



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

Monday, October 19, 2020
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for MCMASTERS S-19HU
47-051-02340-00-00

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: MCMASTERS S-19HU
Farm Name: ROBERT L. SHIELDS, ET AL
U.S. WELL NUMBER: 47-051-02340-00-00
Horizontal 6A New Drill
Date Issued: 10/19/2020

PERMIT CONDITIONS

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

CONDITIONS

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

API Number: _____

4705102340

PERMIT CONDITIONS

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



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

August 5, 2020

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

RE: Application for Deep Well Permit – API #47-051-02340

COMPANY: Tug Hill Operating, LLC

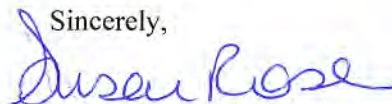
FARM: Robert L. Shields, et al McMasters S-19HU

COUNTY: Marshall DISTRICT: Franklin QUAD: Powhatan Point

The deep well review of the application for the above company is Approved to drill to Trenton for Point Pleasant completion.

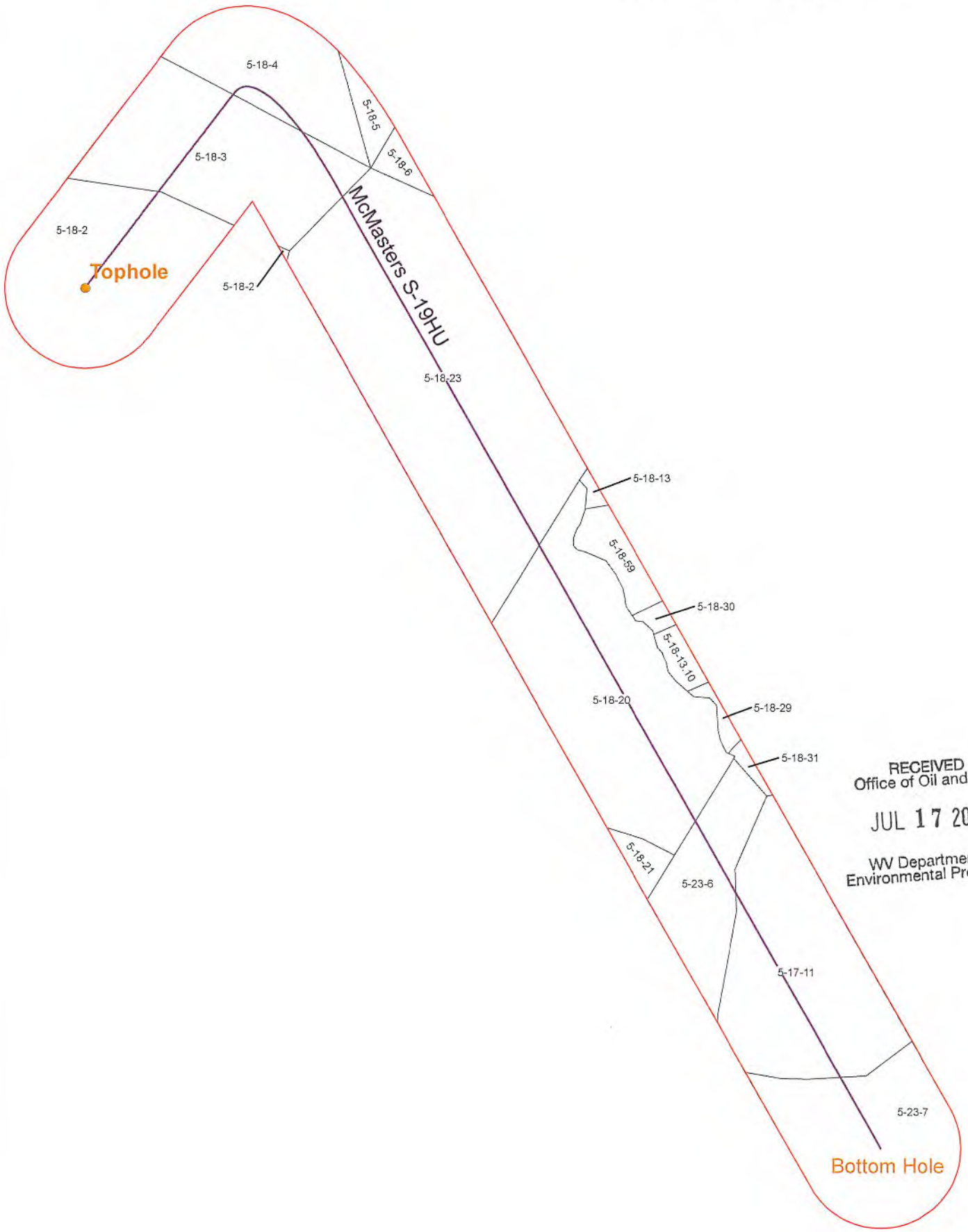
The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Comments to Notice of Deviation filed? No.
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: **yes
4. Provided a plat showing that the productive interval of the well meets the requirements of the Rules of the Commission W. Va. C.S.R. § 39-1-4.2.

Sincerely,

Susan Rose
Administrator

**Corley N-9HU 47-051-01983; Corley N-10HU 47-051-01998; Burch Ridge S-7HU 47-051-02194; Burch Ridge S-6HU 47-051-02193; Blake N-10HU 47-051-02204; Blake N-11HU 47-051-02205; Blake N-9HU 47-051-02203; Blake U-7H 47-051-01766; McMasters N-12HU 47-051-02316; McMasters N-13HU 47-051-02332; McMasters N-14HU 47-051-02333; McMasters N-15HU 47-051-02334; McMasters S-16HU 47-051-02337; McMasters S-17HU 47-051-02338; McMasters S-18HU 47-051-02339; McMasters S-20HU 47-051-02341; Simms U-4H 47-051-01742; Hillrock S-15HU 47-051-02263; Hillrock S-13HU 47-051-02273; Hillrock S-12HU 47-051-02272; Hillrock S-14HU 47-051-02262; Simms U-5H 47-051-01731; Bryan N-14HU 47-051-02031; Bryan N-12HU 47-051-02029; Bryan N-13HU 47-051-02030; Woodford 10HU 47-051-02152

4705102340



RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

Coordinate System: NAD 1983 UTM Zone 17N
Projection: Transverse Mercator
Datum: North American 1983
False Easting: 500000.0000
False Northing: 0.0000
Central Meridian: -81.0000
Scale Factor: 0.9999
Latitude Of Origin: 0.0000
Units: Feet US

CONFIDENTIAL



— Utica Well
□ 500' Buffer

McMasters S-19HU
Operators within 1500 Feet of Well Borehole



4705102340

**Offset Operators within 500'
McMasters S - 19HU**

WELL	COUNTY	DISTRICT	PARCEL	OWNER	ADDRESS
McMasters S-19HU	Marshall	Franklin	5-18-30	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-30	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-30	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-31	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-31	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-31	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-59	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-59	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-59	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-2	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-2	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-3	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-3	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-3	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-4	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-5	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-6	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-6	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-6	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-23-6	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-23-7	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056

RECEIVED
Office of Oil and Gas

JUL 17 2020

WV Department of
Environmental Protection

**Offset Operators within 500'
McMasters S - 19HU**

McMasters S-19HU	Marshall	Franklin	5-23-7	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-17-11	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-17-11	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-13	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-13	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-13	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-20	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-20	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-20	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-21	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-21	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-21	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-23	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-23	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-29	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-29	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-29	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-13.10	ATINUM MARCELLUS I LLC	1 Riverway, Suite 710 Houston, TX 77056
McMasters S-19HU	Marshall	Franklin	5-18-13.10	TH EXPLORATION II, LLC *	1320 S. University Drive Suite 500 Fort Worth, TX 76107
McMasters S-19HU	Marshall	Franklin	5-18-13.10	TH EXPLORATION, LLC	1320 S. University Drive Suite 500 Fort Worth, TX 76107

* TH Exploration II, LLC is a wholly owned subsidiary of THQ Appalachia I, LLC. Tug Hill Operating, LLC provides oil and gas operations services to THQ Appalachia I, LLC under that certain Operating Services Agreement dated July 23, 2014. For further info please see the recorded affidavit submitted as part of the permit package.



4705102340

west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

February 28, 2020

TH Exploration, LLC
1320 S. University Dr Ste 500
Ft Worth TX 76107

9489 0090 0027 6201 4282 50

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – McMasters S-19HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commission's granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

A copy of the location plat is enclosed for your review. If no objection(s) are received within ten 10 days from the date of delivery, the application will be processed in the normal manner.

If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in black ink that reads "Susan Rose". The signature is written in a cursive, flowing style.

Susan Rose
Administrator

encl:



UNITED STATES
POSTAL SERVICE

April 13, 2020

4705102340

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number:
9489 0090 0027 6201 4282 50.

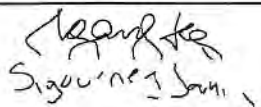

Item Details

Status: Delivered, Front Desk/Reception/Mail Room
Status Date / Time: March 5, 2020, 1:35 pm
Location: FORT WORTH, TX 76107
Postal Product: First-Class Mail®
Extra Services: Certified Mail™
Return Receipt Electronic

Shipment Details

Weight: 20lb, 4.1oz

Recipient Signature

Signature of Recipient:	
Address of Recipient:	

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Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



4705102340

west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

February 28, 2020

Atinum Marcellus I, LLC
1 Riverway Ste 710
Houston TX 77056

9489 0090 0027 6201 4282 67

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – McMasters S-19HU

Dear Sir or Ma'am:

Please be advised that Tug Hill Operating, LLC, has applied to the Oil and Gas Conservation Commission for approval to intentionally deviate a new deep well. The Code of State Regulations Title 39 Section 1.4.10 requires that the Commission notify the offset operators of the applicants' intent to deviate the proposed well. You are receiving this notice because you are listed as an offset operator (unleased mineral owner is also an "offset operator") to the proposed well. Any offset operator has ten days to object to the Commission's granting approval to the proposed deviation. If you file an objection, the Commission will schedule a hearing and you will be notified of the date and time to attend.

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If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in cursive script that reads "Susan Rose". The signature is written in dark ink and is positioned above the printed name and title.

Susan Rose
Administrator

encl:



4705102340

April 13, 2020

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number: **9489 0090 0027 6201 4282 67**.

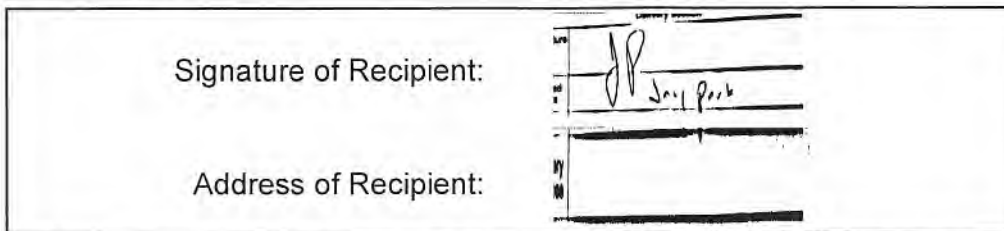
Item Details

Status:	Delivered
Status Date / Time:	March 11, 2020, 3:24 pm
Location:	HOUSTON, TX 77057
Postal Product:	First-Class Mail®
Extra Services:	Certified Mail™ Return Receipt Electronic

Shipment Details

Weight:	20lb, 4.1oz
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Recipient Signature



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Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



4705102340

west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-414-1239

Randall M. Albert, Chairman
dep.wv.gov

February 28, 2020

TH Exploration II, LLC
1320 S University Dr Ste 500
Fort Worth TX 76107

9489 0090 0027 6201 4282 74

RE: Intentional Deviation of New Deep Well
Tug Hill Operating, LLC – McMasters S-19HU

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If you have any questions please call me at (304) 414-1239.

Sincerely,

A handwritten signature in cursive script that reads 'Susan Rose'.

Susan Rose
Administrator

encl:



4705102340

April 13, 2020

Dear Susan Rose:

The following is in response to your request for proof of delivery on your item with the tracking number: **9489 0090 0027 6201 4282 74.**

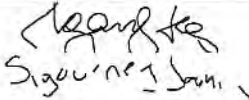
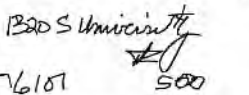
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Sincerely,
United States Postal Service®
475 L'Enfant Plaza SW
Washington, D.C. 20260-0004



July 15, 2020

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

RE: McMasters S-19HU

Subject: Proposed Voluntary Pooling and Unitization

Dear Susan:

Tug Hill Operating, LLC is authorized through, either lease or other agreement, to unitize and pool all lands falling within the boundaries of the proposed voluntary unit included with this submission.

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

Sincerely,

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

Amy L. Miller
Permitting Specialist – Appalachia Region
Tug Hill Operating

RECEIVED
Office of Oil and Gas

JUL 17 2020


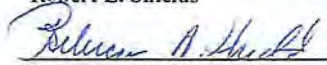
WV Department of
Environmental Protection

COPY

CERTIFICATE OF CONSENT AND EASEMENT

The undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being the owner of the surface of that certain lot, tract or parcel of land located in Franklin District, Marshall County, State of West Virginia, shown on the attached plat or survey, hereby consents and grants an easement, pursuant to West Virginia Code, Section 22C-9-7(b)(4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to TH Exploration, LLC, its successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Executed this 20th day of November, 2019.


Robert L. Shields

Rebecca A. Shields

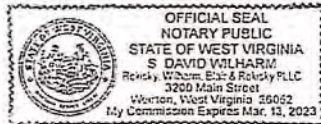
Marshall County
Jan Pest, Clerk
Instrument 1463767
01/29/2020 @ 10:38:15 AM
RIGHT OF WAY W/D CONSIDERATION
Book 1072 @ Page 252
Pages Recorded 2
Recording Cost \$ 11.00

STATE OF WEST VIRGINIA
COUNTY OF MARSHALL

SS:

On this, the 20th day of November, 2019, before me, a notary public, the undersigned officer, personally appeared Robert L. Shields and Rebecca A. Shields known to me (or satisfactorily proven) to be the person(s) who's name is subscribed to the within instrument, and acknowledged that he/she/they executed the same for proposed therein contained.

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



My Commission Expires: 3/13/2023
Signature/Notary Public: S. David Wilharm
Name/Notary Public (print): S David Wilharm

This instrument prepared by:
WV Oil and Gas Conservation Commission
601 57th Street
Charleston, WV 25304

4838-2618-8605v2

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection



1 inch: 436 feet

- Limit of Disturbance - Access Road
- Limit of Disturbance - Pad

0 125 250 500 Feet

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE IN FEET AND DECIMALS THEREOF. THIS PLAN IS THE PROPERTY OF TUG HILL ENERGY SERVICES. IT IS TO BE USED ONLY FOR THE PROJECT AND LOCATION SPECIFICALLY IDENTIFIED HEREON. IT IS NOT TO BE REPRODUCED, COPIED, REPRODUCED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF TUG HILL ENERGY SERVICES. THE DESIGNER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF ANY INFORMATION OBTAINED FROM ANY SOURCE OTHER THAN THAT PROVIDED BY THE CLIENT. THE DESIGNER DOES NOT WARRANT THE ACCURACY OF ANY INFORMATION OBTAINED FROM ANY SOURCE OTHER THAN THAT PROVIDED BY THE CLIENT. THE DESIGNER DOES NOT WARRANT THE ACCURACY OF ANY INFORMATION OBTAINED FROM ANY SOURCE OTHER THAN THAT PROVIDED BY THE CLIENT.

"Plat"
SHIELDS ROBERT L ET AL
Marshall, WV

Date: 11/20/19
Name: *Robert L. Shields*
Name: *Robert L. Shields*



Date: 10/24/2019
PCS: 1040 1585 UTM Zone 17N Foot US

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

COPY

CERTIFICATE OF CONSENT AND EASEMENT

The undersigned, for valuable consideration, the receipt and sufficiency of which is hereby acknowledged, being the owner of the surface of that certain lot, tract or parcel of land located in Franklin District, Marshall County, State of West Virginia, shown on the attached plat or survey, hereby consents and grants an easement, pursuant to West Virginia Code, Section 22C-9-7(b)(4) and Operating Rule 4.4 of the Rules and Regulations of the West Virginia Oil and Gas Conservation Commission, to TH Exploration, LLC, its successors or assigns, for the drilling and operation of a deep well for the production of oil or gas at the location shown on the attached plat or survey.

Executed this 20th day of November, 2019.

Donald Shields
Donald Shields

Marshall County
Jan Pest, Clerk
Instrument 1463768
01/29/2020 @ 10:38:16 AM
RIGHT OF WAY W/O CONSIDERATION
Book 1072 @ Page 254
Pages Recorded 2
Recording Cost \$ 11.00

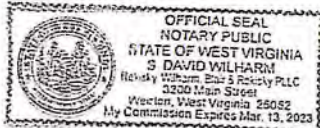
STATE OF WEST VIRGINIA

SS:

COUNTY OF MARSHALL

On this, the 20th day of November, 2019, before me, a notary public, the undersigned officer, personally appeared Donald Shields known to me (or satisfactorily proven) to be the person(s) who's name is subscribed to the within instrument, and acknowledged that he/she/they executed the same for proposed therein contained.

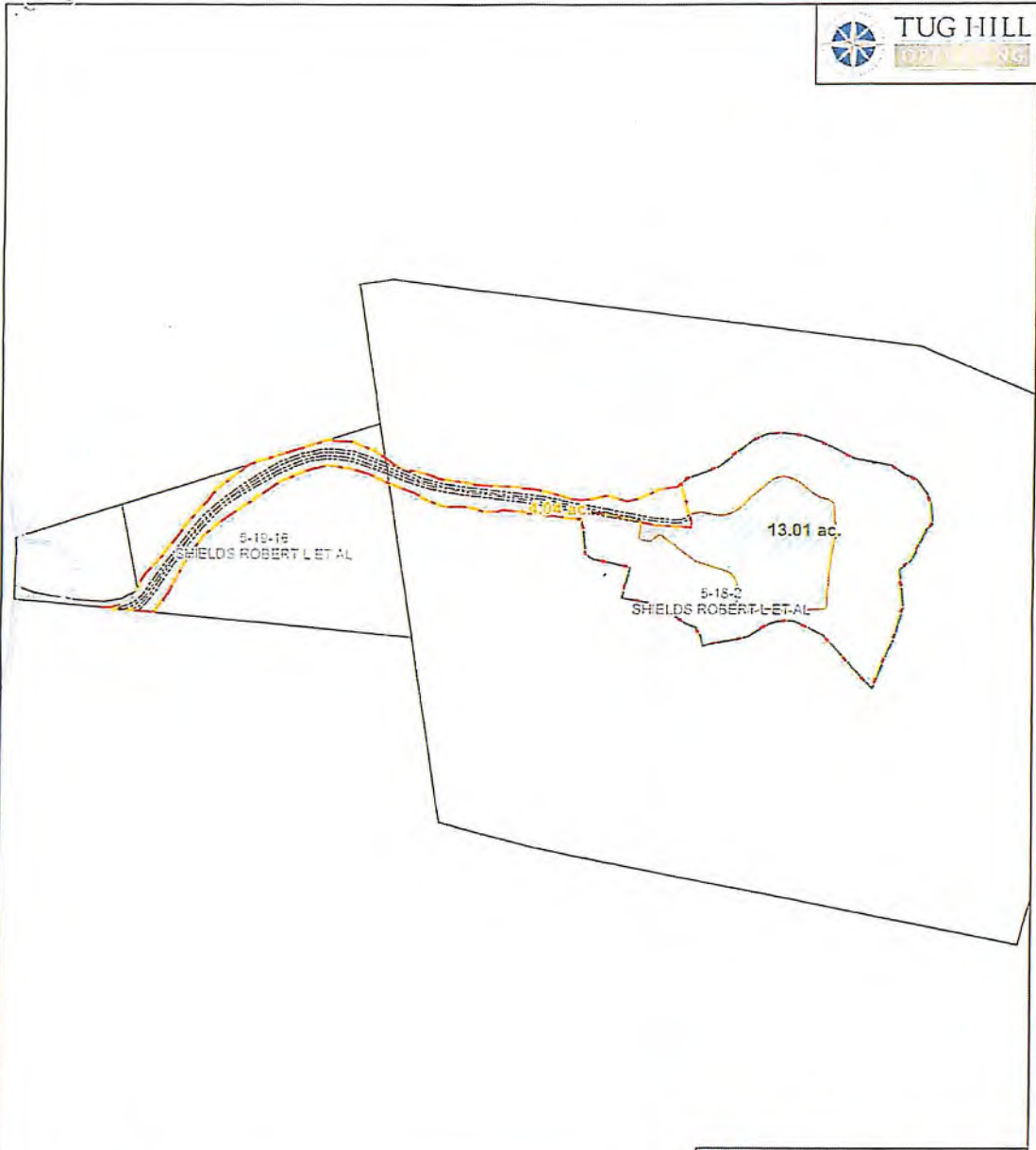
IN WITNESS WHEREOF, I hereunto set my hand and official seal.





My Commission Expires: 3/13/2023
Signature/Notary Public: S David Wilharm
Name/Notary Public (print): S David Wilharm

This instrument prepared by:
WV Oil and Gas Conservation Commission
601 57th Street
Charleston, WV 25304


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1 inch = 436 feet

 Limit of Disturbance - Access Road
 Limit of Disturbance - Pad

0 125 250 500
Feet



THIS PLAN IS A PRELIMINARY DESIGN AND IS SUBJECT TO CHANGE WITHOUT NOTICE. THE USER OF THIS PLAN ASSUMES ALL LIABILITY FOR ANY DAMAGE OR INJURY RESULTING FROM THE USE OF THIS PLAN. THE USER OF THIS PLAN SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER AND ARCHITECT FROM AND AGAINST ALL SUCH DAMAGE OR INJURY. THE USER OF THIS PLAN SHALL ALSO INDEMNIFY AND HOLD HARMLESS THE ENGINEER AND ARCHITECT FROM AND AGAINST ALL SUCH DAMAGE OR INJURY. THE USER OF THIS PLAN SHALL ALSO INDEMNIFY AND HOLD HARMLESS THE ENGINEER AND ARCHITECT FROM AND AGAINST ALL SUCH DAMAGE OR INJURY.

"Plat"
SHIELDS ROBERT L ET AL
Marshall, WV

Date: Nov 20 2019
Name: Donald D. Dill
Name: _____



Date: 10/24/2019
File: 1902 1912 UTM Zone 17N Feet U2

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

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

2) Operator's Well Number: McMasters S-19HU Well Pad Name: Shields

3) Farm Name/Surface Owner: Robert L. Shields, et al Public Road Access: Burch Ridge Road - CR 29

4) Elevation, current ground: 1206' Elevation, proposed post-construction: 1206'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No Yes

JW
6/6/2020

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):

Point Pleasant is the target formation at a depth of 11,175' - 11,321' - thickness of 146' and anticipated pressure of approx. 9500 psi.

8) Proposed Total Vertical Depth: 11,471'

9) Formation at Total Vertical Depth: Trenton, plug back to Reedsville

10) Proposed Total Measured Depth: 18,789'

11) Proposed Horizontal Leg Length: 6,911.44'

12) Approximate Fresh Water Strata Depths: 70' ; 802'

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

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickley Coal - 701' ; Pittsburgh Coal - 796'

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

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

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

WW-6B
(04/15)

4705102340
API NO. 47-051
OPERATOR WELL NO. McMasters S-19HU
Well Pad Name: Shields

18)

CASING AND TUBING PROGRAM

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water	20"	NEW	J55	106.5#	900'	900'	1,463FT^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2650'	2650'	1,877FT^3(CTS)
Intermediate	9 5/8"	NEW	HPP110	47#	10,240'	10,240'	3,332FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	18,789'	18,789'	4,478'FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		10,943'	
Liners							

6/16/2020

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	20"	26"	.5	2,410	1,928	SEE # 24	1.2
Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.472	10,730	6,968	SEE #24	1.99
Production	5 1/2"	8 1/2"	.415	16,510	10,864	SEE #24	1.18
Tubing	2 7/8"			11,385	11,624		
Liners				11624	11385 ^{PK}		

PACKERS

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

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WW-6B
(10/14)

API NO. 47-051 -
OPERATOR WELL NO. McMasters S-19HU
Well Pad Name: Shields

Ju
06/16/2020

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP (10,433'). 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 17,275,000 lb proppant and 267,084 bbl of water. Max rate = 80 bpm; max psi = 12,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 17.76 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.84 acres

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

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25) Proposed borehole conditioning procedures:

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

*Note: Attach additional sheets as needed.

