300.00	49.33	303.26	5,035.92	1,523.01	-2,580.61	14,435,802.30	1,702,412.00	39,75017045	-80.7796
6,400.00	49.33	303.26	5,101.08	1,564.62	-2,644.03	14,435,843,91	1,702,348,57		-80,7798
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 39.75041451	-80.7801
6,600.00	49.33	303.26	5,231.41	1,647.83	-2,770.88	14,435,927.11	1,702,221,73	39.75052919	-80.7803
6,700.00	49.33	303.26	5,296.58	1,689.43	-2,834.30	14,435,968.72	1,702,158.31		-80.7805
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 39.75075856	-80.7807
6,900.00	49.33 49.33	303.26 303.26	5,426.91	1,772.64	-2,961.14	14,436,051.93	1,702,031.46 1,701,968.04	39.75087325	-80,7810
7,000.00			5,492.08	1,814.25	-3,024.57	14,436,093,53			-80.7812
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	-80.7814
7,200.00	49.33 49.33	303.26 303.26	5,622.41 5,643.33	1,897.45	-3,151.41	14,436,176.74	1,701,841.19	39.75110261	-80.7815
7,232.10			3,043.33	1,910.81	-3,171.77	14,436,190.10	1,701,820.83	39,75113943	-00.7610.
	°/100' build/tu		5 000 00	4.005.00			4 704 770 00	00 75400040	20.7040
7,300.00	44.06	297.37	5,689.90	1,935.82	-3,214.32	14,436,215.11	1,701,778.28	39.75120840	-80.7816
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	-80.7818
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	-80.7820
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	-80.7822 -80.7824
7,700.00	27.52 30.37	231.00 211.09	6,024.69	1,941.86	-3,418.00	14,436,221.14	1,701,574.61	39.75122634 39.75112692	-80.7825
7,800.00	35.66	195.44	6,112.40	1,905.58	-3,449.08	14,436,184.87	1,701,543.52		-80.7825
7,900.00			6,196.38	1,855.71	-3,469.95	14,436,135.00	1,701,522.66	39.75099010	-80.7826
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	
8,100.00	50.20 58.44	174.96 167.98	6,343.14	1,721.63	-3,478.81	14,436,000.92	1,701,513.80	39.75062193	-80.7826 -80.7825
8,200.00 8,300.00	67.01	162.17	6,401.46	1,641.49	-3,466.54	14,435,920.78	1,701,526.07	39.75040176	-80.7825
			6,447.27 6,479.19		-3,443.51	14,435,835.07	1,701,549.09	39,75016624 39,74992251	
8,400.00 8,500.00	75.76 84.61	157.05 152.32	6,495.23	1,467.11	-3,410.43 -3,368.31	14,435,746.40 14,435,657.46	1,701,582,17 1,701,624,30	39.74967798	-80.7823 -80.7822
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	-80.7821
			0,433.00	1,555.84	-3,343.83	14,435,615,23	1,701,040.00	38.74833034	-50.7621
8,600.00	.10° lateral se 89.10		6 400 77	4 204 46	2 240 25	44 405 570 45	4 704 670 06	20.74042027	-80.7820
8,700.00	89.10	150.00	6,499.77 6,501.34	1,291.16 1,204.57	-3,319.25 -3,269.25	14,435,570.45	1,701,673.36	39.74943867 39.74920054	-80.7818
8,800.00	89.10	150.00	6,502.90	1,117.98	-3,269.25	14,435,483,86	1,701,723.36 1,701,773.35	39.74896240	-80.7817
8,900.00	89.10	150.00	6,504.46			14,435,397.27 14,435,310.68		39.74872426	-80.7815
9,000.00	89.10	150.00	6,506.02	1,031.39 944.80	-3,169,26 -3,119,26	14,435,310.68	1,701,823.35 1,701,873.34	39.74848613	-80.7813
9,100,00	89,10	150.00	6,507.59	858.21	-3,119.26	14,435,137.49	1,701,923.34	39.74824799	-80.7811
9,200.00	89.10	150.00	6,509.15	771.62	-3,069.26		1,701,923.34	39.74800985	-80.78099
9,300.00	89.10	150.00	6,510.71	685.03	-2,969.27	14,435,050,90 14,434,964.31	1,702,023.33	39.74777171	-80.7808
9,400.00	89.10	150.00	6,512.27	598.43		100 pt 10	SOUTH CALLET AND THE STATE OF T		-80.7806
9,500.00	89.10	150.00	6,513.84	511.84	-2,919,27 -2,869,28	14,434,877.72 14,434,791.13	1,702,073,33	39.74753358 39.74729544	-80.7806
9,600.00	89.10	150.00	6,515.40	425.25	-2,819.28	14,434,791.13	1,702,123.33	39.74705730	-80.78028
9,700.00	89.10	150.00	6,516.96	338.66	-2,769.28	14,434,704,54	1,702,173.32	39.74681916	-80.7801
9,800.00	89.10	150.00	6,518.53	252.07	-2,769.26	14,434,531.36	1,702,223.32	39.74658102	-80.77993
9,900.00	89.10	150.00	6,520.09	165.48	-2,719.29	14,434,444.77	1,702,323.31	39.74634288	-80.77975





JUN 1 1 2018

Database: Company: Project:

DB_Aug0116_LT_v14 Tug Hill Operating LLC Marshall County, West Virginia.

Site: Hillrock/Simms Hillrock 04 HM (D) Well: Wellbore: Original Hole

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference: Survey Calculation Method: GL @ 1219.00ft GL @ 1219.00ft Grid

Minimum Curvature

Well Hillrock 04 HM (D) WV Department of Environmental Protection

Design: revo

nned 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	-80,779586
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	-80,779403
10,200.00	89.10	150.00	6,524.78	-94.29	-2,519.30	14,434,185.00	1,702,473.30	39.74562846	-80.77922
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	-80.77904
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	-80.77887
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	-80.77869
10,600.00	89.10	150.00	6,531.03	-440.65	-2,319.32	14,433,838.64	1,702,673.29	39.74467589	-80.77851
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	-80.77834
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	-80.77818
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	-80.77798
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	-80.77780
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	-80.77763
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	-80.77745
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	-80,77727
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	-80,77710
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	-80,77692
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	-80,77674
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	-80,77657
N. C. W. W. L. C. S. L. E.	89.10	150.00	6,549.78	-1,479.74	-1,719.36	14,432,799.56	1,703,273.24	39.74181817	-80,77639
11,800.00	89,10	150.00	6,551.34	-1,566.33	-1,669.36	14,432,712.97	1,703,323.24	39.74158003	-80.77621
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	89.10	150.00	6,552.91	-1,652.92	-1,619.37	14,432,626,38	1,703,373.23	39.74134188	-80,77603
12,000.00		150.00	6,554.47	-1,739.51	-1,569.37	14,432,539.79	1,703,423.23	39,74110373	-80,77586
12,100.00	89.10			FOR COOK	-1,519.37	14,432,453.19	1,703,473.23	39.74086559	-80.77568
12,200.00	89.10	150.00	6,556.03	-1,826.10		14,432,366.60	1,703,523.22	39.74062744	-80.77550
12,300.00	89.10	150.00	6,557.59	-1,912.69	-1,469,38		1,703,523.22	39.74038930	-80.77533
12,400.00	89.10	150.00	6,559.16	-1,999.28	-1,419.38	14,432,280.01	1,703,623.22	39.74015115	-80.77515
12,500.00	89.10	150.00	6,560.72	-2,085.87	-1,369.38	14,432,193.42		39,73991300	-80.77497
12,600.00	89.10	150.00	6,562.28	-2,172.46	-1,319.39	14,432,106.83	1,703,673.21	39.73967485	-80.77479
12,700.00	89.10	150.00	6,563.85	-2,259.05	-1,269.39	14,432,020.24	1,703,723,21	39.73943671	-80.77462
12,800.00		150.00	6,565.41	-2,345.64	-1,219.39	14,431,933.65	1,703,773.21	39.73919856	-80.77444
12,900.00		150.00	6,566.97	-2,432.23	-1,169.40	14,431,847.06	1,703,823.20	39.73896041	-80.77426
13,000.00	89.10	150.00	6,568.53	-2,518,82	-1,119,40	14,431,760.47	1,703,873.20	39.73872226	-80.77409
13,100.00	89.10	150.00	6,570.10	-2,605.41	-1,069.41	14,431,673.88	1,703,923,19		-80.7739
13,200.00		150.00	6,571.66	-2,692,00	-1,019.41	14,431,587.29	1,703,973.19	39,73848411	-80.7737
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 39.73800781	-80.7735
13,400.00		150,00	6,574.79	-2,865.18	-919.42	14,431,414.11	1,704,073.18		-80.7733
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	
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	-80.77320
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	-80.7730
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	-80.7728
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	-80.77267
14,000.00		150.00	6,584.16	-3,384.73	-619.44	14,430,894.57	1,704,373.16	39.73657891	-80.77249
14,100.00		150.00	6,585.72	-3,471.32	-569.44	14,430,807.98	1,704,423.16	39,73634076	-80.7723
14,200.00		150.00	6,587.29	-3,557.91	-519.44	14,430,721.39	1,704,473.15	39.73610261	-80.77214
14,300.00		150.00	6,588.85	-3,644.50	-469.45	14,430,634.80	1,704,523.15	39.73586446	-80.7719
14,400.00		150.00	6,590.41	-3,731.09	-419.45	14,430,548.21	1,704,573.15	39.73562630	-80.77178
14,500,00		150.00	6,591.98	-3,817.68	-369.46	14,430,461.62	1,704,623,14	39.73538815	-80.7716
14,600.00		150.00	6,593.54	-3,904.27	-319,46	14,430,375.03	1,704,673.14	39,73515000	-80.77143
14,700.00		150.00	6,595.10	-3,990,86	-269.46	14,430,288.44	1,704,723.14	39,73491185	-80.7712
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	-80.7710
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	-80.7709
15,000.00		150,00	6,599.79	-4,250.63	-119.47	14,430,028.67	1,704,873.12	39.73419738	-80,7707
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	-80.7705
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	-80.7703
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	-80.77019
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	-80.7700



Database: Company: Project: DB_Aug0116_LT_v14 Tug Hill Operating LLC Marshall County, West Virginia.

Site: Hillrock/Simms
Well: Hillrock 04 HM (D)
Wellbore: Original Hole
Design: rev0

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference: Survey Calculation Method: Well Hillrock 04 HM (D) GL @ 1219.00ft GL @ 1219.00ft

Grid Minimum Curvature

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	-80,769841
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	-80.769664
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	-80.769487
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	-80,769310
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	-80.769133
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	-80.768956
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	-80.768779
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	-80.768602
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	-80.768425
15,400.00	89.10	150.00	6,621.67	-5,462.90	580.48	14,428,816.40	1,705,573.07	39.73086320	-80.768248
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	-80.76807
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	-80.76789
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	-80.76771
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	-80.767540
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	-80.767363
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	-80.76718
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	-80.767009
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	-80.766833
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	-80.76665
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	-80.76647
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	-80.76630
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	-80.76612
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	-80.76594
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	-80.76576
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	-80.765593
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	-80.76541
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	-80.76523
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	-80.76506
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	-80.76488
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	-80.76470
18,468.86	89.10	150,00	6,654.00	-7,254.33	1,614,83	14,427,024.97	1,706,607.43	39.72593600	-80.76458

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle	Dip Dir.	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Hillrock 04 HM LP - plan hits target cente - Point	0.00 er	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 er	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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Database: Company: Project: DB_Aug0116_LT_v14
Tug Hill Operating LLC
Marshall County, West Virginia.

Site: Well: Wellbore: Design:

Hillrock/Simms
Hillrock 04 HM (D)
Original Hole
rev0

Local Co-ordinate Reference:

TVD Reference: MD Reference: North Reference:

Survey Calculation Method:

Well Hillrock 04 HM (D) GL @ 1219.00ft

GL @ 1219.00ft Grid

Minimum Curvature

Measure	d Vertical	Local Goo	rdinates		
Depth (ft)	Depth (ft)	+N/-S	+E/-W	Comment	
200		(ft)	(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/turn	
3,263	.37 3,057.08	259.64	-654.68	Begin 49.33° tangent section	
7,232	10 5,643.33	1,910.81	-3,171.77	Begin 10°/100' build/turn	
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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JUN 1 1 2018

WW-9 (4/16) JUN 1 1 2018

WV Department of Environmental Protection API Number 47 - 051

STATE OF WEST VIRGINIA

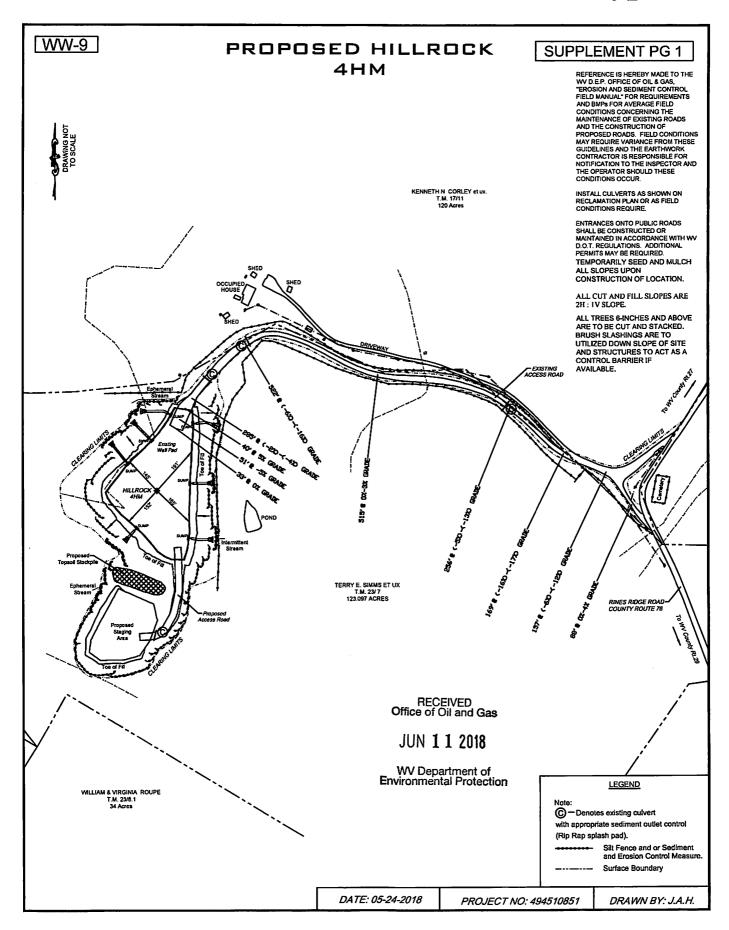
Operators We () N5 Hillisek () M2 0 5 5 TRGINIA

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	o complete the proposed well work? Yes V No
Will a pit be used? Yes No	the first section of the section of
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 Tanes will be used with proper containing
Proposed Disposal Method For Treated Pit Wa	istes:
Reuse (at API Number	C Permit Number_UIC 2459, UIC 965, UIC 359, UIC 2D0732540, UIC 2D0732523) orm WW-9 for disposal location)
Will closed loop system be used? If so, describe: Yes	- For Vertical and Horizontal Drilling
Drilling medium anticipated for this well (vertical and I	norizontal)? 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	ht
Drill cuttings disposal method? Leave in pit, landfill, re	emoved offsite, etc. All drill cuttings to be disposed of in a Landfill
-If left in pit and plan to solidify what medium	
-Landfill or offsite name/permit number? Wetze	County Sanitary Landfil (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfil, LLC (SAN1405 / PA DEP EC#1388426)
Permittee shall provide written notice to the Office of C West Virginia solid waste facility. The notice shall be p where it was properly disposed.	oil and Gas of any load of drill cuttings or associated waste rejected at any provided within 24 hours of rejection and the permittee shall also disclose
on August 1, 2005, by the Office of Oil and Gas of the provisions of the permit are enforceable by law. Viol law or regulation can lead to enforcement action. I certify under penalty of law that I have perapplication form and all attachments thereto and the	west Virginia Department of Environmental Protection. I understand that the ations of any term or condition of the general permit and/or other applicable ersonally examined and am familiar with the information submitted on this at, based on my inquiry of those individuals immediately responsible for tion is true, accurate, and complete. I am aware that there are significant a possibility of fine or imprisonment. RECEIVED Office of Oil and Gas
Company Official (Typed Name) Jim Pancake	JUN 1 1 2018
Company Official Title Vice President Geoscience	
1	WV Department of Environmental Protection
Subscribed and sworn before me this 25	ay of Man, 20 18
	The state of the s
My commission expires 10/12/2019	NOTARIAL SEAL Sean Cotter, Notary Public City of Pittsburgh, Alleghens County

Tug Hill Operating, Ll	LC		
Proposed Revegetation Treatme	ent: Acres Disturbed 11.63	Prevegetation pl	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/ac	re	
	Seed	Mixtures	
Тетр	porary	Perma	nent
Seed Type Annual Ryegrass	lbs/acre 40	Seed Type Orchard Grass	lbs/acre 12
Spring Oats	96	Ladino	3
	н.	White Clover	2
Plan Approved by:	n Undeden		
Comments:		RECEIVED _	
		Office of Oil and Gas	
		JUN 1 1 2018	-
		WV Department of Environmental Protection	
Oil and Gas Ins	spector	n - L-lie	RECEIVED Office of Oil and G
Title: Oil and Gas Ins	spector	Date: 5/25/18	Office of Oil and G





Well Site Safety Plan

Tug Hill Operating, LLC

Ju 25/18

Well Name: Hillrock 4HM

Pad Location: Simms Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17: Northing: 4,399,577.13

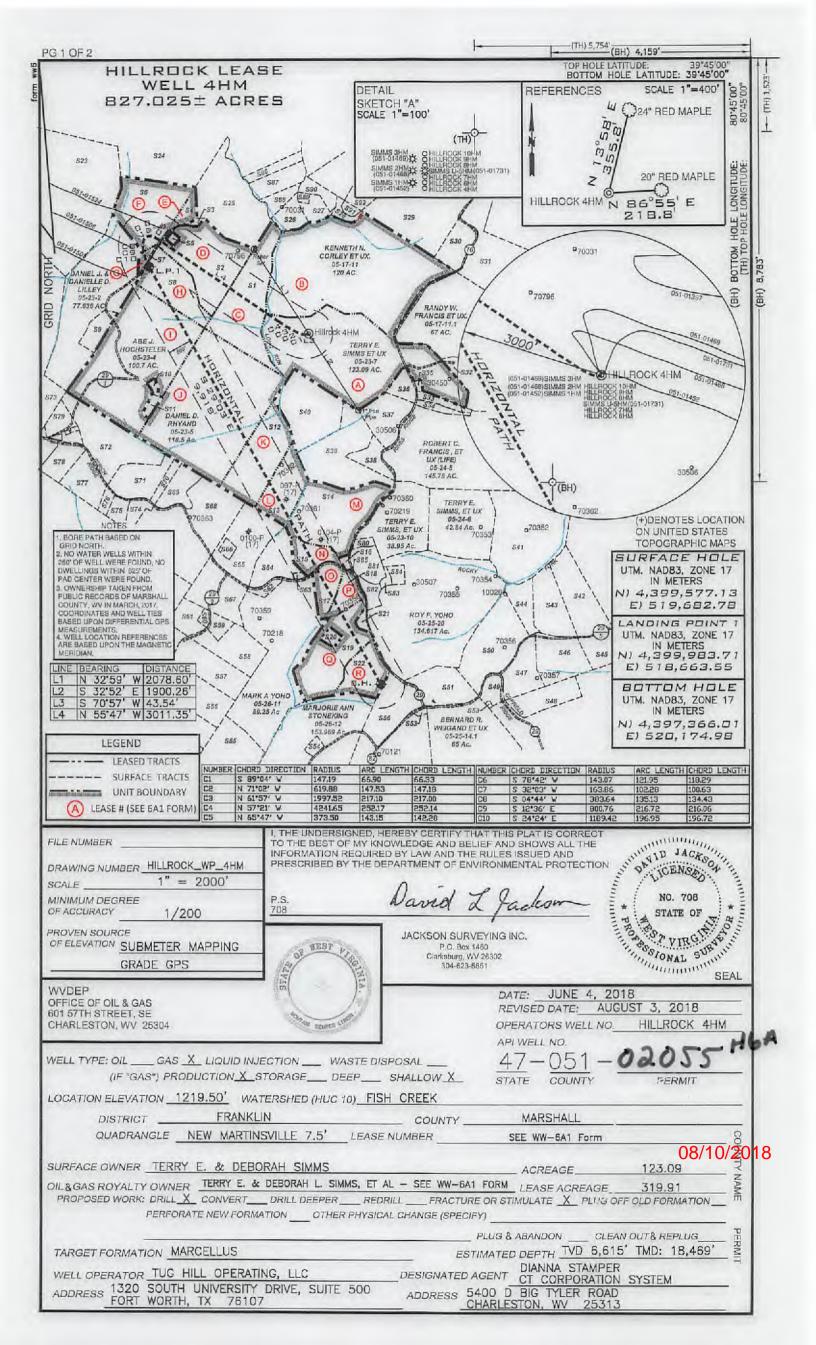
Easting: 519,682.78

May 2018

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JUN 11 2018

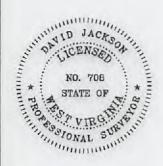
JUN 1 1 2018 SUPPLEMENT PG 2 PROPOSED WW-9 WV Department of Environmental Protection HILLROCK 4HM U WEEPING WILLOW LANE LANE HARRIS-LANE LANE HILLROC 4HM Well RINES RIDGE ROAD Gas PIPELINE LANE NOTE: CLOSEST WATER PURVEYOR GRANDVIEW - DOOLIN PUBLIC SERVICE DISTRICT PROCTOR, WV LAT:39.7136943 LON:-80.8260157 LOCATED S 54-04 W AT 19,575' FROM HILLROCK 4HM SURFACE LOCATION 494510851 **OPERATOR** TOPO SECTION LEASE NAME TUG HILL TUG HILL OPERATING, LLC **NEW MARTINSVILLE 7.5'** HILLROCK 380 SOUTHPOINTE BLVD SUITE 200 OPERATING SCALE: DATE 1" = 2000' CANONSBURG, PA 15317 DATE: 05-24-2018



PG2OF2HILLROCK LEASE WELL 4HM 827.025± ACRES

		EL ADJOINER OWNER	ACRES
51	05-23-06	James A. Channing, et al	48.0
S2	05-18-21	Curtis E. & Michelle J. Hall	43.119
53	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. Lassan, 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
59	05-23-2.2	Jessica N. & Andrew L. Jones	7.636
510	05-23-4.2	James S. & Jeanne B. Hall	1.169
511	05-23-4.1	James S. & Jeanne B. Hall	2.1575
512	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		46.482
S15	05-23-11.4		10.879
S16	05-23-11.2	Evelyn Hudson	1.154
S17	05-23-11.3	Colin R. Yoho	11.29
518	05-23-11.5	Roy F. Yoho	9.25
519	05-25-18	Joseph Johnson, et ux (Life)	37.746
520	05-25-18.1	Pamela Joan Ferrell, et vir	2,491
521	05-25-19	Joseph Johnson, et ux (Life)	1.973
522	05-25-17	Emily Jones Irrevocable Trust	22.79
523	05-18-24	Duane Brunn	102.0
524	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. Rostall	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	05-17-10	James A. Corley, et ux	12.478
S31	05-17-9.4	Vicki L. Bowen	60.3
532	05-24-01		
533	05-24-5.1	Linda L. Hendrickson	175.0 4.6
534	05-24-5.2	James D. Watkins, et ux	
535		James D. Watkins, et ux	3.151
536	05-23-7.1	H.J. Weigand, et ux	0.549
S37	05-23-7.2	H.J. Weigand, et ux	6.354
	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	100,723
542	05-25-1.3	Michael E. & Annie A. Chapman	26.2
543	05-25-1.2	William Jr. & Andrea J. Dubiel	20.1
544	05-25-1.1	Ryan A. & Jacqueline E. Layman	
S45	05-25-13.3	Ferda	17.21
S46	05-25-1.5	Ryan J. Bratton	21.35
S47	05-25-13	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-PARC		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
560	05-26-21	Richard Joseph Otte, et ux	1.25
561	05-26-22	Richard Joseph Otte, et ux	B.3
562	05-23-12	Mark A. Yoho	3.05
563	05-23-13.1	James R. & Pamela J. Ferrell	0.7625
564	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.	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
570	05-23-16.1	Donald B. Henry	1.97
S71	05-23-16	Roy Friend Yoho Sr.	18.03
572	05-23-18	Abe J. Hochstetler	35.382
573	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
578	05-23-17.1	Curtis E. Hall, et ux	10.051
579	05-23-18.1	Mark A. Yoho	7.8
580	05-25-11.9	Bryan L. Huggins	1.835
S81	05-25-11	Roy F. Yaho	3.445
582	05-25-20.3	James A. & Jo C. Estep	4.49
583	05-25-20.2	James M. Zombotti	1.347
584	05-25-20.1	James M. Zombotti	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	5.45
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
590	05-18-13.8	Lori D. Carpenter	5.545
591	05-17-12.1	Williams Ohio Valley Midstream, LLC	1.67
592	05-17-10.5	Williams Ohio Valley Midstream, LLC	4.24



P.S. David L Jackson

08/10/2018



DPERATOR'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

*See attached pages

RECEIVED Office of Oil and Gas

JUN 1 1 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 Www.