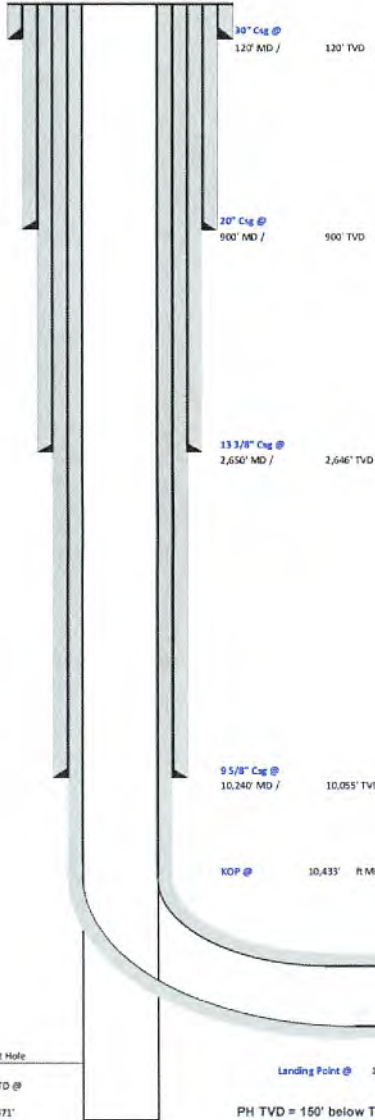


WELL NAME: **McMasters S-19HU**
 STATE: **WV** COUNTY: **Marshall**
 DISTRICT: **Franklin**
 DF Elev: **1,206'** GL Elev: **1,206'**
 TD: **18,789'**
 TH Latitude: **39.76030168**
 TH Longitude: **-80.78742948**
 BH Latitude: **39.745603**
 BH Longitude: **-80.769812**

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	802'
Sewickley Coal	701'
Pittsburgh Coal	796'
Big Lime	3,999'
Berea	2,537'
Tully	6,394'
Marcellus	6,487'
Onondaga	6,537'
Salina	7,228'
Lockport	8,255'
Utica	10,920'
Point Pleasant	11,175'
Landing Depth	11,225'
Trenton	11,321'
Pilot Hole TD	11,471'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	8W	8W	Surface
Surface	26	20	900'	900'	108.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,650'	2,646'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	10,240'	10,055'	47	HP110	Surface
Production	8 1/2	5 1/2	18,789'	11,345'	23	P110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,578	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,032	A	15	Air	1 Centralizer every other jt
Intermediate 2	2,827	A	14.5	Air	1 Centralizer every other jt
Production	3,932	A	15	Air / SOBIM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to s/c



Pilot Hole
 PH TD @
 11,471'

Landing Point @ 11,879' MD / 11,225' TVD
 PH TVD = 150' below Trenton Top

Lateral TD @ 18,789' ft MD
 11,345' ft TVD

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8/6/2020

4705102340



Tug Hill Operating, LLC Casing and Cement Program

McMasters S-19HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	900'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,650'	CTS
Intermediate 2	9 5/8"	HP110	12 1/4"	10,240'	CTS
Production	5 1/2"	P110	8 1/2"	18,789'	CTS

Cement

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

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

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

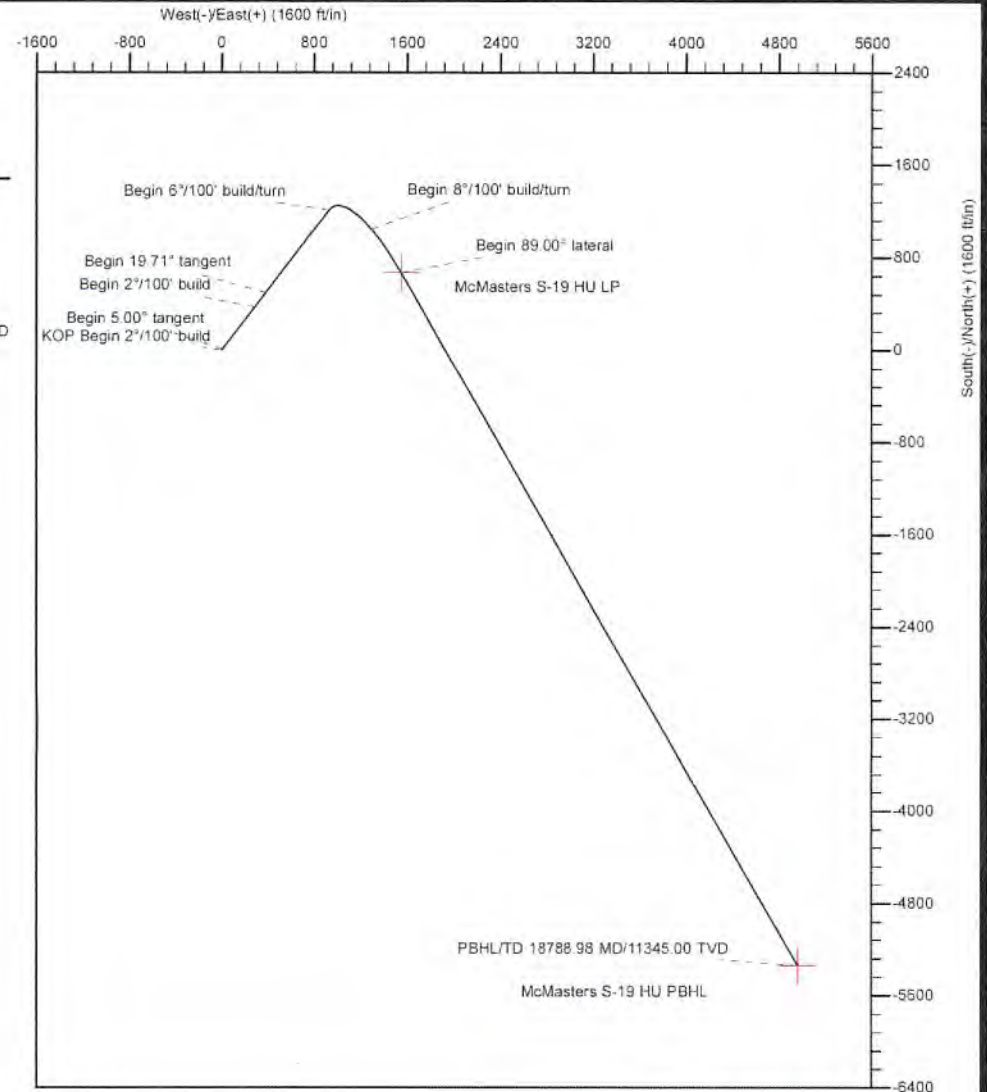
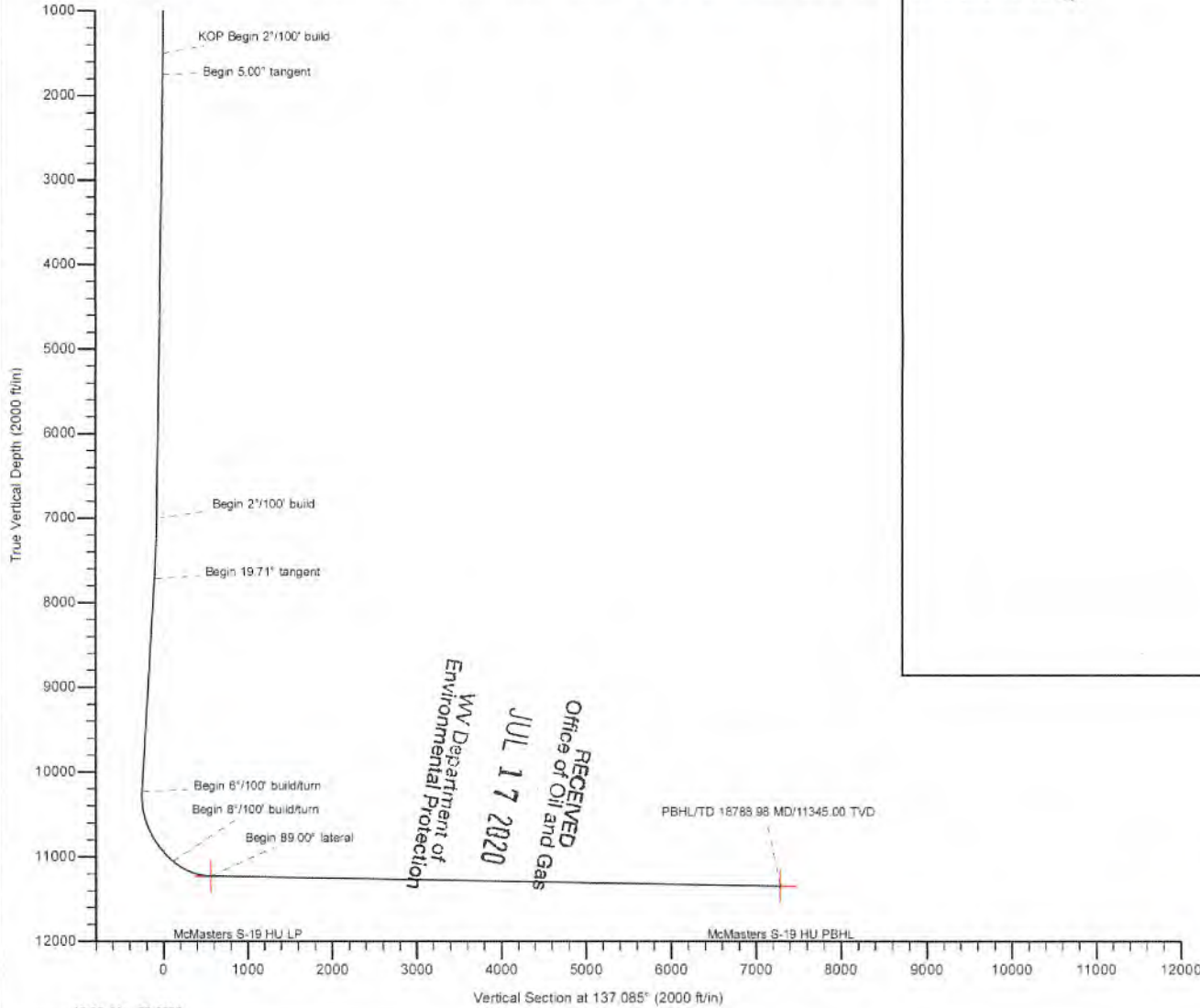
Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.18

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Well: **McMasters S-19 HU (slot I)**
 Site: **McMasters Shields**
 Project: **Marshall County, West Virginia**
 Design: **rev2**
 Rig:
 SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	D/leg	TFace	Vsect	Annotation
1	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.000	0.00	
2	1500.00	0.00	0.000	1500.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
3	1750.00	5.00	37.590	1749.68	8.64	6.65	2.00	37.590	-1.80	Begin 5.00° tangent
4	7020.37	5.00	37.590	7000.00	372.62	286.85	0.00	0.000	-77.57	Begin 2°/100' build
5	7755.80	19.71	37.590	7716.42	496.96	382.57	2.00	0.001	-103.46	Begin 19.71° tangent
6	10432.72	19.71	37.590	10236.54	1212.29	933.26	0.00	0.000	-252.37	Begin 6°/100' build/turn
7	11377.27	50.00	140.045	11052.34	1047.51	1292.53	6.00	116.460	112.94	Begin 8°/100' build/turn
8	11878.82	89.00	150.384	11225.00	866.58	1550.43	8.00	16.168	567.53	Begin 89.00° lateral
9	18788.98	89.00	150.384	11345.00	-5339.94	4964.77	0.00	0.000	7291.35	PBHL/TD 18788.98 MD/11345.00 TVD



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

System Datum: Mean Sea Level
 Depth Reference: GL @ 1206.00ft

Northing 14439522.32 Easting 1700154.90 Latitude 39.76030168 Longitude -80.78742948

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.84°



Azimuths to Grid North
 True North: -0.14°
 Magnetic North: -8.84°

Magnetic Field
 Strength: 51883.6anT
 Dip Angle: 88.74°
 Date: 12/9/2019
 Model: IGRF2015





Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-19 HU (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-19 HU (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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

Site	McMasters Shields				
Site Position:		Northing:	14,439,441.76 usft	Latitude:	39.76008050
From:	Lat/Long	Easting:	1,700,145.18 usft	Longitude:	-80.78746471
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.136 °

Well	McMasters S-19 HU (slot I)					
Well Position	+N/-S	0.00 ft	Northing:	14,439,522.32 usft	Latitude:	39.76030168
	+E/-W	0.00 ft	Easting:	1,700,154.89 usft	Longitude:	-80.78742948
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	1,206.00 ft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/9/2019	-8.707	66.739	51,983.55035938

Design	rev2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	137.085

Plan Survey Tool Program	Date	5/28/2020		
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,788.98 rev2 (Original Hole)	MWD	
			MWD - Standard	

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Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,500.00	0.00	0.000	1,500.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,750.00	5.00	37.590	1,749.68	8.64	6.65	2.00	2.00	0.00	37.590	
7,020.37	5.00	37.590	7,000.00	372.62	286.85	0.00	0.00	0.00	0.000	
7,755.80	19.71	37.590	7,716.42	496.96	382.57	2.00	2.00	0.00	0.001	
10,432.72	19.71	37.590	10,236.54	1,212.29	933.26	0.00	0.00	0.00	0.000	
11,377.27	50.00	140.045	11,052.34	1,047.51	1,292.53	6.00	3.21	10.85	116.460	
11,878.82	89.00	150.384	11,225.00	666.58	1,550.43	8.00	7.78	2.06	16.168	
18,788.98	89.00	150.384	11,345.00	-5,339.94	4,964.77	0.00	0.00	0.00	0.000	McMasters S-19 HU F



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-19 HU (slot 1)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-19 HU (slot 1)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.000	0.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
100.00	0.00	0.000	100.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
200.00	0.00	0.000	200.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
300.00	0.00	0.000	300.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
400.00	0.00	0.000	400.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
500.00	0.00	0.000	500.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
600.00	0.00	0.000	600.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
700.00	0.00	0.000	700.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
800.00	0.00	0.000	800.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
900.00	0.00	0.000	900.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
1,200.00	0.00	0.000	1,200.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
1,300.00	0.00	0.000	1,300.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
1,400.00	0.00	0.000	1,400.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
1,500.00	0.00	0.000	1,500.00	0.00	0.00	14,439,522.32	1,700,154.89	39.76030168	-80.78742948
KOP Begin 2°/100' build									
1,600.00	2.00	37.590	1,599.98	1.38	1.06	14,439,523.70	1,700,155.96	39.76030547	-80.78742568
1,700.00	4.00	37.590	1,699.84	5.53	4.26	14,439,527.85	1,700,159.15	39.76031684	-80.78741429
1,750.00	5.00	37.590	1,749.68	8.64	6.65	14,439,530.96	1,700,161.54	39.76032536	-80.78740575
Begin 5.00° tangent									
1,800.00	5.00	37.590	1,799.49	12.09	9.31	14,439,534.41	1,700,164.20	39.76033483	-80.78739626
1,900.00	5.00	37.590	1,899.11	19.00	14.62	14,439,541.32	1,700,169.52	39.76035376	-80.78737728
2,000.00	5.00	37.590	1,998.73	25.90	19.94	14,439,548.22	1,700,174.84	39.76037269	-80.78735830
2,100.00	5.00	37.590	2,098.35	32.81	25.26	14,439,555.13	1,700,180.15	39.76039162	-80.78733933
2,200.00	5.00	37.590	2,197.97	39.72	30.57	14,439,562.03	1,700,185.47	39.76041055	-80.78732035
2,300.00	5.00	37.590	2,297.59	46.62	35.89	14,439,568.94	1,700,190.79	39.76042949	-80.78730137
2,400.00	5.00	37.590	2,397.21	53.53	41.21	14,439,575.85	1,700,196.10	39.76044842	-80.78728240
2,500.00	5.00	37.590	2,496.83	60.43	46.52	14,439,582.75	1,700,201.42	39.76046735	-80.78726342
2,600.00	5.00	37.590	2,596.45	67.34	51.84	14,439,589.66	1,700,206.73	39.76048628	-80.78724445
2,700.00	5.00	37.590	2,696.07	74.25	57.16	14,439,596.57	1,700,212.05	39.76050521	-80.78722547
2,800.00	5.00	37.590	2,795.69	81.15	62.47	14,439,603.47	1,700,217.37	39.76052414	-80.78720649
2,900.00	5.00	37.590	2,895.31	88.06	67.79	14,439,610.38	1,700,222.68	39.76054308	-80.78718752
3,000.00	5.00	37.590	2,994.93	94.97	73.11	14,439,617.28	1,700,228.00	39.76056201	-80.78716854
3,100.00	5.00	37.590	3,094.55	101.87	78.42	14,439,624.19	1,700,233.32	39.76058094	-80.78714956
3,200.00	5.00	37.590	3,194.17	108.78	83.74	14,439,631.10	1,700,238.63	39.76059987	-80.78713059
3,300.00	5.00	37.590	3,293.78	115.68	89.06	14,439,638.00	1,700,243.95	39.76061880	-80.78711161
3,400.00	5.00	37.590	3,393.40	122.59	94.37	14,439,644.91	1,700,249.27	39.76063773	-80.78709263
3,500.00	5.00	37.590	3,493.02	129.50	99.69	14,439,651.81	1,700,254.58	39.76065667	-80.78707366
3,600.00	5.00	37.590	3,592.64	136.40	105.01	14,439,658.72	1,700,259.90	39.76067560	-80.78705468
3,700.00	5.00	37.590	3,692.26	143.31	110.32	14,439,665.63	1,700,265.22	39.76069453	-80.78703570
3,800.00	5.00	37.590	3,791.88	150.22	115.64	14,439,672.53	1,700,270.53	39.76071346	-80.78701673
3,900.00	5.00	37.590	3,891.50	157.12	120.96	14,439,679.44	1,700,275.85	39.76073239	-80.78699775
4,000.00	5.00	37.590	3,991.12	164.03	126.27	14,439,686.35	1,700,281.17	39.76075132	-80.78697877
4,100.00	5.00	37.590	4,090.74	170.93	131.59	14,439,693.25	1,700,286.48	39.76077026	-80.78695980
4,200.00	5.00	37.590	4,190.36	177.84	136.91	14,439,700.16	1,700,291.80	39.76078919	-80.78694082
4,300.00	5.00	37.590	4,289.98	184.75	142.22	14,439,707.06	1,700,297.12	39.76080812	-80.78692184
4,400.00	5.00	37.590	4,389.60	191.65	147.54	14,439,713.97	1,700,302.43	39.76082705	-80.78690287
4,500.00	5.00	37.590	4,489.22	198.56	152.86	14,439,720.88	1,700,307.75	39.76084598	-80.78688389
4,600.00	5.00	37.590	4,588.84	205.46	158.17	14,439,727.78	1,700,313.07	39.76086491	-80.78686491
4,700.00	5.00	37.590	4,688.46	212.37	163.49	14,439,734.69	1,700,318.38	39.76088384	-80.78684594
4,800.00	5.00	37.590	4,788.08	219.28	168.81	14,439,741.59	1,700,323.70	39.76090278	-80.78682696
4,900.00	5.00	37.590	4,887.70	226.18	174.12	14,439,748.50	1,700,329.02	39.76092171	-80.78680798
5,000.00	5.00	37.590	4,987.32	233.09	179.44	14,439,755.41	1,700,334.33	39.76094064	-80.78678901



Planning Report - Geographic

4705102340

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-19 HU (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-19 HU (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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Planned Survey										
Measured Depth (ft)	Inclination (")	Azimuth (")	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
5,100.00	5.00	37.590	5,086.94	240.00	184.75	14,439,762.31	1,700,339.65	39.76095957	-80.78677003	
5,200.00	5.00	37.590	5,186.55	246.90	190.07	14,439,769.22	1,700,344.96	39.76097850	-80.78675105	
5,300.00	5.00	37.590	5,286.17	253.81	195.39	14,439,776.13	1,700,350.28	39.76099743	-80.78673208	
5,400.00	5.00	37.590	5,385.79	260.71	200.70	14,439,783.03	1,700,355.60	39.76101637	-80.78671310	
5,500.00	5.00	37.590	5,485.41	267.62	206.02	14,439,789.94	1,700,360.91	39.76103530	-80.78669412	
5,600.00	5.00	37.590	5,585.03	274.53	211.34	14,439,796.84	1,700,366.23	39.76105423	-80.78667514	
5,700.00	5.00	37.590	5,684.65	281.43	216.65	14,439,803.75	1,700,371.55	39.76107316	-80.78665617	
5,800.00	5.00	37.590	5,784.27	288.34	221.97	14,439,810.66	1,700,376.86	39.76109209	-80.78663719	
5,900.00	5.00	37.590	5,883.89	295.24	227.29	14,439,817.56	1,700,382.18	39.76111102	-80.78661821	
6,000.00	5.00	37.590	5,983.51	302.15	232.60	14,439,824.47	1,700,387.50	39.76112996	-80.78659924	
6,100.00	5.00	37.590	6,083.13	309.06	237.92	14,439,831.38	1,700,392.81	39.76114889	-80.78658026	
6,200.00	5.00	37.590	6,182.75	315.96	243.24	14,439,838.28	1,700,398.13	39.76116782	-80.78656128	
6,300.00	5.00	37.590	6,282.37	322.87	248.55	14,439,845.19	1,700,403.45	39.76118675	-80.78654231	
6,400.00	5.00	37.590	6,381.99	329.78	253.87	14,439,852.09	1,700,408.76	39.76120568	-80.78652333	
6,500.00	5.00	37.590	6,481.61	336.68	259.19	14,439,859.00	1,700,414.08	39.76122461	-80.78650435	
6,600.00	5.00	37.590	6,581.23	343.59	264.50	14,439,865.91	1,700,419.40	39.76124354	-80.78648538	
6,700.00	5.00	37.590	6,680.85	350.49	269.82	14,439,872.81	1,700,424.71	39.76126248	-80.78646640	
6,800.00	5.00	37.590	6,780.47	357.40	275.14	14,439,879.72	1,700,430.03	39.76128141	-80.78644742	
6,900.00	5.00	37.590	6,880.09	364.31	280.45	14,439,886.62	1,700,435.35	39.76130034	-80.78642845	
7,000.00	5.00	37.590	6,979.71	371.21	285.77	14,439,893.53	1,700,440.66	39.76131927	-80.78640947	
7,020.37	5.00	37.590	7,000.00	372.62	286.85	14,439,894.94	1,700,441.75	39.76132313	-80.78640560	
Begin 2"/100' build										
7,100.00	6.59	37.590	7,079.22	378.99	291.76	14,439,901.31	1,700,446.65	39.76134059	-80.78638809	
7,200.00	8.59	37.590	7,178.34	389.46	299.82	14,439,911.78	1,700,454.71	39.76136929	-80.78635933	
7,300.00	10.59	37.590	7,276.93	402.67	309.98	14,439,924.98	1,700,464.88	39.76140549	-80.78632304	
7,400.00	12.59	37.590	7,374.89	418.59	322.24	14,439,940.90	1,700,477.13	39.76144914	-80.78627929	
7,500.00	14.59	37.590	7,472.08	437.21	336.58	14,439,959.53	1,700,491.47	39.76150018	-80.78622812	
7,600.00	16.59	37.590	7,568.40	458.51	352.97	14,439,980.82	1,700,507.86	39.76155856	-80.78616960	
7,700.00	18.59	37.590	7,663.72	482.46	371.41	14,440,004.77	1,700,526.30	39.76162421	-80.78610379	
7,755.80	19.71	37.590	7,716.42	496.96	382.57	14,440,019.28	1,700,537.47	39.76166397	-80.78606393	
Begin 19.71' tangent										
7,800.00	19.71	37.590	7,758.04	508.77	391.67	14,440,031.09	1,700,546.56	39.76169635	-80.78603148	
7,900.00	19.71	37.590	7,852.18	535.49	412.24	14,440,057.81	1,700,567.13	39.76176960	-80.78595805	
8,000.00	19.71	37.590	7,946.32	562.22	432.81	14,440,084.53	1,700,587.70	39.76184285	-80.78588462	
8,100.00	19.71	37.590	8,040.46	588.94	453.38	14,440,111.25	1,700,608.27	39.76191611	-80.78581119	
8,200.00	19.71	37.590	8,134.61	615.66	473.95	14,440,137.98	1,700,628.85	39.76198936	-80.78573776	
8,300.00	19.71	37.590	8,228.75	642.38	494.53	14,440,164.70	1,700,649.42	39.76206261	-80.78566432	
8,400.00	19.71	37.590	8,322.89	669.10	515.10	14,440,191.42	1,700,669.99	39.76213586	-80.78559089	
8,500.00	19.71	37.590	8,417.03	695.83	535.67	14,440,218.14	1,700,690.56	39.76220911	-80.78551746	
8,600.00	19.71	37.590	8,511.17	722.55	556.24	14,440,244.87	1,700,711.13	39.76228236	-80.78544403	
8,700.00	19.71	37.590	8,605.32	749.27	576.81	14,440,271.59	1,700,731.71	39.76235561	-80.78537060	
8,800.00	19.71	37.590	8,699.46	775.99	597.38	14,440,298.31	1,700,752.28	39.76242886	-80.78529717	
8,900.00	19.71	37.590	8,793.60	802.71	617.96	14,440,325.03	1,700,772.85	39.76250212	-80.78522374	
9,000.00	19.71	37.590	8,887.74	829.44	638.53	14,440,351.75	1,700,793.42	39.76257537	-80.78515031	
9,100.00	19.71	37.590	8,981.88	856.16	659.10	14,440,378.48	1,700,813.99	39.76264862	-80.78507688	
9,200.00	19.71	37.590	9,076.03	882.88	679.67	14,440,405.20	1,700,834.56	39.76272187	-80.78500344	
9,300.00	19.71	37.590	9,170.17	909.60	700.24	14,440,431.92	1,700,855.14	39.76279512	-80.78493001	
9,400.00	19.71	37.590	9,264.31	936.33	720.81	14,440,458.64	1,700,875.71	39.76286837	-80.78485658	
9,500.00	19.71	37.590	9,358.45	963.05	741.39	14,440,485.36	1,700,896.28	39.76294162	-80.78478315	
9,600.00	19.71	37.590	9,452.59	989.77	761.96	14,440,512.09	1,700,916.85	39.76301487	-80.78470971	
9,700.00	19.71	37.590	9,546.74	1,016.49	782.53	14,440,538.81	1,700,937.42	39.76308812	-80.78463628	
9,800.00	19.71	37.590	9,640.88	1,043.21	803.10	14,440,565.53	1,700,957.99	39.76316137	-80.78456285	
9,900.00	19.71	37.590	9,735.02	1,069.94	823.67	14,440,592.25	1,700,978.57	39.76323462	-80.78448942	
10,000.00	19.71	37.590	9,829.16	1,096.66	844.24	14,440,618.97	1,700,999.14	39.76330787	-80.78441598	



Planning Report - Geographic

4705102340

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: McMasters Shields
 Well: McMasters S-19 HU (slot I)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well McMasters S-19 HU (slot I)
 TVD Reference: GL @ 1206.00ft
 MD Reference: GL @ 1206.00ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,100.00	19.71	37.590	9,923.31	1,123.38	864.82	14,440,645.70	1,701,019.71	39.76338113	-80.78434255
10,200.00	19.71	37.590	10,017.45	1,150.10	885.39	14,440,672.42	1,701,040.28	39.76345438	-80.78426912
10,300.00	19.71	37.590	10,111.59	1,176.83	905.96	14,440,699.14	1,701,060.85	39.76352763	-80.78419568
10,400.00	19.71	37.590	10,205.73	1,203.55	926.53	14,440,725.86	1,701,081.42	39.76360088	-80.78412225
10,432.72	19.71	37.590	10,236.54	1,212.29	933.26	14,440,734.61	1,701,088.16	39.76362485	-80.78409822
Begin 6°/100' build/turn									
10,500.00	18.26	49.196	10,300.18	1,228.17	948.17	14,440,750.49	1,701,103.06	39.76366836	-80.78404505
10,600.00	17.60	68.658	10,395.41	1,243.93	974.13	14,440,766.24	1,701,129.02	39.76371145	-80.78395254
10,700.00	18.86	87.494	10,490.47	1,250.14	1,004.38	14,440,772.45	1,701,159.28	39.76372831	-80.78384481
10,800.00	21.72	102.790	10,584.32	1,246.75	1,038.61	14,440,769.06	1,701,193.50	39.76371877	-80.78372306
10,900.00	25.63	114.159	10,675.93	1,233.79	1,076.42	14,440,756.10	1,701,231.31	39.76368293	-80.78358861
11,000.00	30.20	122.496	10,764.31	1,211.40	1,117.41	14,440,733.71	1,701,272.30	39.76362117	-80.78344294
11,100.00	35.17	128.749	10,848.47	1,179.83	1,161.13	14,440,702.15	1,701,316.02	39.76353419	-80.78328765
11,200.00	40.39	133.599	10,927.50	1,139.43	1,207.09	14,440,661.74	1,701,361.98	39.76342292	-80.78312443
11,300.00	45.77	137.497	11,000.53	1,090.63	1,254.80	14,440,612.94	1,701,409.69	39.76328859	-80.78295508
11,377.27	50.00	140.045	11,052.34	1,047.51	1,292.53	14,440,569.83	1,701,447.42	39.76316992	-80.78282119
Begin 8°/100' build/turn									
11,400.00	51.75	140.690	11,066.68	1,033.93	1,303.78	14,440,556.25	1,701,458.67	39.76313255	-80.78278129
11,500.00	59.48	143.205	11,123.13	968.95	1,354.53	14,440,491.27	1,701,509.42	39.76295377	-80.78260124
11,600.00	67.24	145.347	11,167.94	896.42	1,406.63	14,440,418.73	1,701,561.52	39.76275422	-80.78241647
11,700.00	75.04	147.256	11,200.24	817.73	1,459.06	14,440,340.05	1,701,613.95	39.76253778	-80.78223058
11,800.00	82.85	149.031	11,219.41	734.43	1,510.80	14,440,256.74	1,701,665.69	39.76230866	-80.78204719
11,878.82	89.00	150.384	11,225.00	666.58	1,550.43	14,440,188.89	1,701,705.32	39.76212205	-80.78190675
Begin 89.00° lateral									
11,900.00	89.00	150.384	11,225.37	648.16	1,560.90	14,440,170.48	1,701,715.79	39.76207142	-80.78186967
12,000.00	89.00	150.384	11,227.11	561.24	1,610.31	14,440,083.56	1,701,765.20	39.76183237	-80.78169460
12,100.00	89.00	150.384	11,228.84	474.32	1,659.72	14,439,996.63	1,701,814.61	39.76159333	-80.78151953
12,200.00	89.00	150.384	11,230.58	387.39	1,709.13	14,439,909.71	1,701,864.02	39.76135428	-80.78134446
12,300.00	89.00	150.384	11,232.32	300.47	1,758.54	14,439,822.79	1,701,913.43	39.76111523	-80.78116940
12,400.00	89.00	150.384	11,234.05	213.55	1,807.95	14,439,735.87	1,701,962.84	39.76087619	-80.78099433
12,500.00	89.00	150.384	11,235.79	126.63	1,857.36	14,439,648.94	1,702,012.25	39.76063714	-80.78081927
12,600.00	89.00	150.384	11,237.53	39.70	1,906.77	14,439,562.02	1,702,061.66	39.76039809	-80.78064421
12,700.00	89.00	150.384	11,239.26	-47.22	1,956.18	14,439,475.10	1,702,111.07	39.76015905	-80.78046914
12,800.00	89.00	150.384	11,241.00	-134.14	2,005.59	14,439,388.18	1,702,160.48	39.75992000	-80.78029408
12,900.00	89.00	150.384	11,242.74	-221.07	2,055.00	14,439,301.25	1,702,209.89	39.75968095	-80.78011903
13,000.00	89.00	150.384	11,244.47	-307.99	2,104.41	14,439,214.33	1,702,259.30	39.75944190	-80.77994397
13,100.00	89.00	150.384	11,246.21	-394.91	2,153.82	14,439,127.41	1,702,308.71	39.75920285	-80.77976891
13,200.00	89.00	150.384	11,247.95	-481.83	2,203.23	14,439,040.48	1,702,358.12	39.75896380	-80.77959386
13,300.00	89.00	150.384	11,249.68	-568.76	2,252.64	14,438,953.56	1,702,407.53	39.75872476	-80.77941880
13,400.00	89.00	150.384	11,251.42	-655.68	2,302.05	14,438,866.64	1,702,456.94	39.75848571	-80.77924375
13,500.00	89.00	150.384	11,253.16	-742.60	2,351.46	14,438,779.72	1,702,506.35	39.75824666	-80.77906870
13,600.00	89.00	150.384	11,254.89	-829.53	2,400.87	14,438,692.79	1,702,555.76	39.75800761	-80.77889365
13,700.00	89.00	150.384	11,256.63	-916.45	2,450.28	14,438,605.87	1,702,605.17	39.75776856	-80.77871860
13,800.00	89.00	150.384	11,258.37	-1,003.37	2,499.70	14,438,518.95	1,702,654.58	39.75752951	-80.77854355
13,900.00	89.00	150.384	11,260.10	-1,090.30	2,549.11	14,438,432.02	1,702,703.99	39.75729046	-80.77836851
14,000.00	89.00	150.384	11,261.84	-1,177.22	2,598.52	14,438,345.10	1,702,753.40	39.75705141	-80.77819346
14,100.00	89.00	150.384	11,263.58	-1,264.14	2,647.93	14,438,258.18	1,702,802.82	39.75681235	-80.77801842
14,200.00	89.00	150.384	11,265.31	-1,351.06	2,697.34	14,438,171.26	1,702,852.23	39.75657330	-80.77784338
14,300.00	89.00	150.384	11,267.05	-1,437.99	2,746.75	14,438,084.33	1,702,901.64	39.75633425	-80.77766833
14,400.00	89.00	150.384	11,268.78	-1,524.91	2,796.16	14,437,997.41	1,702,951.05	39.75609520	-80.77749329
14,500.00	89.00	150.384	11,270.52	-1,611.83	2,845.57	14,437,910.49	1,703,000.46	39.75585615	-80.77731825
14,600.00	89.00	150.384	11,272.26	-1,698.76	2,894.98	14,437,823.57	1,703,049.87	39.75561710	-80.77714322
14,700.00	89.00	150.384	11,273.99	-1,785.68	2,944.39	14,437,736.64	1,703,099.28	39.75537804	-80.77696818
14,800.00	89.00	150.384	11,275.73	-1,872.60	2,993.80	14,437,649.72	1,703,148.69	39.75513899	-80.77679314



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-19 HU (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-19 HU (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,900.00	89.00	150.384	11,277.47	-1,959.53	3,043.21	14,437,562.80	1,703,198.10	39.75489994	-80.77661811
15,000.00	89.00	150.384	11,279.20	-2,046.45	3,092.62	14,437,475.87	1,703,247.51	39.75466088	-80.77644308
15,100.00	89.00	150.384	11,280.94	-2,133.37	3,142.03	14,437,388.95	1,703,296.92	39.75442183	-80.77626804
15,200.00	89.00	150.384	11,282.68	-2,220.29	3,191.44	14,437,302.03	1,703,346.33	39.75418277	-80.77609301
15,300.00	89.00	150.384	11,284.41	-2,307.22	3,240.85	14,437,215.11	1,703,395.74	39.75394372	-80.77591798
15,400.00	89.00	150.384	11,286.15	-2,394.14	3,290.26	14,437,128.18	1,703,445.15	39.75370467	-80.77574296
15,500.00	89.00	150.384	11,287.89	-2,481.06	3,339.67	14,437,041.26	1,703,494.56	39.75346561	-80.77556793
15,600.00	89.00	150.384	11,289.62	-2,567.99	3,389.08	14,436,954.34	1,703,543.97	39.75322656	-80.77539290
15,700.00	89.00	150.384	11,291.36	-2,654.91	3,438.49	14,436,867.41	1,703,593.38	39.75298750	-80.77521788
15,800.00	89.00	150.384	11,293.10	-2,741.83	3,487.90	14,436,780.49	1,703,642.79	39.75274844	-80.77504285
15,900.00	89.00	150.384	11,294.83	-2,828.75	3,537.31	14,436,693.57	1,703,692.20	39.75250939	-80.77486783
16,000.00	89.00	150.384	11,296.57	-2,915.68	3,586.72	14,436,606.65	1,703,741.61	39.75227033	-80.77469281
16,100.00	89.00	150.384	11,298.31	-3,002.60	3,636.13	14,436,519.72	1,703,791.02	39.75203128	-80.77451779
16,200.00	89.00	150.384	11,300.04	-3,089.52	3,685.54	14,436,432.80	1,703,840.43	39.75179222	-80.77434277
16,300.00	89.00	150.384	11,301.78	-3,176.45	3,734.95	14,436,345.88	1,703,889.84	39.75155316	-80.77416776
16,400.00	89.00	150.384	11,303.52	-3,263.37	3,784.37	14,436,258.96	1,703,939.25	39.75131411	-80.77399274
16,500.00	89.00	150.384	11,305.25	-3,350.29	3,833.78	14,436,172.03	1,703,988.66	39.75107505	-80.77381772
16,600.00	89.00	150.384	11,306.99	-3,437.22	3,883.19	14,436,085.11	1,704,038.07	39.75083599	-80.77364271
16,700.00	89.00	150.384	11,308.72	-3,524.14	3,932.60	14,435,998.19	1,704,087.48	39.75059693	-80.77346770
16,800.00	89.00	150.384	11,310.46	-3,611.06	3,982.01	14,435,911.26	1,704,136.89	39.75035787	-80.77329269
16,900.00	89.00	150.384	11,312.20	-3,697.98	4,031.42	14,435,824.34	1,704,186.30	39.75011881	-80.77311768
17,000.00	89.00	150.384	11,313.93	-3,784.91	4,080.83	14,435,737.42	1,704,235.71	39.74987976	-80.77294267
17,100.00	89.00	150.384	11,315.67	-3,871.83	4,130.24	14,435,650.50	1,704,285.12	39.74964070	-80.77276766
17,200.00	89.00	150.384	11,317.41	-3,958.75	4,179.65	14,435,563.57	1,704,334.53	39.74940164	-80.77259265
17,300.00	89.00	150.384	11,319.14	-4,045.68	4,229.06	14,435,476.65	1,704,383.94	39.74916258	-80.77241765
17,400.00	89.00	150.384	11,320.88	-4,132.60	4,278.47	14,435,389.73	1,704,433.35	39.74892352	-80.77224264
17,500.00	89.00	150.384	11,322.62	-4,219.52	4,327.88	14,435,302.80	1,704,482.76	39.74868446	-80.77206764
17,600.00	89.00	150.384	11,324.35	-4,306.44	4,377.29	14,435,215.88	1,704,532.17	39.74844540	-80.77189264
17,700.00	89.00	150.384	11,326.09	-4,393.37	4,426.70	14,435,128.96	1,704,581.59	39.74820634	-80.77171764
17,800.00	89.00	150.384	11,327.83	-4,480.29	4,476.11	14,435,042.04	1,704,631.00	39.74796727	-80.77154264
17,900.00	89.00	150.384	11,329.56	-4,567.21	4,525.52	14,434,955.11	1,704,680.41	39.74772821	-80.77136764
18,000.00	89.00	150.384	11,331.30	-4,654.14	4,574.93	14,434,868.19	1,704,729.82	39.74748915	-80.77119264
18,100.00	89.00	150.384	11,333.04	-4,741.06	4,624.34	14,434,781.27	1,704,779.23	39.74725009	-80.77101765
18,200.00	89.00	150.384	11,334.77	-4,827.98	4,673.75	14,434,694.35	1,704,828.64	39.74701103	-80.77084265
18,300.00	89.00	150.384	11,336.51	-4,914.91	4,723.16	14,434,607.42	1,704,878.05	39.74677196	-80.77066766
18,400.00	89.00	150.384	11,338.25	-5,001.83	4,772.57	14,434,520.50	1,704,927.46	39.74653290	-80.77049267
18,500.00	89.00	150.384	11,339.98	-5,088.75	4,821.98	14,434,433.58	1,704,976.87	39.74629384	-80.77031768
18,600.00	89.00	150.384	11,341.72	-5,175.67	4,871.39	14,434,346.65	1,705,026.28	39.74605478	-80.77014269
18,700.00	89.00	150.384	11,343.46	-5,262.60	4,920.80	14,434,259.73	1,705,075.69	39.74581571	-80.76996770
18,788.98	89.00	150.384	11,345.00	-5,339.94	4,964.77	14,434,182.39	1,705,119.65	39.74560300	-80.76981200

PBHL/TD 18788.98 MD/11345.00 TVD

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
McMasters S-19 HU LP - hit/miss target - Shape - Point	0.00	0.000	11,225.00	666.56	1,550.36	14,440,188.87	1,701,705.25	39.76212200	-80.78190700
- plan misses target center by 0.07ft at 11878.80ft MD (11225.00 TVD, 666.59 N, 1550.42 E)									
McMasters S-19 HU PBI - plan hits target center - Point	0.00	0.000	11,345.00	-5,339.94	4,964.77	14,434,182.39	1,705,119.65	39.74560300	-80.76981200



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well McMasters S-19 HU (slot I)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1206.00ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1206.00ft
Site:	McMasters Shields	North Reference:	Grid
Well:	McMasters S-19 HU (slot I)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,500.00	1,500.00	0.00	0.00	KOP Begin 2°/100' build
1,750.00	1,749.68	8.64	6.65	Begin 5.00° tangent
7,020.37	7,000.00	372.62	286.85	Begin 2°/100' build
7,755.80	7,716.42	496.96	382.57	Begin 19.71° tangent
10,432.72	10,236.54	1,212.29	933.26	Begin 6°/100' build/turn
11,377.27	11,052.34	1,047.51	1,292.53	Begin 8°/100' build/turn
11,878.82	11,225.00	666.58	1,550.43	Begin 89.00° lateral
18,788.98	11,345.00	-5,339.94	4,964.77	PBHL/TD 18788.98 MD/11345.00 TVD

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Area of Review

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

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

Data Sources Reviewed:

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

Contacted Devin Ducoeur 724-705-0444, dducoeur@dpslandservices.com DPS GIS (06/02/2020) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

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

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

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

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Permit well - McMasters S-19HU

Wells within 500' Buffer

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

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705101533	Tug Hill Operating, LLC	6509' TVD, 9961' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101534	Tug Hill Operating, LLC	6514' TVD, 9890' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101535	Tug Hill Operating, LLC	6519' TVD, 9890' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101536	Tug Hill Operating, LLC	6526' TVD, 10185' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101537	Tug Hill Operating, LLC	6527' TVD, 10560' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101538	Tug Hill Operating, LLC	6494' TVD, 9541' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101539	Tug Hill Operating, LLC	6488' TVD, 11480' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101540	Tug Hill Operating, LLC	6490' TVD, 12101' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101541	Tug Hill Operating, LLC	6485' TVD, 9632' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101542	Tug Hill Operating, LLC	6487' TVD, 11281' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705107096	Manufacturers Light & Heat Co.	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Point Pleasant well.	State records are incomplete.
4705101452	Tug Hill Operating, LLC	6584' TVD, 11386' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101468	Tug Hill Operating, LLC	6599' TVD, 12685' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.

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4705101469	Tug Hill Operating, LLC	6631' TVD, 12825' MD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Producing Marcellus horizontal well.
4705101731	Tug Hill Operating, LLC	11492' TVD, 16804' MD	Point Pleasant	Unknown	Yes, this is a Point Pleasant well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Producing Point Pleasant horizontal well.
4705101742	Gastar Exploration USA, Inc.	-	None	None	No, cancelled permit.	Not drilled.
4705102055	Tug Hill Operating, LLC	6616' TVD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Drilled uncompleted Marcellus horizontal well.
4705102061	Tug Hill Operating, LLC	6638' TVD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Drilled uncompleted Marcellus horizontal well.
4705102062	Tug Hill Operating, LLC	6651' TVD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Drilled uncompleted Marcellus horizontal well.
4705102063	Tug Hill Operating, LLC	6664' TVD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Drilled uncompleted Marcellus horizontal well.
4705102064	Tug Hill Operating, LLC	6595' TVD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Drilled uncompleted Marcellus horizontal well.
4705102066	Tug Hill Operating, LLC	6595' TVD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Drilled uncompleted Marcellus horizontal well.
4705102173	Tug Hill Operating, LLC	6644' TVD	Marcellus	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Proper casing and cement should further prevent migration of fluids from new wellbore to existing wellbore.	Drilled uncompleted Marcellus horizontal well.
4705102262	Tug Hill Operating, LLC	11532' TVD	Point Pleasant	Unknown	Yes, this will be a Point Pleasant well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Currently a permit.
4705102263	Tug Hill Operating, LLC	11532' TVD	Point Pleasant	Unknown	Yes, this will be a Point Pleasant well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Currently a permit.
4705102272	Tug Hill Operating, LLC	11532' TVD	Point Pleasant	Unknown	Yes, this will be a Point Pleasant well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Currently a permit.
4705102273	Tug Hill Operating, LLC	11540' TVD	Point Pleasant	Unknown	Yes, this will be a Point Pleasant well. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore.	Currently a permit.

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APPLICANT INFORMATION: COMPANY NAME, ADDRESS, PHONE, FAX, E-MAIL, STATE, COUNTY, ZIP

APPLICANT CONTACT INFORMATION: NAME, ADDRESS, PHONE, FAX, E-MAIL, STATE, COUNTY, ZIP

OPERATOR INFORMATION: COMPANY NAME, ADDRESS, PHONE, FAX, E-MAIL, STATE, COUNTY, ZIP

PRODUCTION INFORMATION: WELL NAME, LOCATION, DEPTH, TYPE, STATUS, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, etc.

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There is no Wellhead (L) Log data for this well.

There is no Logging data for this well.

APPLICANT INFORMATION: COMPANY NAME, ADDRESS, PHONE, FAX, E-MAIL, STATE, COUNTY, ZIP

APPLICANT CONTACT INFORMATION: NAME, ADDRESS, PHONE, FAX, E-MAIL, STATE, COUNTY, ZIP

OPERATOR INFORMATION: COMPANY NAME, ADDRESS, PHONE, FAX, E-MAIL, STATE, COUNTY, ZIP

PRODUCTION INFORMATION: WELL NAME, LOCATION, DEPTH, TYPE, STATUS, etc.

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There is no Wellhead (L) Log data for this well.

There is no Logging data for this well.

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WV DEPARTMENT OF ENVIRONMENTAL PROTECTION

Webb County - 61 Permit - 01504

Issue Date: 7/16/2020 10:11:47 AM

Project Information: Permit No. 61-01504, Applicant: Webb County, Project Name: ...

Project Location: ...

Permit Description: ...

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

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Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

This is the final date of this well.

This is the plugging date for this well.

This is the sample date for this well.

Webb County - 61 Permit - 01507

Issue Date: 7/16/2020 10:11:47 AM

Project Information: Permit No. 61-01507, Applicant: Webb County, Project Name: ...

Project Location: ...

Permit Description: ...

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

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Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

This is the final date of this well.

This is the plugging date for this well.

This is the sample date for this well.

Webb County - 61 Permit - 01508

Issue Date: 7/16/2020 10:11:47 AM

Project Information: Permit No. 61-01508, Applicant: Webb County, Project Name: ...

Project Location: ...

Permit Description: ...

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

Table with 5 columns: Date, Activity, Location, Status, Remarks. Contains permit activity logs.

This is the final date of this well.

This is the plugging date for this well.

This is the sample date for this well.

RECEIVED Office of Oil and Gas JUL 17 2020 WV Department of Environmental Protection

Location Information: **Site No.**
County: Boone
Permit No.: 51-01542
Permit Title: ...

Applicable Regulatory Information:
Regulatory Authority: ...
Regulatory Title: ...

Table with columns: DATE, TIME, OPERATOR, EQUIPMENT, LOCATION, etc. Contains monitoring data for various dates and times.

Table with columns: DATE, TIME, OPERATOR, EQUIPMENT, LOCATION, etc. Contains monitoring data for various dates and times.

Table with columns: DATE, TIME, OPERATOR, EQUIPMENT, LOCATION, etc. Contains monitoring data for various dates and times.

Table with columns: DATE, TIME, OPERATOR, EQUIPMENT, LOCATION, etc. Contains monitoring data for various dates and times.

Table with columns: DATE, TIME, OPERATOR, EQUIPMENT, LOCATION, etc. Contains monitoring data for various dates and times.

Table with columns: DATE, TIME, OPERATOR, EQUIPMENT, LOCATION, etc. Contains monitoring data for various dates and times.

There is no data for this well.
There is no plugging data for this well.
There is no sample data for this well.

Location Information: **Site No.**
County: Boone
Permit No.: 51-70798
Permit Title: ...

Applicable Regulatory Information:
Regulatory Authority: ...
Regulatory Title: ...

There is no data for this well.
There is no plugging data for this well.
There is no sample data for this well.

Location Information: **Site No.**
County: Boone
Permit No.: 51-01482
Permit Title: ...

Applicable Regulatory Information:
Regulatory Authority: ...
Regulatory Title: ...

Table with columns: DATE, TIME, OPERATOR, EQUIPMENT, LOCATION, etc. Contains monitoring data for various dates and times.

Table with columns: DATE, TIME, OPERATOR, EQUIPMENT, LOCATION, etc. Contains monitoring data for various dates and times.

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Table with columns: DATE, TIME, OPERATOR, EQUIPMENT, LOCATION, etc. Contains monitoring data for various dates and times.

There is no data for this well.
There is no plugging data for this well.
There is no sample data for this well.