Its: Permitting Specialist

Page 1 of

Operator's Well No. Hillrock - 4HM

WW-6A1 Supplement

JUN 11 2018

WV Department of 5 * 0
Environmental Protection

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Royalty Book Page Lease No. Tags Parcel Assignment Assignment Assignment Assignment Assignment Assignment 24/39 AB Resources LLC, Chief 85/643 Chief Exploration 8 oration & Development LLC, noment and Radler 2000 Lim Radler 2000 Limited Partnership an TERRY E SIMMS AND DEBORAH L 20/348 Trienergy, Inc to AB Resources 21/491 AR Resources LLC to Chief Partnership to Energlus Resources Enerplus Resources Corp to Gastar 21/41 Gastar Exploration USA Inc to 36/9 Gastar Exploration, Inc. to TH xploration & Development LLC RIENERGY, INC 666 529 ploration USA, Inc. 10°14140 Sastar Exploration, Inc. 21/41 Gastar Exploration USA Inc to 36/9 Gastar Exploration, Inc. to TH SASTAR EXPLORATION USA, INC 697 Exploration II, LLC 5-17-11 SHARON MIDCAP 152 Gastar Exploration, Inc 10°14126 29/325 Chesapeake Appalachia LLC 41/238 Statoli USA Onshore ROBERT J HENRY HESAPEAKE APPALACHIA LLC to Statoil USA Onshore Properties Inc. Properties Inc to TH Exploration, LLC 10°17186 5-23-6 23/127 Chesapeake Appalachia, LLC to 41/238 Statoli USA Onshore AMES J. CAMPBELL BETTY J. Statoil USA Onshore Properties, Inc 10*17145 CAMPBELL CHESAPEAKE APPALACHIA LLC 685 Properties Inc to TH Exploration, LLC CAROLYN CAMPBELL BRITTON 23/127 Chesapeake Appalachia, LLC to 41/238 Statoii USA Onshore Statoil USA Onshore Properties, Inc ROBERT C. BRITTON CHESAPEAKE APPALACHIA LLC 685 Properties Inc to TH Exploration, LLC 10*17146 5-18-21 23/127 Chesapeake Appalachia, LLC to 41/238 State# USA Onshore Properties Inc to TH Exploration, LLC JOANN J. PARSONS GARY D. PARSONS CHESAPEAKE APPALACHIA LLC 470 Statoll USA Onshore Properties, Inc 10°17147 23/127 Chesapeake Appalachia, LLC to 41/238 Statoil USA Onshore DONALD E. CAMPBELL JUNE L. CAMPBELL CHESAPEAKE APPALACHIA LLC Statoli USA Onshore Properties, Inc Properties Inc to TH Exploration, LLC 10°17148 5-18-21 23/127 Chesapeake Appalachia, LLC to Stated USA Onshore Properties, inc Properties Inc to TH Explorat 10°17149 HESAPEAKE APPALACHIA LLC 685 Properties Inc to TH Exploration, LLI 23/127 Chesapeake Appalachia, LLC to 41/239 State# USA Onshore IDA L. CAMPBELL 685 Statoil USA Onshore Properties, Inc Properties Inc to TH Exploration, LLC CHESAPEAKE APPALACHIA LLC 488 10*17150 5-18-21 10°22169 5-18-21 BARBARA KITTLE TH EXPLORATION, LLC 10°22169 5-18-21.1 BARBARA KITTLE TH EXPLORATION, LLC 954 23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc JAMES J. CAMPBELL BETTY J. 41/738 State# USA Onthore CAMPBELL CHESAPEAKE APPALACHIA LLC 685 Properties Inc to TH Exploration, LLC 10°17145 5-18-21.1 CAROLYN CAMPBELL BRITTON 23/127 Chesapeake Appalachia, LLC to 41/238 Statoil USA Onshore 5-18-21.1 ROBERT C. BRITTON 685 Statoli USA Onshore Properties, Inc 10°17146 CHESAPEAKE APPALACHIA LLC 23/127 Chesapeake Appalachia, LLC to 41/238 Statoil USA Onshore Statoil USA Onshore Properties, Inc. 10°17147 IOANN J. PARSONS GARY D. PARSONS CHESAPEAKE APPALACHIA LLC Properties Inc to TH Exploration, LLC 23/127 Chesapeake Appalachia, LLC to 41/238 Statoli USA Onshore DONALD E. CAMPBELL JUNE L. Statoil USA Onshore Properties, Inc Properties Inc to TH Exploration, LLC 5-18-21.1 CAMPBELL CHESAPEAKE APPALACHIA LLC 685 10°17148 23/127 Chesapeake Appalachia, LLC to 41/238 Statofi USA Onshore WANDA M. BLAKE 685 tatoll USA Onshore Properties, Inc 10°17149 5-18-21.1 CHESAPEAKE APPALACHIA LLC 23/127 Chesapeake Appalachia, LLC to 41/238 Statoll USA Onshore 10°17150 5-18-21.1 IDA L. CAMPBELL CHESAPEAKE APPALACHIA LLC 685 488 Statoll USA Onshore Properties, Inc. Properties Inc to TH Exploration, LLC 21/41 Gastar Exploration USA Inc to 36/9 Gestar Exploration, Inc. to TH HOWARD N WAYNE SR AND WIFE GASTAR EXPLORATION USA, INC. Gastar Exploration, Inc Exploration II, LLC 10°14022 5-18-22 24/180 Trienergy Holdings LLC to 756/332 NPAR LLC to Chevron USA 32/370 Chevron USA Inc to Gastar 36/9 Gastar Exploration, Inc. to TH WILLIAM L WAYNE AND JANICE M W TRIENERGY HOLDINGS, LLC NPAR ILC Exploration Inc 10°14943 5-23-2.1 ABE J HOCHSTETLER AND ANNA E 957 10°21415 5-23-3 HOCHSTETLER TH EXPLORATION, LLC 23/127 Chesapeake Appalachia, LLC to 41/238 Statofi USA Onshore IAMES J. CAMPBELL BETTY J. CAMPBELL CHESAPEAKE APPALACHIA LLC 685 Statoll USA Onshore Properties, Inc. Properties Inc to TH Exploration, LLC 10°17145 15-23-3 22/127 Chesapeake Appalachia, LLC to 41/238 Statoil USA Onshore CAROLYN CAMPBELL BRITTON 10°17146 CHESAPEAKE APPALACHIA LLC Statoll USA Onshore Properties, Inc Properties Inc to TH Exploration, LLC

WW-6A1 Supplement

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
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*17147		5-23-3	JUANUA J. PANSONS GANT O. PANSONS	CHESAFEARE AFFADACHIA EEC	70.	- 22	1.0	ilus.					James out of the Control of the Cont	Properties inc to 111 Exploration, ECC
			DONALD E. CAMPBELL JUNE L.										23/127 Chesapeake Appalachia, LLC to	41/238 Statoll USA Onshore
*17148	н	5-23-3	CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA .	NA	NA .	NA	NA	Statoll USA Onshore Properties, Inc	Properties Inc to TH Exploration, LL
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)*17149	н	5-23-3	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	NA.	NA.	NA.	NA.	NA.	23/127 Chesapeake Appalachia, LLC to Statoli USA Onshore Properties, Inc	41/238 Statoli USA Onshore Properties Inc to TH Exploration, LL
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*17150	н	5-23-3	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA	NA .	NA	NA	NA .	Statoil USA Onshore Properties, Inc	Properties Inc to TH Exploration, LL
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*17145	١.	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, LI
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		l	CAROLYN CAMPBELL BRITTON										23/127 Chesapeake Appalachia, LLC to	41/238 Statoil USA Onshore
°17146	<u> </u>	5-23-4	ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LLC	1/8+	685	464	NA .	NA .	NA	NA	NA .	Statoil USA Onshore Properties, Inc	Properties Inc to TH Exploration, LL
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*17147	١.	5-23-4	JOANN J. PARSONS GARY D. PARSONS	CHESAPEAKE APPALACHIA LLC	1/8+	685	470	l _{NA}	NA	NA	NA	NA .	23/127 Chesapeake Appalachia, LLC to Statoil USA Onshore Properties, Inc	41/238 Statoli USA Onshore Properties Inc to TH Exploration, LL
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	ł		DONALD E. CAMPBELL JUNE L.					İ					23/127 Chesapeake Appalachia, LLC to	41/238 Statoli USA Onshore
0°17148	<u> </u>	5-23-4	CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	476	NA .	NA	NA	NA	NA .	Statoil USA Onshore Properties, Inc	Properties Inc to TH Exploration, LL
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0*17149	١,	5-23-4	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LLC	1/8+	685	482	lna	NA	l _{NA}	NA .	NA .	23/127 Chesapeake Appalachia, LLC to Statoli USA Onshore Properties, inc	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLI
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0*17150		5-23-4	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	488	NA .	NA .	NA .	NA .	NA .	Statoli USA Onshore Properties, Inc	Properties Inc to TH Exploration, LLI
0*22332	١.	5-23-4	DORIS WEST AND ROBERT WEST	TH EXPLORATION, LLC	1/8+	962	542	l _{na}	NA.	NA.	NA .	NA .	NA .	NA.
J 22332	† <u>'</u>	725-	DOND WEST AND ROOLER WEST	THE CONTINUES CONTINUES	7.	1								
	l					1								
0°22339	<u> </u>	5-23-4	BETTY LEE HOWARD LOY	TH EXPLORATION, LLC	1/8+	963	392	NA	NA .	NA	NA	NA .	NA	NA .
0*21222	١,	5-23-4	PATRICIA J SHAW KELLER	TH EXPLORATION, LLC	1/8+	946	43	l _{NA}	NA.	NA .	NA.	NA .	NA.	NA.
,	† <u>'</u>	1224	THINGS STATE RECEN		7-	1								
		1	JOYCE KAY BURTON AND SAMUEL C			1		{						
0*21774	<u> </u>	5-23-4	BURTON	TH EXPLORATION, LLC	1/8+	957	467	NA .	NA .	NA	NA	NA	NA .	NA .
	1	1												
0°21415	١,	5-23-4	ABE J HOCHSTETLER AND ANNA E HOCHSTETLER	TH EXPLORATION, LLC	1/8+	957	,	NA.	l _{NA}	NA.	NA.		NA.	NA.
U-21415	 	3-23-4	NOCHSTEILER	IN EAT CONSTION, LLC	1-25	1 -33					134		100	, man
	1													
0°22180		5-23-4	ANTHONY M AND CHANDRA TAYLOR	TH EXPLORATION, LLC	1/8+	949	186	NA .	NA .	NA .	NA .	NA .	NA	NA
	1							1				1		
0°14845	1.	5-23-4	STANLEY GUSTELY	GASTAR EXPLORATION USA, INC	1/8+	805	88	l _{NA}	NA.	NA.	NA.	l _{NA}	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
U 14045	 '-	2234	NAME OF STREET	OF THE ENTERON ON THE	*/0*	<u> </u>	- 60		Ţ	1	<u> </u>	Ť.	- Committee of the Comm	
					1				•				21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
0°14846		5-23-4	FAYE CAMPBELL	GASTAR EXPLORATION USA, INC	1/8+	805	91	NA	NA .	NA .	NA .	MA	Gastar Exploration, Inc	Exploration II, LLC
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	١.	L		GASTAR EXPLORATION USA, INC	1/8+	806	265			L.,			21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
0*14849	+-	5-29-4	DAVID GUSTELY	GASTAK EXPLORATION USA, INC	1/8+	- 200	763	110	, ma	100	100	<u> </u>	Gester Exproversion, Inc	ENAMORATION IL ELL
	1	1			1	1							21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
0*14850		5-23-4	CLARENCE EMERY	GASTAR EXPLORATION USA, INC	1/8+	805	94	NA	NA	NA	NA	KA	Gastar Exploration, Inc	Exploration II, LLC
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	1					l	l	L	L		L.,	L	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
0°14851	+	5-23-4	JOHN OBLOY	GASTAR EXPLORATION USA, INC	1/8+	806	262	NA .	NA	NA .	INA	INA .	Gastar Exploration, Inc	Exploration II, LLC
	1				1		1						21/41 Gastar Exploration USA inc to	36/9 Gastar Exploration, Inc. to TH
10°14852	t	5-23-4	JOHN A. EMERY	GASTAR EXPLORATION USA, INC	1/8+	806	259	NA .	NA	NA .	MA	NA .	Gastar Exploration, Inc	Style Gastar Exploration, Inc. to TH Exploration II, LLC

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
				CACTAR EVOLORATION LIFE INC	1/8+	809	507	NA.	NA.	WA.	M7	DA.	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14853	-1	5-23-4	DURWOOD WRIGHT	GASTAR EXPLORATION USA, INC	1/8+	2.5	307			<u> </u>			Costal Expression; Sr.	Equipment (CC
													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14854		5-23-4	CATHERINE HUMMEL	GASTAR EXPLORATION USA, INC	1/8+	809	512	NA .	NA	NA	NA	NA	Gastar Exploration, Inc	Exploration II, LLC
1		5-23-4	JAMES D. DRAKE	GASTAR EXPLORATION USA, INC	1/8+	203	445	NA.	NA.	NA .	NA.	WA	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10°14855		5-23-4	JAMES D. DRAKE	GASTAR EXPLORATION OSA, INC	Дач	- 643			, , , , , , , , , , , , , , , , , , ,					
1													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14856	I	5-23-4	GATHA CHAMBERS	GASTAR EXPLORATION USA, INC	1/8+	808	454	NA .	NA	NA	NA .	MA	Gastar Exploration, Inc	Exploration II, LLC
1 1														
10°14850		5-23-4	KATHLEEN ROBERTSON	GASTAR EXPLORATION USA, INC	1/8+	809	522	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 14650		3-23-4	RATIFICE WINDOWN	S S I A S S S S S S S S S S S S S S S S	7.5		,,,,							
						ĺ							21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14861		5-23-4	NANCY WHITLATCH	GASTAR EXPLORATION USA, INC	1/8+	809	526	NA	NA .	NA .	NA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
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10°14862		5-23-4	ANN GUSTELY	GASTAR EXPLORATION USA, INC	1/8+	809	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
													21/41 Gastar Exploration USA inc to	36/9 Gastar Exploration, inc. to TH
10°14863		5-23-4	WILLIAM DAVIS CULLUM	GASTAR EXPLORATION USA, INC	1/8+	809	561	NA .	NA	NA	NA .	NA .	Gaster Exploration, Inc	Exploration II, LLC
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10°14864		5-23-4	CAROLYN DURWAY	GASTAR EXPLORATION USA, INC	1/8+	810	330	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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													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14865		5-23-4	VICKY STRAUSS	GASTAR EXPLORATION USA, INC	1/8+	810	325	NA	NA	NA .	NA	'NA	Gastar Exploration, Inc	Exploration II, LLC
													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14866	١,	5-23-4	GARY CARMICHAEL	GASTAR EXPLORATION USA, INC	1/8+	810	316	NA .	NA	NA	NA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
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									l				21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14868		5-23-4	WOODROW CAMPBELL, JR.	GASTAR EXPLORATION USA, INC	1/8+	813	454	NA .	NA	NA	INA .	RA .	Gastar Exploration, Inc	Exploration II, LLC
													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14869	1	5-23-4	RALPH VAUGHN TAYLOR	GASTAR EXPLORATION USA, INC	1/8+	813	561	NA	NA	NA .	NA .	KA	Gastar Exploration, Inc	Exploration II, LLC
	ŀ				1/8+	816	16	l	L.,			•••	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14870		5-23-4	DAVID CARMICHAEL	GASTAR EXPLORATION USA, INC	1/8+	816	16	INA .	INA .	NA .	MA	na .	Castar Exploration, Inc	Exploration II, LLC
	l												21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14871	1	5-23-4	BETTY PYSELL	GASTAR EXPLORATION USA, INC	1/8+	816	348	NA	NA	NA .	NA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
	1	1												1
l	Ι.	L	DWG OIL AND GAS ACQUISITIONS.	GASTAR EXPLORATION USA, INC	1/8+	817	312	 	NA.	NA.	l _{MA}		21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10°14872	 '	5-23-4	DWG DIL AND GAS ACQUISITIONS,	GASTAN EXPLONATION COSA, INC.	1,04		-312							
														36/9 Gastar Exploration, Inc. to TH
10°14877	1	5-23-4	GARY OBLOY	GASTAR EXPLORATION, INC	1/8+	836	112	NA .	NA	NA .	NA .	NA .	NA .	Exploration II, LLC
		l												
10*14878	١,	5-23-4	ARTHUR BRUCE COULTER	GASTAR EXPLORATION, INC	1/8+	839	519	l NA	NA	NA NA	RA .	NA	NA .	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10.14919	 '	15.23-4	THE PROPERTY OF THE PROPERTY O		T									
	1		1	1	1	ļ	1		1				21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14873	<u> </u>	5-23-4	RAYMOND MILLER	GASTAR EXPLORATION USA, INC	1/8+	821	44	NA .	NA	NA	NA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
					[<u> </u>
10*14874	١,	5-23-4	RICHARD MILLER	GASTAR EXPLORATION, INC	1/8+	822	260	NA .	NA .	NA	NA .	NA .	NA .	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
	Ė	1			T .									
														36/9 Gastar Exploration, Inc. to TH
10*14875		5-23-4	DAVID DRAKE	GASTAR EXPLORATION, INC	1/8+	827	273	NA .	NA .	INA	INA	NA	INA	Exploration II, LLC
1					1				1			1		as mount of the second of the
10°14876		5-23-4	SHIRLEY LARGENT	GASTAR EXPLORATION, INC	1/8+	827	228	NA	NA .	NA	NA	NA	NA .	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
														

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1	Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
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1 51 51 51 51 51 52 52	10*14879		5-23-4	THERESA RINE	GASTAR EXPLORATION, INC	1/8+	840	162	NA .	NA	NA .	NA .	NA	NA	Exploration It, LLC
1 51 51 51 51 51 52 52							ļ								
Part		١.		IDIC LUCAS	GASTAR EVOLORATION INC	1/84	R49	545	NA.	NA.	NA.	NA.	NA.	NA.	36/9 Gastar Exploration, Inc. to TH Exploration II. LLC
1 224 1	10-14880		>-23-4	IRIS LOCAS	GASTAR EXPEDIATION, INC.	1/01	343		in .		<u> </u>	<u> </u>	<u></u>		Liprovince Lice
1 224 1															36/9 Gastar Exploration, Inc. to TH
	10*14881	1	5-23-4	MARY WHITLATCH	GASTAR EXPLORATION, INC	1/8+	849	548	NA .	NA .	NA	NA	NA .	NA	Exploration II, LLC
															26/9 Cartes Evaluation Inc. to Th
1 514 March Ma	10*14882		5-23-4	GARY RINE	GASTAR EXPLORATION, INC	1/8+	849	551	NA	NA	NA	NA .	NA	NA	Exploration II, LLC
1 514 March Ma						ì									
1		١.	5.72.4	DAIN WISE	GASTAR EXPLORATION, INC.	1/8+	852	252	NA.	NA NA	NA.	NA .	NA.	l _{NA}	36/9 Gastar Exploration, Inc. to TH Exploration II. LLC
1 2-1	10 14003		7.54	PAGE WISE											
P	ļ '				ļ										36/9 Gastar Exploration, Inc. to TH
1 1 23-4 ORIGINAL SECTION OF SETS EXPONENCY CO. 1, 10 15 15 0.0 M. N.	10*14884		5-23-4	RENEE HAGERTY	GASTAR EXPLORATION, INC	1/8+	852	255	NA	NA .	NA .	INA	INA	NA .	Exploration II, LLC
1 1 23-4 ORIGINAL SECTION OF SETS EXPONENCY CO. 1, 10 15 15 0.0 M. N.	ł														16/9 Gester Evolvention Inc. to TH
1 2-24 1 2-24	10°14885	. 1	5-23-4	HOWARD RINE	GASTAR EXPLORATION, INC	1/8+	854	601	NA	NA	MA	NA_	na .	NA .	Exploration II, LLC
1 2-24 1 2-24						İ							ĺ		
1		١.	5.22.4	IODIAONO	GASTAR EXPLORATION INC	1/8•	854	604	NA .	l _{NA}	NA .	NA.	NA.	l _{NA}	36/9 Gastar Exploration, Inc. to TH Exploration II. LLC
1 5-24 ORSTHAM ADDRESS GAMEA PROMOTION C 1/2 427 395 304	10 14800		7	Journalia		1		- 11							
1 5-35-4 OMILINE EUTLES 0.51-5-4 OMILINE EUTLES														36/9 Gastar Exploration, Inc. to TH	
1 5-23-4 3-23-4	10°14887		5-23-4	CHRISTINA ROBERTS	GASTAR EXPLORATION, INC	1/8+	867	392	NA	NA .	NA .	INA .	NA .	NA .	Exploration II, LLC
1 5-23-4 3-23-4	İ							ĺ							16/9 Gastas Symbosotion for to 714
10 1 23 4 MARCH TORS MARCH TORS 19 19 19 19 19 19 19 1	10*14888	1	5-23-4	DARLENE BUTLER	GASTAR EXPLORATION, INC	1/8+	867	395	NA .	NA	NA.	RA	NA .	NA	Exploration II, LLC
10 1 23 4 MARCH TORS MARCH TORS 19 19 19 19 19 19 19 1						1									
1 2-24 RIBERT MALCHE CALTAL EPICOLATICAL RC 1/8+ 270 40 RA RA RA RA RA RA RA R		l .	6.77.4	UAROLD VOUC	GASTAR EVELOPATION INC	1/84	870	1 ,,	l _{NA}	l _{NA}	NA.	NA.	NA.	NA.	36/9 Gastar Exploration, Inc. to TH Exploration II. LLC
1 2-214 SERVI MAJORE R GATAR DEPLOATION, INC 170 40 70 70 70 70 70 70	10.14883		3-23-4	INACCE TONO	GOTAL EXTERNATION, INC.	1 20									
E0*14092 1 5-23-4 NANCY F PE AND STEPRIN N PE CASTAX EDITIONAL SEC 1/8+ 545 605 NA							1								36/9 Gastar Exploration, Inc. to TH
1 523-4 1 523-4	10°14890	1	5-23-4	HENRY MALONE IR	GASTAR EXPLORATION, INC	1/8+	870	40	NA .	NA	NA	IKA .	NA .	MA .	Exploration II, LLC
1 523-4 1 523-4							ł	İ							16/9 Garter Employation for to TH
10°17502 1 5-23-4 PATRICIA E GUSTILLY THE EPROBATION, LIC 1/8+ 9-12 334 MA NA NA NA NA NA NA NA NA NA NA NA NA NA	10*14891	ı	5-23-4	NANCY F FYE AND STEPHEN M FYE	GASTAR EXPLORATION, INC	1/8+	885	606	NA	NA	NA .	NA .	NA .	NA .	Exploration II, LLC
10*17502 1 5-23-4 PATRICIA E GUSTELY THE EPROBATION, LIC 1/8+ 942 334 NA NA NA NA NA NA NA NA NA NA NA NA NA							ŀ		•						
10*17502 1 5-23-4 PATRICIA E GUSTELY THE EPROBATION, LIC 1/8+ 942 334 NA NA NA NA NA NA NA NA NA NA NA NA NA	10*16034	١.	5.23.4	GASTON FAMILY INVESTMENTS LLC	TH EXPLORATION, LLC	1/8+	959	502	NA .	NA NA	NA .	NA.	NA NA	NA .	NA
1 5-23-4 DONALD 5 BOBOVNICK AND DOLORES THE EPICINATION, LLC 1/8+ 942 346 MA	10 1000		1												
1 5-23-4 DONALD 5 BOBOVNICK AND DOLORES THE EPICINATION, LLC 1/8+ 942 346 MA		i	1					l							
1 5-23-4 16 DBOOVNIK THE EXPLORATION, LLC 1/8+ 942 346 NA NA NA NA NA NA NA NA NA NA NA NA NA	10°17502	<u> </u>	5-23-4	PATRICIA E GUSTELY	TH EXPLORATION, LLC	1/8+	942	334	NA .	NA	NA	INA .	INA I	INA	NA .
1 5-23-4 16 DBOOVNIK THE EXPLORATION, LLC 1/8+ 942 346 NA NA NA NA NA NA NA NA NA NA NA NA NA				DONALD S ROROVNIK AND DOLORES						l					
10°17535 5-23-4 REBECCA HAGERTY TH EXPLORATION, LLC 1/8+ 929 580 NA NA NA NA NA NA NA NA NA NA NA NA NA	10*17532	1	5-23-4	J BOBOVNIK	TH EXPLORATION, LLC	1/8+	942	346	NA	NA	NA .	NA .	NA .	NA .	NA
10°17535 5-23-4 REBECCA HAGERTY TH EXPLORATION, LLC 1/8+ 929 580 NA NA NA NA NA NA NA NA NA NA NA NA NA															
10°17535 1 5-23-4 REDECCA MAGERTY TH EXPLORATION, LLC 1/8+ 929 580 NA NA NA NA NA NA NA NA NA NA NA NA NA	10°17539	١.	5-23-4	JOANN HAGERTY	TH EXPLORATION, LLC	1/2+	942	342	NA	NA .	NA .	NA .	NA	NA	NA
10°17593 I 5-23-4 MAYER THEXPLORATION, LLC 1/8+ 929 580 NA NA NA NA NA NA NA 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 NA NA NA NA NA NA NA	1	Ì	1	RONALD L MAYER AND DEBRA A									<u></u>		L j
10°17594 I 5-23-4 MEGAN HAGERTY TH EXPLORATION, LLC 1/8+ 942 362 NA NA NA NA NA NA NA NA NA NA NA NA NA	10°17535	<u> </u>	5-23-4	MAYER	TH EXPLORATION, LLC	1/8+	929	580	NA .	NA .	NA	INA .	INA	INA	NA
10°17594 I 5-23-4 MEGAN HAGERTY TH EXPLORATION, LLC 1/8+ 942 362 NA NA NA NA NA NA NA NA NA NA NA NA NA		1					ì	1							1
10°137595 I 5-23-4 THOMAS E RINE AND MARY P RINE TH EXPLORATION, LLC 1/8+ 929 572 NA NA NA NA NA NA NA NA NA NA	10*17593	<u> </u>	5-23-4	REBECCA HAGERTY	TH EXPLORATION, LLC	1/8+	942	350	NA .	NA	NA	NA	NA	NA .	NA .
10°137595 I 5-23-4 THOMAS E RINE AND MARY P RINE TH EXPLORATION, LLC 1/8+ 929 572 NA NA NA NA NA NA NA NA NA NA		1													
10°177595 I 5-23-4 THOMAS ERINE AND MARY PRINE TH EXPLORATION, LLC 1/8+ 929 572 NA NA NA NA NA NA NA NA NA NA	10°17594	١.	5-23-4	MEGAN HAGERTY	TH EXPLORATION, LLC	1/8+	942	362	l _{NA}	NA .	NA NA	NA .	NA .	NA .	NA
		Ť	1												
									L	l	l	l	<u></u>	l	<u> </u>
10°17640 5-23-4 PATRICIA A GARCAR TH EXPLORATION, LLC 1/8+ 942 8 NA NA NA NA NA NA NA NA	10*17595	 '	5-23-4	THOMAS E RINE AND MARY P RINE	TH EXPLORATION, LLC	1/8+	929	572	NA .	INA .	NA .	NA .	INA .	NA .	NA .
10°17540 5-23-4 PATRICIA A GARCAR TH EXPLORATION, LLC 1/8+ 942 8 NA NA NA NA NA NA NA NA									1]
	10°17640	<u> </u>	5-23-4	PATRICIA A GARCAR	TH EXPLORATION, LLC	1/8+	942	8	NA	NA	NA	NA .	NA	NA	NA .