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

APPLICANT INFORMATION
APPLICANT NAME: [Redacted]
ADDRESS: [Redacted]

APPLICANT CONTACT INFORMATION
NAME: [Redacted]
PHONE: [Redacted]

APPLICANT INFORMATION
NAME: [Redacted]
ADDRESS: [Redacted]

APPLICANT INFORMATION
NAME: [Redacted]
ADDRESS: [Redacted]

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

There is no Volume 1 Log data for this well.

There is no Logging data for this well.

There is no Logging data for this well.

APPLICANT INFORMATION
APPLICANT NAME: [Redacted]
ADDRESS: [Redacted]

APPLICANT CONTACT INFORMATION
NAME: [Redacted]
PHONE: [Redacted]

APPLICANT INFORMATION
NAME: [Redacted]
ADDRESS: [Redacted]

APPLICANT INFORMATION
NAME: [Redacted]
ADDRESS: [Redacted]

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

Table with columns: Well ID, Well Name, Well Type, Well Status, Well Depth, etc.

There is no Volume 1 Log data for this well.

There is no Logging data for this well.

There is no Logging data for this well.

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

License Information: ...

Applicant Information: ...

Operator Information: ...

Production Data: ...

Table with multiple columns containing production data for various wells.

Table with multiple columns containing production data for various wells.

Production Data Summary: ...

Table with multiple columns containing production data for various wells.

Production Data Summary: ...

Table with multiple columns containing production data for various wells.

Production Data Summary: ...

Table with multiple columns containing production data for various wells.

Production Data Summary: ...

Table with multiple columns containing production data for various wells.

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Production Data Summary: ...

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Production Data Summary: ...

Table with multiple columns containing production data for various wells.

Production Data Summary: ...

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Production Data Summary: ...

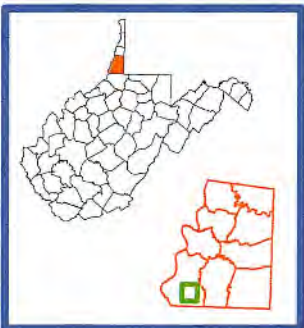
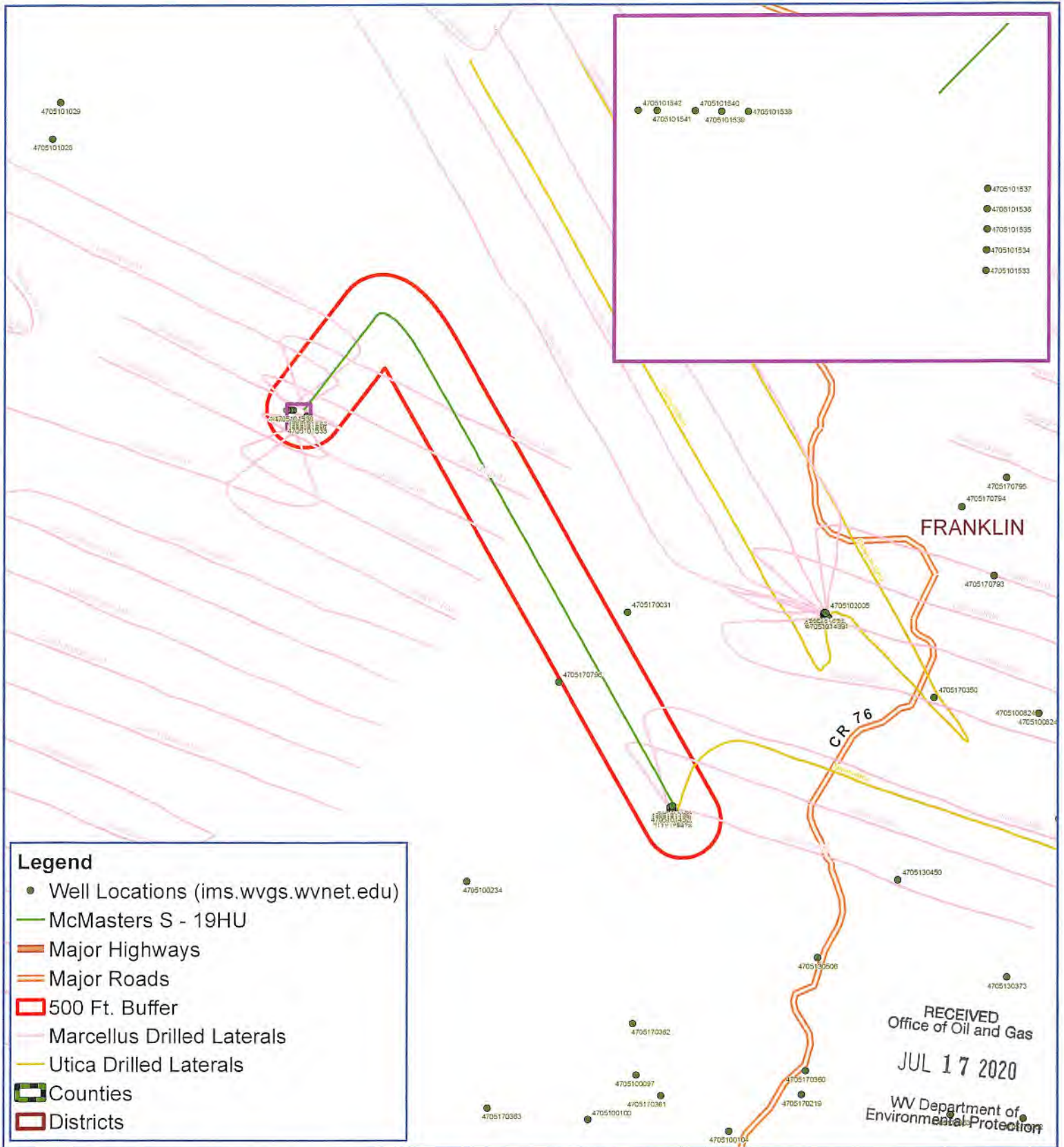
Production Data Summary: ...

Production Data Summary: ...

Production Data Summary: ...

Production Data Summary: ...

RECEIVED Office of Oil and Gas JUL 17 2020 WV Department of Environmental Protection



McMasters S - 19HU Franklin District Marshall County, WV



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



Map Prepared by:
PS
LAND SERVICES

4705102340

WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. McMasters S-19HU

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

Watershed (HUC 10) Fish Creek Quadrangle Powhatan Point 7.5'

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109195) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386426)

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

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

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

Company Official Signature James A. Pancake

Company Official (Typed Name) Jim Pancake

Company Official Title VP Geosciences

Subscribed and sworn before me this 14 day of JANUARY, 2020

Maureen Stead

Notary Public

My commission expires 1/28/23

Commonwealth of Pennsylvania - Notary Seal
MAUREEN A STEAD - Notary Public
Washington County
My Commission Expires Jan 28, 2023
Commission Number 1259926

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

4705102340

Form WW-9

Operator's Well No. McMasters S-19HU

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 17.76 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jim Unholzer*

Comments: _____

RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

Title: WVDEP Oil and Gas Inspector

Date: 1/14/2020

Field Reviewed? Yes No

WW-9

PROPOSED McMASTERS S-19HU

SUPPLEMENT PG 1

DRAWING NOT TO SCALE

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

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

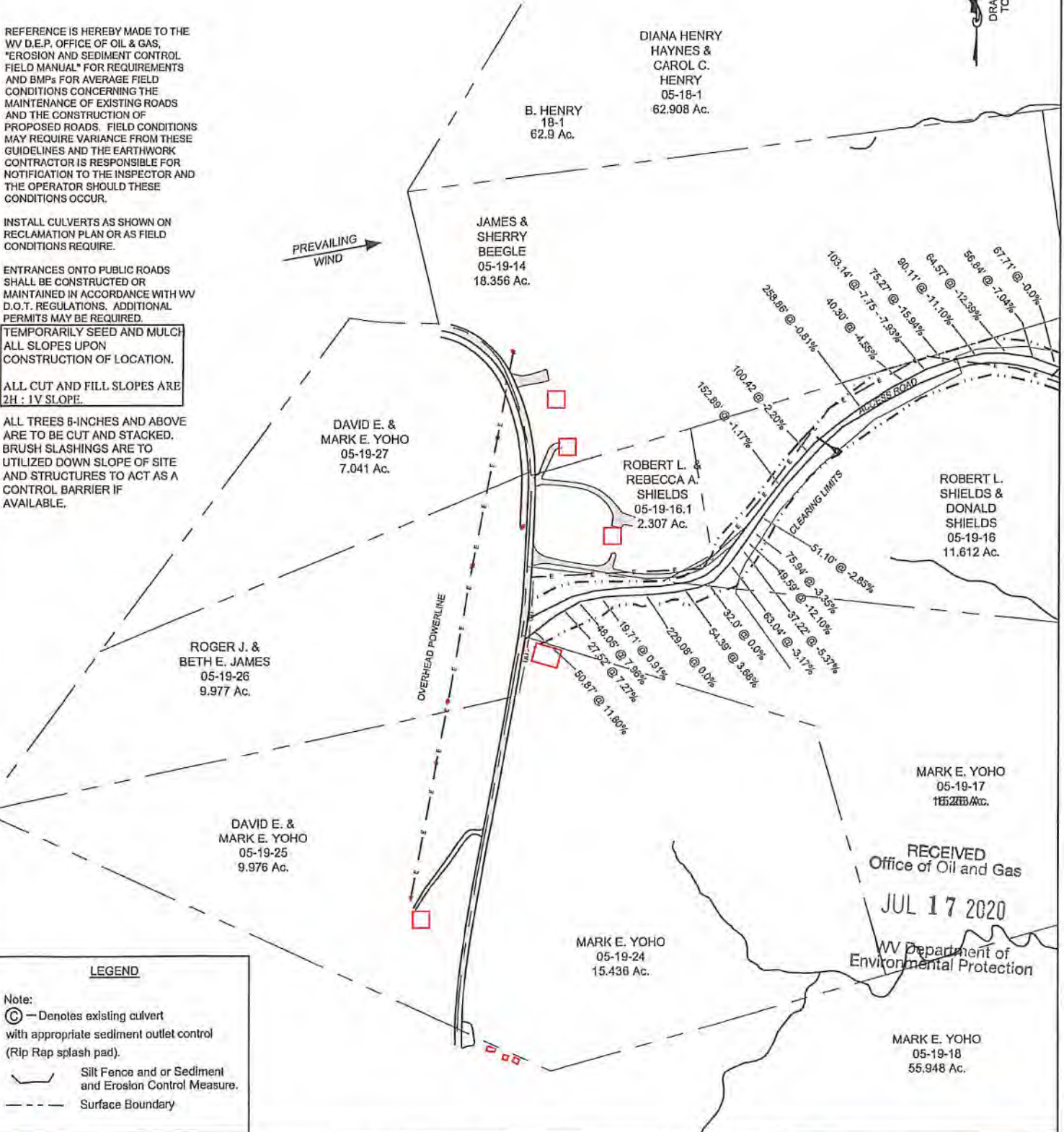
ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.

TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

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

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

PREVAILING WIND



RECEIVED
Office of Oil and Gas
JUL 17 2020
WV Department of
Environmental Protection

LEGEND

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



Jackson Surveying Inc.
4118 E. Pike St. #112
Charlottesville, VA 22901
Phone: 304-623-6661

TOPO SECTION: POWHATAN POINT 7.5'		OPERATOR: PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANDONSBURG, PA 15317	
COUNTY MARSHALL	DISTRICT FRANKLIN	DATE 1 7 2020	SCALE N/A
DRAWN BY JDC	JOB NO. 102 C10001		



WW-9

**PROPOSED McMASTERS
S-19HU**

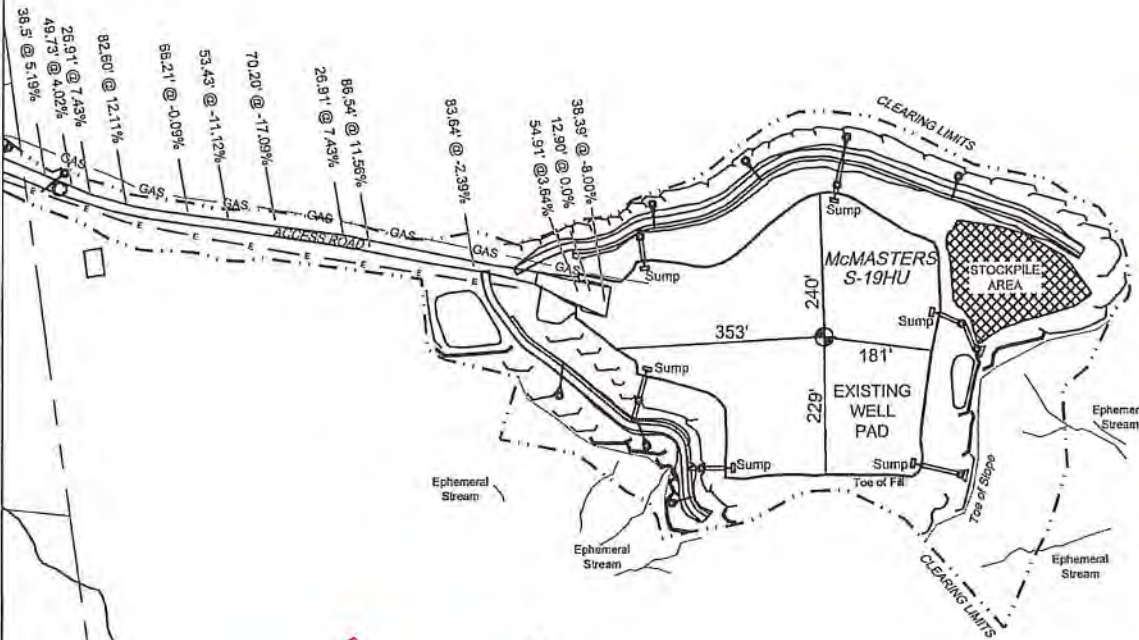
SUPPLEMENT PG 1

DIANA HENRY
HAYNES &
CAROL C.
HENRY
05-18-1
62.908 Ac.

OLAN V. &
PATRICIA E.
RUTAN
05-18-3
43.677 Ac.

DRAWING NOT
TO SCALE

PREVAILING
WIND



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

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

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.

TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

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

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

ROBERT L. SHIELDS
ET AL
05-18-2
104.11 Ac.

RECEIVED
Office of Oil and Gas

JUL 17 2020

WV Department of
Environmental Protection

DUANE BRUNN
05-18-24
102 Ac.

LEGEND

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

TOPO SECTION:

POWATAN POINT 7.5'

COUNTY	DISTRICT
MARSHALL	FRANKLIN
DRAWN BY	JOB NO.
INT	496510851

OPERATOR:

PREPARED FOR:

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD
SUITE 200
CANDLERBURG, PA 15317

DATE	SCALE
1.7.2020	NONE



Jackson Surveying Inc.
213 E. Pike St. #112
Clarksburg, WV 26301
Phone: 804-288-0851



**TUG HILL
OPERATING**

4705102340



Well Site Safety Plan

Tug Hill Operating, LLC

JW
6/16/2020

Well Name: McMasters S-19HU

Pad Location: Shields Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,401,175.20

Easting: 518,208.25

June 2020

RECEIVED
Office of Oil and Gas

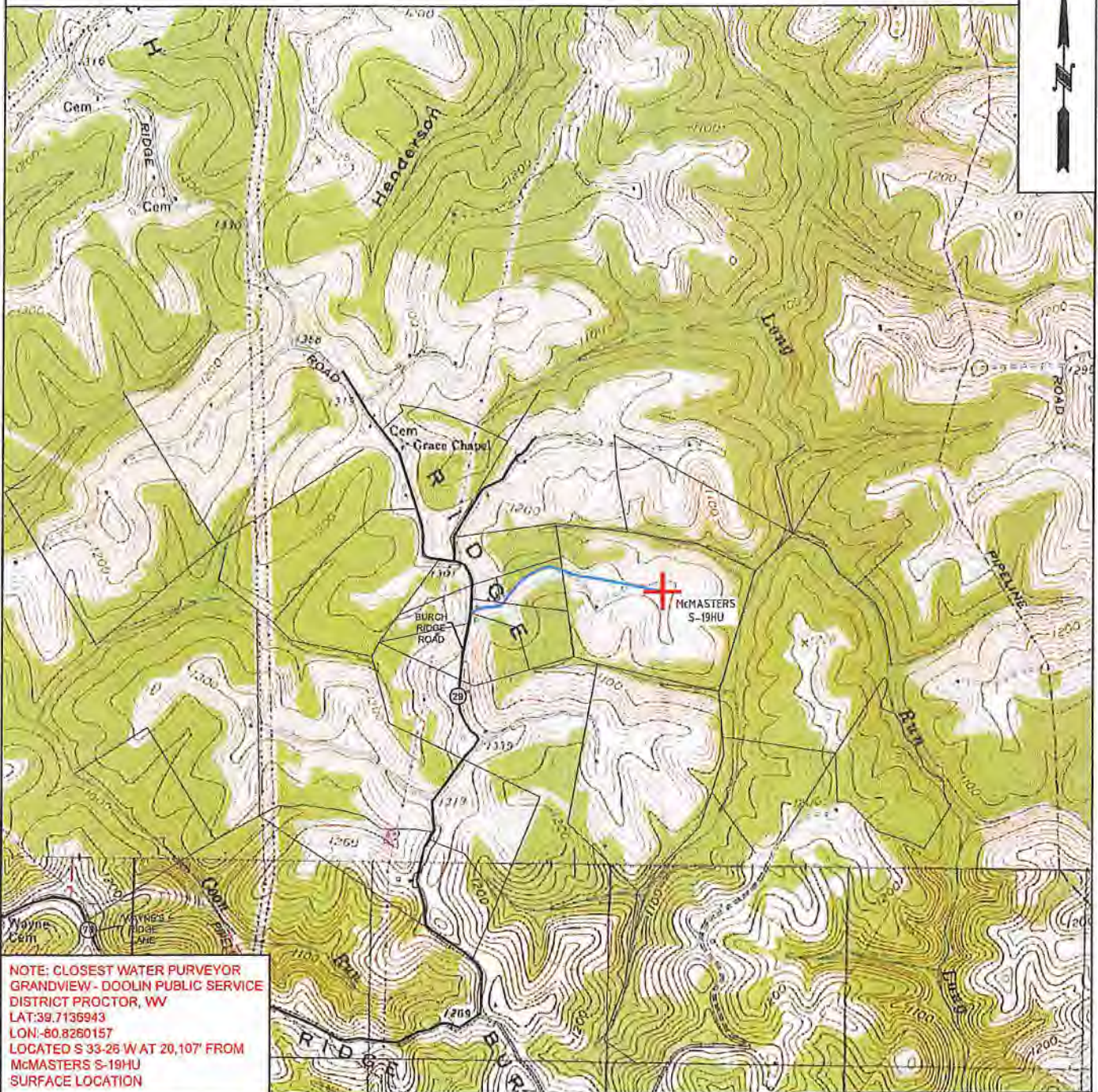
JUL 17 2020

WV Department of
Environmental Protection

WW-9

PROPOSED McMASTERS S-19HU

SUPPLEMENT PG 2



**NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT:39.7135943
LON:-80.8260157
LOCATED S 33-26 W AT 20,107' FROM
McMASTERS S-19HU
SURFACE LOCATION**



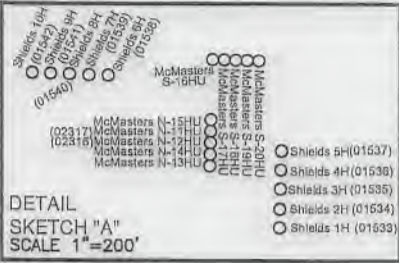
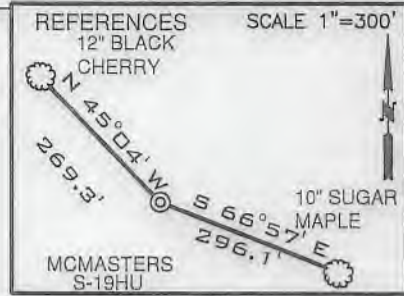
OPERATOR	494510851	TOPO SECTION	LEASE NAME
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		POWATAN POINT 7.5'	McMASTERS
		SCALE:	DATE:
		1" = 2000'	DATE: 1-7-2020

**MCMASTERS LEASE
WELL S-19HU
539.1576± ACRES**

TOP HOLE LATITUDE: 39°47'30"
BOTTOM HOLE LATITUDE: 39°45'00"

SEE DETAIL "A"

LINE	BEARING	DISTANCE
L1	N 74°15' W	1439.44'
L2	S 40°12' W	1365.44'
L3	N 38°33' E	1530.43'



(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

LEGEND

- LEASE TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- UNIT BOUNDARY
- LEASE # (SEE 6A1 FORM)
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- (FTP) PROPOSED FIRST TAKE POINT
- (LTP) PROPOSED LAST TAKE POINT



SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,401,175.20
E) 518,208.25

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,401,378.38
E) 518,680.82

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,547.59
E) 519,721.51

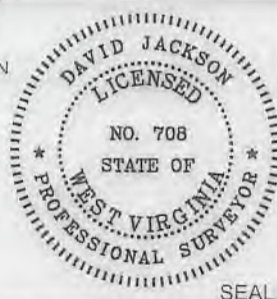
- NOTES**
- BORE PATH BASED ON GRID NORTH.
 - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
 - OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2019. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
 - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
 - ALL DEEP WELLS SHOWN ON THIS PLAT.
 - BOUNDARIES ALONG ROADWAYS ARE BASED UPON MEMORANDUM BY DICKIE, MCGAMEY & CHILCOTE, P.C. FILE 0058304.0401147

CURVE	CHORD BEARING	CHORD LENGTH	RADIUS	ARC LENGTH
C1	N 62°57' E	80.59'	92.01'	83.41'
C2	S 76°15' E	73.89'	161.04'	74.56'
C3	S 54°49' E	129.98'	429.96'	130.48'
C4	S 41°33' E	214.74'	1107.01'	215.08'
C5	S 32°27' E	402.49'	2674.49'	402.87'

FILE NUMBER _____
DRAWING NUMBER: MCMASTERS S-19HU_REV2
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING
GRADE GPS

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

David L Jackson



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

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

DATE: JANUARY 27, 2020
REVISED: JULY 29, 2020
OPERATORS WELL NO. MCMASTERS S-19HU
API WELL NO. 47-051-02340
STATE COUNTY PERMIT Deep HGA

LOCATION ELEVATION 1207.50' WATERSHED (HUC 10) FISH CREEK (HUC-10)
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE POWHATAN POINT 7.5' LEASE NUMBER SEE WW-6A1 FORM

SURFACE OWNER ROBERT L. SHIELDS, ET AL ACREAGE 104.11
OIL & GAS ROYALTY OWNER ROBERT L. SHIELDS, ET AL LEASE ACREAGE 104.11
PROPOSED WORK: DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION
PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY)
PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,471' TMD: 18,789'
WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
CT CORPORATION SYSTEM
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD
FORT WORTH, TX 76107 CHARLESTON, WV 25313