WW-6A1 Supplement

10*18358

TH EXPLORATION, LLC

ROBERTA K MILLER

Lease No.	Tags	Parcel	Lezzor	Lessee	Royalty	Book	Pege	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
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10°18386		5-23-4	JOSEPH R RINE AND JENNIFER M RINE	TH EXPLORATION, LLC	1/8+	932	492	NA	NA .	NA.				
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		l	 		ا ا	ا ا		l	L.		***	MA.	L.,	
10°18795		5-23-4	GASTON FAMILY INVESTMENTS LLC	TH EXPLORATION, LLC	1/8+	959	502	ina.	NA .	NA	, ra	na	NA	INA I
			l					1	i					
10*21217		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		5-23-4	SHIRLEY ANN DRAKE	TH EXPLORATION, LLC	1/5+	940	137	NA	NA	NA .	NA .	NA	NA .	NA
					l i	944	571	l	L		***	MA.		l
10°19736		5-23-4	DOROTHY HLINKA	TH EXPLORATION, LLC	1/8+	944	3/1	NA	, A.	na .	na .	na .	MA.	RA .
10°21425		5-23-4	ORIE N YOUNG AND BERNIE A YOUNG	TH EXPLORATION, LLC	1/8+	957	29	NA .	NA.	NA	NA	NA	NA .	NA
			FRANCIS R SMITH AND ANNA M					1	i					
10°21428	1	5-23-4	SMITH	TH EXPLORATION, LLC	1/8+	957	37	NA	NA .	NA .	NA .	NA	INA .	NA
							i		1					
		5-23-4	CATHERINE HUMMEL	TH EXPLORATION, LLC	1/8+	957	33	NA.	NA.	NA.	NA.	NA.	NA.	NA I
10*21434		3-23-4	CATHERINE HUMMEL	IN EARLURATION, LLC	407	73,	-" -	ino.					, , , , , , , , , , , , , , , , , , ,	
							l							
10°21451	1	5-23-4	RICHARD RICH AND KAREN RICH	TH EXPLORATION, LLC	1/8+	954	254	NA	NA	NA	NA	NA	NA .	NA
									1					
							l		1					
10°21452	1	5-23-4	KIMBERLY COX	TH EXPLORATION, LLC	1/8+	954	262	NA .	NA .	INA .	NA .	NA .	NA .	NA
								İ					}	
		5-23-4	WARREN L COULTER AND ROSUNA A COULTER	TH EXPLORATION, LLC	1/8+	954	249	l.,	l	NA.	NA.	NA.	NA.	NA.
10°21457		3234	COOLIER	THE EXPLORATION, CLC	1 40.					,		<u> </u>		
			HUSTON A SMITH IR AND ANN C				l		1				<u> </u>	
10*21458	-	5-23-4	SMITH	TH EXPLORATION, LLC	1/8+	957	45	NA	NA	NA	NA .	NA	NA .	NA .
									1					
					Ι.					l				
10°21459		5-23-4	JAMES L CHURCH	TH EXPLORATION, LLC	1/8+	957	41	NA	NA .	NA				
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10*21498	٠.	5-23-4	MABEL SHILLINGBURG AND CLIFFORD SHILLINGBURG	TH EXPLORATION, LLC	1/8+	954	258	NA.	NA .	NA .	NA .	NA .	l _{NA}	NA
10 21430	<u> </u>	72,7	J. II. C.	III sa solo iii si										
			MATTHEW COULTER AND SIMONE											
10°21500	1	5-23-4	COULTER	TH EXPLORATION, LLC	1/8+	954	245	NA	NA	NA	NA	NA	NA .	NA .
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[L							L.	l.,	w4	WA.	L.	
10*21501		5-23-4	EUGENIA E HOUSER	TH EXPLORATION, LLC	1/8+	954	241	na	00	ina.	no.	na .	ino.	Tan
		1												
10°21502	١,	5-23-4	DEBRA MURIN	TH EXPLORATION, LLC	1/8+	954	237	NA	NA	NA .	NA .	NA .	NA	NA .
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		1			1		l						· ·	
10*21503		5-23-4	DARLENE M DAVIS	TH EXPLORATION, LLC	1/8+	954	233	NA	NA.	NA	NA	NA	NA	NA .
					1				1					1
		L	CLARENCE RANDALL EMERY AND				344				NA.	NA.	L.,	
10°21626		5-23-4	PAULA JEAN EMERY	TH EXPLORATION, LLC	1/8+	958	344	na .	100	<u> </u>	na .	no	110	100
	l			1			}							
10*21631	Ι,	5-23-4	FAYE CAMPBELL	TH EXPLORATION, LLC	1/8+	959	343	NA	NA .	NA .	NA .	NA .	NA	NA
	Γ.	1												
	1	1		1	1		I							
10*21632		5-23-4	JOHN ARLES EMERY	TH EXPLORATION, LLC	1/8+	959	339	NA .	NA	NA .	NA .	NA	NA	NA .
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	l	1		L	l			L	L.,	L.,			L.,	l
10*21655	lι	5-23-4	STANLEY GUSTELY	TH EXPLORATION, LLC	1/8+	959	335	NA	INA	[NA	(AA	ITUA	INA	INA

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10*21656	1	5-23-4	JOHN OBLOY AND JANET L OBLOY	TH EXPLORATION, LLC	1/8+	959	331	NA .	NA .	NA .	NA .	NA .	NA .	NA .
]					1		1	1	
1 1		ı	RONALD J SALKOVICK IR & SANDRA	1	1	1				l		1	1	
10°21657			SALKOVICK	TH EXPLORATION, LLC	1/8+	958	373	NA	NA .	NA	NA .	NA	NA	NA
1					1 1							i	1	1
10*21813		5-23-4	STUART WHITE AND BETTY WHITE	TH EXPLORATION, LLC	1/8+	958	352	NA	lna .	NA	NA	NA	INA	NA
10 11013	<u> </u>	1												
			1									ļ	1	
			JAMES NEAL EMERY AND RENEE R	L.,			348	***	.	l.,	l.,	l _u ,	lara.	l I
10°21815		5-23-4	EMERY	TH EXPLORATION, LLC	1/8+	958	346	NA .	ina .	<u>~~</u>	, AA	line .	<u> </u>	HA
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10°21816	!	5-23-4	CINDY GREEN AND LARRY GREEN	TH EXPLORATION, LLC	1/8+	958	356	NA	NA	NA .	NA	INA	NA .	NA
		ì		i	1								1	
			MARY LOU HLINKA AND RICHARD G						ł			l	1	
10*21817	1	5-23-4	HLINKA SR	TH EXPLORATION, LLC	1/8+	959	514	NA	NA	NA .	NA	NA	NA	NA
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10*21819	١.	5-23-4	MARY CATHERINE THOMS OTT	TH EXPLORATION, LLC	1/8+	958	360	NA .	lna .	NA .	NA .	NA	INA	NA
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	١.	L	L		1/8+	959	506	.,,	l	lua.	lua.	l.,	lua.	ا
10*21820		5-23-4	MARION DAVID OTT & JANICE L OTT	I'M EAPLORATION, LLL	4/8*	737		in the second se		 	1		<u> </u>	
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10°21832		5-23-4	MARQUITA CLYBURN	TH EXPLORATION, LLC	1/8+	959	510	NA	NA .	NA	NA .	NA	NA	NA .
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10°21948	١,	5-23-4	BARBARA H COAKLEY	TH EXPLORATION, LLC	1/8+	960	66	NA	NA	NA	NA .	NA	NA	NA
1			ROBIN ADAIR GUMP AND LOUIS M	1									1	
10°21949	١.	5-23-4	GUMP	TH EXPLORATION, LLC	1/8+	960	70	NA NA	lna .	NA .	NA .	NA	INA .	NA
10-21949		7254	COMP	III Da commonçata	1				17.					
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						960	77		l _n ,	J.,,	l _{na}	NA .	lava.	l
10*21951	1	5-23-4	CHARLES DOUGLAS LANE	TH EXPLORATION, LLC	1/8+	360	-"	NA .	MA	NA		INA .	<u>~~</u>	INA.
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10*21994	ı	5-23-4	MELISSA L DARROW	TH EXPLORATION, LLC	1/8+	954	328	NA	NA .	NA .	NA	NA	NA	NA
	1					1							1	
	1			•		l							1	1
10*22026		5-23-4	KEVIN D CHURCH	TH EXPLORATION, LLC	1/8+	957	49	NA .	NA .	NA	NA	NA	NA .	NA
		1	1			i	ł						1	1 1
10*22013		5-23-4	CHARLES J KNOX	TH EXPLORATION, LLC	1/8+	966	112	NA .	Ina	NA	NA	NA	INA	NA I
10 11010	 	1			T	1								
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I	Ι.	L		THE STREET AND A 115	1/8+	966	103	l _{ma}	l _{ara}	NA.	l _{va}	NA.	lua	l _{MA}
10*22014	⊢-	5-23-4	SHERMAN E KNOX JR	TH EXPLORATION, LLC	 -*/8*	300	1405	The state of the	livs .	<u> </u>	 			† "
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10°22018		5-23-4	KATHLEEN ROBERTSON	TH EXPLORATION, LLC	1/8+	960	539	NA	NA .	INA .	INA	NA	NA .	NA .
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1	1	1	STEPHEN C EMERY AND CATHY J			1	l			1			1	1
10*22027	1 .	5-23-4	EMERY	TH EXPLORATION, LLC	1/8+	954	310	NA .	NA .	NA	NA	NA	(NA	NA
	Ι				I		l		1				1	
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10*22093	1	5-23-4	TODD LEARN AND KENDA LEARN	TH EXPLORATION, LLC	1/8+	954	314	NA.	lna .	NA .	lna .	NA	INA	l _{NA}
10-12093	+	1-25-	TODO COMITACION COMO COMO	THE STATE OF THE S	† ~					1	İ		1	
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I]	l	L	L		1		l	l	l	l		la.a	I
10°22102		5-23-4	BONNIE LOU GRUBER	TH EXPLORATION, LLC	1/8+	954	302	INA	INA .	TA	NA	na	<u></u>	INA.
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1		1	1		1			l	I		İ	l	1	1
10*22178	<u> </u>	5-23-4	ANGELA AND WILLIAM R HENTHORN	TH EXPLORATION, LLC	1/8+	949	196	NA	NA .	NA	NA	NA	NA .	NA
	1		1					l	1		I		1	į l
1			1	1				l	1		I		1	1
10022128	Ι.		DESTRUCTION OF THE PROPERTY OF	TH EVELOPATION LLC	1/84	961	433	l _{va}	INA	NA.	INA	İNA	lna	l _{NA}

Lezse No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
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10°22144		5-23-4	VICKY AND DENNIS STRAUSS	TH EXPLORATION, LLC	1/8+	961	429	NA	NA	NA	NA	NA .	NA	NA
				1									1	
1			DEBRA L LYSESKI AND GERALD A			1								
10*22165		5-23-4	LYSESKI	TH EXPLORATION, LLC	1/8+	954	306	NA .	NA .	NA	NA	NA .	NA	NA
1				1										
				1										
10*22181		5-23-4	BRIAN S AND CAROLYN SUE TAYLOR	TH EXPLORATION, LLC	1/8+	949	191	NA	NA	NA .	NA	NA	NA	NA_
		İ												
		ĺ						İ						
10°22779	<u> </u>	5-23-4	STEVEN WADE	TH EXPLORATION, LLC	1/8+	968	424	NA .	NA	NA	NA	NA	NA	NA
1 1	i								i					
					1									
10*22436		5-23-4	TESSEAN FAMILY REVOCABLE TRUST	TH EXPLORATION, LLC	1/8+	963	626	NA	NA	NA	NA	NA	NA	NA
]											
			1											1
10°22443		5-23-4	GATHA CHAMBERS	TH EXPLORATION, LLC	1/8+	963	622	NA	NA	NA	NA	NA	NA	NA
				1	Ī								1	
				1	l				l					
10°22503		5-23-4	KENNETH R AND DONNA K SHAW	TH EXPLORATION, LLC	1/8+	966	518	NA	NA	NA	NA	NA	NA	NA
	1	1	j	1	Ī								1	
					l					•				
10°22505		5-23-4	JAMES D AND DONNA K DRAKE	TH EXPLORATION, LLC	1/8+	964	425	NA	NA	NA	NA	NA	NA	NA
	1				I									
													!	
10*22594		5-23-4	JAMES WADE	TH EXPLORATION, LLC	1/8+	965	481	NA	NA	NA	NA	NA	NA	NA
1														
		l	ł										l	1
10°22609	1	5-23-4	KATHY JO CULLUM	TH EXPLORATION, LLC	1/8+	966	514	NA	NA	NA	NA	NA .	NA	NA
			1	1		1 1								
			i	1		l i								
10*22613		5-23-4	JEWEL L CAMPBELL	TH EXPLORATION, LLC	1/8+	966	510	NA .	NA	NA	NA	NA	NA	NA
1										1	1			
	ŀ		MARGARET AND WILLIAM											
10*22809		5-23-4	MCMURRAY	TH EXPLORATION, LLC	1/8+	972	54	NA	NA	NA	NA	NA .	NA	NA .
	1				1									
	ł											•		1 1
10*22812	1	5-23-4	JOSEPH F GOBLOWSKY	TH EXPLORATION, LLC	1/8+	968	428	NA	NA	NA	NA	NA	NA	NA
	1					i								
10*22851		5-23-4	LAURINE C AND EDGAR A CURTIS	TH EXPLORATION, LLC	1/8+	976	147	NA	NA	NA	NA	NA	NA	NA
1	l		JAMES J. CAMPBELL BETTY J.										23/127 Chesapeake Appalachia, LLC to	41/238 Statoli USA Onshore
10°17145	J	5-23-5	CAMPBELL	CHESAPEAKE APPALACHIA LLC	1/8+	685	458	NA	NA	NA	NA	NA	Statoli USA Onshore Properties, inc	Properties Inc to TH Exploration, LLC
													19/624 SWN Exchange Titleholder	
1				[29/325 Chesapeake Appalachia, LLC to	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil Onshore Properties Inc	LLC merge SWN Production	41/238 Statoli USA Onshore
10°17192	ĸ	5-23-8	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	193	NA	NA	Statoil USA Onshore Properties Inc	SWN Production Company, LLC	to SWN Exchange Titleholder LLC	Company LLC	Properties Inc to TH Exploration, LLC
														40/408 American Petroleum
	1			AMERICAN PETROLEUM PARTNERS		'								Partners Operating LLC to TH
10*19722	K	5-23-8	MASTER MINERAL HOLDINGS I LP	uc	1/8+	912	105	NA	NA .	NA .	NA	NA	NA	Exploration LLC
		1												
	1	1			1						29/325 Chesapeake Appalachia, LLC to	33/110 Chesapoake Appalachia, LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17189	<u> </u>	5-23-9.3	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	716	197	NA	NA	NA .	Statoil USA Onshore Properties Inc	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
	1		1											
1		1			l	[
10*19903	м	5-23-11.1	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA .	NA	NA	NA
	1													
10*22441	м	5-23-11.1	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA	NA	NA	NA .	NA	NA NA	l _{na}
	1	1	İ		I									
10*22510	M	5-23-11.1	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA	NA .	NA .	NA	NA .	NA .	I _{na} I
		1		35	T			7			67.5			-
	1	1	İ		I					ļ				
10°19652	w	5-23-11.1	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	103	NA	lna .	lna.	NA.	NA.	NA.	l I
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Operator's Well No. <u>Hillrock - 4HM</u>

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Lease No.	Tegs	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
1 1								1	27/311 Gastar Exploration USA, Inc and		i	}		1
1 I				l	i				Atinum Marcellus L LLC to Chesapeake					
I I		l				695	317	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoli USA Onshore Properties Inc.	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoli USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to	41/238 State# USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17195	_ м	5-23-11.1	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	693	31/	Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and	SWM Production Company, LLC	10 3444 Exchange (the Holder CCC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
		Ì				1			Atinum Marcellus I, LLC to Chesapeake	1	1			1
1		1						23/353 Gastar Exploration USA Inc to Atlnum		33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Fachange Titleholder II C to	A1/238 State# LISA Conhora Properties	41/256 SWN Production Company, LLC to
10°17196	м	5-23-11.1	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	Marcellus L.LLC	Properties inc	SWN Production Company, LLC		SWN Production Company, LLC	Inc to TH Exploration, ILC	TH Exploration, LLC
10 1/130			Decount II, III of II of II		1-7-				27/311 Gastar Exploration USA, Inc and					
1 i		1				1			Atinum Marcellus I, LLC to Chesapeake			i	·	1
		1	GLORIA J. SIMMONS HAROLD					23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statol) USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17197	М	5-23-11.1	SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	Marcellus I, LLC	Properties inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
					1			1	27/311 Gastar Exploration USA, Inc and	1	1			
1 1		1				ĺ		l .	Attnum Marcellus I, LLC to Chesapeake	1.		l .		1
1		1	PAMELA L DRAZIC AND JEFFREY	I			l	23/353 Gastar Exploration USA inc to Atlnum		33/110 Chesapeake Appalachia, LLC to	33/424 Statell USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17199	М	5-23-11.1	DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	Marcellus I, LLC	Properties inc	SWN Production Company, LLC	to SVVN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
1 1		ì	1	1	l	i i	l		27/311 Gestar Exploration USA, Inc and Attnum Marcellus I, LLC to Chesapeake	j	l			1
				1	1		l	23/353 Gastar Exploration USA Inc to Atlnum		33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	10/574 SWW Swibsons Tollahaldar (10 sa	AT (738 State) 1954 Outhorn Drawnskin	41/256 SWN Production Company, LLC to
10*17200	м	5-23-11.1	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC.	1/8+	697	156	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10 17200		5-25-11.1	STEPPINITE E. HALL	GOG TAR EXPEDRATION GOO, INC.	75	<u> </u>			27/311 Gestar Exploration USA, Inc and		The state of the s	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	THE WORLD STORY LEE	III CAPATI MANUELLE
				l .		l	l		Atinum Marcellus I, LLC to Chesapeake			l		1 1
i l				i				23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc.	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17201	м	5-23-11.1	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
									27/311 Gastar Exploration USA, Inc and		i			
1 1		1	l .	1	1	i	l	1	Atinum Marcellus I, LLC to Chesapeake	I	I	I	Ī	1
		1		I	1	١.	l .	23/353 Gastar Exploration USA Inc to Atlnum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoff USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoll USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17202	M	5-23-11.1	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
			1		1	1	l	1	27/311 Gastar Exploration USA, Inc and	1	I	l	1	1
1 1				1	1	l	l		Atinum Marcellus I, LLC to Chesapeake		1,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		I	
1		L					l	23/353 Gastar Exploration USA Inc to Atinum		33/110 Chesapeake Appalachia, LLC to	33/424 Statoll USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to		41/256 SWN Production Company, LLC to
10°17203	М	5-23-11.1	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387	Marcellus L LLC	Properties Inc 27/311 Gastar Exploration USA, Inc and	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
1		1		1	1		1		Attnum Marcellus I, LLC to Chesapeake			1		1
		1	CLARENCE RICHARD ZESIGER & MARY		1		ł	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoli USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	A1/738 Stated LISA Corbora Properties	41/256 SWN Production Company, LLC to
10*17204	84	5-23-11.1	ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10 1/204		74744.4	LESGEN	The state of the s	70:				27/311 Gastar Exploration USA, Inc. and			, , , , , , , , , , , , , , , , , , , ,		
		İ			1		i		Atinum Marcellus I, LLC to Chesapeake	l .	ľ		ł	1
		1		ľ	i	ł .		23/353 Gastar Exploration USA Inc to Atlnum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17206	м	5-23-11.1	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
			1						27/311 Gastar Exploration USA, Inc and					
1				1		l	l		Atinum Marcellus I, LLC to Chesapeake					1
		1	DEBORAH K. KLIMASZEWSKI FRANK	<u>,</u>	1	1		23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoli USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoll USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoli USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17207	м	5-23-11.1	KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
		1			l l				27/311 Gastar Exploration USA, Inc and	i				1
					i	1		33/353 Causa Santanada (MA hada Atlana)	Atinum Marcellus I, LLC to Chesepeake Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoii USA Onshore Properties	
10*17210	M	5-23-11.1	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	23/353 Gastar Exploration USA Inc to Atlnum Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10-1/210	м	5-23-11.1	MARILTH NOEL	GASTAR EXPLORATION OSA, INC.	1/8+	103/	- 373	Marcellas Cete	27/311 Gastar Exploration USA, Inc and	SWITTOME CONTENTS IN LC	10 3411 (22 tale 1 las notes etc	SWIFFOCKERSON COMPANY, EEC	INC CO TH' EXPIORATION, CEC	I'M Exploration, U.C.
						1			Atinum Marcellus L LLC to Chesapeake				ļ.	
i			GARY WAYNE ZESIGER & VICKIE		1	1		23/353 Gastar Exploration USA Inc to Atinum		33/110 Chesapeake Appalachia, LLC to	33/424 Statoli USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17211	м	5-23-11.1	ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
			1						27/311 Gastar Exploration USA, Inc and					
l l			l						Atinum Marcellus I, LLC to Chesapeake				1	
1		1	i					23/353 Gastar Exploration USA Inc to Attnum	Appalachia, LLC and Statoli USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoll USA Onshore Properties Inc		41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17212	м	5-23-11.1	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	inc to TH Exploration, LLC	TH Exploration, LLC
		1			I				27/311 Gastar Exploration USA, Inc and				ĺ	1
i		1							Atinum Marcellus I, LLC to Chesapeake	3,010.00				
	٠	l	CARGO DEFAUCABRAIGS	CAFTAR EVINORATION LIFE INC	1/8+	697	154	23/353 Gastar Exploration USA Inc to Attnum Marcellus L LLC	Appalachia, LLC and Statoli USA Onshore	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	SWN Production Company, LLC	41/238 Statoli USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to
10°17213	M	5-23-11.1	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8*	697	134	Marcellus C LUC	Properties inc	SWA Production Company, LLC	ID 3444 EXCHANGE 1/04 HOIDER LLC	SWN Production Company, CCC	INC TO THE EXPLORATION, LLC	TH Exploration, LLC
		1		1				1						1 1
		1					1			i			21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14807	м	5-23-11.1	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC.	1/8+	809	555	NA.	NA.	NA.	l _{na}	NA.	Gastar Exploration, Inc	Exploration II, LLC
10 14507		5-65-21.4	TACTICE IN THIODERISCHET	Tagarat Exact Constitution Constitution	75			1						
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								1					21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14809	м	5-23-11.1	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	NA	NA	NA	NA	NA .	Gastar Exploration, Inc	Exploration II, LLC
1	l	1	1		1	1	1	l .		1	I		I	1
	l	1	1		1	1	1 -	1			l		21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14808	М	5-23-11.1	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA .	NA	NA .	NA	NA .	Gastar Exploration, Inc	Exploration II, LLC
	l		l		1	1 -	1				l		I	
1	l	1	1			1	l	i		1	l			L
L		l						l	l	l	L.,		21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14786	M	5-23-11.1	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	na	In .	ļ	ine.		Gastar Exploration, Inc	Exploration II, LLC
1	l	I	1	1	1	1	I	I	1		l		l	1
I	l	1	1	I	1	1	l	1	1	1	I		21 (43 Gastas Samburation 1954 to	36/8 Gustar Santaration Inc. to 71:
10014000	l M		DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA.	l _{NA}	INA	l _{na}	NA.	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10°14806		5-23-11.1	DONAN VIVIAN TONO	GASTAK EAFLORATION USA, INC	 ""	1 303		,	100	1			CONTRACTOR EN	Lagran excell II, LLL
1	l		1	1	I		I	I	Į.		l		l	j l
1	l		1	1	I		1	I	1	1	l		21/41 Gestar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14796	М	5-23-11.1	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC.	1/8+	799	540	NA.	, KA	NA	NA	NA	Gastar Exploration, Inc	Exploration II, LLC
r		1		1	T			1	1					T
1	l	1	1	1	1	1	i	i	I	1	I		I	, l
1	I	1	1	1	1	1	ı	1	1	i	I		21/41 Gestar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14810	M	5-23-11.1	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA	ĮNA	Į NA	JNA	NA .	Gastar Exploration, Inc	Exploration 11, LLC

Operator's Well No. <u>Hillrock - 4HM</u>

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*22129		5-23-11.1	IANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA .	NA.	l _{NA}	NA	NA .	NA.	NA.
m. ttrea		J-43-44.4	PROCESS OF THE PROPERTY OF THE	ar somminent, bbc	707			· ·						
1 1		1												
10*22008	м	5-23-11.1	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA .	NA	NA	NA	NA	NA	NA
					1				1					
10*22025	_м	5-23-11.1	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA	NA .	NA .	NA .	NA	NA .	NA
!													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14785	М	5-23-11.1	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA	NA .	NA .	NA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
													21/41 Gastar Exploration USA Inc to	36/9 Gaster Exploration, Inc. to TH
10°14797	M	5-23-11.1	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA	INA .	NA .	NA .	I A	Gastar Exploration, Inc	Exploration II, LLC
						1								
1								L.,	l	l	L.,	l	l	36/9 Gastar Exploration, Inc. to TH
10*14814	м	5-23-11.1	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	INA		n.	<u></u>		<u> </u>	Exploration II, LLC
1			ł											[
10°14815	94	5-23-11.1	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	NA .	l _{NA}	l _{ma}	NA.	NA.	NA.	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10-14012	- PAT	72711.1	CICOTION POLONICO	Description to the last of the	70.									
		1	ĺ			l	1			1				36/9 Gastar Exploration, Inc. to TH
10°14822	м	5-23-11.1	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	lna .	lna .	NA	NA.	lm	lna .	Exploration II, LLC
													-	
i						1	1							36/9 Gastar Exploration, Inc. to TH
10°14823	м	5-23-11.1	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA .	NA .	RA	NA .	NA	NA	Exploration II, LLC
									1					
		Ì	ļ			l			1	1	1			
10°18275	М	5-23-11.1	BETTY JEAN NEELY	TH EXPLORATION, LLC	1/8+	929	- 60	NA .	MA	NA	NA .	NA	NA	NA
1					}		ļ.							
	ľ		MARY LOU WILSON AND STANLEY D		1								1	
10*18366	м	5-23-11.1	WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	MA	INA .	NA .	NA .	NA	NA
										1				
			CRAIG ALAN YOHO AND DONNA M			١		l	L	l	l	L	l	l
10*18369	<u> </u>	5-23-11.1	уоно	TH EXPLORATION, LLC	1/5+	951	303	<u> </u>	m	NA .	NA .	INA .	INA.	NA .
						l	l			1				
10*18370	м	5-23-11.1	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300	NA.	l _{na}	lna .	NA.	NA.	NA	NA.
10-18370		3-23-11.1	SAMUEL D TONO	TH EAF CONATION, CCC	407			Total						
			DAVID N DEVICK TRUSTEE OF THE				1			İ				1
10°18379	м	5-23-11.1	TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	NA.	lna .	NA .	NA	NA NA	NA	NA
							l							
						1								
10°19540	м	5-23-11.1	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53_	NA .	NA .	NA	NA	NA	NA	NA .
	1	1				1	1							
10*19903	N.	5-23-11.4	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA .	NA .	NA	NA	NA .	NA .	NA
						1	1			1				
	1	1			I	1	ŀ			L	I			
10*22441	N	5-23-11.4	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	INA .	INA .	INA	[NA	NA	INA .	NA .
	l	1			1		l							
1	l .	L			1		٠	L.,	l		l.,,	lua.		
10°22510	N	5-23-11.4	DONNA YOHO	TH EXPLORATION, ILC	1/8+	964	432	NA	INA .	INA .	INA	AN	INA .	NA .
		1				1								
	۱		JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	l.,	l _{MA}	l _{NA}	NA.	NA.	NA.	NA.
10*19652	<u> </u>	5-23-11.4	IMUA II HAMMEKS	IN EAFLURATION, LLC	467			<u> </u>)***.	
1	l	1				l	l							
10°22334	N	5-23-11.4	JOHN BRYANT	TH EXPLORATION, LLC	1/8+	962	540	NA.	l _{NA}	l _{NA}	NA.	NA.	NA	NA .
10 12334	 "	15.00.04.7			1 70.	T	1							
1						l								
10°22718	N	5-23-11.4	WILLIAM R AND CONNIE RICHMOND	TH EXPLORATION. LLC	1/8+	963	389	lna .	lna.	NA	NA	NA .	NA	NA
-5 44140	- "-				1 7	1	1							
	1	1	1]					1			
	l	l	CUTCHING HOLDINGS INC	I	1 1/84			l.,	l	lua.	l _{NA}	l _{ma}	lua .	la a

Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
Lease NV.		FBICEI							27/311 Gastar Exploration USA, Inc and		· · · · · · · · · · · · · · · · · · ·			
				l		l 1			Atinum Marcellus I, LLC to Chesapeake	i	l			
						1		23/353 Gastar Exploration USA inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoli USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to		41/256 SWN Production Company, LLC to
10°17195	N	5-23-11.4	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
7									27/311 Gastar Exploration USA, Inc and				ĺ	1
						1			Atinum Marcellus L, LLC to Chesapeake		l	l		l
					l			23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to		41/256 SWN Production Company, LLC to
10*17196	N	5-23-11.4	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	Mercelks L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
					ł	1 1			27/311 Gastar Exploration USA, Inc and					
					Į.	1 1			Atinum Marcellus L LLC to Chesapeake		33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	
			GLORIA J. SIMMONS HAROLD		l	!		23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to				41/256 SWN Production Company, LLC to
10°17197	N_	5-23-11.4	SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
			l .	ł					27/311 Gastar Exploration USA, Inc and Atinum Marcellus L LLC to Chesapeake					
			L						Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoll USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41 /722 Stated ITSA Onchara Branadler	41/256 SWN Production Company, LLC to
	1		PAMELA L DRAZIC AND JEFFREY	SASSAS EVEN OBATION LIES INC	1/8+	695	315	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10°17199	N	5-23-11.4	DRAZIC	GASTAR EXPLORATION USA, INC	1/0*	073	313	martenes Cttc	27/311 Gastar Exploration USA, Inc and	SALL FRANCISCO CONTRACTOR LEG		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
						1			Atinum Marcellus L LLC to Chesapeake					1
						l .		23/353 Gastar Exploration USA Inc to Atimum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17200		5-23-11.4	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10-17200		3-23-11,4	STEP FORTIE L. FOREL	GOING CO COINTING CONCENTE	1	- ***			27/311 Gastar Exploration USA, inc and			1		
				1		1			Atinum Marcellus L LLC to Chesapeake	•				i
				1			l	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17201	N	5-23-11.4	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10 17201		3 23 22.7							27/311 Gastar Exploration USA, Inc and			1		Ĭ ··
l		l	1	I	I		l	1	Atinum Marcellus I, LLC to Chesapeake	1	1	1	l	1
1		l	1	I	I	1	l	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to		19/624 SWN Exchange Titleholder LLC to	41/238 Statoli USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17202	N	5-23-11.A	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
		1			T	1			27/311 Gastar Exploration USA, Inc and			l	1	
l	l	I		1	1		l	I	Atinum Marcellus I, LLC to Chesapeake	1	1	1	1	
I	Ι ΄	I		F	1		l	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statell USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoll USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17203	N	5-23-11.4	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC.	1/8+	697	587	Mercellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
					1		1		27/311 Gastar Exploration USA, Inc and	1	I	1	ŀ	
I	l	I		1	1		l	I	Atinum Marcellus I, LLC to Chesapeake	I	L	L		l
			CLARENCE RICHARD ZESIGER & MARY		l .			23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17204	N	5-23-11.4	ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
					I	l :			27/311 Gastar Exploration USA, Inc and	1	1		1	i
		l		i	i	1			Atinum Marcellus I, LLC to Chesapeake					
	l				1 .			23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoli USA Onshore Properties Inc	119/624 SWN Exchange Intenoider LLC to		41/256 SWN Production Company, LLC to
10°17206	N	5-23-11.4	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	Marcellus & LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
	i	İ		i .	1	l I			27/311 Gaster Exploration USA, Inc and			1		
			l			1			Attnum Marcellus L LLC to Chesapeake	22/110 (2	33/424 Statoll USA Onshore Properties Inc	10/524 SWM Euchanna Titleholder 11 C to	41/238 Statoil USA Onshore Properties	41/356 SWW Dradwillon Company 11Con
ì	1		DEBORAH K. KLIMASZEWSKI FRANK			l		23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10°17207	N	5-23-11.4	KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	Marcellus L LLC	Properties Inc	SWA Production Company, LLC	to swit Extrange title horser LCC	STATE PRODUCTION COMPANY, LEC	are to the Exploration, etc	THE ESSOR ASSOCIATE
			1						27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake					
			l .					23/353 Gestar Exploration USA Inc to Atinum	Appalachia, LLC and Statoli USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc.	19/624 SWN Exchange Titleholder LLC to	41/238 Statoll USA Onshore Properties	41/256 SWN Production Company, LLC to
l	٠.		MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	Marcellus L LLC	Properties inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10*17210	N	5-23-11.4	MARIETA NOEL	GASTAR EXPEDRATION USA, INC.	1/6*	1 057		manganas e ecc	27/311 Gastar Exploration USA, Inc and	, , , , , , , , , , , , , , , , , , , ,				
				1		1			Atinum Marcellus I, LLC to Chesapeake					
			GARY WAYNE ZESIGER & VICKIE	:		1		23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17211	l N	5-23-11.4	ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	Marcellus L LLC	Properties inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10 1/211		32322	100.000		 	1			27/311 Gastar Exploration USA, Inc and					
				1	1	1			Atinum Marcellus L LLC to Chesapeake		l.	ŀ		
		l		l.		1		23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoll USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoll USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17212	N N	5-23-11.4	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC	1/8+	697	158	Marcellus I, LLC	Properties inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
24 27 227									27/311 Gastar Exploration USA, Inc and					
						1			Atinum Marcellus I, LLC to Chesapeake	1		! .		
I	l	I	1		1	1	l	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17213	N	5-23-11.4	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
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10°19652	N	5-23-11.4	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	ma	In a	line .	Pre-	····		-
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1	I	1	1	l .	1	1	1	1	1	1	1	1	I	
	۱	le 33.11.4	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	INA	INA	INA	INA	NA	lna .	NA
10°19903	N-	5-23-11.4	PAUL F PLANIMENS	THE CONTROL LE	1 400	 ~-		 		1			i	
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I	l	1	1	1	1	1	I	1	I	1	I	1	I	
10*21073	l	5-23-11.4	ARDITH R ROSE AND TOMMY E ROSE	TH EXPLORATION, LLC	1/8+	951	603	NA .	NA	NA	NA	NA	INA	NA .
1.07.5	- "-	† · · · · · · · · · · · · · · · · · · ·		1	1	T								
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10°21944	l N	5-23-11.4	JILL A BECK	TH EXPLORATION, LLC	1/8+	960	101	[NA	NA .	NA	NA	INA	INA .	NA
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	i			1	1	1	1	1	L	1	l	l	l	l
	1			1	1				IMA	INA	INA	INA	1NA	INA
10*22454	N	5-23-11.4	EDWIN NELSON WOOD	TH EXPLORATION, LLC	1/8+	963	637	NA .	rea .		· · · · · · · · · · · · · · · · · · ·	-	1.51	
10*22454	N_	5-23-11.A	EDWIN NELSON WOOD	TH EXPLORATION, LLC	1/8+	963	637	NA .			1			
10*22454	N_	5-23-11.4	EDWIN NELSON WOOD	TH EXPLORATION, LLC	1/8+	963	637	INA.	io.					
10*22434	N_	5-23-11.A						INA .						
10°22454 10°22585	N N	5-23-11.4 5-23-11.4	EDWIN NELSON WOOD	TH EXPLORATION, LLC TH EXPLORATION, LLC	1/8+	963	102	NA NA	NA .	NA	NA	NA	NA	NA
	N N							NA NA	NA .	NA	NA	NA .	NA .	NA
	N N							NA NA	NA NA	NA	NA .	NA .	NA NA	NA.
	N N							NA NA	NA	,NA	NA	NA	NA .	NA 36/9 Gaster Exploration, Inc. to TH Exploration II. LLC

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1	Leasa No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
1															
1	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 IL LLC
1	0*18541	N.	5-23-11.4	PATRICK P MCHENRY	TH EXPLORATION, LLC	1/8+	933	649	NA .	NA .	NA .	NA .	NA .	NA	NA
1															
1	0*18818	N	5-23-11.4	LUCILLE R MCHENRY	TH EXPLORATION, LLC	1/8+	937	624	NA .	NA	NA	NA	NA .	NA	NA
1															
No.				CARL M MCHENRY AND PAMELA		l				L					1
12-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	°19732	N.	5-23-11.4	MCHENRY	TH EXPLORATION, LLC	1/8+	944	469	INA	NA .	NA .	NA	INA .	NA	NA .
12-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1															
1	19996	N	5-23-11.4	CHARLES D WOOD	TH EXPLORATION, LLC	1/8+	947	589	NA	NA	NA	NA	NA	NA	NA
1			1												
2011		١							ļ. <u></u>					l	İ
	*21074	_ N	5-25-11.4	WOOD	TH EXPLORATION, LLC	1/8+	321	610	INA .	NA .	NA .	NA	INA	NA .	NA .
		1													
1/25 1/25	21174	N	5-23-11.4	SHAWN M WOOD	TH EXPLORATION, LLC	1/8+	952	190	NA	NA	NA	NA	NA	NA	NA
1/25 1/25		1				1]						
1/25 1/25	******		5.23.11.4	MARY & MARY YORO	TH EXPLORATION LLC	1/8.	960	₅₄₄	NA.	NA.	NA.	NA.	l _{NA}	NA.	L.
1475 78 52-114 NAME OF CONTROLOGY OF	. 44043	- "	-25-11.4	Imens a man i tono	THE CONTRACT	1-4-	† <i></i> -		77.					in in in in in in in in in in in in in i	100
1475 78 52-114 NAME OF CONTROLOGY OF													1	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
1475 9 5-5-1-1-4 NAME	0°14786	N	5-23-11.4	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	MA	NA .	NA	RA .	NA		Exploration II, LLC
1475 9 5-5-1-1-4 NAME						1	ŀ								
14722 N 5-32-114 INMOTHY TORO GATA EXPLANATION LIA, NO. 1/4 795 355 M. M. M. M. M. M. M. M. M. M. M. M. M.	*14795	١.,	5.75.11.4	DAVID W STRAUCH	GASTAR EXPLORATION LISA INC	1/8+	799	64	I,,,	MA.	NA.	NA.	NA.	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
12772 N 2-2-1-1.4 TRICHIT TODO 454764 EPROMINONIUS, INC. 1/8 799 546 NA NA NA NA NA NA NA NA NA NA NA NA NA	14/65		7.5	DATE WILLIAM	Graffin Graffin Control		1							derial Exploration, etc.	LANCE STATE OF THE
12772 N 2-2-1-1.4 TRICHIT TODO 454764 EPROMINONIUS, INC. 1/8 799 546 NA NA NA NA NA NA NA NA NA NA NA NA NA										}				21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
14796 N 2-23-11.4 ONINAN YOMN TORN OASTAR DEPLOMMENT USA, NRC 1/2+ 169 539 M. M. M. M. M. M. M. M	0°14792	N	5-23-11.4	тімотну уоно	GASTAR EXPLORATION USA, INC	1/8+	799	536	NA	NA .	NA .	NA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
14796 N 2-23-11.4 ONINAN YOMN TORN OASTAR DEPLOMMENT USA, NRC 1/2+ 169 539 M. M. M. M. M. M. M. M						ļ.									
14006 N 5-23-11.4 OOMNA VIVAN YORD GASTAR EPICALTION USA INC. 1/8- 150 358 NA NA NA NA NA CENTE Epishorous Na Na NA NA CENTE Epishorous Na Na NA NA NA NA NA NA NA NA CENTE Epishorous Na Na NA CENTE Epishorous Na Na NA NA NA NA NA NA NA NA NA NA NA NA NA	0°14796	N	5-23-11.4	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC.	1/8+	799	540	l _{na}	NA .	NA .	NA .	NA.	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	35/9 Gastar Exploration, Inc. to TH
1400 N 5-25-11.4 DONNA VICANI TOIL O DATA DEPONSTION USA, INC 1/8* 509 535 MA MA MA MA MA MA MA M	24/30	- "	5.25.22.4	Navigation of Parists		1	T							40741 64744 6474	Exploration to Ecc
1400 N 5-25-11.4 DONNA VICANI TOIL O DATA DEPONSTION USA, INC 1/8* 509 535 MA MA MA MA MA MA MA M			İ				1							21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
1400 N 523-11.4 DEWEY A MUICIA GOSTAR ESPLOSATION USA, INC 1/8* 509 545 64 64 64 64 64 64 6	*14806	N	5-23-11.4	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA .	NA .	NA	NA .	NA .		Exploration II, LLC
1400 N 523-11.4 DEWEY A MUICIA GOSTAR ESPLOSATION USA, INC 1/8* 509 545 64 64 64 64 64 64 6															
1/4009 N 5-23-11.4 DEWEY A. MILICIA GASTAR EDPLORATION USA, DIC 1/8 809 549 NA NA NA NA NA NA NA NA NA NA NA NA NA	0°14807	l N	5-23-11.4	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC.	1/8+	809	555	NA.	NA .	NA	NA .	lna.		36/9 Gastar Exploration, Inc. to TH Exploration II. LLC
12609 N 5-23-11.4 DENNS ANIUCIA GASTAR EDPLORATION USA, DIC 178+ 8:09 549 NA NA NA NA NA NA NA NA NA NA NA NA NA			1												
12605 N 5-23-11.4 OPENTS ANIGUE GASTAR EXPLORATION USA, INC 178+ 809 549 IAM NA NA NA NA NA NA NA NA NA NA NA NA NA														21/41 Gester Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
14605 N 5-23-11.4 HAROLO C. SIMMONS GASTAR EXPLORATION USA, DIC 1/8+ 803 148 MA NA NA NA NA NA NA NA NA NA NA NA NA NA	*14809	N	5-23-11.4	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	INA.	NA .	NA .	NA	NA .	Gastar Exploration, Inc	Exploration II, LLC
14605 N 5-23-11.4 HAROLO C. SIMMONS GASTAR EXPLORATION USA, DIC 1/8+ 803 148 MA NA NA NA NA NA NA NA NA NA NA NA NA NA						İ									
1/40 GATTAR EXPLORATION USA, INC. 1/8+ 809 552 NA NA NA NA NA NA NA NA NA NA NA NA NA	°14805	L_n	5-23-11.4	HAROLD C. SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	803	148	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
14608 N 5-29-11.4 DANA MILICIA HUMPHRRYS GASTAR EXPLORATION USA, INC 1/8+ 809 552 NA NA NA NA NA NA NA NA NA NA NA NA NA			1												
14500 N 5-23-11.4 DANA MILICIA RUMPHRRYS GASTAR EXPLORATION USA, INC 1/8+ 809 552 NA NA NA NA NA NA NA NA NA NA NA NA NA			}		·		1			1				21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
*14810 N 5-23-11.4 NICOLETTA MILLICIA BLOODWORTH GASTAR EXPLORATION USA, INC 1/8+ 809 5-46 MA NA NA NA NA NA NA NA NA NA NA NA GESTAR EXPLORATION USA, INC 1/8+ 815 224 NA NA NA NA NA NA NA NA NA NA NA NA NA	0°14808	N	5-23-11.4	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA .	NA .	NA .	INA.	NA .	Gastar Exploration, Inc	Exploration II, LLC
*14810 N 5-23-11.4 NICOLETTA MILLICIA BLOODWORTH GASTAR EXPLORATION USA, INC 1/8+ 809 5-46 MA NA NA NA NA NA NA NA NA NA NA NA GESTAR EXPLORATION USA, INC 1/8+ 815 224 NA NA NA NA NA NA NA NA NA NA NA NA NA							1					1			
*14812 N 5-23-11.4 DENISE ANN GALE GASTAR EXPLORATION USA, INC 1/8+ 818 568 NA NA NA NA NA NA NA NA NA NA NA NA NA	°14810	N	5-23-11.4	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA .	NA .	NA .	NA	NA .		Styly Gastar Exploration, Inc. to TH Exploration II, LLC
*14812 N \$-23-11.4 DENISE ANN GALE GASTAR EXPLORATION USA, INC 1/8+ 815 224 NA NA NA NA NA NA NA NA NA NA NA NA NA												·			
*14813 N 5-23-11.4 DEBRA JANE GALE GASTAR EXPLORATION USA, INC 1/8+ 818 568 NA NA NA NA NA GENTA Exploration, Inc. 10 To Explo			L			l				L	L	L		21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
*14833 N 5-23-11.4 DEBRA JANÉ GALE GASTAR EXPLORATION USA, INC 1/8+ 818 568 NA NA NA NA NA NA Gastar Exploration, Inc 1/8+ 818 568 NA NA NA NA NA NA Gastar Exploration, Inc. to Taploration, Inc. to	°14812	N .	5-23-11.4	DENISE ANN GALE	GASTAR EXPLORATION USA, INC	1/8+	815	224	INA .	INA .	NA .	MA	INA .	Gastar Exploration, Inc	Exploration II, LLC
*14833 N 5-23-11.4 DEBRA JANÉ GALE GASTAR EXPLORATION USA, INC 1/8+ 818 568 NA NA NA NA NA NA Gastar Exploration, Inc 1/8+ 818 568 NA NA NA NA NA NA Gastar Exploration, Inc. to Taploration, Inc. to							1								
*14822 N 5-23-11.4 ONWARD E BURGE TRUST GASTAR EXPLORATION, INC 1/8+ 876 463 NA NA NA NA NA NA NA NA NA NA NA NA NA	°14813	N	5-23-11.4	DEBRA JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	818	568	RA	NA.	NA .	NA	NA .	Gastar Exploration USA Inc to	50/9 Gastar Exploration, Inc. to TH Exploration II, LLC
*14822 N 5-23-11.4 ONWARD E BURGE TRUST GASTAR EXPLORATION, INC 1/8+ 876 463 NA NA NA NA NA Exploration IL LLC 36/9 Gestar Exploration, inc. to 7															
36/9 Gastar Exploration, Inc. to 7			L			l			<u> </u>	L		L			36/9 Gastar Exploration, Inc. to TH
1/4823 N 5-23-11.4 SARAH L BURGE TRUST GASTAR EXPLORATION, INC 1/8+ 876 459 MA NA NA NA NA NA NA NA Staploration, IL IC	14822	N .	5-23-11.4	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	NA	INA I	INA .	INA	M	NA .	Exploration II, LLC
14823 N 5-23-11.4 SARAH L BURGE TRUST GASTAR EQUIDACION, INC 1/8+ 876 459 NA NA NA NA NA SEPRENCE NA SERVICE NA NA NA NA SEPRENCE NA SERVICE NA NA NA NA SERVICE NA SERVICE NA NA NA NA NA NA SERVICE NA SERVICE NA SERVICE NA NA NA NA NA NA NA NA NA NA NA NA NA					1										26/0.6 why funktions to a 20
	IO*14823	N	5-23-11.4	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	RA .	MA	NA .	NA .	NA .	NA	Exploration II, LLC