COUNTY NAME PERMIT

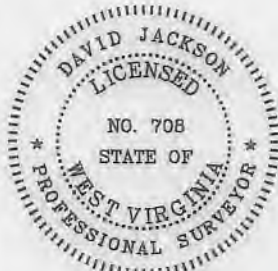
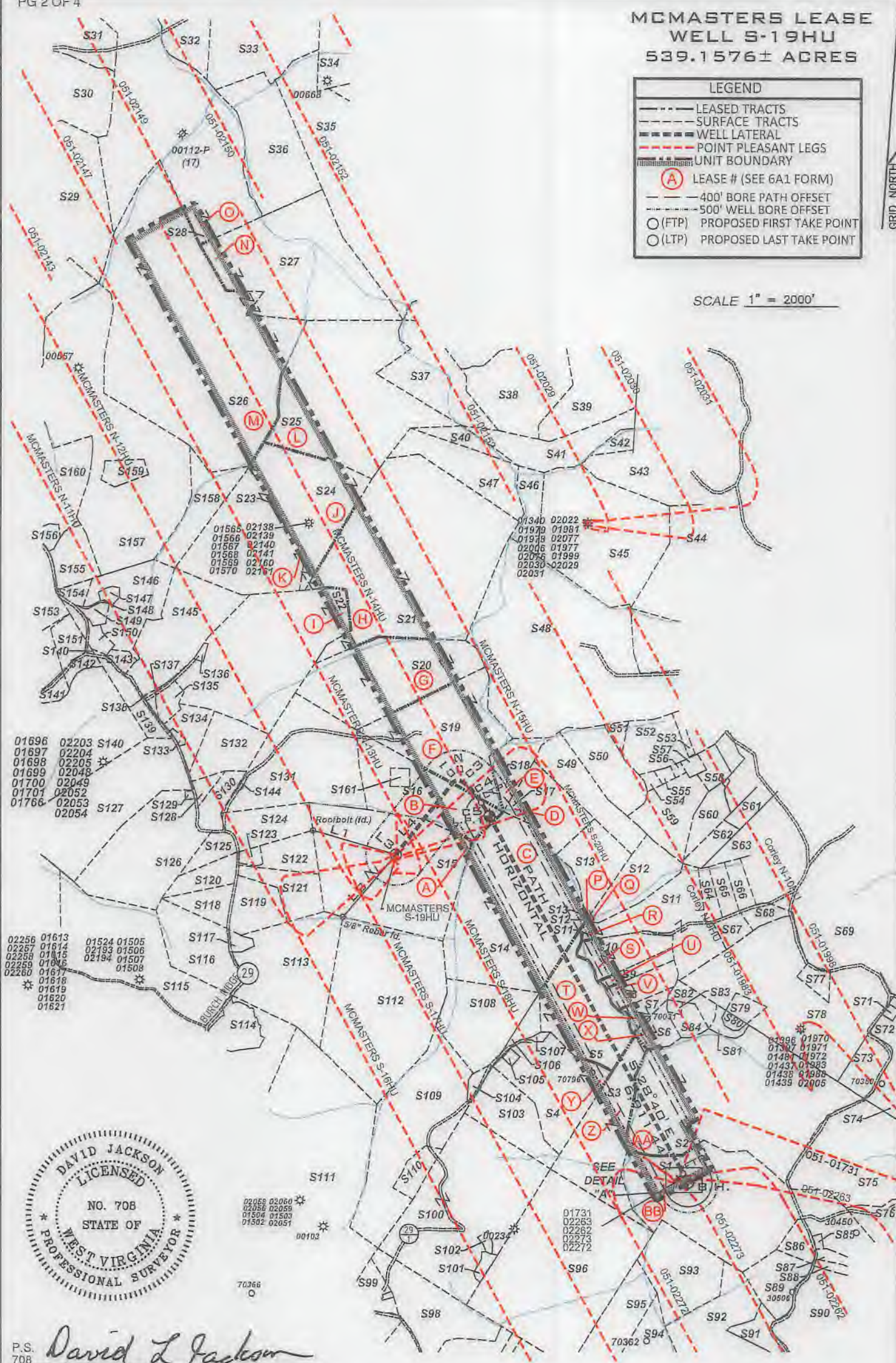
MCMASTERS LEASE WELL S-19HU 539.1576± ACRES

LEGEND

- LEASED TRACTS
- - - SURFACE TRACTS
- - - WELL LATERAL
- - - POINT PLEASANT LEGS
- ▬ UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)
- - - 400' BORE PATH OFFSET
- - - 500' WELL BORE OFFSET
- (FTP) PROPOSED FIRST TAKE POINT
- (LTP) PROPOSED LAST TAKE POINT

SCALE 1" = 2000'

GRID NORTH



P.S. 708 *David L Jackson*



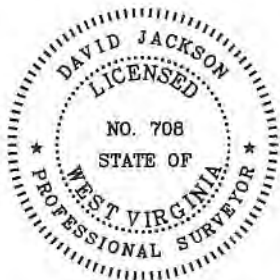
TUG HILL OPERATING

OPERATOR'S
WELL #: MCMASTER S-19HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 47-051-02340

WELL PLAT
PAGE 2 OF 4
DATE: 01/27/2020
REVISED: 07/29/2020

**MCMASTERS LEASE
WELL S-19HU
539.1576± ACRES**

Number	TAX MAP - PARCEL	ADJOINER OWNER	ACRES	Number	TAX MAP - PARCEL	ADJOINER OWNER	ACRES
S1	BB 05-23-07	Terry E. Simms Et Ux	123.09	S66	05-18-13.6	Glenn Eugene Whisler Et Ux	5.384
S2	AA 05-17-11	Kenneth N. Corley Et Ux	120.0	S67	05-18-33	Sandra & Glenn Whisler	5.343
S3	Z 05-23-06	James A. Channing Et Al	48.0	S68	05-18-48	Marvin Dean Roberts Et Ux & Brad & Bridget Williams	2.92
S4	Y 05-18-21	Curtis E. & Michelle J. Hall	43.119	S69	05-17-10.3	James A. & Jill C. Corley	37.39
S5	T 05-18-20	Wayne E. Channing Et Al	75.60	S70	05-17-09	Lloyd Richard Oliver Et Ux	61.6
S6	X 05-18-31	Kenneth E. Rastall	6.94	S71	05-17-9.1	Jeri J. White	1.0
S7	W 05-18-29	Carl G. Berg	5.319	S72	05-17-9.2	Jeri J. White	7.136
S8	V 05-18-13.10	Carl Berg	10.88	S73	05-17-9.3	James A. Corley Et Ux	12.478
S9	U 05-18-30	Mary & Daniel Robinson	5.46	S74	05-17-9.4	Vick L. Bowen	60.3
S10	S 05-18-59	Southern Country Farms Inc.	15.79	S75	05-17-11.1	Randy W. Francis Et Ux	67.0
S11	R 05-18-13	Southern Country Farms Inc.	11.054	S76	05-24-01	Linda L. Hendrickson	175.0
S12	Q 05-18-16	Charles Yeater	17.768	S77	05-17-10.1	James A. & Jill C. Corley	4.51
S13	P 05-18-07	Charles Yeater	24.22	S78	05-17-10	James A. Corley Et Al	92.61
S14	C 05-18-23	XCL Midstream Operating LLC	110.0	S79	05-17-10.5	Williams Ohio Valley Midstream LLC	4.24
S15	A 05-18-02	Robert L. Shields Et Al	104.11	S80	05-17-12.1	Williams Ohio Valley Midstream LLC	1.67
S16	B 05-18-03	Olan V. & Patricia E. Rutan	43.677	S81	05-17-12	James A. & Jill C. Corley	3.33
S17	D 05-18-06	Charles Yeater	26.0	S82	05-18-13.8	Lori D. Carpenter	5.545
S18	E 05-18-05	Terry Melott	8.14	S83	05-18-32.1	Lori D. Carpenter	5.545
S19	F 05-18-04	Olan & Patricia Rutan	65.89	S84	05-18-32	Kenneth E. Rastall	5.335
S20	G 05-15-11	Diana Henry Haynes & Carol Henry	65.59	S85	05-23-7.1	Florella Lou Weigand	0.549
S21	H 05-15-12	John David Petrock & Thomas Andrew Petrock	150.23	S86	05-23-7.2	Florella Lou Weigand	6.354
S22	I 05-19-13	Rona Lee Rice & Charles Franklin McCordle	94.925	S87	05-24-5.1	James D. Watkins Et Ux	4.60
S23	K 05-14-15	Robert L. Shields Et Al	53.0	S88	05-24-5.2	James D. Watkins Et Ux	3.151
S24	J 05-15-15	Robert L. Shields Et Al	49.0	S89	05-24-5.5	Sonny & Linda Lou Tagg	17.194
S25	L 05-15-01	Marcus Sharp & Angela R. Schlabach	121.0	S90	05-24-05	Robert C. Francis, Et Ux-Life	145.78
S26	M 05-14-13	Ralph D. & Sally Jane Hoyt	222.18	S91	05-24-3.1	T.H. Exploration II LLC	5.50
S27	N 05-11-15	Lionel L. Persinger Et Ux	93.0	S92	05-24-5.4	Thomas V. Tuttle Et Ux	38.224
S28	O 05-12-12.1	Lionel L. Persinger Et Ux	148.09	S93	05-23-8.1	William & Virginia Roupe	34.0
S29	05-12-14	Linda Hamilton Et Al	117.495	S94	05-23-9.3	Linda D. Greathouse	17.5
S30	05-12-13	Linda Hamilton Et Al	41.887	S95	05-23-08	Carl David & Suzanne L. Guseman	29.5
S31	05-12-08	Anita Ray Miller-Life	100.35	S96	05-23-05	Daniel D. Rhyand	118.5
S32	05-12-12	Lionel L. Persinger Et Ux	45.0	S97	05-23-16	Roy Friend Yoho Sr.	18.03
S33	05-11-21	Karen Reed Et Al	112.67	S98	05-23-18	Abe J. Hochstetler	35.38
S34	05-11-17	Kevin Corley Et Ux	36.13	S99	05-23-18.1	Mark A. Yoho	7.8
S35	05-11-14	Hirams Estate Family LTD LLP	158.054	S100	05-23-04	Abe J. Hochstetler	100.7
S36	05-12-11	Wesley R. Bryan & Wesley R. Bryan II	52.478	S101	05-23-4.1	XCL Midstream Operating LLC	2.16
S37	05-15-03	Joseph J. Kramer Et Ux	36.10	S102	05-23-4.2	XCL Midstream Operating LLC	1.17
S38	05-15-05	Joseph J. Kramer Et Ux	35.0	S103	05-23-03	Abe J. Hochstetler	50.0
S39	05-15-06	Joseph J. Kramer Et Ux	42.5	S104	05-23-2.1	William L. & Janice M. Wayne	2.364
S40	05-15-02	John David Petrock & Thomas Andrew Petrock	5.0	S105	05-18-21.2	David P. Lassan	1.0
S41	05-15-6.1	Joseph J. Kramer Et Ux	39.40	S106	05-18-21.1	Rodney & Rhonda Jackson	5.47
S42	05-15-07	XCL Midstream Operating LLC	4.5	S107	05-18-21.3	Hilda M. Gilbertson-Wayt - Life	0.811
S43	05-15-08	XCL Midstream Operating LLC	77.11	S108	05-18-22	Rodney & Rhonda Jackson	30.345
S44	05-16-23.5	Marshall County Coal Company	15.09	S109	05-23-02	Danielle D. Lilley	77.636
S45	05-15-09	CNX Land Resources Inc.	81.98	S110	05-23-2.2	Jessica N. & Andrew L. Jones	7.636
S46	05-15-13	CNX Land Resources Inc.	11.0	S111	05-23-01	Patricia Accetollo Et Al	146.66
S47	05-15-14	John David Petrock & Thomas Andrew Petrock	25.0	S112	05-18-24	Duane Brunn	102.0
S48	05-15-10	Mark Stanley Ruckman	153.75	S113	05-19-18	Mark E. Yoho Et Ux	55.948
S49	05-18-15.3	Charles Yeater	26.44	S114	05-22-5.1	Williams Ohio Valley Midstream LLC	12.875
S50	05-18-15.4	Edward Lee Burge Jr.	22.34	S115	05-22-05	CNX Gas Company LLC	134.425
S51	05-18-15	Edward Lee Burge Jr.	2.495	S116	05-19-18.2	Paul V. & Carol Neely	32.672
S52	05-18-11.1	Edward Lee Burge Jr.	18.0	S117	05-19-18.1	Mark E. Yoho Et Ux	2.57
S53	05-18-11.2	Edward Lee Burge Jr.	2.0	S118	05-19-25	David E. Yoho & Mark E. Yoho	9.976
S54	05-18-10.1	David V. Anderson Et Ux	1.65	S119	05-19-24	Mark E. Yoho	15.436
S55	05-18-10.2	David Anderson Et Ux	1.377	S120	05-19-26	Roger J. & Beth E. James	9.977
S56	05-18-10	David & Nancy Anderson	0.907	S121	05-19-17	Mark A. Yoho	15.263
S57	05-18-12	William L. Wayne Et Ux	2.270	S122	05-19-16	Robert L. Shields & Donald Shields	11.612
S58	05-18-15.1	Jason Blair	5.948	S123	05-19-16.1	Robert L. & Rebecca A. Shields	2.307
S59	05-18-15.5	Teresa South	23.547	S124	05-19-14	James & Sherry Beegle	18.356
S60	05-18-13.3	Robert G. Closterman	9.813	S125	05-19-27	David E. Yoho & Mark E. Yoho	7.041
S61	05-18-14	Michael Fincham & Kezia Winters	6.386	S126	05-19-28	David E. Yoho & Mark E. Yoho	56.899
S62	05-18-17	Michael Fincham & Kezia Winters	6.555	S127	05-19-19	Russell Blake Et Ux	66.4
S63	05-18-13.1	Cory A. Holt	9.248	S128	05-19-30.1	Eric R.W. & Ashley A. Huggins	2.911
S64	05-18-34	Jodi & Gary Hall	5.002	S129	05-19-32	Jaspern Burch, Et Al Trustees	0.397
S65	05-18-13.13	Glenn E. & Sandra K. Whisler	5.59	S130	05-19-31	Charles F. & Diana L. Haynes	8.779
				S131	05-18-01	Diana Henry Haynes & Carol C. Henry	62.908
				S132	05-19-30	Ernie & Tammy Anderson	19.037



P.S. 708

David L Jackson



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: MCMMASTER S-19HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 47-051- 02340

WELL PLAT
PAGE 3 OF 4
DATE: 01/27/2020
REVISED: 07/29/2020

**MCMASTERS LEASE
WELL S-19HU
539.1576± ACRES**

Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S133	05-19-15	Carly Herran	0.72
S134	05-19-29	Ernie L. & Tammy L. Anderson	10.961
S135	05-19-12	Ernie L. Anderson Et Ux	5.33
S136	05-14-13.1	Donald Shields	0.8
S137	05-19-11	Ernie L. Anderson Et Ux	0.08
S138	05-19-10	Ernie L. Anderson Et Ux	0.8125
S139	05-19-09	Penny Elaine Ashcraft	10.44
S140	05-19-20	Wilbert H. Bungard Et Ux	114.989
S141	05-19-20.3	Sidney Harmon	3.715
S142	05-19-20.1	John J. Ebert-Life	3.848
S143	05-19-7.5	Adam T. & Jesse L. Robinson	2.64
S144	05-18-1.1	Charles F. & Diana L. Haynes	0.392
S145	05-19-08	CNX Gas Company LLC	40.0
S146	05-14-07	Olan V. Rutan Et Ux	32.4801
S147	05-19-7.4	Olan V. Rutan Et Ux	1.787
S148	05-19-7.3	Olan V. Rutan Et Ux	0.341
S149	05-19-7.2	Olan Rutan	2.783
S150	05-19-7.1	Robert L. Shields Et Ux	3.399
S151	05-19-20.2	Cassandra L. Harmon	7.448
S153	05-19-05	Margirene Keefe	126.03
S154	05-19-06	Belinda Kay Meadows, Rebecca Ann Shields & Olan V. Rutan	5.1099
S155	05-14-11	Dale R. Gallaher Et Al	12.0
S156	05-14-10.4	Adam R. & Jesse L. Robinson	3.343
S157	05-14-12	Dale R. Gallaher Et Al	135.10
S158	05-14-14	Robert L. Shields Et Al	29.05
S159	05-14-12.1	Henry Wilson Plunkert Jr.	5.0
S160	05-14-10	Wanda P. Rine-Life	107.372
S161	05-18-3.1	Nikki L. & Jonathan Stevens	2.223

Lease No.	Tags	Parcel	Lessor	Book	Page
10*14116	A	5-18-2	DONALD SHIELDS	660	367
10*14109	B	5-18-3	MARTHA M RUTAN	668	636
10*14030	C	5-18-23	LOIS V YOHO	665	551
10*17454	D	5-18-6	MARGARET A BONNETT	940	431
10*19140	E	5-18-5	TERREL L MELOTT	704	26
10*19032	F	5-18-4	JAN I ARNOLD AND MARSHA A ARNOLD	813	111
10*19018	G	5-15-11	BENJAMIN FRANKLIN HENRY FREDRICK ALLEN HENRY	746	5
10*19337	H	5-15-12	JACK PETROCK HATTIE PETROCK	741	68
10*14110	I	5-19-13	RONA LEE MCCARDLE	670	472
10*14116	J	5-15-15	DONALD SHIELDS	669	367
10*14116	K	5-14-15	DONALD SHIELDS	669	367
10*14042	L	5-15-1	RALPH B TAYLOR	665	487
10*14067	M	5-14-13	REVA FRANZE	666	51
10*16913	N	5-11-15	LIONEL LAND MARY LEE PERSINGER	976	626
10*16918	O	5-12-12.1	LIONEL LAND MARY LEE PERSINGER	976	617
10*14503	P	5-18-7	IMA LEE YOHO	756	85
10*14503	Q	5-18-16	IMA LEE YOHO	756	85
10*14099	R	5-18-13	SOUTHERN COUNTRY FARMS INC	666	489
10*14099	S	5-18-59	SOUTHERN COUNTRY FARMS INC	666	489
10*21147	T	5-18-20	JAMES A CHANNING & ALICE E CHANNING	951	634
10*14099	U	5-18-30	SOUTHERN COUNTRY FARMS INC	666	489
10*14099	V	5-18-13.10	SOUTHERN COUNTRY FARMS INC	666	489
10*17431	W	5-18-29	SOUTHERN COUNTRY FARMS INC	938	448
10*17780	X	5-18-31	KENNETH F RASTALL	932	434
10*22169	Y	5-18-21	BARBARA KITTLE	954	641
10*17186	Z	5-23-6	ROBERT J HENRY	708	51
10*14126	AA	5-17-11	SHARON M D CAP	697	152
10*14140	BB	5-23-7	TERRY E SIMMS AND DEBORAH L SIMMS	666	529



P.S. 708

David L Jackson



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: MCMASTER S-19HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV
API #: 47-051-02340

WELL PLAT
PAGE 4 OF 4
DATE: 01/27/2020
REVISED: 07/29/2020

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

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

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

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

RECEIVED
Office of Oil and Gas
OCT 14 2020
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. Morris *AmyL Morris*
 Its: Permitting Specialist - Appalachia Region

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

A	5-18-2	DONALD SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	367	NA	RECEIVED Office of Oil and Gas OCT 14 2020 WV Department of Environmental Protection	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
A	5-18-2	ROBERT L SHIELDS AND REBECCA A SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	360	NA		NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
AA	5-17-11	SHARON MIDCAP	GASTAR EXPLORATION USA INC	1/8+	697	152	NA		NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MARTHA M RUTAN	GASTAR EXPLORATION USA INC	1/8+	668	636	NA		NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	LOIS BARRETT	GASTAR EXPLORATION USA INC	1/8+	758	435	NA		NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	RHONDA BARRETT	GASTAR EXPLORATION USA INC	1/8+	760	366	NA		NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

B	5-18-3	JAMES DONALD BARRETT	GASTAR EXPLORATION USA INC	1/8+	760	372	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JO ANNE BARRETT	GASTAR EXPLORATION USA INC	1/8+	760	375	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	INEZ DORNON	GASTAR EXPLORATION USA INC	1/8+	760	378	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	HAZEL L RITCHIE	GASTAR EXPLORATION USA INC	1/8+	760	381	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MINNIE PFALZGRAF	GASTAR EXPLORATION USA INC	1/8+	760	369	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ARLENE MCCORT	GASTAR EXPLORATION USA INC	1/8+	762	448	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	RICHARD D LEASURE	GASTAR EXPLORATION USA INC	1/8+	762	451	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	REBECCA LINN	GASTAR EXPLORATION USA INC	1/8+	762	98	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	RICHARD LINN	GASTAR EXPLORATION USA INC	1/8+	762	95	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JANICE BROWN	GASTAR EXPLORATION USA INC	1/8+	762	92	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	GUY MCCORT	GASTAR EXPLORATION USA INC	1/8+	765	74	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JODIE JOHNSON	GASTAR EXPLORATION USA INC	1/8+	765	80	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	HARLAN BARRETT	GASTAR EXPLORATION USA INC	1/8+	765	77	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JAMES HOLLAND	GASTAR EXPLORATION USA INC	1/8+	765	421	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ROSS BARRETT	GASTAR EXPLORATION USA INC	1/8+	765	424	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	KATHY BECHTLE	GASTAR EXPLORATION USA INC	1/8+	765	436	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JANICE DODD	GASTAR EXPLORATION USA INC	1/8+	765	427	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ALLEN L YEATER	GASTAR EXPLORATION USA INC	1/8+	768	555	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	MARGARET WILSON FITZSIMMONS	GASTAR EXPLORATION USA INC	1/8+	768	567	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	BARBARA YEATER PERSINGER	GASTAR EXPLORATION USA INC	1/8+	768	557	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	RACHEL A YEATER	GASTAR EXPLORATION USA INC	1/8+	768	559	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	TERI LEE YEATER PARRISH	GASTAR EXPLORATION USA INC	1/8+	768	563	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	KAREN YEATER JONES	GASTAR EXPLORATION USA INC	1/8+	768	565	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JUDITH HANNAHS	GASTAR EXPLORATION USA INC	1/8+	770	468	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	LENA G BLOHM	GASTAR EXPLORATION USA INC	1/8+	770	471	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JAMES C KLINE	GASTAR EXPLORATION USA INC	1/8+	772	405	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MICHAEL GALE AIF JOSEPHINE GALE	GASTAR EXPLORATION USA INC	1/8+	775	23	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JOHN R & LINDA WILSON	GASTAR EXPLORATION USA INC	1/8+	775	25	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	BARBARA L YEATER	GASTAR EXPLORATION USA INC	1/8+	775	27	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	CHARLES E YEATER JR	GASTAR EXPLORATION USA INC	1/8+	775	29	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	JANE LYNN SWINGLE	GASTAR EXPLORATION USA INC	1/8+	775	19	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	CONRAD S YEATER	GASTAR EXPLORATION USA INC	1/8+	775	368	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	CAROLYN LOWE WELLER	GASTAR EXPLORATION USA INC	1/8+	775	366	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	LEANETTE LONG	GASTAR EXPLORATION USA INC	1/8+	775	363	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	VERA SHIRLENE & ARTHUR WORKMAN	GASTAR EXPLORATION USA INC	1/8+	775	361	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	DIANA S GRAFTON	GASTAR EXPLORATION USA INC	1/8+	776	303	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	DONALD BROOKS WESLEY	GASTAR EXPLORATION USA INC	1/8+	776	305	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	RICK WEEKLY	GASTAR EXPLORATION USA INC	1/8+	776	307	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	NANCY J FOTI	GASTAR EXPLORATION USA INC	1/8+	776	299	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	HESTER LORETTA DUGAN	GASTAR EXPLORATION USA INC	1/8+	776	301	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	NICOLE WEEKLY	GASTAR EXPLORATION USA INC	1/8+	776	309	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	WILLIAM GLENN YEATER	GASTAR EXPLORATION USA INC	1/8+	776	311	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	GERALD E YEATER	GASTAR EXPLORATION USA INC	1/8+	776	323	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	WILMA M MILLER	GASTAR EXPLORATION USA INC	1/8+	776	321	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	BILLIE JO BETHEL	GASTAR EXPLORATION USA INC	1/8+	776	319	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ELIZABETH LOUISE YEATER MORAN	GASTAR EXPLORATION USA INC	1/8+	776	317	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	LARRY W. YEATER	GASTAR EXPLORATION USA INC	1/8+	776	315	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MYRA HEWITT	GASTAR EXPLORATION USA INC	1/8+	777	581	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	SONDRA R KING	GASTAR EXPLORATION USA INC	1/8+	777	579	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SANDRA REID CUMPSTON	GASTAR EXPLORATION USA INC	1/8+	777	574	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	FREDERICK MAXWELL YEATER	GASTAR EXPLORATION USA INC	1/8+	777	583	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ROSEMARY AGNES YEATER LUNEMANN	GASTAR EXPLORATION USA INC	1/8+	777	587	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	PHYLLIS YEATER GREGOSKY	GASTAR EXPLORATION USA INC	1/8+	777	585	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MARY J YEATER EARNSHAW	GASTAR EXPLORATION USA INC	1/8+	777	590	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

B	5-18-3	MARY MARGARET WELLMAN BURLEY	GASTAR EXPLORATION USA INC	1/8+	779	488	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	RANDALL D MORRIS	GASTAR EXPLORATION USA INC	1/8+	779	490	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	WILLIAM J VEST TRUST AGMT LARRY W YEATER TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	786	490	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MAY H RUCKMAN	GASTAR EXPLORATION USA INC	1/8+	779	486	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	LINDA KAY MORRIS WILSON	GASTAR EXPLORATION USA INC	1/8+	781	541	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JEANETTE SOUTH	GASTAR EXPLORATION USA INC	1/8+	781	537	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