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10*17822	N	5-23-11.4	ANTOINE E GERAUD	TH EXPLORATION, LLC	1/8+	943	560	NA .	NA .	NA	NA	NA	NA	NA
													1	
10°18114	N	5-23-11.4	DARRELL NEWLAND	TH EXPLORATION, LLC	1/8+	927	- 66	NA .	NA .	NA .	NA	NA .	NA .	NA
	1													
			DONALD R NEWLAND AND SUZANNE		1		۱		l	l	l	l		l
10°18115	N	5-23-11.A	NEWLAND	TH EXPLORATION, LLC	1/8+	927	73	INA	INA.	NA .	NA .	INA	NA .	INA I
10*18369	۱	5-23-11.4	CRAIG ALAN YOHO AND DONNA M	TH EXPLORATION, LLC	1/8+	931	303	l _{NA}	l _{na}	l _{NA}	lna .	NA .	lna .	NA
10 16363	 " "	723.1.4			 " "									
	1					1		1	!					
10°18370	N	5-23-11.4	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300	NA .	NA	NA	NA	NA	NA	NA
											1			
			DAVID N DEVICK TRUSTEE OF THE		1						1			
10°18379	N	5-23-11.4	TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	NA .	NA .	NA .	NA .	NA .	NA .	NA
	1		l	1					1				1	
					l	l	l	L	İ	l		l	l	l
10°19486	N.	5-23-11.4	BARBARA ANN MAYNARD	TH EXPLORATION, LLC	1/8+	941	229	NA .	INA .	NA .	INA .	NA.	NA .	NA .
10*19540	l	5-23-11.4	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	lna.	l _{NA}	NA.	NA .	l _{NA}	NA.	NA.
10-19340	 	3-23-11.4	ERICA III III ASOIY	TH EXPERIMENTAL CO.	 	-73								
			!				l	İ						
10°19543	l N	5-23-11.4	ROBERT I BONAR SR	TH EXPLORATION, LLC	1/8+	942	61	NA	NA	NA	NA	NA	NA	NA
			1					ĺ		į.				
10°19640	N	5-23-11.4	MARGARET F RICHMOND	TH EXPLORATION, LLC	1/8+	944	120	NA	NA	NA .	NA .	NA	NA	NA
									ł					
	ĺ	· ·	BRADFORD D LOWERY & DEBORAH		l .			l	l	l	l	l	l	
10*19641	N	5-23-11.4	BRADFORD	TH EXPLORATION, LLC	1/8+	944	122	NA	NA .	INA .	NA .	INA	NA	NA
							1	1		1				
10*19650		5-23-11.4	CLAUDIA LOWERY MALLOY	TH EXPLORATION, LLC	1/8+	944	99	l _{NA}	NA.	NA.	NA.	NA.	NA .	NA.
10.13630	 "	J-2511.4	CDAODIA CONTENT MALEO.	III CA LONGILOW, LLC										
	1				ł									i
10°19657	N	5-23-11.4	JANET LEE SPARKS	TH EXPLORATION, LLC	1/8+	964	440	NA	NA	NA	NA	NA	NA	NA
)						
10*19858	N_	5-23-11.4	JAMES MICHAEL YOHO	TH EXPLORATION, LLC	1/8+	960	188	NA	NA	NA	NA	NA	NA	NA
										1				
			DAPHNE HUFFMAN AND CHARLES					i	l	l	l		l	L.,
10*21419	l N	5-23-11.4	HUFFMAN	TH EXPLORATION, LLC	1/8+	957	. 59	INA .	na .	na .		ino.	ina .	ITA .
	1	1					1		1	1				1
10°21436	N.	5-23-11 4	CECILIA D NEWLAND	TH EXPLORATION, LLC	1/8+	957	55	NA	NA	NA	NA	NA .	NA	NA
	1-"	1			1	<u> </u>							<u> </u>	Ī
	1	1					1		1					
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	NA
	1					1	1		1	1				1
	1		GARY WAYNE ZESIGER & VICKIE		1	1	1		1					1
10°21431	N.	5-23-11.4	ZESIGER	TH EXPLORATION, LLC	1/8+	957	57	NA	NA .	INA .	INA	INA	INA I	INA .
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	l		KIMBERLY S DENNY AND JAMES E	714 57/91 69 47/614 11.5	1,700	957	244	L.		NA.		NA.	_{N4}	l.,
10*21469	 N	5-23-11.4	DENNY	TH EXPLORATION, LLC	1/8+	73/	1 444	110	line.	ino.	in a		Pren	-
							1							
10°21471	"	5-23-11.4	RICHARD ROSS WILSON	TH EXPLORATION, LLC	1/8+	960	190	l _{NA}	NA	NA	NA .	NA .	NA .	NA
	 "				1		1	i	1					
			ROBERT CRAIG MONTGOMERY AND				1							I
10°21620	N	5-23-11.4	CYNTHIA R MONTGOMERY	TH EXPLORATION, LLC	1/8+	959	496	NA	NA	NA	NA	NA	NA .	NA.
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			CLARENCE RICHARD ZESIGER & MARY											
10*21658	N_		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	1/3+	958	392	NA	NA.	NA	NA .	NA	NA .	NA .
10 11032		J 65 3414												
1 1			PAMELA L DRAZIC AND JEFFREY							,				
10°21660	N	5-23-11.4	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
										l	l		l	L. I
10°22008	N	5-23-11.4	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA .	INA .	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
														1
	N				ا ا		204					NA.	wa.	
10*21834	N	5-23-11.4	GEORGE DANIEL KRUGER	TH EXPLORATION, LLC	1/8+	960	204	na .		ika .	, to			<u> </u>
														1
10°22129	N	5-23-11.4	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA .	NA .	NA .	NA.
l l													l .	
10*21947	N	5-23-11.4	WALLACE LYNN WENDEL	TH EXPLORATION, LLC	1/8+	965	59	NA .	NA .	NA .	NA .	NA.	NA .	NA
10.21347		72311.4	WALLACE ETTER WEITER	THE CONTROLLED	7,0									
			DEBORAH K KLIMASZEWSI AND			,								
10°22007	N	5-23-11.4	FRANK KLIMASZEWSKI	TH EXPLORATION, LLC	1/8+	959	492	NA	NA .	NA	NA .	NA	NA .	NA .
														1
10°22031	N	5-23-11.4	PHILLIP YOHO AND PATRICIA YOHO	TH EXPLORATION, LLC	1/8+	960	535	NA NA	NA	NA	NA .	NA	NA	NA.
10.000														
1														
10*22032	N	5-23-11,4	JOANNE E RAY	TH EXPLORATION, LLC	1/8+	960	537	INA	INA	INA	INA .	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
														1
				L	1/8+	961	466	NA.				***		
10*22137	N	5-23-11.4	CONNIE L NEELY	TH EXPLORATION, LLC	1/6+	301	400	NA .	144	100			144	<u></u>
1													1	
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 .
1														
10*22561		5-23-11.4	MARY ROSE YOHO	TH EXPLORATION, LLC	1/8+	968	200	NA.	NA .	NA .	NA .	NA .	l _{NA}	NA I
10 11301		7.5												
10*22562	N	5-23-11.4	HAROLD C SIMMONS	TH EXPLORATION, LLC	1/8+	966	100	NA	INA I	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	NA
		1												
				1							L	L	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14807	N	5-23-11.4	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	NA .	INA .	INA .	IVA	NA .	Gastar Exploration, Inc	Exploration II, LLC
													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14786	2	5-23-11.4	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	NA .	RA .	NA .	NA	NA .	Gester Exploration, Inc	Exploration II, LLC
l		L				"			l _{va}	l.,	l _{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.A	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC	1/8+	799	540	INA.		100	100	110	CONTRACTOR OF THE	Segment BURTH, U.S.
				1		l .	}						21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14806	N	5-23-11.4	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA	lna	NA	NA	NA .	Gastar Exploration, Inc	Exploration II, LLC

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	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 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gaster Exploration, Inc. to TH Exploration II, LLC
													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14808	N	5-23-11.4	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	NA	NA	NA .	MA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14810	N	5-23-11.4	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA .	NA .	NA .	RA .	NA .	Gastar Exploration, Inc	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 .
					i									
10*22025	N	5-23-11.A	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA .	NA	NA	NA	NA	NA	NA .
1														
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 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
		1												
10*14797	N	5-23-11.4	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	N	5-23-11.4	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	NA .	NA	NA	NA	NA .	NA	36/9 Gastar Exploration, Inc. to TH Exploration R, LLC
														1
10°14815	l n	5-23-11.4	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	NA NA	NA .	lna	NA	NA	NA	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	RA	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14823	_N	5-23-11.4	SARAH I. BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA .	NA .	NA.	INA .	NA	NA.	36/9 Gastar 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 10170														
10°18366	l N	5-23-11.4	MARY LOU WILSON AND STANLEY D	TH EXPLORATION, LLC	1/8+	931	311	NA	NA .	NA.	NA NA	NA .	NA.	l _{NA}
10 10300						-								
10°18369	N	5-23-11.4	CRAIG ALAN YOHO AND DONNA M	TH EXPLORATION, LLC	1/8+	931	303	NA.	NA .	NA .	NA	NA	l _{NA}	NA
20,000	<u> </u>	1			T									
10°18370	_N	5-23-11.4	SAMUEL D YOHO	TH EXPLORATION, ILC	1/8+	931	300	NA.	NA	NA.	l _{na}	NA.	l _{na}	NA
10 103/0	<u> </u>	54541.7		The second second		<u> </u>								
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.	l _{NA}	NA.	NA .	l _{NA}	NA.
10.193/3	<u> </u>	JAT-11A	CONTO MINOCH LIVING TRUST	THE CONTRACT OF THE	407	-34	733							
			 	TH EXPLORATION, LLC	1/8+	942	53			NA.	l.,.	WA.		NA .
10°19540	N	5-23-11.4	ERICA M MASON	I'M EXPLURATION, LLC	1/8+	342	35	TAN .	ino.	in in in in in in in in in in in in in i			100	DEA.
		L							<u> </u>		l		21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14785	-	5-23-11.3	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	INA	RA .	INA	INA .	MA	Gastar Exploration, Inc	Exploration II, LLC
1		1											21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14797		5-23-11.3	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	INA .	INA I	INA .	INA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
														36/9 Gastar Exploration, Inc. to TH
10*14514	•	5-23-11.3	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	NA	NA .	INA .	NA .	NA	NA.	Exploration II, LLC
							}							36/9 Gastar Exploration, Inc. to TH

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1	1 1					1	l i		23/353 Gastar Exploration USA Inc to Atinum		33/110 Chesapeake Appalachia, LLC to	33/424 Statoli USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoll USA Onshore Properties	41/256 SWN Production Company, LLC to
	10017700	ا م	5.28.11 8	STEPHANIE I. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156			SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
1	10 1/100		7 20 20.5												
1	1 1					l				Atinum Marcellus I, LLC to Chesapeake	l	L	l		
	1					٠	ا ۔۔۔ ا	***			33/110 Chesapeake Appalachia, LLC to	to SWN Exchange Title Holder LLC	SWN Production Company, LLC to	for to TH Exploration LLC	TH Exploration, LLC
Part	10°17201	- 0	5-23-11.3	DENISE A GALE	GASTAR EXPLORATION USA, INC.	- 48*	697	393	Marchine CEC		Jan Production Company, LCC	The second secon			
1	1 1	1			· '	1	1 1			Attnum Marcellus I, LLC to Chesapeake	1				1
1	1 1	1				1	1 1		23/353 Gastar Exploration USA Inc to Atinum		33/110 Chesapeske Appalachia, LLC to	33/424 Statoll USA Onshore Properties Inc	19/624 SV/N Exchange Titleholder LLC to		41/256 SWN Production Company, LLC to
Part Part	10*17202	0	5-23-11.3	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	Marcellus I, LLC		SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Expioration, LLC	TH Exploration, LLC
Property Property						l	1 1				1				1
1	1 1					l	1 1		23/353 Gastar Exploration USA Inc to Atlaum	Annalachia, II C and Statoli USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc.	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
Column C	10017703	ا م	5.73.11 3	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387			SWN Production Company, LLC	to SWN Exchange Title Holder LLC			TH Exploration, LLC
1	20 2/203		52522.5			T									
1	1 1					I	1		.	Atinum Marcellus I, LLC to Chesapeake		l			
Property Property	1 1				l	١					53/110 Chesapeake Appalachia, LLC to	to SWN Eurhanne Title Holder LLC	SWN Production Company 11C	inc to TH Exploration H.C.	TH Fundamenton LLC to
1	10°17204	•	5-23-11.3	ZESIGER	GASTAR EXPLORATION USA, INC.	1/8*	69/	391	Marcellas Cuc		SHAFICAL BOT COMPANY, LLC	Warningt that how the	The state of the s	THE RESTRICTION OF THE	The second secon
1979 1979	1		1			1				Atinum Marcellus I, LLC to Chesapeake	1	1			1
1			1	1		l			23/353 Gastar Exploration USA Inc to Atinum		33/110 Chesapeake Appalachia, LLC to				
Part Part	10°17206	0	5-23-11.3	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	Marcellus I, LLC		SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	inc to TH Exploration, LLC	TH Exploration, LLC
Property Property			l		1	Ι -		l	I		1	i	I	1	1
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1	1,001,7207		5.25.11.2		GASTAR EXPLORATION USA. INC	1/8+	697	389							TH Exploration, LLC
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Column C	10°17210	•	5-23-11.3	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	Marcellus I, LLC		SWIN Production Company, LLC	www.exchange inte Holder LLC	SWIN PRODUCTION COMPANY, LLC	ER TO IN EXPROVATION, LLC	I IN EXPROVATION, LLC.
20 20 20 20 20 20 20 20			I	1		i .		I	l		1	I	I	i	1
20 23-113	1	'		GARY WAYNE ZESIGER & VICKIE		1		l	23/353 Gastar Exploration USA Inc to Atinum		33/110 Chesapeake Appalachia, LLC to	33/424 Statoll USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
19 17:32 0 13-113 MARIE REVIAMENTE AND ADDRESS OF THE PROPRIES OF THE PR	10*17211		5-23-11.3		GASTAR EXPLORATION USA, INC	1/8+	697	397				to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	
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20 7-25-11 0 0 2-3-3-11 0 0 2-3-3-12 0 0 0 2-3-3-12 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3-3 0 0 2-3-3-3 0 0 2-3-3-3 0 0 2-3-3-3 0 0 2-3-3-3-3 0 0 2		l .	ı	}	1	1		l	İ				Latest Charles Land Bull Lates Hear		
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1971 1971	10°17212	•	5-23-11.3	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC.	1/8+	69/	138	Martena Cuc		Jana Piaca Caraca Garage	Warm Carried the House Car			
2017-131 0 2-32-113 AND SERIOR AN	1		l .	1	1	Į.		l				i .	1	ł	
10*** 15***	1 '		1	1	İ	1		l	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore		33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to		41/256 SWN Production Company, LLC to
10712552 O 5-33-11,3 MCT RUMANIES THEPTIORITION, LIC 1/2+ 944 129 NA NA NA NA NA NA NA NA NA NA NA NA NA	10°17213	۰ ا	5-23-11.3	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	inc to TH Exploration, LLC	TH Exploration, LLC
10722421 O 5-23-11.3 AFRA ROSE POTELTHOWART THE PROGRATION, LIC 1/8- 943 644 NA NA 9A 9A 9A 9A 9A 9A 9A 9A 9A 9A 9A 9A 9A							1	ł	1			1			l i
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10-72530 O 5-20-113 DOMAYONO THEOTOGRATON, LLC 1/8+ 964 432 NA NA NA NA NA NA NA NA NA NA NA NA NA	10-19625		525113	DACK IN FRANKIERS	THE EXPLORATION, LEC	 35.			-						
10-72530 O 5-20-113 DOMAYONO THEOTOGRATON, LLC 1/8+ 964 432 NA NA NA NA NA NA NA NA NA NA NA NA NA	1		1	1	1	1	l	l	1			1		1	
10-72530 O 5-20-113 DOMAYONO THEOTOGRATON, LLC 1/8+ 964 432 NA NA NA NA NA NA NA NA NA NA NA NA NA	1			i	ì			l	1	l	L	I	l	l	l I
10*19903 O \$22-11.3 MAIL FHANMES TH DEPLOMATION, LIC 1/29* \$44 236 MA NA NA NA NA NA NA NA NA NA NA NA NA NA	10°22441		5-23-11.3	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA .	NA	NA	NA .	NA	<u></u>	NA
10*19903 O \$22-11.3 MAIL FHANMES TH DEPLOMATION, LIC 1/29* \$44 236 MA NA NA NA NA NA NA NA NA NA NA NA NA NA	1	ŀ	1		1	1	1	l	1	1		1		1	
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10*15993 O \$23-31.3 PAUL FMANMES TH DEPLOATION, LIC 1/8* 948 236 NA NA NA NA NA NA NA NA NA NA NA NA NA	10*22510	ه ا	5-23-11.3	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA	NA	NA	NA	NA .	NA	NA
10"14785 P 5-23-11.5 OAND W. STRAUCH OASTAR EUPLORATION USA, INC 1/8" 799 64 NA. NA. NA. NA. NA. NA. NA. NA. NA. NA.			1							i		1		1	
10"14785 P 5-23-11.5 OAND W. STRAUCH OASTAR EUPLORATION USA, INC 1/8" 799 64 NA. NA. NA. NA. NA. NA. NA. NA. NA. NA.		l	1		1	i	1	l	İ			1			
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10*14795 P 5-23-11.5 OMMULE YOUNG GASTAR EPYLORATION, INC 1/8+ 876 459 NA NA NA NA NA NA NA NA NA NA NA NA NA	1	l	1	1	I	1	1	l	I	1		1	I	l	1
10°1497 P 5-23-115 ORVILE YOUNG GASTAR EXPLORATION USA, INC 1/8* 820 598 NA NA NA NA NA NA NA NA NA NA NA NA NA	1		1	1	1	1	1	l	1	1	1	I	l		
10°14814 P 5-23-11.5 ORVILLE YOUNG GASTAR EXPLORATION USA, INC 1/8+ 800 598 NA NA NA NA NA NA NA GETER Exploration, NC Exploration, NC Exploration, NC to Till Exploration, NC	10*14785	P	5-23-11.5	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA .	NA	NA .	INA .	MA	uester Exploration, Inc	Expedition II, LLC
10°14814 P 5-23-11.5 ORVILLE YOUNG GASTAR EXPLORATION USA, INC 1/8+ 800 598 NA NA NA NA NA NA NA GETER Exploration, NC Exploration, NC Exploration, NC to Till Exploration, NC			1		1	1	1	Ì	I		i	I	I	I	1
10°14814 P 5-23-11.5 CHESTINUT HOLDINGS INC GASTAR EXPLORATION, INC 1/8+ 827 537 MA MA MA MA MA MA MA MA MA MA MA MA MA	1	l	1	1	1	1	1	1	I	I	1	1	I	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14814 P 5-23-11.5 CHESTNUT HOLDINGS INC GASTAR EXPLORATION, INC 1/8+ 827 537 MA NA NA NA NA NA NA NA NA NA NA NA NA NA	10*14797	p	5-23-11.5	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC.	1/8+	800	598	RA	NA .	NA .	NA .	NA	Gastar Exploration, Inc	Exploration II, LLC
10°14815 P 5-23-11.5 CHESTINUT HOLDINGS INC GASTAR EXPLORATION, INC 1/8+ 827 535 NA NA NA NA NA NA NA NA NA NA NA NA NA			1			Т.		I						1	
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10°14815 P 5-23-11.5 CHESTRUT HOLDINGS INC GASTAR EXPLORATION, INC 1/8+ 827 535 NA NA NA NA NA NA NA NA NA NA NA NA NA	1	1	L		CACTAR FURN OR - T-C 1114				l	l _{**}	l _{ma}	l NA	_{MA}	l _{NA}	
10°14822 P 5-23-11.5 CHESTINUT HOLDINGS INC GASTAR EXPLORATION, INC 1/8+ 876 463 NA NA NA NA NA NA NA NA NA NA NA NA NA	10°14814	P	5-23-11.5	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	82/	337			100	 	<u> </u>	1	
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10°14825 P 5-23-11.5 ONWARD E BURGE TRUST GASTAR EXPLORATION, INC 1/8+ 876 459 NA NA NA NA NA NA NA NA NA NA NA NA NA		I	1	1		1	1		I	1	1	1	l	I	
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10°14822 P 5-23-11.5 ONWARD E BURGE TRUST GASTAR EXPLORATION, INC 1/8+ 876 453 NA NA NA NA NA NA NA NA NA NA NA NA NA		Ι				1	1	1	I	1	1	1	1	ŀ	1
10°14822 P 5-23-11.5 ONWARD E BURGE TRUST GASTAR EXPLORATION, INC 1/8+ 876 453 NA NA NA NA NA NA NA NA NA NA NA NA NA	1	1	1	1		1	1	l	I	I	1	1	I	I	36/9 Gastar Exploration, Inc. to TH
10°14822 P 5-23-11.5 SARAH L BURGE TRUST GASTAR EXPLORATION, INC 1/8+ 876 459 NA NA NA NA NA NA NA NA NA Exploration IL ILC		١.		CARLYARD & BURGE TRUET	GASTAD EVELOPATION INC	1/8+	876	463	l _{MA}	l _{NA}	INA	Ina	NA.	NA.	Exploration II, LLC
10°14523 P 5-73-11.5 SARAH L BURGE TRUST GASTAR EXPLORATION, INC 1/8+ 876 459 NA NA NA NA NA NA NA NA NA NA NA NA NA	10*14822	 	3-15-11.5	OU AND E BONGE IKOSI	CONSTANTENTEUN ATTO	407	1 3/8	103	<u> </u>	<u> </u>				1	1
10°14523 P 5-73-11.5 SARAH L BURGE TRUST GASTAR EXPLORATION, INC 1/8+ 876 459 NA NA NA NA NA NA NA NA NA NA NA NA NA	1	1	1	1	1	1	1	I	1	1		1	I	I	1.
10 1625 P 25211.5 SPORTSVINE INST. CENTRAL TOTAL	1	1	1	1	Į.	1	1	I	1	1	1	L	I	I	
10°18275 P 5-23-11.5 BETTY JEAN NEELY TH EXPLORATION, LLC 1/3+ 929 60 NA NA NA NA NA NA NA	10*14823	P	5-23-11.5	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA.	NA .	NA	NA	NA	INA	expectation II, LLC
10°18275 P 5-23-11.5 BETTY JEAN NEELY TH EXPLORATION, LLC 1/3+ 929 60 NA NA NA NA NA NA NA			1			1	1	I	1	1	1	1	I	I	1
10°18275 P 5-23-11.5 BETTY JEAN NEELY TH EXPLORATION, LLC 1/8+ 929 60 NA NA NA NA NA NA NA NA	1	1	1	1		1	1	I	Į.	1		1	I	I	1
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WV Department of Frwironmental Protection

Operator's Well No. <u>Hillrock - 4HM</u>

WW-6A1 Supplement

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
			MARY LOU WILSON AND STANLEY D			i l								1
10°18366	P	5-23-11.5	WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA	NA.	NA .
i i			CRAIG ALAN YOHO AND DONNA M		1 .					J				
10°18369	P	5-23-11.5	УОНО	TH EXPLORATION, LLC	1/8+	931	303	NA	NA .	NA .	NA	NA .	NA	NA .
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10*18370	Р	5-23-11.5	SAMUEL D YORO	TH EXPLORATION, LLC	1/8+	931	300	NA	NA .	NA .	NA .	NA .	NA	NA
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			DAVID N DEVICK TRUSTEE OF THE		١.							l	l	
10°18379	P	5-23-11.5	TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	INA	NA .	NA	NA .	NA .	NA	NA
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10"19540	P	5-23-11.5	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	HA	NA .	NA	NA .	NA	NA .	NA
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				į .		1			1				21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14807	P	5-23-11.5	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	MA	NA .	NA .	NA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
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10"22129	P	5-23-11.5	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	-		NA .	NA .	NA .	NA	[NA
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		1	1		i			l	Ī	ĺ			21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14808	P	5-23-11.5	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	[NA	NA .	NA .	NA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
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1													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14809	P	5-23-11.5	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	NA	NA .	NA .	NA	NA .	Gastar Exploration, Inc	Exploration II, LLC
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Į						1				1			21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14806	P	5-23-11.5	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA .	NA	NA	NA .	MA	Gastar Exploration, inc	Exploration II, LLC
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		1						i		l		1	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14786	P	5-23-11.5	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	lna	NA	MA	NA	NA	Gastar Exploration, Inc	Exploration II, LLC
													21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14810	,	5-23-11.5	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	lna .	NA.	NA.	NA.	l MA	Gastar Exploration, Inc	Exploration II, LLC
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	l						i					l	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14796	,	5-23-11.5	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC	1/8+	799	540	lna .	NA	NA	NA	NA.	Gastar Exploration, Inc	Exploration II, LLC
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10°22025		5-23-11.5	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	l _{NA}	NA.	lna .	lna .	lna .	lna .	lna l
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10°22008	١.	5-23-11.5	COLIN R YORO	TH EXPLORATION, LLC	1/8+	953	304	NA.	NA.	NA.	NA .	l _{na}	NA.	NA I
					 				27/311 Gester Exploration USA, Inc and		i			
1	l							L	Atinum Marcellus L, LLC to Chesapeake		l		L	I
10012105	١,	5-23-11.5	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	317	23/353 Gastar Exploration USA Inc to Atinum Marcellus I, LLC	Appalachia, LLC and Statofi USA Onshore Properties inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoll 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*17195	- ' -	3-23-11.3	I POLICIA CIANTIMAN	WEIGHT ENT LUNATION USA, INC.	1 2/87	733			27/311 Gastar Exploration USA, Inc and					
	1							L.,	Atinum Marcellus I, LLC to Chesapeake	L	l	L	l	I
	۱ ,	E-22-11 F	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gastar Exploration USA Inc to Atlnum Marcellus I. LLC	Appalachia, LLC and Statoli USA Onshore Properties inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoll USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoli USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17196	'	5-23-11.5	DELUERI R. MURIGUMERI	STATE OF LUNATION USA, INC.	4/97	193			27/311 Gastar Exploration USA, Inc and	romanian anapery, tak		(peny, total	The second secon	Lighter desired Labo
1		1	1			1	l	l	Atinum Marcellus I, LLC to Chesapeake	1	1			
I	١.	L	GLORIA J. SIMMONS HAROLD	C15748 CVD1 0847701115 : :::5				23/353 Gastar Exploration USA Inc to Atlnum	Appalachia, LLC and Statoil USA Onshore Properties inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC		19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoll USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to
10*17197	P	5-23-11.5	SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	Marcellus I, LLC	27/311 Gaster Exploration USA, Inc and	2444 Froduction Company, LLC	to SWN Exchange Title Holder LLC	arriver outstoon company, e.c.	IN TO THE EXPROPATION, LLC	TH Exploration, LLC
	1	1	Į.		1	1	1		Atinum Marcellus L LLC to Chesapeake	ĺ				
1	l	1	PAMELA L DRAZIC AND JEFFREY	l	l	l	١	23/353 Gastar Exploration USA Inc to Atinum		33/110 Chesapeake Appalachia, LLC to		19/624 SWN Exchange Titleholder LLC to		41/256 SWN Production Company, LLC to
10*17199	P .	5-23-11.5	DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	Marcellus I, LLC	Properties inc 27/311 Gastar Exploration USA, inc and	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
l	l	1			1	1	l	1	27/311 Gastar Exploration USA, Inc and Attnum Marcellus L, LLC to Chesapeake				İ	
	l	1			1	1	l	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to		41/256 SWN Production Company, LLC to
10°17200	P	5-23-11.5	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
	1	1			1	1	l	1	27/311 Gastar Exploration USA, inc and Atinum Marcellus L. LLC to Chesaceske	1				
1						1	l	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoll USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoll USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17201	P	5-23-11.5	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
	T						I		27/311 Gastar Exploration USA, Inc and					
1	1	1		1	1	I	I	23/353 Gastar Exploration USA Inc to Atinum	Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoli USA Onshore Properties Inc.	19/624 SWN Exchange Titleholder LLC to	41/238 Statoli USA Onshore Properties	41/256 SWN Production Company, ILC to
10°17202	P	5-23-11.5	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC		Inc to TH Exploration, LLC	TH Exploration, LLC
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10°17204 P 5 10°17206 P 5 10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	CLARENCE RICHARD ZESIGER & MARY ZESIGER M VIRGINIA & EDWARD C MARSH DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+ 1/8+ 1/8+ 1/8+ 1/8+	697 697 697 697 697	391 399 389	Marcellus L LLC 23/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC 22/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC 22/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC	Assignment 27/311 Gatter Exploration USA, Inc and Altinum Marcellian I, LLC to Cheaspeake Appalachia, LLC and Stated USA Onshore Properties Inc 27/311 Gatter Exploration USA, Inc and Altinum Marcellian I, LLC to Cheaspeake Appalachia, LLC and Stated USA Onshore Properties Inc 27/311 Gastar Exploration USA, Inc and Altinum Marcellian I, LLC to Cheaspeake Appalachia, LLC and Stated USA Onshore Properties Inc 27/311 Gastar Exploration USA, Inc and Altinum Marcellon I, LLC to Cheaspeake Appalachia, LLC and Stated USA Onshore Properties Inc 27/311 Gastar Exploration USA, Inc and Altinum Marcellon I, LLC to Cheaspeake Appalachia, LLC and Stated USA 27/311 Gastar Exploration USA, Inc and Altinum Marcellon I, LLC to Cheaspeake Appalachia, LLC and Stated USA Onshore Properties Inc 27/311 Gastar Exploration USA, Inc and Altinum Marcellon I, LLC to Cheaspeake Appalachia, LLC and Stated USA Onshore Properties Inc 27/311 Gastar Exploration USA, Inc and 27/311 Gastar Exploration USA, Inc and 27/311 Gastar Exploration USA, Inc and 27/311 Gastar Exploration USA, Inc and 27/311 Gastar Exploration USA, Inc and 27/311 Gastar Exploration USA, Inc and	Assignment 31/110 Chrispeake Appalachia, LLC to SWN Production Company, LLC 33/110 Chrispeake Appalachia, LLC to SWN Production Company, LLC 31/110 Chrispeake Appalachia, LLC to SWN Production Company, LLC 31/110 Chrispeake Appalachia, LLC to SWN Production Company, LLC 31/110 Chrispeake Appalachia, LLC to	to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	Inc to TH Exploration, LLC 41/238 Statoll USA Ornhore Properties Inc to TH Exploration, LLC 41/238 Statodl USA Ornhore Properties to TH Exploration, LLC 41/238 Statodl USA Ornhore Properties inc to TH Exploration, LLC	Assignment 41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to TH Exploration, LLC
10°17204 P 5 10°17206 P 5 10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	CLARENCE RICHARD ZESIGER & MARY ZESIGER M VIRGINIA & EDWARD C MARSH DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+	697 697 697	391 399 389	Marcellus I, LLC 23/353 Gestar Exploration USA inc to Alinum Marcellus I, LLC 23/353 Gestar Exploration USA inc to Atinum Marcellus I, LLC 23/353 Gestar Exploration USA inc to Atinum Marcellus I, LLC 23/353 Gestar Exploration USA inc to Atinum Marcellus I, LLC	Appalachia, ILC and Statell USA Omshore Properties Inc 27/311 Grate Exploration USA, inc and Attnem Marcellus I, LLC to Chesspeake Appalachia, ILC and Statell USA Onshore Properties Inc 27/311 Grate Exploration USA, inc and Attnem Marcellus I, LLC to Chesspeake Appalachia, ILC and Statell USA Onshore Properties Inc 27/311 Grate Exploration USA, inc and Attnem Marcellus I, LLC to Chesspeake Appalachia, ILC and Statell USA Onshore Properties Inc 27/311 Grate Exploration USA, inc and Attnem Marcellus I, LLC to Chesspeake Appalachia, ILC and Statell USA Onshore Anome Marcellus I, LLC to Chesspeake Appalachia, ILC and Statell USA Onshore Properties Inc 27/311 Grate Exploration USA, inc and Andrum Marcellus I, LLC to Chesspeake Appalachia, ILC and Statell USA Onshore Properties Inc Properties Inc LC and Statell USA Onshore Properties Inc Properties Inc	SWN Production Company, LLC to 33/110 Chesapeake Appalachia, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC	to SWN Exchange Title Holder LLC 33/424 Statiol USA Onahore Properties Inc to SWN Exchange Title Holder LLC 33/424 Statiol USA Onahore Properties Inc to SWN Exchange Title Holder LLC 33/424 Statiol USA Onahore Properties Inc to SWN Exchange Title Holder LLC	SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	Inc to TH Exploration, LLC 41/238 Statoll USA Ornhore Properties Inc to TH Exploration, LLC 41/238 Statoll USA Ornhore Properties to TH Exploration, LLC 41/238 Statoll USA Ornhore Properties inc to TH Exploration, LLC	TH Exploration, LLC 41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to 41/256 SWN Production Company, LLC to
10°17204 P 5 10°17206 P 5 10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	CLARENCE RICHARD ZESIGER & MARY ZESIGER M VIRGINIA & EDWARD C MARSH DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+	697 697 697	391 399 389	Marcellus I, LLC 23/353 Gestar Exploration USA inc to Alinum Marcellus I, LLC 23/353 Gestar Exploration USA inc to Atinum Marcellus I, LLC 23/353 Gestar Exploration USA inc to Atinum Marcellus I, LLC 23/353 Gestar Exploration USA inc to Atinum Marcellus I, LLC	Properties Inc. 27/311 Gastar Exploration USA, Inc and Allnum Marcellus I, LIC to Chesapeake Appallachia, IL Gand Statoli USA Omhore Properties Inc. 27/311 Gastar Exploration USA Denhore Properties Inc. 27/311 Gastar Exploration USA, Inc and Allnum Marcellus I, LIC to Chesapeake Appallachia, LIC and Statoli USA Omhore 27/311 Gastar Exploration USA, Inc and Annum Marcellus I, LIC to Ohesapeake Appallachia, LIC and Statoli USA Orshore 27/311 Gastar Exploration USA, Inc and Annum Marcellus I, LIC to Ohesapeake Appallachia, LIC and Statoli USA Orshore Properties Inc. 27/311 Gastar Exploration USA, Inc and Annum Marcellus I, LIC to Ohesapeake Appalachia, LIC and Statoli USA Orshore Properties Inc.	SWN Production Company, LLC to 33/110 Chesapeake Appalachia, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC to 5WN Production Company, LLC	to SWN Exchange Title Holder LLC 33/424 Statiol USA Onahore Properties Inc to SWN Exchange Title Holder LLC 33/424 Statiol USA Onahore Properties Inc to SWN Exchange Title Holder LLC 33/424 Statiol USA Onahore Properties Inc to SWN Exchange Title Holder LLC	SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	Inc to TH Exploration, LLC 41/238 Statoll USA Ornhore Properties Inc to TH Exploration, LLC 41/238 Statoll USA Ornhore Properties to TH Exploration, LLC 41/238 Statoll USA Ornhore Properties inc to TH Exploration, LLC	TH Exploration, LLC 41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to 41/256 SWN Production Company, LLC to
10°17204 P 5 10°17206 P 5 10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	CLARENCE RICHARD ZESIGER & MARY ZESIGER M VIRGINIA & EDWARD C MARSH DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+	697 697 697	391 399 389	23/353 Gester Exploration USA inc to Attnum Marcellus L LLC 23/353 Gester Exploration USA inc to Attnum Marcellus L LLC 22/353 Gester Exploration USA inc to Attnum Marcellus L LLC 22/353 Gester Exploration USA inc to Attnum Marcellus L LLC	27/311 Gastar Exploration USA, Inc and Altinum Marcellos I, LC to Chespeake Appalachia, LIC and Statoil USA Omshore Properties lixe 27/311 Gastar Exploration USA, Inc and Altinum Marcellos I, LIC to Chespeake Appalachia, LIC and Statoil USA Ornshore Properties Inc 27/311 Gastar Exploration USA, Inc and Altinum Marcellos I, LIC to Chespeake Appalachia, LIC and Statoil USA Omshore Properties Inc 27/311 Gastar Exploration USA, Inc and Altinum Marcellos I, LIC to Chespeake Appalachia, LIC and Statoil USA Omshore Properties Inc 27/311 Gastar Exploration USA, Inc and Andrum Marcellos I, LIC to Chespeake Appalachia, LIC and Statoil USA Onshore Properties Inc.	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC 33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC 33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC 31/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Ornhore Properties for to SWIN Exchange Title Holder LLC 33/424 Statoil USA Ornhore Properties for to SWIN Exchange Title Holder LLC 33/424 Statoil USA Ornhore Properties for to SWIN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC 41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC 41/238 Statoil USA Onshore Properties inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to THE Exploration, LLC 41/256 SWN Production Company, LLC to THE Exploration, LLC
10°17206 P 5 10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	ZESIGER M VIRGINIA & EDWARD C MARSH DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+	697 697	399	Marcellus L LLC 23/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC 22/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC 22/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC	Afinum Marcellus I, LIC to Chesapeaka Appalachia, LIC and Statoli USA Onshore Properties Ive. 27/311 Gastar Exploration USA, Ive and Alinum Marcellus I, LIC to Chesapeaka Appalachia, LIC and Statoli USA Onshore Properties Ive. 27/311 Gastar Exploration USA, Ive and Annum Marcellus I, LIC to Chesapeaka Appalachia, LIC and Statoli USA Onshore Properties Ive. 27/311 Gastar Exploration USA, Ive and Adnum Marcellus I, LIC to Chesapeaka Appalachia, LIC and Statoli USA Onshore Adnum Marcellus I, LIC to Chesapeaka Appalachia, LIC and Statoli USA Onshore Properties Ive.	SWN Production Company, LLC 33/110 Cherapeake Appalachia, LLC to SWN Production Company, LLC 33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC 33/110 Chesapeake Appalachia, LLC to	to SWN Exchange Title Holder LLC 33/424 Statiol USA Onshore Properties Inc to SWN Exchange Title Holder LLC 33/424 Statiol USA Onshore Properties Inc to SWN Exchange Title Holder LLC	SWN Production Company, LLC 19/624 SWN Exchange Titlcholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titlcholder LLC to SWN Production Company, LLC	Inc to TH Exploration, LLC 41/238 Statoll USA Onahore Properties for to TH Exploration, LLC 41/238 Statoll USA Onahore Properties for the TH Exploration, LLC	TH Exploration, LLC 41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to
10°17206 P 5 10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	ZESIGER M VIRGINIA & EDWARD C MARSH DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+	697 697	399	Marcellus L LLC 23/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC 22/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC 22/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC	Properties Inc. 27/311 Gastar Exploration USA, Inc and Affirm Marcellus I, LIC to Chesapeake Appalachia, LIC and Statoil USA Ormbore Properties Inc. 27/311 Gastar Exploration USA, Inc and Admun Marcellus I, LIC to Chesapeake Appalachia, LIC and Statoil USA Ormbore Properties Inc. 27/311 Gastar Exploration USA, Inc and Admun Marcellus I, LIC to Chesapeake Appalachia, LIC and Statoil USA Ormbore Properties Inc. 27/311 Gastar Exploration USA, Inc and Admun Marcellus I, LIC to Chesapeake Appalachia, LIC and Statoil USA Ormbore Properties Inc.	SWN Production Company, LLC 33/110 Cherapeake Appalachia, LLC to SWN Production Company, LLC 33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC 33/110 Chesapeake Appalachia, LLC to	to SWN Exchange Title Holder LLC 33/424 Statiol USA Onshore Properties Inc to SWN Exchange Title Holder LLC 33/424 Statiol USA Onshore Properties Inc to SWN Exchange Title Holder LLC	SWN Production Company, LLC 19/624 SWN Exchange Titlcholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titlcholder LLC to SWN Production Company, LLC	Inc to TH Exploration, LLC 41/238 Statoll USA Onahore Properties for to TH Exploration, LLC 41/238 Statoll USA Onahore Properties for the TH Exploration, LLC	TH Exploration, LLC 41/256 SWN Production Company, LLC to TH Exploration, LLC 41/256 SWN Production Company, LLC to
10°17206 P 5 10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	M VIRGINIA & EDWARD C MARSH DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+	697 697	399 389 393	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC 22/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC 22/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	27/311 Gastar Exploration USA, he and Atinum Marcellus I, LIC to Chesapeaba Appalacha, LIC and Statoli USA Orshore Properties ine 27/311 Gastar Exploration USA, he and Atinum Marcellus I, LIC to Chesapeaba Appalacha, LIC and Statoli USA Orshore Properties ine 27/311 Gastar Exploration USA, he and Anium Marcellus I, LIC to Chesapeaba Appalacha, LIC and Statoli USA Orshore Properties ine 27/311 Gastar Exploration USA, he and Anium Marcellus I, LIC to Chesapeaba Appalacha, LIC and Statoli USA Orshore Properties ine	31/110 Chrispeake Appalachia, LLC to SWN Production Company, LLC 33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC 31/110 Chesapeake Appalachia, LLC to	33/424 Statiol USA Ornhore Properties Inc to SWIN Exchange Title Heider LLC 33/424 Statiol USA Ornhore Properties Inc to SWIN Exchange Title Nolder LLC	19/524 SWN Exchange Titleholder LLC to SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statod USA Onshore Properties Inc to TH Exploration, LLC 41/238 Statod USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+	697 697	389	Marcellus L. LLC 22/353 Gester Exploration USA Inc to Atlmum Marcellus L. LLC 22/353 Gester Exploration USA Inc to Atlmum Marcellus L. LLC	Appalachia, LLC and Statoil USA Orshore Properties Inc. 27/311 Gastar Exploration USA, inc and Atinum Matrockius LLLC to Chesapeake Appalachia, LLC and Statoil USA Orshore Properties Inc. 27/311 Gastar Exploration USA, inc and Admum Matrockius LLC to Chesapeake Appalachia, LLC and Statoil USA Orshore Properties Inc.	SWIP Production Company, LLC 33/110 Chesapeake Appalachia, LLC to SWIP Production Company, LLC 33/110 Chesapeake Appalachia, LLC to	to SWN Exchange Title Holder LLC 33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	Inc to TH Exploration, U.C 41/238 Statoil USA Ornhore Properties Inc to TH Exploration, U.C	TH Exploration, LLC 41/256 SWN Production Company, LLC to
10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+	697 697	389	Marcellus L. LLC 22/353 Gester Exploration USA Inc to Atlmum Marcellus L. LLC 22/353 Gester Exploration USA Inc to Atlmum Marcellus L. LLC	Properties Inc. 27/311 Gastar Exploration USA, Inc and Altinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc. 27/311 Gastar Exploration USA, Inc and Anium Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc.	SWIP Production Company, LLC 33/110 Chesapeake Appalachia, LLC to SWIP Production Company, LLC 33/110 Chesapeake Appalachia, LLC to	to SWN Exchange Title Holder LLC 33/424 Statoil USA Onshore Properties Inc to SWN Exchange Title Holder LLC	SWN Production Company, LLC 19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	Inc to TH Exploration, U.C 41/238 Statoil USA Ornhore Properties Inc to TH Exploration, U.C	TH Exploration, LLC 41/256 SWN Production Company, LLC to
10°17207 P 5 10°17210 P 5 10°17211 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	DEBORAH K. KLIMASZEWSKI FRANK KLIMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC GASTAR EXPLORATION USA, INC	1/8+	697 697	389	Marcellus I, LLC 23/353 Gastar Exploration USA Inc to Atlnum Marcellus I, LLC	Atinum Marcellus I, ILC to Chesapeake Appalachia, ILC and Statoil USA Orshore Properties III. 27/311 Gestar Exploration USA, Inc and Atinum Marcellus I, ILC to Chesapeake Appalachia, ILC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC 33/110 Chesapeake Appalachia, LLC to	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 Ornhore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to
10°17210 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	KUMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	389	Marcellus I, LLC 23/353 Gastar Exploration USA Inc to Atlnum Marcellus I, LLC	Appalachia, LLC and Statoil USA Onshore Properties Inc 27/311 Gastar Exploration USA, Inc and Atinum Marcellius L, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc	SWN Production Company, LLC 33/110 Chesapeake Appelachia, LLC to	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TM Exploration, LLC
10°17210 P 5	5-23-11.5 5-23-11.5 5-23-11.5 5-23-11.5	KUMASZEWSKI, SR. MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	389	Marcellus I, LLC 23/353 Gastar Exploration USA Inc to Atlnum Marcellus I, LLC	Properties Inc 27/311 Gestar Exploration USA, Inc and Adnum Marcellus L. LLC to Chesapeake Appalachia, LLC and Statoil USA Orshore Properties Inc	SWN Production Company, LLC 33/110 Chesapeake Appelachia, LLC to	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10°17210 P 5	5-23-11.5 5-23-11.5 5-23-11.5	MARILYN NOEL GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	393	Marcettus I, LLC	Attnum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore Properties Inc		33/424 Statoil USA Onshore Properties for	19/624 SWN Exchange Titleholder LLC to	A1/328 Stabuillisa Ourbana Barrerii	
10°17211 P 5	5-23-11.5 5-23-11.5	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC				Marcettus I, LLC	Appalachia, LLC and Statoil USA Onshore Properties Inc		33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41 (739 Strange) 1154 One have \$	1
10°17211 P 5	5-23-11.5 5-23-11.5	GARY WAYNE ZESIGER & VICKIE ZESIGER	GASTAR EXPLORATION USA, INC				Marcettus I, LLC	Properties Inc				LATING SCREEN CON CLEMEN & LLODGAGE	41/256 SWN Production Company, LLC to
10°17211 P 5	5-23-11.5 5-23-11.5	ZESIGER		1/8+	697	907		27/311 Gastar Exploration USA. Inc and	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWM Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10*17212 P S	5-23-11.5 5-23-11.5	ZESIGER		1/8+	697	907		Attnum Marcellus I, LLC to Chesapeake		1			1
10*17212 P S	5-23-11.5 5-23-11.5	ZESIGER		1/8+	697	307	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to		19/624 SWN Exchange Titleholder LLC to		41/256 SWN Production Company, LLC to
		DARRELL NEWLAND LYDIA NEWLAND	CASTAD EVELOPATION USA INC			-37	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
		DARRELL NEWLAND LYDIA NEWLAND	CASTAD EXPLODATION LISA IMP		1			27/311 Gastar Exploration USA, Inc and Attnum Marcellus I, LLC to Chesapeake					1
		DARRELL NEWLAND LYDIA NEWLAND	CASTAD EVELOPATION LIST INC.					Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10017713	5-23-11.5		ONS INC EXPLORATION USA, INC.	1/8+	697	158	Marcellus I, LLC	Properties inc 27/311 Gastar Exploration USA, inc and	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10017713	5-23-11.5			1			l	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake					
110°17713 p e	5-23-11.5			1 1				Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to		41/256 SWN Production Company, LLC to
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	inc to TH Exploration, LLC	TH Exploration, LLC
				i 1	1 1								
		1		ا ا	ا ا		L	l		l	NA.		lwa l
10*19652 P S	5-23-11.5	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA .	NA	RA .		NA.	<u> </u>	
		1		1 1	1 1								1 1
10°22441 P S		ADDIT DOCC BOCK FRANKET	TH EXPLORATION, LLC	1/8+	963	646	ĺ _{NA}	l _{NA}	lna.	NA.	NA	l _{na}	NA I
10°22441 P 5	5-23-11.5	APRIL ROSE POSTLETHWAIT	IN EXPLORATION, LLC	1 40	- 203							·	f
		Į			[]			Į	1				1
10°22510 P 5	5-23-11.5	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA .	NA .	NA	NA .	NA	NA	NA
10 22310	3-23-22-3	DOMESTOND	THE CONTROL CO	1 7		- 4							
						i							1
10*19903 P 5	5-23-11.5	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA	NA	NA	NA	NA	NA
								i		•		21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14785 Q 5	5-25-18	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA .	NA	NA	NA	RA	Gastar Exploration, Inc	Exploration II, LLC
							1			i			1
		1					1					21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14797 Q 5	5-25-18	ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	800	598	NA .	NA	NA .	NA	NA.	Gastar Exploration, Inc	Exploration II, LLC
	Ì	l I											1
1 1		1	'	1						l .		l	36/9 Gastar Exploration, Inc. to TH
10°14814 Q	5-25-18	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	MA.	NA	RA .	INA.	RA .	NA .	Exploration II, LLC
I	L			ا ا	ا ا		L. .	L.			wa.	l.,	36/9 Gastar Exploration, Inc. to TH Exploration IL LLC
10°14815 Q 5	5-25-18	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	M	<u> </u>	nn .	in and a second			paper monet No Edit
	1			1 1		l							
10*14822 Q	5-25-18	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	l _{NA}	NA.	NA .	lna.	RA	lna .	36/9 Gastar Exploration, Inc. to TH Exploration It, LLC
10-1-522 Q	243-12	ANTHUR E BONGE INDSI	Section EXPERIMENTAL INC.	40-		1	<u> </u>					<u> </u>	
1 1	1					l							36/9 Gastar Exploration, Inc. to TH
10°14823 Q	5-25-18	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	NA.	NA	NA	NA	MA	NA	Exploration II, LLC
				11									
	l					l]					
10*18275 Q	5-25-18	BETTY JEAN NEELY	TH EXPLORATION, LLC	1/8+	929	60	NA .	NA	NA	NA	NA	NA	NA
	T												
1 1 1	1	MARY LOU WILSON AND STANLEY D											[
10°18366 Q	5-25-18	WILSON	TH EXPLORATION, LLC	1/8+	931	311	NA	NA	NA	NA	NA .	NA	NA .
						-							
		CRAIG ALAN YOHO AND DONNA M			1	l	1			i		1	
10*18369 Q	5-25-18	тоно	TH EXPLORATION, LLC	1/8+	931	303	NA .	NA	NA .	NA	NA .	NA	NA
							1	i					
					1	l	1			İ			
10°18370 Q	5-25-18	SAMUEL D YOHO	TH EXPLORATION, LLC	1/8+	931	300]NA	[MA	[NA	INA	NA .	INA	INA