B	5-18-3	ANN LOUISE YEATER MARTIN	GASTAR EXPLORATION USA INC	1/8+	781	533	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	COLLEEN MCCLAIN MOORE	GASTAR EXPLORATION USA INC	1/8+	781	535	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	FREDRIC & BETTY RICHTER	GASTAR EXPLORATION USA INC	1/8+	781	612	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	NANCY D TRUEX	GASTAR EXPLORATION USA INC	1/8+	782	202	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MARY JANE BUNGARD	GASTAR EXPLORATION USA INC	1/8+	782	210	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JANET E PERSONS	GASTAR EXPLORATION USA INC	1/8+	782	204	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	STEPHEN L YEATER	GASTAR EXPLORATION USA INC	1/8+	782	206	NA	NA	NA	NA	28/499 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MARTHA ANN GAMBLE & DAN MIGLIORINI	GASTAR EXPLORATION USA INC	1/8+	782	609	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SHIRLEY E GGBUR	GASTAR EXPLORATION USA INC	1/8+	782	611	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SIDNEY F YOHO JR	GASTAR EXPLORATION USA INC	1/8+	782	605	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SCOTT K & KATHIE J RICHTER	GASTAR EXPLORATION USA INC	1/8+	782	607	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	DOUGLAS I GAMBLE	GASTAR EXPLORATION USA INC	1/8+	783	493	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	DONNA S AND DONALD S KIRCH	GASTAR EXPLORATION USA INC	1/8+	783	497	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MICKEY L PORTER	GASTAR EXPLORATION USA INC	1/8+	783	506	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SUSAN J BROWN	GASTAR EXPLORATION USA INC	1/8+	783	504	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JANIS L & ROY T MILLER	GASTAR EXPLORATION USA INC	1/8+	783	502	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	DEANNA R LAMBERT	GASTAR EXPLORATION USA INC	1/8+	783	500	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ORVILLE V & MADONNA R BLANTON	GASTAR EXPLORATION USA INC	1/8+	783	512	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	SARAH E HOLT	GASTAR EXPLORATION USA INC	1/8+	783	510	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SAMUEL E ZUGARO	GASTAR EXPLORATION USA INC	1/8+	784	193	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	THOMAS FRANCIS YOHO	GASTAR EXPLORATION USA INC	1/8+	784	195	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MONICA ANN RENN	GASTAR EXPLORATION USA INC	1/8+	784	197	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	HUBERT D MORRIS	GASTAR EXPLORATION USA INC	1/8+	784	199	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	KALFUS T DOUGHMAN	GASTAR EXPLORATION USA INC	1/8+	786	392	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	JEFFREY H WILSON & PRISCILLA S WILSON	GASTAR EXPLORATION USA INC	1/8+	786	375	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JOSEPH P & BARBARA A WILSON	GASTAR EXPLORATION USA INC	1/8+	786	377	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	YVONNE MARIE SMITH	GASTAR EXPLORATION USA INC	1/8+	786	379	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SANDRA L KELLY	GASTAR EXPLORATION USA INC	1/8+	786	400	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	THOMAS E PORTER	GASTAR EXPLORATION USA INC	1/8+	786	381	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	WILLIAM D ADAMS	GASTAR EXPLORATION USA INC	1/8+	786	373	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	JOHN C WILSON	GASTAR EXPLORATION USA INC	1/8+	786	386	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	RODNEY C LOWE	GASTAR EXPLORATION USA INC	1/8+	786	367	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	KELLY KERN	GASTAR EXPLORATION USA INC	1/8+	787	566	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	LYNN C LAMBERTSEN	GASTAR EXPLORATION USA INC	1/8+	789	283	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JAMES S WILSON & ANN D WILSON	GASTAR EXPLORATION USA INC	1/8+	789	281	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SHARON L YEATER	GASTAR EXPLORATION USA INC	1/8+	789	287	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	CAROL JUDY LANCH	GASTAR EXPLORATION USA INC	1/8+	789	305	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	PATTI J WILSON	GASTAR EXPLORATION USA INC	1/8+	789	581	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JANET HILPERT	GASTAR EXPLORATION USA INC	1/8+	789	579	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ANN M MARTINO SIMONE	GASTAR EXPLORATION USA INC	1/8+	790	580	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ODETTE YEATER	GASTAR EXPLORATION USA INC	1/8+	790	503	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SANDRA M WINSLOW	GASTAR EXPLORATION USA INC	1/8+	790	517	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	RICKEY ALLEN YEATER	GASTAR EXPLORATION USA INC	1/8+	790	513	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	TERRY W YEATER	GASTAR EXPLORATION USA INC	1/8+	790	515	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	CAROL VAN SCYOC	GASTAR EXPLORATION USA INC	1/8+	790	546	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	DONALD REX QUIGLEY	GASTAR EXPLORATION USA INC	1/8+	790	533	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ELLEN IONA GORBY HEATH	GASTAR EXPLORATION USA INC	1/8+	792	108	NA	NA	NA	NA	29/157 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	THELMA VIRGINIA WHIPKEY YEATER	GASTAR EXPLORATION USA INC	1/8+	794	519	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

B	5-18-3	PAGE D HUNT	GASTAR EXPLORATION USA INC	1/8+	795	152	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	PATRICIA A GULUTZ	GASTAR EXPLORATION USA INC	1/8+	796	72	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	RUSSELL BARRETT	GASTAR EXPLORATION USA INC	1/8+	797	193	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MICHAEL JOHNSON	GASTAR EXPLORATION USA INC	1/8+	799	55	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	KATHRYN L. MILLER	GASTAR EXPLORATION USA INC	1/8+	799	534	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MARGUERITE HARBISON	GASTAR EXPLORATION USA INC	1/8+	799	532	NA	NA	NA	NA	806/1 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	GEORGE MARTINO JR	GASTAR EXPLORATION USA INC	1/8+	803	146	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JOHN K OTTO	GASTAR EXPLORATION USA INC	1/8+	803	160	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JEAN MARIE SHEPARD	GASTAR EXPLORATION USA INC	1/8+	804	249	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MICHAEL B SHEPARD	GASTAR EXPLORATION USA INC	1/8+	804	251	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	LAURIE ANN SHEPARD	GASTAR EXPLORATION USA INC	1/8+	804	243	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	WILLIAM LEWIS OTTO	GASTAR EXPLORATION USA INC	1/8+	809	533	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	EDWARD F & KAREN SIMS	GASTAR EXPLORATION USA INC	1/8+	816	12	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	GREGORY STEINHART	GASTAR EXPLORATION USA INC	1/8+	818	564	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	NANCY WILKOFF SHEBISH	GASTAR EXPLORATION INC	1/8+	833	523	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JACQUELINE M CASILLAS-DUKE	GASTAR EXPLORATION INC	1/8+	839	530	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	SHARON D SMITH	GASTAR EXPLORATION INC	1/8+	840	160	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ANNA M. BARRETT	GASTAR EXPLORATION USA INC	1/8+	734	457	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	RICHARD THOMAS BARRETT	GASTAR EXPLORATION USA INC	1/8+	745	582	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	ROBERT CLARK ASPLEY	GASTAR EXPLORATION INC	1/8+	844	85	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MARY ANNE YEATER MACHAMER	GASTAR EXPLORATION INC	1/8+	852	258	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	LAURA L YEATER HILL	GASTAR EXPLORATION INC	1/8+	852	245	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	CAROL RAE YEATER	GASTAR EXPLORATION INC	1/8+	852	247	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	REBECCA MCPEEK NORRIS	GASTAR EXPLORATION INC	1/8+	854	595	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

B	5-18-3	KATHLEEN L YEATER	GASTAR EXPLORATION INC	1/8+	854	593	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	DAVID GALE	GASTAR EXPLORATION INC	1/8+	854	591	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	WILLIAM BERNARD YEATER	GASTAR EXPLORATION INC	1/8+	854	589	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	PAUL EDWARD YEATER	GASTAR EXPLORATION INC	1/8+	854	587	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	DAWN MCPEEK WREZINSKI	GASTAR EXPLORATION INC	1/8+	860	426	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	CHERYL VAN PELT	GASTAR EXPLORATION INC	1/8+	860	428	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

B	5-18-3	MARY JO BARRETT	GASTAR EXPLORATION INC	1/8+	862	438	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JULIE BRIGGS	GASTAR EXPLORATION INC	1/8+	862	435	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	EARL BARRETT JR	GASTAR EXPLORATION INC	1/8+	862	432	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	EMMA LEE NEWHOUSE	GASTAR EXPLORATION INC	1/8+	864	315	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	LAWRENCE AUGUSTIN MCPEEK	GASTAR EXPLORATION INC	1/8+	864	317	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	REBECCA LYNN LASH	GASTAR EXPLORATION INC	1/8+	864	319	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

B	5-18-3	MARYANN RACHEL VANCE	GASTAR EXPLORATION INC	1/8+	864	321	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MELISSA ELAINE SCHROTH	GASTAR EXPLORATION INC	1/8+	872	213	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MARK DAVID HUNT	GASTAR EXPLORATION INC	1/8+	872	215	NA	NA	NA	NA	NA	35/119 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	JOHN BARRETT	GASTAR EXPLORATION INC	1/8+	875	603	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	LEONARD O HABERBOSCH	GASTAR EXPLORATION INC	1/8+	878	647	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC
B	5-18-3	MARY ELLEN EVANS	GASTAR EXPLORATION INC	1/8+	885	585	NA	NA	NA	NA	NA	NA	36/9 Gastar Exploration Inc to TH Exploration II LLC

B	5-18-3	JILL A STANLEY AND WILLIAM D STANLEY	TH EXPLORATION, LLC	1/8+	908	587	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	CAROL SUE BLACKWELL AND TERRY LEE BLACKWELL	TH EXPLORATION, LLC	1/8+	908	591	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	JOSEPH LEROY KITTLE AND BARBARA G KITTLE	TH EXPLORATION, LLC	1/8+	908	593	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	GAIL L YEATER AND JUDITH A YEATER	TH EXPLORATION, LLC	1/8+	908	595	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	TERRY WAYNE KITTLE AND DEBORAH S KITTLE	TH EXPLORATION, LLC	1/8+	908	597	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	EDWARD D YEATER	TH EXPLORATION, LLC	1/8+	908	599	NA	NA	NA	NA	NA	NA	NA

B	5-18-3	GENE O JOHNSON AND KATHIE L JOHNSON	TH EXPLORATION, LLC	1/8+	908	601	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	CHARLES ARTHUR ANDERSON AND CORRINE ANDERSON	TH EXPLORATION, LLC	1/8+	908	639	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	HOWARD DWIGHT JOHNSON	TH EXPLORATION, LLC	1/8+	908	641	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	MACKIE R ROBERTS AND CHERYL A ROBERTS	TH EXPLORATION, LLC	1/8+	908	643	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	CHRISTINA CAIN	TH EXPLORATION, LLC	1/8+	908	645	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	JENNIFER YEATER BRECKENRIDGE	TH EXPLORATION, LLC	1/8+	908	647	NA	NA	NA	NA	NA	NA	NA

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	MARILYN S EDWARDS AND JAMES M EDWARDS	TH EXPLORATION, LLC	1/8+	908	649	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	REBECCA ANN HALEY AND RUSSELL L HALEY	TH EXPLORATION, LLC	1/8+	909	1	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	TERRIE L LAUSIN	TH EXPLORATION, LLC	1/8+	909	3	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	DAVID ELLIS LOWE AND SHARON K LOWE	TH EXPLORATION, LLC	1/8+	909	5	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	SANDRA CAROL KOONTZ	TH EXPLORATION, LLC	1/8+	909	7	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	MICHAEL E LAUSIN AND SHARON G LAUSIN	TH EXPLORATION, LLC	1/8+	909	55	NA	NA	NA	NA	NA	NA	NA

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	GEORGE W YEATER II	TH EXPLORATION, LLC	1/8+	909	57	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	KYLAND MICHAEL EVANS	TH EXPLORATION, LLC	1/8+	925	235	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	DNU DAVID D JOHNSON AND TAMMY JO JOHNSON	TH EXPLORATION, LLC	1/8+	925	235	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	MAX D YEATER	TH EXPLORATION, LLC	1/8+	909	59	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	TIMOTHY WAYNE ANDERSON AND SUSAN A ANDERSON	TH EXPLORATION, LLC	1/8+	909	61	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	LYNN M HELINSKI AND THOMAS A HELINSKI	TH EXPLORATION, LLC	1/8+	925	243	NA	NA	NA	NA	NA	NA	NA

B	5-18-3	PATRICK T WELLS AND DEBORAH S WELLS	TH EXPLORATION, LLC	1/8+	925	237	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	TIMOTHY RUSSELL HINKLE AND SHANNON L HINKLE	TH EXPLORATION, LLC	1/8+	908	589	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	LAUREL I AND PAUL J DUBECK, JR	TH EXPLORATION, LLC	1/8+	945	241	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	TERRY V STONE	TH EXPLORATION, LLC	1/8+	925	239	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	BEATRICE JOAN YEATER KNIGHT	TH EXPLORATION, LLC	1/8+	925	247	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	THE ESTATE OF JOHN E YEATER, DECD AND SHARON L YEATER, INDIV. & AS EXECUTRIX	TH EXPLORATION, LLC	1/8+	925	245	NA	NA	NA	NA	NA	NA	NA

B	5-18-3	CARLENE KAY CUNNINGHAM AND JAMES HOWARD CUNNINGHAM	TH EXPLORATION, LLC	1/8+	925	271	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	EMILY K RULONG AND WILLIAM F RULONG SR	TH EXPLORATION, LLC	1/8+	925	249	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	LISA ANN MARQUART AND GREGORY F MARQUART	TH EXPLORATION, LLC	1/8+	925	331	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	NANCY JANE HOLLOWAY AND CHESTER K HOLLOWAY	TH EXPLORATION, LLC	1/8+	909	64	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	ELIZABETH JANE SNYDER AND HARRY B SNYDER	TH EXPLORATION, LLC	1/8+	925	273	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	JAMES JEFFREY YEATER AND DONNA L YEATER	TH EXPLORATION, LLC	1/8+	925	275	NA	NA	NA	NA	NA	NA	NA

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	SUSAN Y INCLAN AND JOSEPH C INCLAN	TH EXPLORATION, LLC	1/8+	925	277	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	JAMES W AND NANCY C SHEPARD	TH EXPLORATION, LLC	1/8+	925	279	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	GERALD B JONES	TH EXPLORATION, LLC	1/8+	925	281	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	MARY B JONES	TH EXPLORATION, LLC	1/8+	925	289	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	SHELLEY YEATER	TH EXPLORATION, LLC	1/8+	925	283	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	SCOTT C HARRIS AND CAROLYN R HARRIS	TH EXPLORATION, LLC	1/8+	925	287	NA	NA	NA	NA	NA	NA	NA

B	5-18-3	JOHN E KLINE DO NOT USE	TH EXPLORATION, LLC	1/8+	925	285	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	FREDA F QUIGLEY	TH EXPLORATION, LLC	1/8+	925	251	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	ANGELA D HARTON	TH EXPLORATION, LLC	1/8+	925	231	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	JEFFREY A LAUSIN AND KATHLEEN R LAUSIN	TH EXPLORATION, LLC	1/8+	909	66	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	BRETT J LAUSIN SR	TH EXPLORATION, LLC	1/8+	925	253	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	RUTH ANN YEATER	TH EXPLORATION, LLC	1/8+	925	297	NA	NA	NA	NA	NA	NA	NA

B	5-18-3	HAROLD P AND DONNA SUE RICHMOND	TH EXPLORATION, LLC	1/8+	925	333	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	YOHNA J MCPEEK	TH EXPLORATION, LLC	1/8+	925	255	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	COREENA A JOHNSON AND BRADLEY L JOHNSON	TH EXPLORATION, LLC	1/8+	925	257	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	LINDA SUE FRAIL AND TODD E FRAIL	TH EXPLORATION, LLC	1/8+	925	259	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	JAMES L REID AND SHERRY L REID	TH EXPLORATION, LLC	1/8+	925	265	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	KATHY N HAWKINS ALBRIGHT AND GEOFFREY A ALBRIGHT	TH EXPLORATION, LLC	1/8+	925	263	NA	NA	NA	NA	NA	NA	NA

B	5-18-3	ROBERT W MOCK	TH EXPLORATION, LLC	1/8+	925	291	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	RICHARD J LEASURE	TH EXPLORATION, LLC	1/8+	925	261	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	JOHN C FRAME	TH EXPLORATION, LLC	1/8+	925	269	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	CASEY L COUCH AND MARIAN BLAIR COUCH	TH EXPLORATION, LLC	1/8+	925	267	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	KIM L HAWKINS	TH EXPLORATION, LLC	1/8+	925	293	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	WILLIAM CHARLES AND VANITA G ATWELL	TH EXPLORATION, LLC	1/8+	925	303	NA	NA	NA	NA	NA	NA	NA

B	5-18-3	MARTHA C GRIMES	TH EXPLORATION, LLC	1/8+	925	295	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	BETH ANN AND CHRISTOPHER D ZINKEN	TH EXPLORATION, LLC	1/8+	925	299	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	BRIAN LEE STONE	TH EXPLORATION, LLC	1/8+	925	301	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	RUTH ARLENE AND WILLIAM A WYER	TH EXPLORATION, LLC	1/8+	925	305	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	ANNETTE M JOHNSON AND ARTHUR Q JOHNSON	TH EXPLORATION, LLC	1/8+	925	307	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	IRENE HOLLAND AND JOHN HOLLAND	TH EXPLORATION, LLC	1/8+	927	151	NA	NA	NA	NA	NA	NA	NA

B	5-18-3	THOMAS V HAUCK	TH EXPLORATION, LLC	1/8+	925	310	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	GEORGE T GALE JR AND CAROLE A GALE	TH EXPLORATION, LLC	1/8+	925	335	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	LINDA K STARR AND GEORGE E STARR	TH EXPLORATION, LLC	1/8+	927	153	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	RICHARD HOLLAND	TH EXPLORATION, LLC	1/8+	927	155	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	BREYLYNN LEE SPAIN	TH EXPLORATION, LLC	1/8+	927	96	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	VICTORIA MCPEEK ET AL	TH EXPLORATION, LLC	1/8+	1060	233	NA	NA	NA	NA	NA	NA	NA

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

B	5-18-3	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1063	594	NA	NA	NA	NA	NA	NA	NA
B	5-18-3	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1068	140	NA	NA	NA	NA	NA	NA	NA
BB	5-23-7	TERRY E SIMMS AND DEBORAH L SIMMS	TRIENERGY HOLDINGS, LLC	1/8+	666	529	20/348 TriEnergy Inc to AB Resources LLC	21/148 TriEnergy Inc to TriEnergy Holdings LLC	21/491 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	685/643 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources USA	24/39 AB Resources, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA to Gastar Exploration USA Inc and Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
C	5-18-23	LOIS V YOHO	GASTAR EXPLORATION USA INC	1/8+	665	551	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
C	5-18-23	CHARLES H BASSETT JR & WIFE RUBY D BASSETT	GASTAR EXPLORATION USA INC	1/8+	665	491	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
C	5-18-23	WILBER E AND BARBARA KAY EWING	GASTAR EXPLORATION USA INC	1/8+	665	481	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

F	5-18-4	JAN I ARNOLD AND MARSHA A ARNOLD	CHEVRON USA INC	1/8+	813	111	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	MARTHA J TAMBLYN	CHEVRON USA INC	1/8+	811	637	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	JOHN MATTHEW ARNOLD AILEEN GAY ARNOLD	CHEVRON USA INC	1/8+	814	346	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	CYNTHIA GAYLOR	CHEVRON USA INC	1/8+	814	367	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	JEFFREY L ARNOLD & DEBORAH A BERTELLI	CHEVRON USA INC	1/8+	813	600	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	JAMES LLOYD ARNOLD DARCY L ARNOLD	CHEVRON USA INC	1/8+	815	140	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC

F	5-18-4	REBECCA E KINKOPF	CHEVRON USA INC	1/8+	818	1	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	STEVEN LLOYD ARNOLD AND DONNA RAE ARNOLD	CHEVRON USA INC	1/8+	817	467	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	SCOTT LANE ARNOLD LAURA J ARNOLD	CHEVRON USA INC	1/8+	829	437	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	GARY GLENN CRAEMER	CHEVRON USA INC	1/8+	837	344	NA	NA	NA	NA	NA	NA	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	A. J. CHASE AND BETSY R. CHASE, HUSBAND AND WIFE	AB RESOURCES LLC	1/8+	692	447	NA	NA	NA	24/382 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	24/490 AB Resources LLC and NPAR LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership corrective	25/105 Chief Exploration & Development LLC, Chief Oil & Gas LLC, Radler 2000 Limited Partnership, Enerplus Resources USA Corp to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	DONNA SMITH CHASE	AB RESOURCES LLC	1/8+	692	451	NA	NA	NA	24/382 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	24/490 AB Resources LLC and NPAR LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership corrective	25/105 Chief Exploration & Development LLC, Chief Oil & Gas LLC, Radler 2000 Limited Partnership, Enerplus Resources USA Corp to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

F	5-18-4	MARJORIE L. CHASE	AB RESOURCES LLC	1/8+	692	453	NA	NA	NA	24/382 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	24/490 AB Resources LLC and NPAR LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership corrective	25/105 Chief Exploration & Development LLC, Chief Oil & Gas LLC, Radler 2000 Limited Partnership, Enerplus Resources USA Corp to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
F	5-18-4	BARBARA ELLIS AND JEFFREY ELLIS	TH EXPLORATION, LLC	1/8+	1017	449	NA	NA	NA	NA	NA	NA	NA
F	5-18-4	KATE CRAEMER ALDEN AND NOEL ALDEN	TH EXPLORATION, LLC	1/8+	1019	485	NA	NA	NA	NA	NA	NA	NA
F	5-18-4	JILL CRAEMER	TH EXPLORATION, LLC	1/8+	1017	448	NA	NA	NA	NA	NA	NA	NA
T	5-18-20	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LI	1/8+	685	458	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
T	5-18-20	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA LI	1/8+	685	464	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

T	5-18-20	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA LI	1/8+	685	470	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
T	5-18-20	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA LI	1/8+	685	476	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
T	5-18-20	WANDA M. BLAKE	CHESAPEAKE APPALACHIA LI	1/8+	685	482	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
T	5-18-20	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA LI	1/8+	685	488	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
T	5-18-20	JAMES A CHANNING & ALICE E CHANNING	TH EXPLORATION, LLC	1/8+	951	634	NA	NA	NA	NA	NA	NA	NA
T	5-18-20	WAYNE E CHANNING AND MYRNA J CHANNING	TH EXPLORATION, LLC	1/8+	953	84	NA	NA	NA	NA	NA	NA	NA

WW-6A1 Well Bore Tracts

Operator's Well No. McMasters S-19HU

T	5-18-20	DARALD L CHANNING & PATRICIA A CHANNING	TH EXPLORATION, LLC	1/8+	952	186	NA	NA	NA	NA	NA	NA	NA
T	5-18-20	KILEY J RADESKI AND TODD A CARR	TH EXPLORATION, LLC	1/8+	957	25	NA	NA	NA	NA	NA	NA	NA
Z	5-23-6	ROBERT J HENRY	CHESAPEAKE APPALACHIA LLC	1/8+	708	51	NA	29/325 Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC and SWN Production Company LLC merger	41/238 Statoil USA Onshore Properties Inc to TH Exploration LLC	41/256 SWN Production Company LLC to TH Exploration LLC

Jan Pest
MARSHALL County 01:22:38 PM
Instrument No 1405489
Date Recorded 04/27/2016
Document Type ASN
Pages Recorded 77
Book-Page 36-9
Recording Fee \$77.00
Additional \$13.00

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

Execution Version

ASSIGNMENT AND BILL OF SALE

STATE OF WV §
 § KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF MARSHALL §

THIS ASSIGNMENT AND BILL OF SALE (this "*Assignment*"), dated April 7, 2016, but effective as of 7:00 A.M. Houston time on January 1, 2016 (the "*Effective Time*"), is between Gastar Exploration Inc., a Delaware corporation, whose address is 1331 Lamar Street, Suite 650 Houston, Texas 77010 ("*Assignor*"), and TH Exploration II, LLC, a Texas limited liability company, whose address is 1320 South University Drive, Suite 500, Fort Worth, Texas 76107 ("*Assignee*"). Assignor and Assignee are each, individually, referred to herein as a "*Party*" and, collectively, as the "*Parties*".

Capitalized terms used but not defined herein shall have the respective meanings set forth in that certain Purchase and Sale Agreement (the "*Purchase Agreement*"), dated as of February 19, 2016, by and between Assignor and Assignee (as successor-in-interest).

Section 1. Assignment. The conveyance and assignment herein shall be deemed effective as of the Effective Time.

For Ten Dollars (\$10.00) and other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged), Assignor does hereby forever GRANT, BARGAIN, SELL, CONVEY, ASSIGN, TRANSFER, SET OVER AND DELIVER unto Assignee, all of Assignor's right, title and interest in and to the following interests and properties (such right, title and interest described in *subsections (a) through (k)* of this Section 1, less and except the Excluded Assets, collectively, the "*Conveyed Interests*"):

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

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

STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

Marshall County
Jan Pest, Clerk
Instrument 1428356
08/16/2017 @ 12:08:49 PM
ASSIGNMENTS
Book 40 @ Page 127
Pages Recorded 25
Recording Cost \$ 33.00

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 1 day of August, 2017 (the "Effective Date"), by and between CHEVRON U.S.A. INC. (hereinafter "Assignor") and TH EXPLORATION, LLC (hereinafter "Assignee") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated the 1st day of August, 2017 (the "Acreage Trade Agreement"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

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

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases as described below, subject to certain overriding royalty interests and less and except certain exclusions.