WV Department of مناسبت

Operator's Well No. Hillrock - 4HM

WW-6A1 Supplement

Lease No.	Tags	Parcel	Letsor	Lassee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10°18379		5-25-18	DAVID N DEVICK TRUSTEE OF THE TONI JO MASON LIVING TRUST	TH EXPLORATION, LLC	1/8+	932	439	l ₁₄		l _{NA}	NA.	N.	l _{NA}	l _{NA}
10 18373		3.5.0		III SA CANANTANA		1								
		ĺ						i	ł					1
10*19540	a	5-25-18	ERICA M MASON	TH EXPLORATION, LLC	1/8+	942	53	NA.	NA.	NA.	NA	NA .	NA	NA
1 1					1				Į					
10*22129	a	5-25-18	JANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	NA	NA	NA	NA .	NA	NA .	NA
1 1	1							İ	1				1	
									1	i	1		21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH *
10°14809	a	5-25-18	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	MA.	KA	NA .	NA .	RA	Gastar Exploration, Inc	Exploration II, LLC
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1 1		1	1		l . I				1	1		1	21/41 Gestar Exploration USA Inc to	36/9 Gester Exploration, Inc. to TH
10°14810	-9-	5-25-18	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	MA.	NA .	NA	NA	NA	Gestar Exploration, Inc	Exploration II, LLC
									1				}	
l	١.	L				l l		L.,	L	l	L.,	l	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14786	<u>a</u>	5-25-18	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61		<u> </u>	i a	<u>~</u>	<u> </u>	Gastar Exploration, Inc	Exploration II, LLC
									1			1	1	
10°14796	۵	5-25-18	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC.	1/8+	799	540	l	NA.	l.,	NA.	l,,	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10-14/36	- ~	152510	KIMBERET 3. OESHITI	GOTAL EXPLONATION COR, INC.	401	""					<u> </u>		Ostar Exproredox (a.c.	constitutive acc
1 1	ļ	1	i					1	1					l
10°14806	a	5-25-18	DONNA VIVIAN YOHO	GASTAR EXPLORATION USA, INC	1/8+	809	558	lna .	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 0 000														
1								1				1	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14807	۹	5-25-18	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	209	555	NA .	NA.	NA	NA.	NA	Gastar Exploration, Inc	Exploration II, LLC
				-								}		
}								1	1				21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14808	_ و	5-25-18	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809	552	MA	NA.	RA	NA	HA.	Gastar Exploration, Inc	Exploration II, LLC
								1	1	ĺ	1	1	[1 1
					1				Į.		1		1	
10°22008	٩	5-25-18	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA	NA	NA	NA .	NA	NA .	NA
1									1	l			1	1
1		1						1	1	ĺ	1			
10°22025	٩	5-25-18	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA .	NA 27/311 Gastar Exploration USA, Inc and	NA .	NA .	NA	NA .	NA .
								1	Atinum Marcellus I, LLC to Chesapeake		1		1	1
	_			CACTAR EVOLORATION LIFE INC	1/8+	695	***	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties 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°17195	9_	5-25-18	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/5+	693	31/	Marchius C CC	27/311 Gastar Exploration USA, Inc and	SWA Procurson Company, CCC	to swin Exchange little Holder CCC	SWN Production Company, LLC	In Exploration, LLC	anc. to th exploration, LLC.
									Atinum Marcellus I, LLC to Chesapeake					
10°17196	Q	5-25-18	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties 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 1/150		32340	Jeesen K Morrisonian	a di la constituit da quita					27/311 Gastar Exploration USA, Inc and					
			GLORIA J. SIMMONS HAROLD					23/353 Gastar Exploration USA Inc to Atlnum	Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17197	ه ا	5-25-18	SIMMONS	GASTAR EXPLORATION USA, INC	1/8+	695	313	Marcelkas L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
	l								27/311 Gastar Exploration USA, Inc and					
1	I	1	PAMELA L DRAZIC AND JEFFREY					23/353 Gastar Exploration USA Inc to Atinum	Atinum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17199	a	5-25-18	DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
	1								27/311 Gastar Exploration USA, Inc and Attnum Marcellus L LLC to Chesapeake		I]
	I	1			1			23/353 Gester Exploration USA Inc to Atlnum	Appalachia, LLC and Statoll USA Onshore	33/110 Chesapeake Appalachia, LLC to		19/624 SWN Exchange Tritleholder LLC to		41/256 SWN Production Company, LLC to
10*17200	٩	5-25-18	STEPHANIE L. HALL	GASTAR EXPLORATION USA, INC	1/8+	697	156	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
1	1	1			1			1	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I, LLC to Chesapeake		I]
1	1	1			1			23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statell USA Onchore Properties	41/256 SWM Production Company, LLC to
10°17201	۹_	5-25-18	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	Marcellus L LLC	Properties Inc 27/311 Gastar Exploration USA, Inc and	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
	1				1			I	Attnum Marcellus I, LLC to Chesapeake					
	1 _	L	l					23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoll USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoll USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17202	9	5-25-18	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	Marcellus L LLC	Properties Inc 27/311 Gastar Exploration USA, Inc and	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
1		1						I	Attnum Marcellus I, LLC to Chesapeake	1	1.			
	l _		BARRY RAY MOORE	CACTAR EVOLORATION LES	1/4.	697	,	23/353 Gastar Exploration USA Inc to Atinum Marcellus L, LLC	Appalachia, LLC and Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoil USA Onshore Properties 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	 a -	5-25-18	DANKT KAT MUUKE	GASTAR EXPLORATION USA, INC	1/8+	03/	38/	meralitis (LLL	27/311 Gastar Exploration USA, Inc and		A SAME ENTREES HIS HOUSE CIT	Participany, LLC	an with Expression, III.	coperation at
		1		1			i	L	Atinum Marcellus I, LLC to Chesapeake	L			L]]
10017304		5-25-18	CLARENCE RICHARD ZESIGER & MARY ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	23/353 Gestar Exploration USA Inc to Atinum Marcellus L LLC	Appalachia, LLC and Statoli USA Onshore Properties inc	33/110 Chesapeake Appalachia, LLC to SWN Production Company, LLC	33/424 Statoli USA Onshore Properties Inc to SWN Exchange Title Holder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company, LLC	41/238 Statoll USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10°17204	- "	3.45.10		TO THE SOUTH OF THE	 	- <u></u>			27/311 Gastar Exploration USA, Inc. and					
1	1	1					l	23/353 Gestar Exploration USA Inc to Atlnum	Atinum Marcellus L, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	21/474 Stated IK4 Contract house	19/624 SWN Exchange Titleholder LLC to	AT / Day Shared Life Control Control	AT THE COMPONENT OF THE PARTY O
10°17206	ا ا	5-25-18	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	23/353 Gestar Exploration USA Inc to Athrum Marcellus L LLC	Apparachia, LLC and Statoli USA Onshore Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
		,						*	•					

							•		4	Assignment	Assignment	Assignment	Assignment	Assignment
Lease No.	Tags	Parcel	Lessor	Lossee	Royalty	Book	Page	Assignment	Assignment 27/311 Gastar Exploration USA, inc and	Assignment	Assignment	Assignment	Assignment	Assignment
1 1						l l			Atinum Marcellus L LLC to Chesapeake		l .			
i i			DEBORAH K. KLIMASZEWSKI FRANK					23/353 Gastar Exploration USA Inc to Atinum	Appalathia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoll USA Onshore Properties Inc		41/238 Statoli USA Onshore Properties	41/256 SWM Production Company, LLC to
10°17207	Q.	5-25-18	KLIMASZEWSKI, SR.	GASTAR EXPLORATION USA, INC	1/8+	697	329	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
					1				27/311 Gastar Exploration USA, Inc and			l		
1 1					į į			23/353 Gastar Exploration USA Inc to Atinum	Atinum Marcellus I, LLC to Chesapeske Appalachia, LLC and Statoli USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	A3 /739 Count INCA Ourbon Donordin	41/256 SWN Production Company, LLC to
10*17210	ا ہ	5-25-18	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	Marcellus L U.C	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10-1/210		71716	IMARIETI NOCE	GPS FACE CONTINUES CONTINU	-79-				27/311 Gastar Exploration USA, Inc and	, , , , , , , , , , , , , , , , , , , ,				
1 1					i l				Attnum Marcellus I, LLC to Chesapeake					1
1			GARY WAYNE ZESIGER & VICKIE					23/353 Gastar Exploration USA inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc		41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17211	Q	5-25-18	ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397_	Marcellus I, LLC	Properties inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	inc to TH Exploration, LLC	TH Exploration, LLC
			l I		1				27/311 Gastar Exploration USA, Inc and Atinum Marcellus L, LLC to Chesapeake	i .		i	i .	ľ
					1			23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoli USA Orshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc.	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17212		5-25-18	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA. INC	1/8+	697	158	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10 1/212		3-13-10			1		-		27/311 Gestar Exploration USA, Inc and					T
					i				Atinum Marcellus I, LLC to Chesapeake					
1 1					1			23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoll USA Orishore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoff USA Onshore Properties Inc		41/238 Statoll USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17213	Q	5-25-18	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
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1														
	a		JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	lwa .	NA.	lna .	NA.	lna .	NA	NA
10*19652		5-25-18	JACK I HAMIMERS	TH EXPLORATION, LLC	- 40.			1						f**
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10°22441	Q	5-25-18	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA .	NA	NA .	NA .	NA	NA	NA
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1 1		l	1		1		l	I	i	ł.		l	1	
		l	DONNA YOUG	TH EVELOPATION LLC	1/8+	964	432	l _{NA}	l _{NA}	INA	NA.	lna	NA.	NA .
10°22510	a	5-25-18	DONNA YOHO	TH EXPLORATION, LLC	407					l	 	ļ		
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10*19903	Q	5-25-18	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	NA	NA .	NA	NA	NA	NA	NA
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1 1									l	l .		i		1
I I	_		PAUL F HAMMERS	TH EXPLORATION, LLC	1/8+	948	236	l _{ara}	l.,	lua.	NA.	l	lua.	اسم
10°19903	R	5-25-17	PAUL F HAMMERS	TH EXPLORATION, LLC	1/8*	340	230	100	ina .		in.	i		100
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10*22441	R	5-25-17	APRIL ROSE POSTLETHWAIT	TH EXPLORATION, LLC	1/8+	963	646	NA	NA .	NA	NA .	NA	NA	NA
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1. 1	_			l	1/8+	964	432	l _{ar}	lua.	NA.	ava.	l.,,	NA.	
10°22510	R	5-25-17	DONNA YOHO	TH EXPLORATION, LLC	1/8+	964	432	NA	na .	in a	, , , , , , , , , , , , , , , , , , ,	ļ 	100	97
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10°19652	R	5-25-17	JACK R HAMMERS	TH EXPLORATION, LLC	1/8+	944	108	NA .	NA	NA .	NA	NA	NA	NA
									27/311 Gastar Exploration USA, Inc and					
1 1				<u> </u>	1		ì		Atinum Marcellus I, LLC to Chesapeake			l	l	
1 1				l	1		317	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoli 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	SWN Production Company, LLC	41/238 Statoil USA Onshore Properties Inc to TH Exploration, LLC	41/256 SWN Production Company, LLC to TH Exploration, LLC
10*17195	R	5-25-17	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	695	31/_	Marcellus L LLC	27/311 Gastar Exploration USA, Inc and	SWA Froduction Company, LLC	IN 3444 Extra ge note note: CC	Jana Production Company, ac	THE LO TH EXPONENCE CEC	THE EXPLORATION CALC
1 1				1	1	1 1	1		Atinum Marcellus L LLC to Chesapeake		i	i		
1 1								23/353 Gastar Exploration USA inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc		41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17196	R	5-25-17	DELBERT R. MONTGOMERY	GASTAR EXPLORATION USA, INC	1/8+	695	311	Marcellus L LLC	Properties inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	ine to TH Exploration, LLC	TH Exploration, LLC
					i				27/311 Gastar Exploration USA, Inc and				1	
		I	1	1	1		l	L	Attnum Marcellus I, LLC to Chesapeake	l		Laws, cum c	L	
1	_	L	GLORIA J. SIMMONS HAROLD		1/8+	695	313	23/353 Gastar Exploration USA Inc to Atinum Marcellus L LLC	Appalachia, LLC and Statoli 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	SIMMONS	GASTAR EXPLORATION USA, INC	1/8*	693	213	marconio C LLC	27/311 Gastar Exploration USA, Inc and	STATE OF THE PROPERTY AND THE PROPERTY A	The service cannot be serviced to the service to th	STATE OF STA	Exposaure etc	
		I	1	1	1		l	1	Attnum Mercellus I, LLC to Chesapeake			l	1	1
1 1		1	PAMELA L DRAZIC AND JEFFREY	1			İ	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoll USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc		41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17199	R	5-25-17	DRAZIC	GASTAR EXPLORATION USA, INC	1/8+	695	315	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
		T					i		27/311 Gester Exploration USA, Inc and			l	1	
1 1	l	I		i	1	1	l	L	Atinum Marcellus I, I.I.C to Chesepeake	L	L	l	l	I
		1		I	1	l !	٠	23/353 Gastar Exploration USA Inc to Attnum	Appalachia, LLC and Statoli 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	Marcellus L LLC	27/311 Gaster Exploration USA, inc and	SWIN Production Company, LLC	to syste extrange tritle noises rfC	aven eroduction company, LLC	WILL CO 111 EXPROPATION, ELC	IN ExploYation, LLC
		1		i .	1		l	1	Atinum Marcellus I, LLC to Chesapeake			l	1	
		1	1	I	1		l	23/353 Gestar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoli USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17201	l a	5-25-17	DENISE A GALE	GASTAR EXPLORATION USA, INC	1/8+	697	395	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	inc to TH Exploration, LLC	TH Exploration, LLC
	<u> </u>	† 	1				T		27/311 Gaster Exploration USA, Inc and	1				
	l	i	1	1	1			1	Atinum Marcellus L LLC to Chesapeake	1	1	l	1	1
1	l	1	1	ł	1 .		Ι.	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc		41/238 Statoll USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17202	R	5-25-17	JANE GALE	GASTAR EXPLORATION USA, INC	1/8+	697	385	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, ELC	TH Exploration, LLC
			1	1	1	1		1	27/311 Gastar Exploration USA, inc and Atinum Marcellus L LLC to Chesapeske			1		
1	l	1	1	1	1		l	23/353 Gastar Exploration USA Inc to Atinum	Attnum Marcellus I, LLC to Chesapeake Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onthore Properties	41/256 SWN Production Company, LLC to
10017707	۱ .	5-25-17	BARRY RAY MOORE	GASTAR EXPLORATION USA, INC	1/8+	697	387	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10*17203	 *-	3231	PROOF THE THOUSE	THE ENTLUMENT OF THE	+407	 ""		1	27/311 Gaster Exploration USA, Inc and			1		1
1	l	1		1	1	1	1	1	Atinum Marcellus I, LLC to Chesapeake			I	1	1
	l	1	CLARENCE RICHARD ZESIGER & MARY		1	1	1	23/353 Gastar Exploration USA Inc to Atinum	Appalachia, LLC and Statoli USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc			41/256 SWN Production Company, LLC to
10*17204	R	5-25-17	ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	391	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC

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Lease No.	Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
									27/311 Gastar Exploration USA, Inc and	1			1	
		i		1	1			L	Atinum Marcellus I, LLC to Chesapeake				l.,	l
1		.	l						Appalachia, LLC and Statoll USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc			41/256 SWN Production Company, LLC to
10°17206	R	5-25-17	M VIRGINIA & EDWARD C MARSH	GASTAR EXPLORATION USA, INC	1/8+	697	399	Marcellus I, LLC		SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
1 1						1		1	27/311 Gastar Exploration USA, Inc and Atinum Marcellus I. LLC to Chesapeake					l
1 1			DEBORAH K. KLIMASZEWSKI FRANK					23/353 Gaster Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
*********	R	5-25-17	KUMASZEWSKI. SR.	GASTAR EXPLORATION USA, INC	1/8+	697	389	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10°17207		32517	REIMINGER TYSIN, SIL.	Tablish Car Colonial Car City	75.				27/311 Gastar Exploration USA, Inc and		•	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
l i						1		1	Atinum Marcellus L LLC to Chesapeake					1
								23/353 Gaster Exploration USA Inc to Atinum	Appalachia, LLC and Statoil USA Onshore	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17210	R	5-25-17	MARILYN NOEL	GASTAR EXPLORATION USA, INC	1/8+	697	393	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
									27/311 Gastar Exploration USA, Inc and					1
		1							Atinum Marcellus I, LLC to Chesapeake					1
1 1		1	GARY WAYNE ZESIGER & VICKIE					23/353 Gastar Exploration USA Inc to Atinum		33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc		41/238 Statoll USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17211	R	5-25-17	ZESIGER	GASTAR EXPLORATION USA, INC	1/8+	697	397	Marcellus I, LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
					ļ.			i	27/311 Gastar Exploration USA, Inc and					j i
1 1			l		l .			1	Atinum Marcellus I, LLC to Chesapeake	L			l	
1	_	L				697		23/353 Gastar Exploration USA Inc to Atimum	Appelachia, LLC and Statoll USA Onshore Properties Inc	33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Orshore Properties Inc		41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10°17212	R	5-25-17	DARRELL NEWLAND LYDIA NEWLAND	GASTAR EXPLORATION USA, INC.	1/8+	697	158	Marcellus I, LLC	27/311 Gastar Exploration USA, Inc and	SWN Production Company, U.C	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
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1		1						23/353 Gastar Exploration USA Inc to Atinum		33/110 Chesapeake Appalachia, LLC to	33/424 Statoil USA Onshore Properties Inc	19/624 SWN Exchange Titleholder LLC to	41/238 Statoil USA Onshore Properties	41/256 SWN Production Company, LLC to
10*17213	R	5-25-17	CAROL DEEN GARDNER	GASTAR EXPLORATION USA, INC	1/8+	697	154	Marcellus L LLC	Properties Inc	SWN Production Company, LLC	to SWN Exchange Title Holder LLC	SWN Production Company, LLC	Inc to TH Exploration, LLC	TH Exploration, LLC
10 1/213		72521	CAROL DELIN GRAIDINEN	Grant Extra Editation Cost and	7-									
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		1	1	1	I	i .		1	1	I			21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14810	R	5-25-17	NICOLETTA MILICIA BLOODWORTH	GASTAR EXPLORATION USA, INC	1/8+	809	546	NA	INA .	[NA	INA	NA .	Gastar Exploration, Inc	Exploration II, LLC
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10°22025	R	5-25-17	MARK & MARY YOHO	TH EXPLORATION, LLC	1/8+	960	544	NA .	INA	NA .	INA .	NA .	NA	NA .
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10°14809	R	5-25-17	DEWEY A. MILICIA	GASTAR EXPLORATION USA, INC	1/8+	809	549	RA	RA .	NA .	RA .	MA .	Gastar Exploration, Inc	Exploration II, LLC
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	R	5-25-17	TWILA ORA WHIPKEY	GASTAR EXPLORATION USA, INC	1/8+	799	61	l	NA.	lua.	MA.		Gastar Exploration, Inc	Exploration IL LLC
10*14786	- н	3-23-17	TWILD ORD WHIPKET	GASTAR EXPLORATION USA, INC.	7,67	 ''''			ļ a			,,,,	TOTAL CAPACION COL	Laparent Lat
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		1		1		l			l .				21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10°14796		5-25-17	KIMBERLY S. DENNY	GASTAR EXPLORATION USA, INC	1/8+	799	540	INA	NA	lna .	lna .	NA .	Gastar Exploration, Inc	Exploration II, LLC
20 24/30		12.22			7-									
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								1	l .	1			21/41 Gastar Exploration USA Inc to	36/9 Gaster Exploration, Inc. to TH
10°14806	R	5-25-17	DONNA VIVIAN YOKO	GASTAR EXPLORATION USA, INC	1/8+	809	558	NA .	NA .	NA .	NA	NA .	Gastar Exploration, Inc	Exploration II, LLC
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	l			1				1	ŀ	1			21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14807	R	5-25-17	JANICE N HAUDENSCHILT	GASTAR EXPLORATION USA, INC	1/8+	809	555	MA	NA	NA .	NA .	NA	Gastar Exploration, Inc	Exploration II, LLC
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1			1	1					ŀ				21/41 Gastar Exploration USA Inc to	hama and a second
	l _	l				809	552	l	L.,		344	L.,	Gastar Exploration USA inc to	36/9 Gastar Exploration, Inc. to TH Exploration IL LLC
10*14808	R	5-25-17	DANA MILICIA HUMPHREYS	GASTAR EXPLORATION USA, INC	1/8+	809_	332	NA .	NA .	INA .	<u> </u>	<u> </u>	Castal Exploration, Inc	Exploration II, LLC
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10*22129	l R	5-25-17	ZANICE N HAUDENSCHILT	TH EXPLORATION, LLC	1/8+	961	459	l NA	NA.	NA .	lna .	NA	lna	lna l
10 2222		† 		1	† -7	1-3		1	1	1			· · · · · · · · · · · · · · · · · · ·	1
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10°22008	R	5-25-17	COLIN R YOHO	TH EXPLORATION, LLC	1/8+	953	304	NA .	ina	NA .	NA	NA .	NA	NA
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	l	1		1	1	Ι.		I	L.	I	l	i	21/41 Gastar Exploration USA Inc to	36/9 Gastar Exploration, Inc. to TH
10*14785	R	5-25-17	DAVID W. STRAUCH	GASTAR EXPLORATION USA, INC	1/8+	799	64	NA	NA	NA .	INA .	NA .	Gastar Exploration, Inc	Exploration II, LLC
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1	l	I	l .	i	I	1	l	1	1	I .			31/41 6 6	
	,		ORVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/8+	200	598	l	l.,	lua.	الم	NA.	21/41 Gastar Exploration USA Inc to Gastar Exploration, Inc	36/9 Gastar Exploration, Inc. to TH Exploration II, LLC
10*14797	R	5-25-17	UNVILLE YOUNG	GASTAR EXPLORATION USA, INC	1/5*	- 200	239	no.	na .	Inv.		nen .	Contract Exploretions are	EAST-COUNTY II, LLC
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1	ı	1	1	1		1	l	I	1	1			I	36/9 Gastar Exploration, Inc. to TH
10*14814	l 8	5-25-17	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	537	lna.	Ina	lna.	lna .	NA.	lna	Exploration II, LLC
10.14914	- K	152541	C.C. TROT NOCURES INC	COLUMN ENT LUMBING, INC.	1 ./**	1 447		 	 	<u> </u>	 			
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1	1	1	1	1	I]	ì	1	1	1	I		l	36/9 Gastar Exploration, Inc. to TH
10*14815	R	5-25-17	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION, INC	1/8+	827	535	NA	NA .	NA	NA	NA .	l NA	Exploration II, LLC
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1	1	1	1	1	1	1	l	1	1	1	I		1	1
1	1	1	1	l	1	1	l	1	I	1	I		i	36/9 Gastar Exploration, Inc. to TH
10°14822	R	5-25-17	ONWARD E BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	463	NA	[MA	NA	MA	NA .	INA .	Exploration II, LLC
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1	1	1	1	1	1	1	l	1	1	1	I		I	L
1	1	1	L	I	l	l	٠	I	l	L.,	l	l	ĺ	36/9 Gastar Exploration, Inc. to TH
10°14823	R	5-25-17	SARAH L BURGE TRUST	GASTAR EXPLORATION, INC	1/8+	876	459	INA	INA	INA	Įra .	luv .	Tuv	Exploration IL LLC

Lease No.	Tags	Paccel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
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10°18275	R	5-25-17	BETTY JEAN NEELY	TH EXPLORATION, LLC	1/8+	929	60	MA	NA	NA	NA	NA .	NA	NA
			MARY LOU WILSON AND STANLEY D									l		
10°18366	R	5-25-17		TH EXPLORATION, LLC	1/8+	931	311	NA	RA	NA	NA	NA	NA	NA
	1]		Ì			
			CRAIG ALAN YOHO AND DONNA M						1		ł			
10°18369	R	5-25-17	чоно	TH EXPLORATION, LLC	1/8+	931	303	NA	RA .	NA	NA .	NA .	NA	NA .
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10*19540	R	5-25-17	ERICA M MASON	TH EXPLORATION, LLC	1/8*	942		IRA	<u> ~ </u>	Ina	jan .	Ina .	INA	



4705 102055

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

Office of Oil and Gas

JUN 11 2018

WV Department of Environmental Protection

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

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 lister below for the tract of land as follows: State: West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms lister below for the tract of land as follows: State: 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 (it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section sten of this article, save of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article save as of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-ay or (iii) the notic requirements of subsection (b), section sixteen of this article were waited in writing by the surface owner and Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: **PLEASE CHECK ALL THAT APPLY** 1. NOTICE OF SEISMIC ACTIVITY or SEISMIC ACTIVITY WAS CONDUCTED 3. NOTICE OF ENTRY FOR PLAT SURVEY or NO PLAT SURVEY WAS CONDUCTED WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) **PLEASE ATTACH)** **PLEASE ATTACH** **PLEASE ATTACH** **PLEASE ATTACH** **PLEASE ATTACH** **A. NOTICE OF PLANNED OPERATION **RECEIVED Office of oil and Gas Subvive Department of Environmental Protection **PRECEIVED Office of Oil and Gas Supplication of Survey Department of Survey Department of Survey Department of Survey Department of Survey Department of Survey Department of Survey Department of Survey Department of Survey Department of Survey Department of Survey Department of Survey Department of Survey Department of Survey	Date of Notic	e Certification: 06/08/2018		No. 47- 051	
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 lister below for the tract of land as follows: State: West Virginia Quadrangle: Watershed: Franklin Quadrangle: Watershed: Fish Creak (HUC 10) Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, thinformation required by subsections (b) and (c), section sixteen of this article; (it) that the requirements 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 notic 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. the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: 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: 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: 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: 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: Pursuant to West Virginia Code § 22-6A, the Operator			Ope	rator's Well No. Hill	ock 4HM
Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows: State: West Virginia UTM NAD 83			Wel	l Pad Name: Simms	·
below for the tract of land as follows: State:	Notice has b	oeen given:			
State: West Virginia UTM NAD 83 Easting: Agreement Agr	Pursuant to th	e provisions in West Virginia Code §	22-6A, the Operator has provided	the required parties	with the Notice Forms listed
County: Marshall District: Frankin Public Road Access: Generally used farm name: Term Rines Ridge Road (County Route 76) Quadrangle: Wew Medinswille 7.5' Fish Creek (HUC 10) Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section for this article, tin 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 notic requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to We Virginia Code § 22-6A-1(1b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section to of this article have been completed by the applicant. Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: PLEASE CHECK ALL THAT APPLY 1. NOTICE OF SEISMIC ACTIVITY or NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED 2. NOTICE OF ENTRY FOR PLAT SURVEY or NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED 3. NOTICE OF INTENT TO DRILL or NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) 1. WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) 1. A NOTICE OF PLANNED OPERATION 1. RECEIVED Office of Oil and Gas UND 12 18 OFFICE USE ONLY OFFICE USE ONLY OR RECEIVED NOT REQUIRED RECEIVED RECEIVED Office of Oil and Gas UND 12 18 OR RECEIVED OR RECEIVED OR RECEIVED OFFICE USE ONLY	below for the	tract of land as follows:			
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■ 6. NOTICE OF APPLICATION □ RECEIVED	■ 5. PUB	BLIC NOTICE			☐ RECEIVED
	■ 6. NOT	TICE OF APPLICATION		ment Of	☐ RECEIVED

Required Attachments:

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

4705 102055

Certification of Notice is hereby given:

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

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

724-749-8388

380 Southpointe Boulevard, Plaza II, Suite 200

Canonsburg, PA 15317

Facsimile: 724-338-2030

Email: amiller@tug-hillop.com

COMMONING ALAR OF STEATHSYLVANIA

NOTARIAL SEAL MAUREEN A STEAD Notary Public CECIL TWP. WASHINGTON COUNTY My Commission Expires Jan 28, 2019

8 day of UNNE 2018

Notary Public

My Commission Expires

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.

> RECEIVED Office of Oil and Gas

JUN 1 1 2018

WW-6A (9-13)

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

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

Notice Time Requirement: notice shall be provided no later than the filing date of permit application. 4705 102055 Date of Notice: 6/1/2018 Date Permit Application Filed: 6/1/2018 Notice of: PERMIT FOR ANY ☐ CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT WELL WORK Delivery method pursuant to West Virginia Code § 22-6A-10(b) ☑ REGISTERED METHOD OF DELIVERY THAT REQUIRES A ✓ PERSONAL RECEIPT OR SIGNATURE CONFIRMATION **SERVICE** MAIL 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: M COAL OWNER OR LESSEE ☑ SURFACE OWNER(s) Name: Terry and Deborah Simms (Access Road and Well Pad) Name: CNX Land Attn: Casey Saunders Address: 1000 CONSOL Energy Drive Address: 7175 Rines Ridge Road Canonsburg, PA 15317 Proctor, WV 26055 Name: Kenneth and Nadine Corley (Access Road) ☐ COAL OPERATOR Address: 7069 Rines Ridge Road Name: Proctor, WV 26055 Address: ☐ SURFACE OWNER(s) (Road and/or Other Disturbance) ☑ SURFACE OWNER OF WATER WELL Name: AND/OR WATER PURVEYOR(s) Address: Name: See attached list Name: Address: Address: **OPERATOR OF ANY NATURAL GAS STORAGE FIELD** SURFACE OWNER(s) (Impoundments or Pits) Name: Address: Address: RECEIVED *Please attach additional forms if necessary Office of Oil and Gas

JUN 1 1 2018

WW-6A (8-13)

RECEIVED Office of Oil and Gas

JUN 1 1 2018

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

4705102055

WV Department of

Notice is hereby given:

Environmental Protection

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 crosion 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/oiland-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 08/10/2018 WW-6A (8-13)

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

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

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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

JUN 1 1 2018

WV Department of Environmental Protection

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

WW-6A (8-13) API NO. 47-7510 5 1 0 2 0 5 5

OPERATOR WELL NO. Hillrock 4HM

Well Pad Name: Simms

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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JUN 1 1 2018

WV Department of Environmental Protection Office of Oil and Gas

JUN 1 7 2019

Environmental Franction

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-hillop.com

Address: 380 Southpointe Boulevard, Plaza 71, Sue 25 1 0 2 0 5 5

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.

COMMONWEALTH OF PENNSYLVANIA

NOTARIAL SEAL MAUREEN A STEAD Notary Public CECIL TWP, WASHINGTON COUNTY My Commission Expires Jan 28, 2019 Subscribed and sworn before me this | day of JUNE 2018.

Notary Public

My Commission Expires

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JUN 1 1 2018

08/10/2018

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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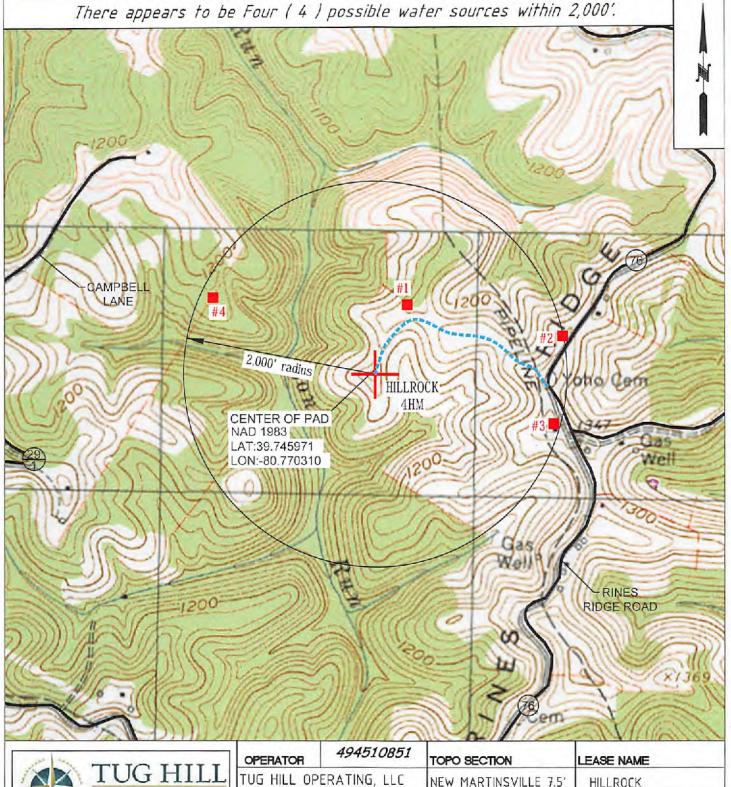
JUN 1 1 2018

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WW-6A

JUN 1 1 2018

PROPOSED WV Department of HILLROCK 4HM SUPPLEMENT PG 1



XX	TUG HILL OPERATING
VV	OPERATING

OPERATOR	494510851	TOPO SECTION	LEASE NAME
	ERATING, LLC	NEW MARTINSVILLE 7.5'	HILLROCK
380 SOUTHPO	DINTE BLVD	SCALE:	DATE:
CANONSBURG	i, PA 15317	1" = 1000'	DATE: 05-24-2018
			08/10/2018

WW-6A3 (1/12)

4705 102055

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

entry			ided at least SEVEN (7) da	ys but no more tha	n FORTY-FIVE (45) days prior to
Date of Noti	ce: 5/2/2018	Date of Plan	nned Entry: 5/9/2018			
Delivery me	thod pursu	ant to West Virginia Co	ode § 22-6A-10a			
☐ PERSO		☐ REGISTERED MAIL	METHOD OF DEI		The state of the s	
on to the surf but no more the beneath such owner of mir and Sedimen Secretary, when able the su	face tract to than forty-fi tract that ha herals under t Control M hich stateme rface owner	conduct any plat surveys ve days prior to such ent as filed a declaration pur- lying such tract in the co- anual and the statutes an ant shall include contact in to obtain copies from the	Prior to filing a permit applist required pursuant to this a cry to: (1) The surface owners suant to section thirty-six, a unty tax records. The notice of rules related to oil and gainformation, including the age secretary.	rticle. Such notice r of such tract; (2) rticle six, chapter t e shall include a st s exploration and p	shall be provided at to any owner or lest wenty-two of this catement that copies production may be o	least seven days see of coal seams ode; and (3) any of the state Erosion btained from the
Notice is her						
SURFA				L OWNER OR LE		2222/22
and the second second		rley (Access Road)		X Land Attn: Casey Saun		RECEIVED Office of Oil and Gas
Address: 7069 Proctor, WV 2605		pad		1000 CONSOL Energy Dr	ive	
		ns (Access Road and Well Pad)	Canonsburg,	PA 15317		 JUN 1 1 2018
Address: 717			■ MINI	ERAL OWNER(s)		
Proctor, WV 2605				ry and Deborah L. Simms		WV Department of Environmental Protection
Name:				7175 Rines Ridge Road		Environmental Protection
Address:			Prodor, WV			=
			*please attac	h additional forms if ne	ecessary	-
	Vest Virgini		otice is hereby given that the	ude & Longitude:	39.7459021; -80.770265	3
District:	Franklin		Watershed:	Access:	Rines Ridge Road (Coun Fish Creek (HUC 10)	ty Route 76)
Quadrangle:	New Martinsvi	le 7.5'	Generally use	d farm name:	Simms, Terry E. and Deb	orah
may be obtain Charleston, Wobtained from Notice is he	ned from the VV 25304 (the Secreta reby given	Secretary, at the WV D 304-926-0450). Copies ary by visiting <u>www.dep</u> by:	Manual and the statutes an epartment of Environmenta of such documents or addit wv.gov/oil-and-gas/pages/o	d rules related to o il Protection headq ional information r	uarters, located at 6	01 57th Street, SE,
Well Operato				380 Southpointe Boulev	ard, Plaza II, Suite 200	
Telephone:	724-749-83	88		Carionsburg, PA 15317		
Email: amiller@tug-hillop.com			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.

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

Delivery met	hod pursuant to West Virginia (ode §	22-6A-16(c)		
■ CERTI	FIED MAIL		HAND		
	RN RECEIPT REQUESTED		DELIVERY		
eturn receipt the planned of equired to be drilling of a lamages to the d) The notice of notice.	requested or hand delivery, give to operation. The notice required by a provided by subsection (b), section horizontal well; and (3) A propose we surface affected by oil and gas of east required by this section shall be be provided to the SURFACE (this such that the surface on ten or ed surface peration given to the company of	ace owner whose land absection shall include f this article to a surfa- ace use and compens as to the extent the da to the surface owner a	will be used for le: (1) A copy ace owner whos ation agreemen mages are comp	cation, an operator shall, by certified mail or the drilling of a horizontal well notice of of this code section; (2) The information se land will be used in conjunction with the at containing an offer of compensation for pensable under article six-b of this chapter, sted in the records of the sheriff at the time
at the addres	s listed in the records of the sherif	f at the		Consult and Madina C	Corley (Access Road)
	Deberah Simms (Assess Bond and Wall Bod)		Manage		
Name: Terry an	d Deborah Simms (Access Road and Well Pad)	_			
Name: Terry and Address: 7175 Practor, WV 260 Notice is her Pursuant to Veperation on	Rines Ridge Road by given: Jest Virginia Code § 22-6A-16(c), the surface owner's land for the p		Address Proctor, V is hereby given that the	: 7059 Rines Ridge v 26055 te undersigned v well on the tra	well operator has developed a planned act of land as follows:
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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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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

May 16, 2018

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

> 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

> RECEIVED Office of Oil and Gas

JUN 1 1 2018



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

Quaterrary 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 Proppant Crystalline silica (quartz)

sizes) 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

Guar gum – CAS# 009000-30-0

FRW-18 Friction Reducer Hydrotreated light distillate

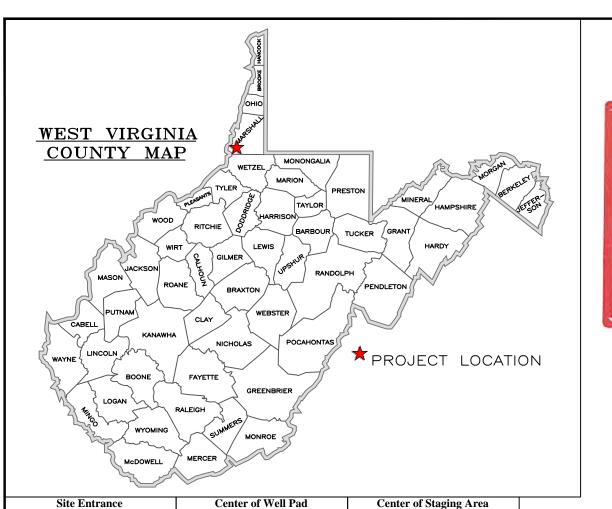
CAS# 064742-47-8

Scaletrol Scale Inhibitor Ethylene glycol – CAS# 000107-21-1

Diethylene glycol - CAS# 000111-46-6

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JUN 1 1 2018



WV-N NAD 83 E: 1611323.16

WV-N NAD 27 N: 456309.67

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'

Simms 2H 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: 1642748.51

Lat. NAD 83: 39.74596914

Lon. NAD 83: -80.77035362

Lat. NAD 27: 39.74589166 Lon. NAD 27: -80.77054078

Hillrock 6HM

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

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: 39.74599019

Lon. NAD 27: -80.77045272

WV-N NAD 83 E: 1611213.98

WV-N NAD 27 N: 455770.34

WV-N NAD 27 E: 1642651.66

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: 519648.23

Pad Elev .: 1183.68'

Hillrock 10HM

Hillrock 9HM

Hillrock 8HM

· Hillrock 4HM

Simms 3H 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: 1642748.4

Lat. NAD 83: 39.74603667

Lon. NAD 83: -80.77035500 Lat NAD 27: 39 74595919

Lon. NAD 27: -80.77054216

Hillrock 7HM

WV-N NAD 83 E: 1611335.90

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

TM 17 NAD 83 (m) N: 4399580.37 UTM 17 NAD 83 (m) N: 4399588.11 UTM 17 NAD 83 (m) N: 4399595.60 UTM 17 NAD 83 (m) N: 4399588.09

TM 17 NAD 83 (m) N: 4399577.13 UTM 17 NAD 83 (m) N: 4399580.78 UTM 17 NAD 83 (m) N: 4399584.44 UTM 17 NAD 83 (m) N: 4399591.75 UTM 17 NAD 83 (m) E: 519682.78 UTM 17 NAD 83 (m) E: 519682.74 UTM 17 NAD 83 (m) E: 519682.70 UTM 17 NAD 83 (m) E: 519682.61

Simms U-5H 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: 39.74596884

Lon. NAD 83: -80.77026434

Lat. NAD 27: 39.74589136

Lon. NAD 27: -80.77045150

WV-N NAD 83 E: 1611336.01

WV-N NAD 27 N: 456320.73

WV-N NAD 27 E: 1642773.66

Lat. NAD 83: 39.74600178

Lon. NAD 83: -80.77026474

Lat. NAD 27: 39.74592430

Lon. NAD 27: -80.77045191

WVDEP OOG ACCEPTED AS-BUILT 7/3/2018

Simms Well Site

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

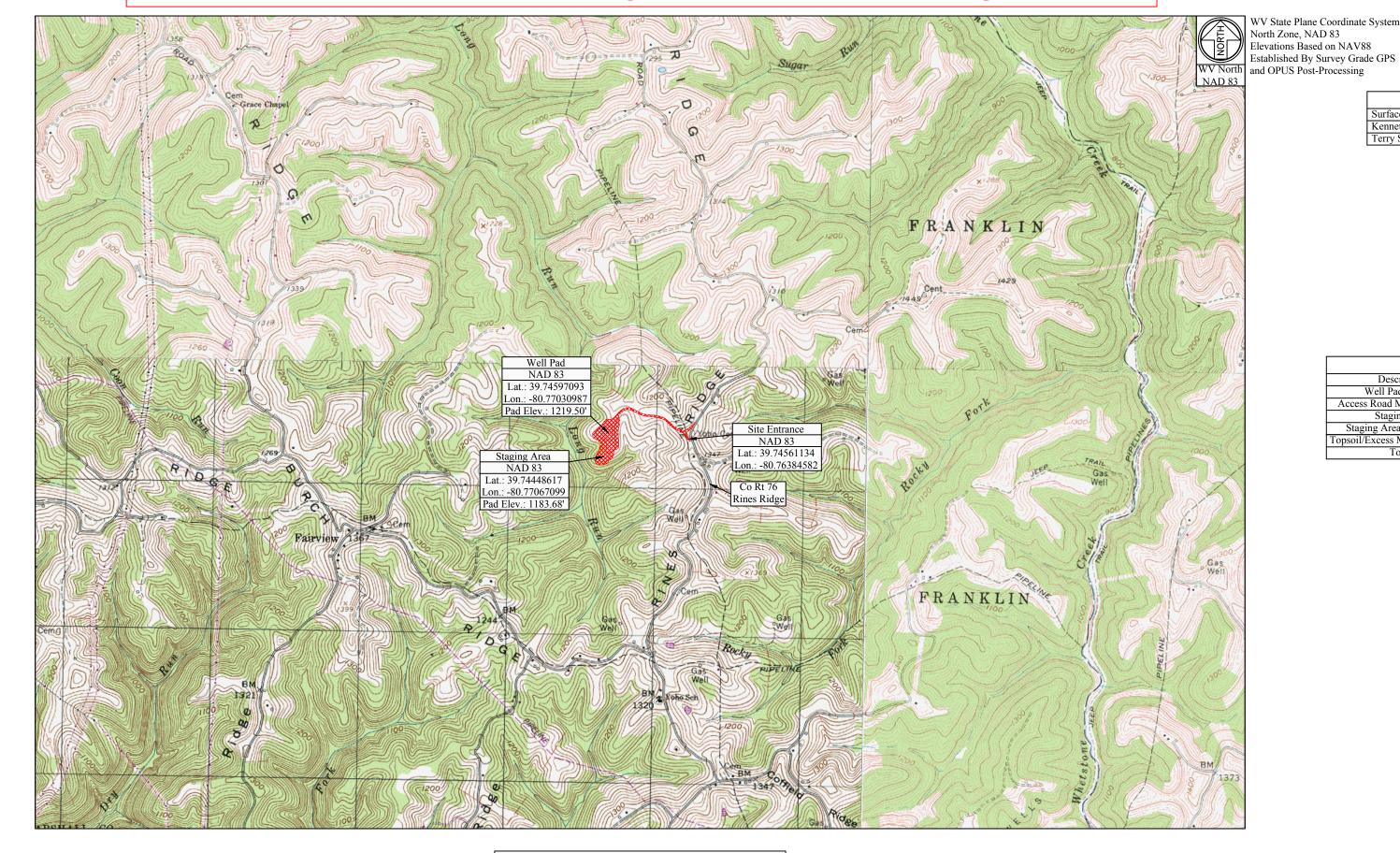
Pertinent Site Information Simms Well Site

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

TM - Parcel Well Pad Staging Access Road Topsoil/Excess Add. Clearing Total Disturbed 17-11 0.00 0.00 0.67 0.00 0.64 1.31 Kenneth Corley et ux 3.19 1.34 0.66 0.24 Site Totals (Ac) 3.19 1.34 1.33 0.24 5.51 11.61

Exhibit A: Final Design: Issue for Permitting

Lower Fish Creek Watershed



Access Road 17-11 1,258.30' New Access Road C Kenneth Corley et ux

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 A
Additional Informat	ion
Total Wooded Acres Disturbed	0.00 Ac
Total Linear Feet of Access Road	2,525.60

Simms Well Site Quantities						
Description	Cut (CY)	Fill (CY)	Spoil (CY)	Borrow (CY)	Max. Slope	Length of Slope
Well Pad Grading	586.75	5,998.13		5,411.38	N/A	N/A
Access Road Mountable Berm	0.89	255.00		254.11	17.12%	58.42'
Staging Area	7,237.57	2,239.23	4,998.34		N/A	N/A
Staging Area Access Road	152.50	709.44		556.94	12.00%	319.31'
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	(Exce	ess Spoil Capa	ncity)	

PREPARED FOR TUG HILL **OPERATING**

Site

Well

Simms

Project Contacts

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

Simms 1H 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: -80.77035318

Lat. NAD 27: 39.74582196

Lon. NAD 27: -80.77054033

Hillrock 4HM

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

Lon. NAD 27: -80.77045028

WV-N NAD 83 N: 456368.95

WV-N NAD 83 E: 1611336.03

WV-N NAD 27 N: 456332.73

WV-N NAD 27 E: 1642773.68

Lat. NAD 83: 39.74603472

Lon. NAD 83: -80.77026528

Lat. NAD 27: 39.74595724

Lon. NAD 27: -80.77045244

Lat. NAD 27: 39.74579253

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

TM 17 NAD 83 (m) N: 4399595.41 UTM 17 NAD 83 (m) N: 4399599.06

JTM 17 NAD 83 (m) E: 519682.55 UTM 17 NAD 83 (m) E: 519682.52

Zackary Summerfield

304-338-6987 Off.

Call before you dig.

Tug Hill Operating, LLC 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 ou dig in the state of West Virginia. Know what's **below.** IT'S THE LAW

Fug 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			
Oo site construction activities take place in a floodplain:	NO		
ermit needed from county floodplain coordinator:			
Tood Hazard Zone	X		
IEC-RAS Study completed:	N/A		
la a dulain alcaren an duarrin an	NT/A		

Approach Routes:

From the intersection of OH Rt 7 and WV Rt 2 near New

Martinsville, WV. Follow WV Rt 2 North for 4.5 mi. Turn Right onto Co Rt 89 (Proctor Creek Rd). Follow Co Rt 89 for

5.9 mi. Turn Left onto Co Rt 1/7 (Coffield Ridge). Follow Co

Rt 1/7 for 1.7 mi. Co Rt 1/7 becomes Co Rt 29 (Coffield

Ridge). Follow Co Rt 29 for 1.4 mi. Turn Right onto Co Rt 76

(Rines Ridge Rd). Follow Co Rt 76 for 1.1 mi. The site

entrance will be on the Left (West) side of the road.

Site Locations (NAD 27)				Site Locations (NAD 83		
Structure	Latitude (DD)	Longitude (DD)		Structure	Latitude (BB)	10
Site Entrance	39.74553374	-80.76403326		Site Entrance	39.74561134	-
Center of Well Pad	39.74589345	-80.77049703		Center of Well Pad	39.74597093	-
Center of Staging Area	39.74440868	-80.77085805		Center of Staging Area	39.74448617	-

USGS 7.5' Quadrangle: New Martinsville

Watershed: Lower Fish Creek

Location Map

Scale: 1" = 1 Mile

Well Location Restrictions

pond or reservoir.

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,

*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)

STATE OF

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

All Plans, Sheets, and/or Reference Diagrams included in this design constitutes a complete set of plans. A complete set of plans is necessary to construct the site in accordance with the design.

N1-N4	Site Notes
2	Pre-Construction Site Condition
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 Acc
13	Cross Sections - Staging Area
G1-G2	Geotechnical Exhibit
L1	Landowner Disturbed Area Ex
S1	Site Reclamation
M1-M3	Production Exhibit

Access Road Details

Pad Details

Cover Sheet

Description

Schedule of Quantities

ccess Road D1-D2 Erosion and Sediment Control Details

Scale: As Shown Designed By: ZS File No. Sheet 1 of 13