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

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

A. The Chevron ORRI previously conveyed to Assignor and as described in that certain Memorandum of Assignment of Oil and Gas Lease Interests dated November 6, 2012 by and between Cornell Holdings Incorporated and Chevron U.S.A. Inc., which is recorded at Book 0028, Page 0239 in the Office of the County Clerk of Marshall County, West Virginia, and

B. As to each of the Leases and all oil, gas, and associated hydrocarbons produced, saved and sold thereunder, an overriding royalty interest equal to the difference between 82% and the

ASSIGNMENT AND CONVEYANCE

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

**ARTICLE 1
ASSIGNMENT OF ASSETS**

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

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

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

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

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

Section 2.2 Disclaimers of Warranties and Representations.

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

Tags	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	
D	5-18-6	MARGARET A BONNETT	TH EXPLORATION, LLC	1/8+	940	431	NA	NA	NA	NA	NA	NA	
D	5-18-6	DIANA L WELLMAN	TH EXPLORATION, LLC	1/8+	940	434	NA	NA	NA	NA	NA	NA	
D	5-18-6	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1046	145	NA	NA	NA	NA	NA	NA	
E	5-18-5	TERREL L MELOTT	TRIENERGY HOLDINGS, LLC	1/8+	704	26	24/180 TriEnergy Holdings LLC to NPAR LLC	24/466 NPAR LLC and AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	25/105 Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA Corp to Chevron USA Inc	756/332 NPAR LLC to Chevron USA Inc	28/284 TriEnergy Holdings LLC and TriEnergy Inc to WPP LLC	28/356 TriEnergy Holdings LLC and TriEnergy Inc to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
G	5-15-11	BENJAMIN FRANKLIN HENRY FREDRICK ALLEN HENRY	GASTAR EXPLORATION USA INC	1/8+	746	5	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	23/624 Gastar Exploration USA Inc and Atinum Marcellus I LLC to AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA Corp	23/636 AB Resources LLC, Chief Exploration & Development LLC, Radler 2000 Limited Partnership and Enerplus Resources USA Corp to TriEnergy Holdings LLC	25/1 Chief Exploration & Development LLC, Chief Oil & Gas LLC, Radler 2000 Limited Partnership and Enerplus Resources USA Corp to Chevron USA Inc	25/105 Chief Exploration & Development LLC, Chief Oil & Gas LLC, Radler 2000 Limited Partnership and Enerplus Resources USA Corp to Chevron USA Inc	756/397 AB Resources LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
H	5-15-12	JACK PETROCK HATTIE PETROCK	TRIENERGY, INC.	1/8+	741	68	NA	20/252 TriEnergy Inc to AB Resources Inc	21/148 TriEnergy Inc to TriEnergy Holdings LLC	24/319 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	25/1 Chief Exploration & Development LLC, Chief Oil & Gas LLC, Radler 2000 Limited Partnership and Enerplus Resources USA Corp to Chevron USA Inc	28/356 TriEnergy Holdings LLC and TriEnergy Inc to Chevron USA Inc	40/57 Chevron USA Inc to TH Exploration LLC

I	5-19-13	RONA LEE MCCARDLE	GASTAR EXPLORATION USA INC	1/8+	670	472	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
I	5-19-13	CHESTNUT HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1034	550	NA	NA	NA	NA	NA	NA	NA
J	5-15-15	DONALD SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	367	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
J	5-15-15	ROBERT L SHIELDS AND REBECCA A SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	360	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
K	5-14-15	DONALD SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	367	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
K	5-14-15	ROBERT L SHIELDS AND REBECCA A SHIELDS	GASTAR EXPLORATION USA INC	1/8+	669	360	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

K	5-14-15	RITA A RUSH	GASTAR EXPLORATION USA INC	1/8+	813	450	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
K	5-14-15	CHARLES W & JUDITH A SNYDER	GASTAR EXPLORATION USA INC	1/8+	813	452	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
K	5-14-15	CAROL D & ABRAM HABERLE	GASTAR EXPLORATION USA INC	1/8+	813	448	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
K	5-14-15	JACK D & GRETA A SNYDER	GASTAR EXPLORATION USA INC	1/8+	813	446	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
K	5-14-15	ERIC L STOLTZFUS	GASTAR EXPLORATION INC	1/8+	833	525	NA	NA	NA	NA	32/428 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
K	5-14-15	TEESHA L HOLMES	GASTAR EXPLORATION INC	1/8+	836	96	NA	NA	NA	NA	32/428 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

K	5-14-15	BETSY G STOLTZFUS	GASTAR EXPLORATION INC	1/8+	836	94	NA	NA	NA	NA	32/428 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	RALPH B TAYLOR	GASTAR EXPLORATION USA INC	1/8+	665	487	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	PATRICK R WALSH	GASTAR EXPLORATION USA INC	1/8+	725	566	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	JOSEPH WESLEY GALLAHER II	GASTAR EXPLORATION USA INC	1/8+	724	232	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	LAMOYNE BAKER	GASTAR EXPLORATION USA INC	1/8+	724	236	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	CHARLES THOMPSON GALLAHER II	GASTAR EXPLORATION USA INC	1/8+	724	234	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

L	5-15-1	LESLIE ANN BLYTHE	GASTAR EXPLORATION USA INC	1/8+	726	645	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	BRYANNA FLYNN RANKIN	GASTAR EXPLORATION USA INC	1/8+	727	3	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	WILDA WINTERS	GASTAR EXPLORATION USA INC	1/8+	726	643	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	JUDITH L CHAMBERS	GASTAR EXPLORATION USA INC	1/8+	726	647	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	AMANDA L SMITH	GASTAR EXPLORATION USA INC	1/8+	727	572	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	MAY ELIZABETH G BROWNING	GASTAR EXPLORATION USA INC	1/8+	727	568	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

L	5-15-1	LARRY D MCWHORTER	GASTAR EXPLORATION USA INC	1/8+	727	570	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	RUDOLPH RAUKAR JR	GASTAR EXPLORATION USA INC	1/8+	730	189	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	VICTOR PEDDICORD	GASTAR EXPLORATION USA INC	1/8+	730	193	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	WALLACE T BERRY	GASTAR EXPLORATION USA INC	1/8+	731	156	NA	NA	NA	NA	735/263 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	THE SAMUEL MILTON SHEETS TRUST PAULINE RUTH SHEETS TRUSTEE	GASTAR EXPLORATION USA INC	1/8+	732	624	NA	NA	NA	NA	26/183 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	NANCY HOFSTATTER	GASTAR EXPLORATION USA INC	1/8+	732	628	NA	NA	NA	NA	26/183 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

L	5-15-1	LAURA BERRY MCGLYNN	GASTAR EXPLORATION USA INC	1/8+	732	622	NA	NA	NA	NA	26/183 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	SUSAN E GORE	GASTAR EXPLORATION USA INC	1/8+	768	488	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	LINDA TAYLOR	GASTAR EXPLORATION USA INC	1/8+	770	476	NA	NA	NA	NA	27/639 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	REBECCA MCMILLAN	GASTAR EXPLORATION USA INC	1/8+	803	482	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	DAVID D BURKETT	GASTAR EXPLORATION USA INC	1/8+	803	480	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
L	5-15-1	CIRRUS MINERALS LLC	GASTAR EXPLORATION INC	1/8+	843	452	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	33/308 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC

L	5-15-1	LEEANN M LEMONOVICH	TH EXPLORATION, LLC	1/8+	910	136	NA	NA	NA	NA	NA	NA	NA
M	5-14-13	REVA FRANZE	GASTAR EXPLORATION USA INC	1/8+	666	51	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
N	5-11-15	FORREST MILLER	GASTAR EXPLORATION USA INC	1/8+	819	316	NA	NA	NA	NA	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	31/184 Gastar Exploration Inc to Atinum Marcellus LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
N	5-11-15	LIONEL L AND MARY LEE PERSINGER	TH EXPLORATION, LLC	1/8+	976	626	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	JOHN P ICARD AND REVA J ICARD	TH EXPLORATION, LLC	1/8+	943	524	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	KLOVA ANN MORRIS	TH EXPLORATION, LLC	1/8+	927	114	NA	NA	NA	NA	NA	NA	NA

N	5-11-15	THE ESTATE OF ROY JOSEPH LEACH	TH EXPLORATION, LLC	1/8+	927	647	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	NOEL A PARKS	TH EXPLORATION, LLC	1/8+	944	92	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	MELISSA MILLER GIBSON AND JAMES GIBSON	TH EXPLORATION, LLC	1/8+	953	308	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	WILLIAM R VOLTZ AND SHARON VOLTZ	TH EXPLORATION, LLC	1/8+	960	182	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	MARY S MAGERS AND WILLIAMS MAGERS	TH EXPLORATION, LLC	1/8+	960	158	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	DAVID F VOLTZ AND LINDA VOLTZ	TH EXPLORATION, LLC	1/8+	961	444	NA	NA	NA	NA	NA	NA	NA

N	5-11-15	MICHAEL P VOLTZ	TH EXPLORATION, LLC	1/8+	960	164	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	J THOMAS VOLTZ AND NANCY VOLTZ	TH EXPLORATION, LLC	1/8+	960	179	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	ULA F NELSON	TH EXPLORATION, LLC	1/8+	960	96	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	JACK MICHAEL FOREMAN	TH EXPLORATION, LLC	1/8+	961	449	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	AARON D LITMAN AND BETTY J LITMAN	TH EXPLORATION, LLC	1/8+	963	408	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	WILLIAM L LITMAN AND VICKIE L LITMAN	TH EXPLORATION, LLC	1/8+	963	404	NA	NA	NA	NA	NA	NA	NA

N	5-11-15	RICHARD WOOD AND VICKI WOOD	TH EXPLORATION, LLC	1/8+	962	528	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	JULIE SPRINGWATER	TH EXPLORATION, LLC	1/8+	964	231	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	SHARON TOLER WILLIAMS & HERVY WILLIAMS	TH EXPLORATION, LLC	1/8+	966	94	NA	NA	NA	NA	NA	NA	NA
N	5-11-15	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION, LLC	1/8+	1063	594	NA	NA	NA	NA	NA	NA	NA
O	5-12-12.1	LIONEL L AND MARY LEE PERSINGER	TH EXPLORATION, LLC	1/8+	976	617	NA	NA	NA	NA	NA	NA	NA
P	5-18-7	IMA LEE YOHO	GASTAR EXPLORATION USA INC	1/8+	756	85	NA	NA	NA	16/134 Gastar Exploration USA Inc and Atinum Marcellus I LLC operating agreement	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	40/552 TH Exploration II LLC to TH Exploration LLC

Q	5-18-16	IMA LEE YOHO	GASTAR EXPLORATION USA INC	1/8+	756	85	NA	NA	NA	16/134 Gastar Exploration USA Inc and Atinum Marcellus I LLC operating agreement	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	40/552 TH Exploration II LLC to TH Exploration LLC
R	5-18-13	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC	
R	5-18-13	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION USA INC	1/8+	827	548	NA	NA	NA	NA	NA	32/428 Gastar Exploration Inc to Atinum Marcellus I LLC	36/9 Gastar Exploration Inc to TH Exploration II LLC
R	5-18-13	SOUTHERN COUNTRY FARMS INC	TH EXPLORATION, LLC	1/8+	938	448	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	POTOMAC MINERAL GROUP LLC	TH EXPLORATION, LLC	1/8+	940	437	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	ALLDALE MINERALS II LP	TH EXPLORATION, LLC	1/8+	940	439	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	ALFRED EARL EMERY AND KAREN SUE EMERY	TH EXPLORATION, LLC	1/8+	925	421	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	DELORES C OTT	TH EXPLORATION, LLC	1/8+	925	424	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	TWILA C COFFIELD	TH EXPLORATION, LLC	1/8+	925	426	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	FRANCIS DWAIN OTT AND ANITA R OTT	TH EXPLORATION, LLC	1/8+	927	98	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	LINDA K OTT	TH EXPLORATION, LLC	1/8+	927	119	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	DONALD S BOBOVNIK AND DOLORES J BOBOVNIK	TH EXPLORATION, LLC	1/8+	927	645	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	REBECCA A HAGERTY	TH EXPLORATION, LLC	1/8+	928	1	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	COLLEEN HAGERTY	TH EXPLORATION, LLC	1/8+	929	564	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	RENEE HAGERTY	TH EXPLORATION, LLC	1/8+	929	566	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	MEGAN HAGERTY	TH EXPLORATION, LLC	1/8+	929	578	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	ROBYN HAGERTY	TH EXPLORATION, LLC	1/8+	933	77	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	COLBY ANN FLOUHOUSE HOMER	TH EXPLORATION, LLC	1/8+	940	427	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	SHIRLEY ANN DRAKE	TH EXPLORATION, LLC	1/8+	940	143	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	ROBERT DAVID BARNES AND RHONDA BARNES	TH EXPLORATION, LLC	1/8+	944	103	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	RONALD L. MAYER AND DEBRA A MAYER	TH EXPLORATION, LLC	1/8+	944	128	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	STUART WHITE AND BETTY WHITE	TH EXPLORATION, LLC	1/8+	944	124	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	MARY CATHERINE THOMS OTT	TH EXPLORATION, LLC	1/8+	944	126	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	DOROTHY HLINKA DUKE	TH EXPLORATION, LLC	1/8+	944	474	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	PATRICK HAGERTY AND DALANE HAGERTY	TH EXPLORATION, LLC	1/8+	944	471	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	LINDA CARNEY	TH EXPLORATION, LLC	1/8+	944	476	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	CAROL OWENS	TH EXPLORATION, LLC	1/8+	947	577	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	KEITH JAY FISCHER AND DAWN M FISCHER	TH EXPLORATION, LLC	1/8+	947	579	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	MARION DAVID OTT & JANICE L OTT	TH EXPLORATION, LLC	1/8+	947	581	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	CHRISTY MURPHY AND FRANK MURPHY	TH EXPLORATION, LLC	1/8+	947	583	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	GREGORY A LEMONS	TH EXPLORATION, LLC	1/8+	947	585	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	ALVERETTA M SHIMP	TH EXPLORATION, LLC	1/8+	951	570	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	ROBERT GORDON AND TWYLA GORDON	TH EXPLORATION, LLC	1/8+	951	574	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	JAMES GARCAR AND MELISSA GARCAR	TH EXPLORATION, LLC	1/8+	951	563	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	PATRICIA A GARCAR	TH EXPLORATION, LLC	1/8+	951	568	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	TERRI JEAN BROCK AND STEVEN E BROCK SR	TH EXPLORATION, LLC	1/8+	951	565	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	CINDY GREEN AND LARRY GREEN	TH EXPLORATION, LLC	1/8+	951	572	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	LORETTA BARKER	TH EXPLORATION, LLC	1/8+	952	207	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	RITA WINEMAN	TH EXPLORATION, LLC	1/8+	952	209	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	BRUCE HUNTER AND VICKI HUNTER	TH EXPLORATION, LLC	1/8+	952	211	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	ROBERT R DARROW	TH EXPLORATION, LLC	1/8+	952	213	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	RAYMOND R MILLER AND LOIS A MILLER	TH EXPLORATION, LLC	1/8+	952	215	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	RICHARD RICH AND KAREN RICH	TH EXPLORATION, LLC	1/8+	952	638	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	SARA FULTON	TH EXPLORATION, LLC	1/8+	953	315	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	SHELLI LYNN WHEELER & ANTHONY R WHEELER	TH EXPLORATION, LLC	1/8+	957	195	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	BONNIE LOU GRUBER	TH EXPLORATION, LLC	1/8+	954	318	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	ORIE N YOUNG AND BERNIE A YOUNG	TH EXPLORATION, LLC	1/8+	957	189	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	JOANN HAGERTY	TH EXPLORATION, LLC	1/8+	957	191	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	CRYSTAL M HOOKER AND JAMES HOOKER	TH EXPLORATION, LLC	1/8+	957	198	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	GARY F OBLOY AND DENISE I OBLOY	TH EXPLORATION, LLC	1/8+	957	193	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	KIMBERLY COX	TH EXPLORATION, LLC	1/8+	953	536	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	MAGGY D ASTON AND ROBERT H RICHARDS	TH EXPLORATION, LLC	1/8+	954	125	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	MOLLY D ASTON & HOWARD PRIOR	TH EXPLORATION, LLC	1/8+	954	131	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	RONALD J SALKOVICK JR & SANDRA SALKOVICK	TH EXPLORATION, LLC	1/8+	958	373	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	VICKY STRAUSS AND DENNIS A STRAUSS	TH EXPLORATION, LLC	1/8+	958	405	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	FRANK E COMINOTTI AND MARILYN COMINOTTI	TH EXPLORATION, LLC	1/8+	958	409	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	JOHN OBLOY AND JANET L OBLOY	TH EXPLORATION, LLC	1/8+	958	440	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	JAMES NEAL EMERY AND RENEE R EMERY	TH EXPLORATION, LLC	1/8+	958	442	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	JOHN ARLES EMERY	TH EXPLORATION, LLC	1/8+	958	364	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	CLARENCE RANDALL EMERY AND PAULA JEAN EMERY	TH EXPLORATION, LLC	1/8+	958	366	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	DAVID DEAN DRAKE AND VICKI LYNN DRAKE	TH EXPLORATION, LLC	1/8+	968	198	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	KATHLEEN ROBERTSON	TH EXPLORATION, LLC	1/8+	958	370	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	MARY LOU HLINKA AND RICHARD G HLINKA SR	TH EXPLORATION, LLC	1/8+	960	208	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	MARQUITA CLYBURN	TH EXPLORATION, LLC	1/8+	960	202	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	CHARLES DOUGLAS LANE	TH EXPLORATION, LLC	1/8+	960	103	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	RICHARD E MILLER	TH EXPLORATION, LLC	1/8+	960	64	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	CHRISTOPHER CLARK AND REBEKAH CLARK	TH EXPLORATION, LLC	1/8+	960	62	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	MELISSA L DARROW	TH EXPLORATION, LLC	1/8+	954	328	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	BRIAN FISH AND COURTNEY FISH	TH EXPLORATION, LLC	1/8+	954	326	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	STEPHEN C EMERY AND CATHY J EMERY	TH EXPLORATION, LLC	1/8+	954	320	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	TODD LEARN AND KENDA LEARN	TH EXPLORATION, LLC	1/8+	954	324	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	DEBRA L LYESKI AND GERALD A LYESKI	TH EXPLORATION, LLC	1/8+	954	322	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	LARRY LONCHAR AND MOLLIE LONCHAR	TH EXPLORATION, LLC	1/8+	961	324	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	JERRY LONCHAR AND TINA LONCHAR	TH EXPLORATION, LLC	1/8+	961	326	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	REGINA KAY LEVINE & KENNETH WRIGHT AIF REGINA KAY LEVINE	TH EXPLORATION, LLC	1/8+	961	415	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	TESSEAN FAMILY REVOCABLE LIVING TRUST	TH EXPLORATION, LLC	1/8+	962	190	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	JAMES D DRAKE AND DONNA K DRAKE	TH EXPLORATION, LLC	1/8+	965	475	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	OKEY GILBERT AND ELLA GILBERT	TH EXPLORATION, LLC	1/8+	965	479	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	JAMES LEMONS AND NANCY LEMONS	TH EXPLORATION, LLC	1/8+	965	477	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	THOMAS LEMONS AND PATTY LEMONS	TH EXPLORATION, LLC	1/8+	965	55	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	KEN MALGAY AND MARCIA MALGAY	TH EXPLORATION, LLC	1/8+	965	57	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	SHIRLEY LEMONS	TH EXPLORATION, LLC	1/8+	965	473	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	JOSEPH F GOBLOWSKY	TH EXPLORATION, LLC	1/8+	968	428	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	WILLIAM KOTSON AND DEBRA KOTSON	TH EXPLORATION, LLC	1/8+	971	637	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	BETTY J ANDERSON	TH EXPLORATION, LLC	1/8+	965	53	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	GENERAL RECEIVER OF MARSHALL COUNTY ATTN: BERNIE TWIGG	TH EXPLORATION, LLC	1/8+	988	146	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	GENERAL RECEIVER OF MARSHALL COUNTY ATTN: BERNIE TWIGG	TH EXPLORATION, LLC	1/8+	976	609	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	RENEE KELLAR	TH EXPLORATION, LLC	1/8+	971	633	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	DWG OIL & GAS ACQUISITIONS LLC	TH EXPLORATION, LLC	1/8+	1041	141	NA	NA	NA	NA	NA	NA	NA
R	5-18-13	GASTON FAMILY INVESTMENTS LLC	TH EXPLORATION, LLC	1/8+	1041	139	NA	NA	NA	NA	NA	NA	NA

R	5-18-13	STONE HILL MINERALS HOLDING	TH EXPLORATION, LLC	1/8+	1046	142	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	NA	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
S	5-18-59	SOUTHERN COUNTRY FARMS INC	TH EXPLORATION, LLC	1/8+	938	448	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	ALFRED EARL EMERY AND KAREN SUE EMERY	TH EXPLORATION, LLC	1/8+	925	421	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	DELORES C OTT	TH EXPLORATION, LLC	1/8+	925	424	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	TWILA C COFFIELD	TH EXPLORATION, LLC	1/8+	925	426	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	FRANCIS DWAIN OTT AND ANITA R OTT	TH EXPLORATION, LLC	1/8+	927	98	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	LINDA K OTT	TH EXPLORATION, LLC	1/8+	927	119	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	DONALD S BOBOVNIK AND DOLORES J BOBOVNIK	TH EXPLORATION, LLC	1/8+	927	645	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	REBECCA A HAGERTY	TH EXPLORATION, LLC	1/8+	928	1	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	COLLEEN HAGERTY	TH EXPLORATION, LLC	1/8+	929	564	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	RENEE HAGERTY	TH EXPLORATION, LLC	1/8+	929	566	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	MEGAN HAGERTY	TH EXPLORATION, LLC	1/8+	929	578	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	ROBYN HAGERTY	TH EXPLORATION, LLC	1/8+	933	77	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	COLBY ANN FLOUHOUSE HOMER	TH EXPLORATION, LLC	1/8+	940	427	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	SHIRLEY ANN DRAKE	TH EXPLORATION, LLC	1/8+	940	143	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	ROBERT DAVID BARNES AND RHONDA BARNES	TH EXPLORATION, LLC	1/8+	944	103	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	RONALD L MAYER AND DEBRA A MAYER	TH EXPLORATION, LLC	1/8+	944	128	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	FRANCIS DWAIN OTT AND ANITA R OTT	TH EXPLORATION, LLC	1/8+	927	98	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	LINDA K OTT	TH EXPLORATION, LLC	1/8+	927	119	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	DONALD S BOBOVNIK AND DOLORES J BOBOVNIK	TH EXPLORATION, LLC	1/8+	927	645	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	REBECCA A HAGERTY	TH EXPLORATION, LLC	1/8+	928	1	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	COLLEEN HAGERTY	TH EXPLORATION, LLC	1/8+	929	564	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	RENEE HAGERTY	TH EXPLORATION, LLC	1/8+	929	566	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	MEGAN HAGERTY	TH EXPLORATION, LLC	1/8+	929	578	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	ROBYN HAGERTY	TH EXPLORATION, LLC	1/8+	933	77	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	COLBY ANN FLOUHOUSE HOMER	TH EXPLORATION, LLC	1/8+	940	427	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	SHIRLEY ANN DRAKE	TH EXPLORATION, LLC	1/8+	940	143	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	ROBERT DAVID BARNES AND RHONDA BARNES	TH EXPLORATION, LLC	1/8+	944	103	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	RONALD L MAYER AND DEBRA A MAYER	TH EXPLORATION, LLC	1/8+	944	128	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	STUART WHITE AND BETTY WHITE	TH EXPLORATION, LLC	1/8+	944	124	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	MARY CATHERINE THOMS OTT	TH EXPLORATION, LLC	1/8+	944	126	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	DOROTHY HLINKA DUKE	TH EXPLORATION, LLC	1/8+	944	474	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	PATRICK HAGERTY AND DALANE HAGERTY	TH EXPLORATION, LLC	1/8+	944	471	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	LINDA CARNEY	TH EXPLORATION, LLC	1/8+	944	476	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	CAROL OWENS	TH EXPLORATION, LLC	1/8+	947	577	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	KEITH JAY FISCHER AND DAWN M FISCHER	TH EXPLORATION, LLC	1/8+	947	579	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	MARION DAVID OTT & JANICE L OTT	TH EXPLORATION, LLC	1/8+	947	581	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	CHRISTY MURPHY AND FRANK MURPHY	TH EXPLORATION, LLC	1/8+	947	583	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	GREGORY A LEMONS	TH EXPLORATION, LLC	1/8+	947	585	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	ALVERETTA M SHIMP	TH EXPLORATION, LLC	1/8+	951	570	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	ROBERT GORDON AND TWYLA GORDON	TH EXPLORATION, LLC	1/8+	951	574	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	JAMES GARCAR AND MELISSA GARCAR	TH EXPLORATION, LLC	1/8+	951	563	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	PATRICIA A GARCAR	TH EXPLORATION, LLC	1/8+	951	568	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	TERRI JEAN BROCK AND STEVEN E BROCK SR	TH EXPLORATION, LLC	1/8+	951	565	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	CINDY GREEN AND LARRY GREEN	TH EXPLORATION, LLC	1/8+	951	572	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	LORETTA BARKER	TH EXPLORATION, LLC	1/8+	952	207	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	RITA WINEMAN	TH EXPLORATION, LLC	1/8+	952	209	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	BRUCE HUNTER AND VICKI HUNTER	TH EXPLORATION, LLC	1/8+	952	211	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	ROBERT R DARROW	TH EXPLORATION, LLC	1/8+	952	213	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	RAYMOND R MILLER AND LOIS A MILLER	TH EXPLORATION, LLC	1/8+	952	215	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	RICHARD RICH AND KAREN RICH	TH EXPLORATION, LLC	1/8+	952	638	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	SARA FULTON	TH EXPLORATION, LLC	1/8+	953	315	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	SHELLI LYNN WHEELER & ANTHONY R WHEELER	TH EXPLORATION, LLC	1/8+	957	195	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	BONNIE LOU GRUBER	TH EXPLORATION, LLC	1/8+	954	318	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	ORIE N YOUNG AND BERNIE A YOUNG	TH EXPLORATION, LLC	1/8+	957	189	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	JOANN HAGERTY	TH EXPLORATION, LLC	1/8+	957	191	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	CRYSTAL M HOOKER AND JAMES HOOKER	TH EXPLORATION, LLC	1/8+	957	198	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	GARY F OBLOY AND DENISE I OBLOY	TH EXPLORATION, LLC	1/8+	957	193	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	KIMBERLY COX	TH EXPLORATION, LLC	1/8+	953	536	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	RONALD J SALKOVICK JR & SANDRA SALKOVICK	TH EXPLORATION, LLC	1/8+	958	373	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	VICKY STRAUSS AND DENNIS A STRAUSS	TH EXPLORATION, LLC	1/8+	958	405	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	FRANK E COMINOTTI AND MARILYN COMINOTTI	TH EXPLORATION, LLC	1/8+	958	409	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	JOHN OBLOY AND JANET L OBLOY	TH EXPLORATION, LLC	1/8+	958	440	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	JAMES NEAL EMERY AND RENEE R EMERY	TH EXPLORATION, LLC	1/8+	958	442	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	JOHN ARLES EMERY	TH EXPLORATION, LLC	1/8+	958	364	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	CLARENCE RANDALL EMERY AND PAULA JEAN EMERY	TH EXPLORATION, LLC	1/8+	958	366	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	DAVID DEAN DRAKE AND VICKI LYNN DRAKE	TH EXPLORATION, LLC	1/8+	968	198	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	KATHLEEN ROBERTSON	TH EXPLORATION, LLC	1/8+	958	370	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	MARY LOU HLINKA AND RICHARD G HLINKA SR	TH EXPLORATION, LLC	1/8+	960	208	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	MARQUITA CLYBURN	TH EXPLORATION, LLC	1/8+	960	202	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	CHARLES DOUGLAS LANE	TH EXPLORATION, LLC	1/8+	960	103	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	RICHARD E MILLER	TH EXPLORATION, LLC	1/8+	960	64	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	CHRISTOPHER CLARK AND REBEKAH CLARK	TH EXPLORATION, LLC	1/8+	960	62	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	MELISSA L DARROW	TH EXPLORATION, LLC	1/8+	954	328	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	BRIAN FISH AND COURTNEY FISH	TH EXPLORATION, LLC	1/8+	954	326	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	STEPHEN C EMERY AND CATHY J EMERY	TH EXPLORATION, LLC	1/8+	954	320	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	TODD LEARN AND KENDA LEARN	TH EXPLORATION, LLC	1/8+	954	324	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	DEBRA L LYSESKI AND GERALD A LYSESKI	TH EXPLORATION, LLC	1/8+	954	322	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	LARRY LONCHAR AND MOLLIE LONCHAR	TH EXPLORATION, LLC	1/8+	961	324	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	JERRY LONCHAR AND TINA LONCHAR	TH EXPLORATION, LLC	1/8+	961	326	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	REGINA KAY LEVINE & KENNETH WRIGHT AIF REGINA KAY LEVINE	TH EXPLORATION, LLC	1/8+	961	415	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	TESSEAN FAMILY REVOCABLE LIVING TRUST	TH EXPLORATION, LLC	1/8+	962	190	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	JAMES D DRAKE AND DONNA K DRAKE	TH EXPLORATION, LLC	1/8+	965	475	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	OKEY GILBERT AND ELLA GILBERT	TH EXPLORATION, LLC	1/8+	965	479	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	JAMES LEMONS AND NANCY LEMONS	TH EXPLORATION, LLC	1/8+	965	477	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	THOMAS LEMONS AND PATTY LEMONS	TH EXPLORATION, LLC	1/8+	965	55	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	KEN MALGAY AND MARCIA MALGAY	TH EXPLORATION, LLC	1/8+	965	57	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	SHIRLEY LEMONS	TH EXPLORATION, LLC	1/8+	965	473	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	JOSEPH F GOBLOWSKY	TH EXPLORATION, LLC	1/8+	968	428	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	WILLIAM KOTSON AND DEBRA KOTSON	TH EXPLORATION, LLC	1/8+	971	637	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	BETTY J ANDERSON	TH EXPLORATION, LLC	1/8+	965	53	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	GENERAL RECEIVER OF MARSHALL COUNTY ATTN: BERNIE TWIGG	TH EXPLORATION, LLC	1/8+	988	146	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	GENERAL RECEIVER OF MARSHALL COUNTY ATTN: BERNIE TWIGG	TH EXPLORATION, LLC	1/8+	976	609	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	RENEE KELLAR	TH EXPLORATION, LLC	1/8+	971	633	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	DWG OIL & GAS ACQUISITIONS LLC	TH EXPLORATION, LLC	1/8+	1041	141	NA	NA	NA	NA	NA	NA	NA

S	5-18-59	GASTON FAMILY INVESTMENTS LLC	TH EXPLORATION, LLC	1/8+	1041	139	NA	NA	NA	NA	NA	NA	NA
S	5-18-59	STONE HILL MINERALS HOLDING	TH EXPLORATION, LLC	1/8+	1046	142	NA	NA	NA	NA	NA	NA	NA
U	5-18-30	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	NA	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC
U	5-18-30	SOUTHERN COUNTRY FARMS INC	TH EXPLORATION, LLC	1/8+	938	448	NA	NA	NA	NA	NA	NA	NA
U	5-18-30	COLBY ANN FLOUHOUSE HOMER	TH EXPLORATION, LLC	1/8+	940	427	NA	NA	NA	NA	NA	NA	NA
V	5-18-13.10	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	NA	NA	NA	NA	23/353 Gastar Exploration USA Inc to Atinum Marcellus I LLC	21/41 Gastar Exploration USA Inc and Gastar Exploration Inc merger	36/9 Gastar Exploration Inc to TH Exploration II LLC

V	5-18-13.10	SOUTHERN COUNTRY FARMS INC	TH EXPLORATION, LLC	1/8+	938	448	NA	NA	NA	NA	NA	NA	NA
V	5-18-13.10	COLBY ANN FLOUHOUSE HOMER	TH EXPLORATION, LLC	1/8+	940	427	NA	NA	NA	NA	NA	NA	NA
W	5-18-29	SOUTHERN COUNTRY FARMS INC	TH EXPLORATION, LLC	1/8+	938	448	NA	NA	NA	NA	NA	NA	NA
X	5-18-31	KENNETH E RASTALL	TH EXPLORATION, LLC	1/8+	932	434	NA	NA	NA	NA	NA	NA	NA
X	5-18-31	PAMELA S VANHESE AND JAMES W VANHESE	TH EXPLORATION, LLC	1/8+	943	532	NA	NA	NA	NA	NA	NA	NA
Y	5-18-21	JAMES J. CAMPBELL AND BETTY J CAMPBELL	CHESAPEAKE APPALACHIA LI	1/8+	685	458	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC

Y	5-18-21	CAROLYN CAMPBELL BRITTON AND ROBERT C. BRITTON	CHESAPEAKE APPALACHIA L	1/8+	685	464	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
Y	5-18-21	JOANN J PARSONS AND GARY D PARSONS	CHESAPEAKE APPALACHIA L	1/8+	685	470	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
Y	5-18-21	DONALD E. CAMPBELL JUNE L. CAMPBELL	CHESAPEAKE APPALACHIA L	1/8+	685	476	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
Y	5-18-21	WANDA M. BLAKE	CHESAPEAKE APPALACHIA L	1/8+	685	482	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
Y	5-18-21	IDA L. CAMPBELL	CHESAPEAKE APPALACHIA L	1/8+	685	488	NA	NA	23/127 Chesapeake Appalachia LLC to Statoil Onshore Properties Inc	33/110 Chesapeake Appalachia LLC to SWN Production Company LLC	33/424 Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC	19/624 SWN Exchange Titleholder LLC to SWN Production Company LLC	41/256 SWN Production Company LLC to TH Exploration LLC
Y	5-18-21	BARBARA KITTLE	TH EXPLORATION, LLC	1/8+	954	641	NA	NA	NA	NA	NA	NA	NA

MEMORANDUM OF OPERATING AGREEMENT AND FINANCING STATEMENT

This Memorandum of Operating Agreement and Financing Statement (hereinafter referred to as "Memorandum") is executed to be effective concurrently with that certain Operating Agreement (the "Operating Agreement") by and between TH Exploration, LLC, as Operator, and Altium Marcellus LLC and TH Exploration II, LLC, as Non-Operators, covering, among other things, the development and production of crude oil, natural gas and associated substances from the leases (hereinafter called the "Contract Area") described on Exhibit "A", Exhibit "A-1" and Exhibit "A-2" attached hereto and owned by Operator and Non-Operator in the respective percentages of shares indicated on Exhibit "A" to the Operating Agreement.

The Operating Agreement contains an Accounting Procedure, along with provisions giving the parties hereto mutual liens and security interests where one or more parties hereto are or may become Debtors to one or more other parties hereto. This Memorandum incorporates by reference all of the terms and conditions of the Operating Agreement, including but not limited to the lien and security interest provisions.

The purpose of this Memorandum is to place third parties on notice of the Operating Agreement, and to secure and perfect the mutual liens and security interests of the parties hereto.

The Operating Agreement specifically provides and the parties do hereby confirm and agree that:

1. The Operator shall conduct and direct and have full control of all operations on the Contract Area as permitted and required by, and within the limits of, the Operating Agreement.
2. The liability of the parties under the Operating Agreement shall be several, not joint or collective. Each party shall be responsible only for its obligations and shall be liable only for its proportionate share of costs.
3. Each Non-Operator grants to Operator a lien upon its oil and gas rights, oil and gas leases and mineral interests in the Contract Area, and a security interest in its share of oil and/or gas when extracted and its interest in all fixtures, inventory, personal property and equipment located on or used on the Contract Area and in all its contract rights and receivables related thereto and arising therefrom to secure payment of its present and future share of costs and expenses, together with interest thereon at the rate provided in the Accounting Procedure referred to above. To the extent that Operator has a security interest under the Uniform Commercial Code ("Code") of the state or states in which the Contract Area is located, Operator without prejudice and in addition to all other legal, equitable and contractual remedies which are expressly reserved, shall be entitled to exercise the rights and remedies of a secured party under the Code. The bringing of a suit and the obtaining of judgment by Operator for the secured indebtedness shall not be deemed an election of remedies or otherwise affect the rights or security interests for the payment thereof.
4. The Operator grants to Non-Operator a lien and security interest equivalent to that granted to Operator as described in Paragraph 3 above, to secure payment by Operator of its own share of costs and expenses when due.

As reflected above, either or both Operator and Non-Operator may become Debtors if they default in their payment obligations under the terms of the Operating Agreement. On default, the non-defaulting party(ies) will be considered secured party(ies).

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

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

Execution Version

ASSIGNMENT AND BILL OF SALE

STATE OF WV §
COUNTY OF MARSHALL § KNOW ALL MEN BY THESE PRESENTS:
 §

THIS ASSIGNMENT AND BILL OF SALE (this "*Assignment*"), dated April 7, 2016, but effective as of 7:00 A.M. Houston time on January 1, 2016 (the "*Effective Time*"), is between Gastar Exploration Inc., a Delaware corporation, whose address is 1331 Lamar Street, Suite 650 Houston, Texas 77010 ("*Assignor*"), and TH Exploration II, LLC, a Texas limited liability company, whose address is 1320 South University Drive, Suite 500, Fort Worth, Texas 76107 ("*Assignee*"). Assignor and Assignee are each, individually, referred to herein as a "*Party*" and, collectively, as the "*Parties*".

Capitalized terms used but not defined herein shall have the respective meanings set forth in that certain Purchase and Sale Agreement (the "*Purchase Agreement*"), dated as of February 19, 2016, by and between Assignor and Assignee (as successor-in-interest).

Section 1. Assignment. The conveyance and assignment herein shall be deemed effective as of the Effective Time.

For Ten Dollars (\$10.00) and other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged), Assignor does hereby forever GRANT, BARGAIN, SELL, CONVEY, ASSIGN, TRANSFER, SET OVER AND DELIVER unto Assignee, all of Assignor's right, title and interest in and to the following interests and properties (such right, title and interest described in subsections (a) through (k) of this Section 1, less and except the Excluded Assets, collectively, the "*Conveyed Interests*"):

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

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

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Office of Oil and Gas
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WV Department of
Environmental Protection

ASSIGNMENT AND CONVEYANCE

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

ARTICLE 1 ASSIGNMENT OF ASSETS

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

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

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

ARTICLE 2 SPECIAL WARRANTY OF TITLE AND DISCLAIMERS

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

Section 2.2 Disclaimers of Warranties and Representations.

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

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July 15, 2020

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

RE: McMasters S-19HU

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 McMasters S-19HU 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,

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

Amy L. Miller
Permitting Specialist – Appalachia Region

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WW-6AC
(1/12)

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

Date of Notice Certification: 07/15/2020

API No. 47- 051

Operator's Well No. McMasters S-19HU

Well Pad Name: Shields

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>518,208.25</u>
County: <u>Marshall</u>	Northing: <u>4,401,175.20</u>
District: <u>Franklin</u>	Public Road Access: <u>Burch Ridge Road (CR 29)</u>
Quadrangle: <u>Powhatan Point 7.5'</u>	Generally used farm name: <u>Robert L. Shields, et al</u>
Watershed: <u>Lower Fish Creek</u>	

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

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

*PLEASE CHECK ALL THAT APPLY

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

DOG OFFICE USE ONLY

RECEIVED/
NOT REQUIRED

RECEIVED

RECEIVED/
NOT REQUIRED

RECEIVED

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Required Attachments:

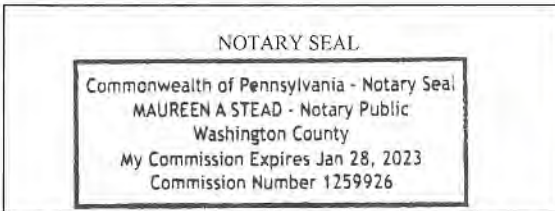
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

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Certification of Notice is hereby given:

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

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



Subscribed and sworn before me this 15 day of JULY, 2020.
Maureen Stead Notary Public
My Commission Expires 1/28/23

Oil and Gas Privacy Notice:

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

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

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

Date of Notice: 7/13/2020 **Date Permit Application Filed:** 7/16/2020

Notice of:

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

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

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

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

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

SURFACE OWNER(s)
Name: Donald Shields (Pad and Access Road)
Address: 231 Lonesome Ln.
Proctor, WV 26055

Name: Robert and Rebecca Shields (Pad and Access Road)
Address: 2756 Burch Ridge Road
Proctor, WV 26055

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: Mark A. Yoho
Address: 6701 Burch Ridge Road
Proctor, WV 26055

Name: Mark E. Yoho
Address: 3998 Burch Ridge Road
Proctor, WV 26055

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

COAL OWNER OR LESSEE
Name: CONSOL Energy
Address: 1000 Consol Drive
Canonsburg, PA 15317

COAL OPERATOR
Name: CONSOL Energy
Address: 1000 Consol Drive
Canonsburg, PA 15317

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: Nikki L. & Jonathan Stevens
Address: 757 Weeping Willow Lane
Proctor, WV 26055

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: n/a
Address: _____

*Please attach additional forms if necessary

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Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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(8-13)

API NO. 47-051
OPERATOR WELL NO. 4705102340 McMasters 6-19-14
Well Pad Name: Shields

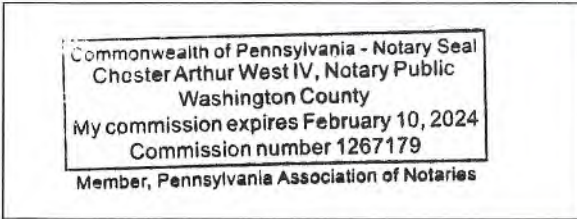
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 13th day of July, 2020.

[Signature] Notary Public

My Commission Expires 2-10-2024

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WW-6A

Supplement Pg. 1A

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

WATER WELL REPORT

Well: MCMASTERS S-19HU

District: Franklin

County: Marshall

State: WV

There appears to be One (1) possible water source within 2,000 feet of the above referenced well location.

Topo Spot # 1 (House/Cabin) TM 5-18-3.1 Nikki L. & Jonathan Stevens 757 Weeping Willow Ln. Proctor, WV 26055 304-771-0630 © 740-255-3620 © 336-239-2605 ©		

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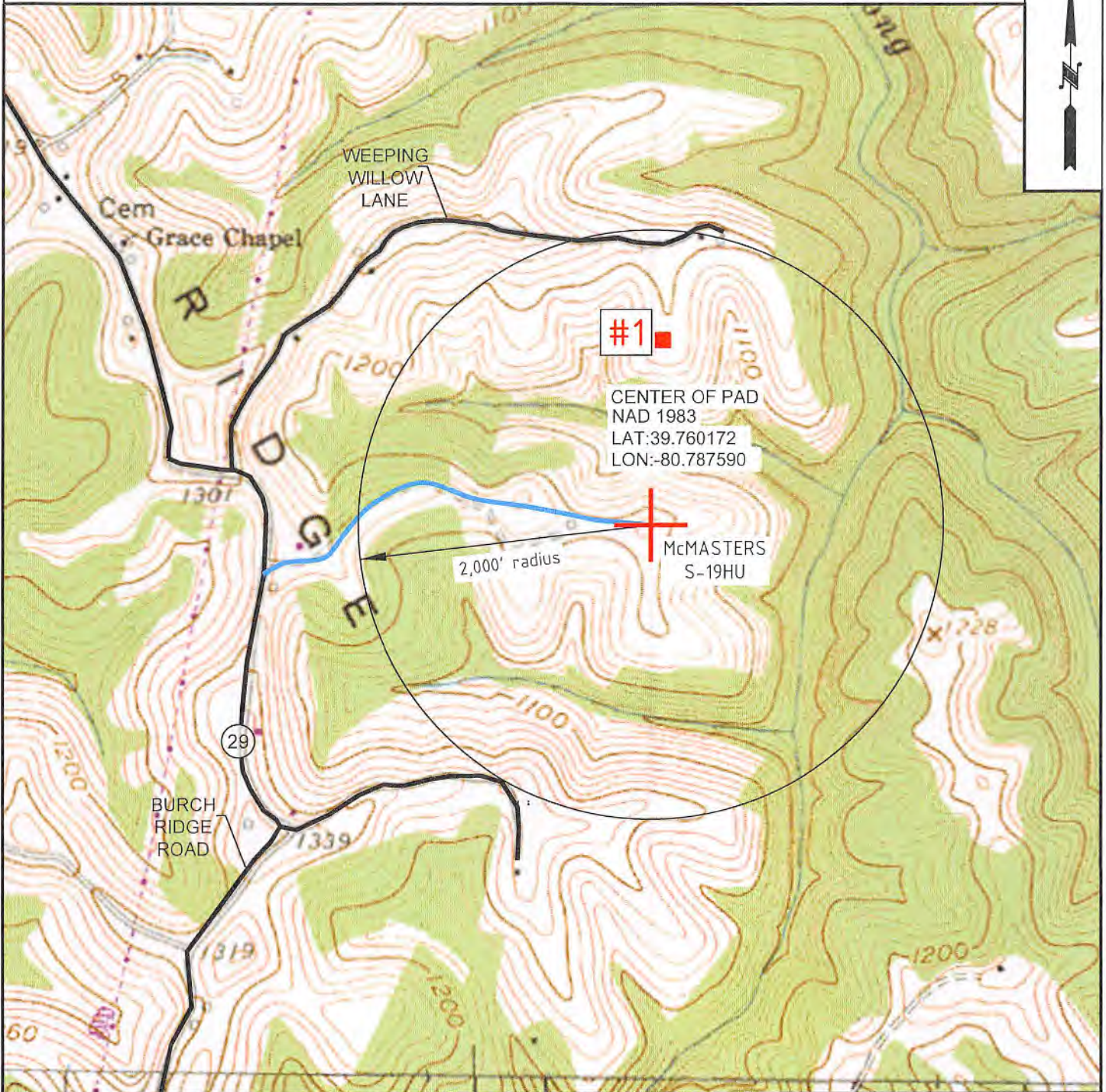
PROPOSED McMASTERS S-19HU


SUPPLEMENT PG 1
Office of Oil and Gas

JUL 17 2020

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There appears to be one (1) possible water source within 2,000'.



 TUG HILL OPERATING	OPERATOR 494510851	TOPO SECTION POWHATAN POINT 7.5'	LEASE NAME McMASTERS
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	SCALE: 1" = 1000'	DATE: DATE: 6-4-2020

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

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

Date of Notice: 6/23/2020 **Date of Planned Entry:** 6/30/2020

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

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

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

Notice is hereby provided to:

SURFACE OWNER(s)

Name: Mark A. Yoho
Address: 6701 Burch Ridge Rd.
Proctor, WV 26055

Name: Mark E. Yoho
Address: 3998 Burch Ridge Rd.
Proctor, WV 26055

Name: Donald Shields
Address: 231 Lonesome Ln.
Proctor, WV 26055

COAL OWNER OR LESSEE

Name: CONSOL Energy
Address: 1000 Consol Dr.
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: Robert & Rebecca Shields
Address: 2756 Burch Ridge Rd.
Proctor, WV 26055

*please attach additional forms if necessary

Notice is hereby given:

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

State:	<u>West Virginia</u>	Approx. Latitude & Longitude:	<u>39.760262; -80.788083</u>
County:	<u>Marshall</u>	Public Road Access:	<u>Burch Ridge Road (County Route 29)</u>
District:	<u>Franklin</u>	Watershed:	<u>Lower Fish Creek</u>
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Robert L. Shields, et al</u>

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

Notice is hereby given by:

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

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

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WV Department of
Environmental Protection

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.

4705102340

ADDITIONAL PARTIES TO NOTICE

McMasters Pad

WW-6A3

Additional Surface Owner:

Robert and Rebecca Shields
2756 Burch Ridge Road
Proctor, WV 26055

Additional Mineral Owner:

Donald Shields
231 Lonesome Ln.
Proctor, WV 26055

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

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

Date of Notice: 07/14/2020 **Date Permit Application Filed:** 07/14/2020

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

- CERTIFIED MAIL HAND
- RETURN RECEIPT REQUESTED DELIVERY

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

Notice is hereby provided to the SURFACE OWNER(s)

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

Name: Donald Shields
Address: 231 Lonesome Ln.
Proctor, WV 26055

Name: Robert and Rebecca Shields
Address: 2756 Burch Ridge Road
Proctor, WV 26055

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Eastings:	<u>518,208.25</u>
County:	<u>Marshall</u>		Northing:	<u>4,401,175.20</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Burch Ridge Road (CR 29)</u>	
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Robert L. Shields, et al</u>	
Watershed:	<u>Fish Creek (HUC 10)</u>			

This Notice Shall Include:

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

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

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

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Oil and Gas Privacy Notice:

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



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

Byrd E. White, III
Secretary of Transportation/
Commissioner of Highways

January 28, 2020

Jimmy Wriston, P. E.
Deputy Secretary/
Deputy Commissioner

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

Subject: DOH Permit for the Shields Pad, Marshall County

McMasters N-11HU

McMasters N-12HU

McMasters N-13HU

McMasters N-14HU

McMasters N-15HU

McMasters S-16HU

McMasters S-17HU

McMasters S-18HU

McMasters S-19HU *

McMasters S-20HU

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2012-0250 which has been transferred to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 29 SLS.

This operator is in compliance with §22-6A-20 of the WV Code. 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 October 1, 2018.

Very Truly Yours,

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

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Environmental Protection

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



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. McMasters S-19HU

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

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