



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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Tuesday, February 23, 2021
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 HUDSON S-16HU
47-051-02329-00-00

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: HUDSON S-16HU
Farm Name: CNX LAND LLC
U.S. WELL NUMBER: 47-051-02329-00-00
Horizontal 6A New Drill
Date Issued: 2/23/2021



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

January 7, 2021

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

RE: Application for Deep Well Permit – API #47-051-02329

COMPANY: Tug Hill Operating, LLC

FARM: CNX Land, LLC Hudson S-16HU

COUNTY: Marshall DISTRICT: Meade QUAD: Glen Easton

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? Yes; withdrawn prior to deep well approval.
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

** Hudson S-11HU 47-051-02296; Hudson S-13HU 47-051-02293; Hudson S-12HU 47-051-02292; Hudson S-14HU 47-051-02327, Hudson S-15HU 47-051-02328; Ten High 1N-20HU 47-051-02021, Ten High 1N-13HU 47-051-01965; Fitzgerald S-18HU 47-051-02325; Fitzgerald S-19HU 47-051-02326; Fitzgerald S-17HU 47-051-02324

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: _____

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.

4703102829

WW-6B
(04/15)

API NO. 47-051 -
OPERATOR WELL NO. Hudson S-16HU
Well Pad Name: Hudson

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 Meade Glen Easton 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Hudson S-16HU Well Pad Name: Hudson

3) Farm Name/Surface Owner: CNX Land, LLC Public Road Access: Roberts Ridge Road (CR 21)

4) Elevation, current ground: 1370' Elevation, proposed post-construction: 1344.81'

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

(b) If Gas Shallow _____ Deep
Horizontal

6) Existing Pad: Yes or No No

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

Point Pleasant is the target formation at a depth of 11,718' - 11,851' - thickness of 133' and anticipated pressure of approx. 9500 psi.

8) Proposed Total Vertical Depth: 12,001'

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

10) Proposed Total Measured Depth: 30,760'

11) Proposed Horizontal Leg Length: 17,649.90'

12) Approximate Fresh Water Strata Depths: 70' ; 978'

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 - 886' ; Pittsburgh Coal - 972'

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 _____

(a) If Yes, provide Mine Info: Name: Marshall County Coal Co./Marshall County Mine
Depth: 1059' TVD and 291' subsea level
Seam: Pittsburgh #8
Owner: Murray Energy / Consolidated Coal Co.

gm
3/11/2020

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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#	1070'	1070'	1,719FT^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2850'	2850'	2,009FT^3(CTS)
Intermediate	9 5/8"	NEW	HPP110	47#	11,330'	11,330'	3,690FT^3(CTS)
Production	5 1/2"	NEW	P110	23#	30,760'	30,760'	7,239FT^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		12,441'	
Liners							

JM 9/29/2020

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"			11,624	11,385		
Liners							

PACKERS

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

WW-6B
(10/14)

API NO. 47- 051 -
OPERATOR WELL NO. Hudson S-16HU
Well Pad Name: Hudson

JW
3/11/2020

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 (11,941'). 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 44,117,500 lb proppant and 682,089 bbl of water. Max rate = 80 bpm; max psi = 12,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 22.94 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.18 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.

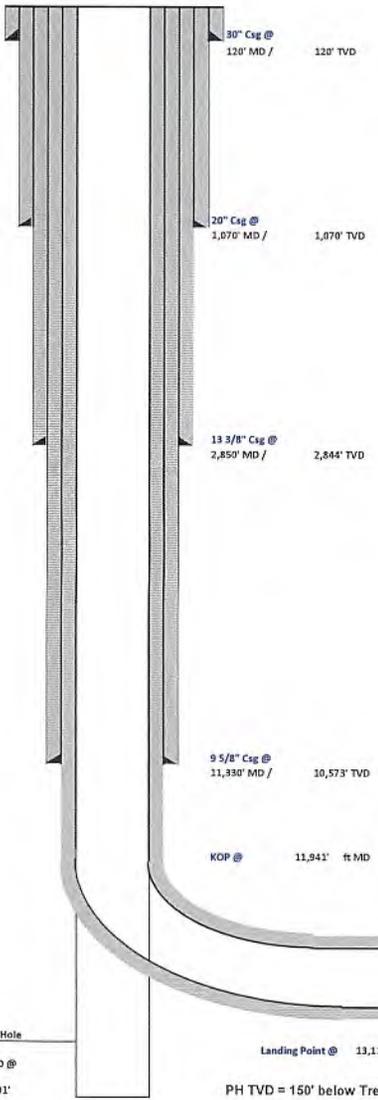


WELL NAME: Hudcon S-16HU
 STATE: WV COUNTY: Marshall
 DISTRICT: Meade
 DF Elev: 1,344' GL Elev: 1,344'
 TD: 30,760'
 TH Latitude: 39.828663
 TH Longitude: -80.672643
 BH Latitude: 39.791937
 BH Longitude: -80.628681

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	978'
Sewickley Coal	886'
Pittsburgh Coal	972'
Big Lime	2,167'
Berea	2,785'
Tully	6,731'
Marcellus	6,844'
Onondaga	6,896'
Salina	7,619'
Lockport	8,628'
Utica	11,450'
Point Pleasant	11,718'
Landing Depth	11,768'
Trenton	11,851'
Pilot Hole TD	12,001'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	26	20	1,070'	1,070'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,850'	2,844'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	11,330'	10,573'	47	HPP110	Surface
Production	8 1/2	5 1/2	30,760'	12,075'	23	HCP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,854	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,177	A	15	Air	1 Centralizer every other jt
Intermediate 2	3,044	A	14.5	Air	1 Centralizer every other jt
Production	6,461	A	15	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



Handwritten signature and date: 3/11/2020

Pilot Hole
 PH TD @ 12,001'
 PH TVD = 150' below Trenton Top
 Landing Point @ 13,114 MD / 11,768 TVD

Lateral TD @ 30,760' ft MD
 12,075' ft TVD

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Tug Hill Operating, LLC Casing and Cement Program

Hudson S-16HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	1,070'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,850'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	11,330'	CTS
Production	5 1/2"	HCP110	8 1/2"	30,760'	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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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 (03/09/2020) 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 - Hudson S-16HU

Wells within 500' Buffer

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

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
47-051-00630	Consolidation Coal Co.	2913' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 4/23/2004.
47-051-00662	Cabot Oil & Gas of West Virginia (COGC of WV)	3201' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 5/22/1984.
47-051-00867	Consolidation Coal Co.	3061' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 5/20/2002.
47-051-00959	Consolidation Coal 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.
47-051-01006	Consolidation Coal 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.
47-051-01085	CNX Gas Co. LLC (North)	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.
47-051-30008	South Penn Oil (S. Penn Nat. Gas)	3096' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged 6/15/1931.
47-051-30130	South Penn Oil (S. Penn Nat. Gas)	3050' TVD	Gordon	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation. Well is plugged.	Well was plugged in 1940.
47-051-30195	South Penn Oil (S. Penn Nat. Gas)	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.
47-051-70167	Hope Natural Gas Company	4206' TVD	Unknown	Unknown	No, the well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	State records are incomplete.
47-051-70620	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. The well likely represents an old shallow well that is too shallow to be effected by fracturing in the planned Point Pleasant well.	State records are incomplete.
47-051-02251	Tug Hill Operating, LLC	None	None	None	No, existing Marcellus permit. The well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	Currently a permit.
47-051-02250	Tug Hill Operating, LLC	None	None	None	No, existing Marcellus permit. The well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	Currently a permit.
47-051-02249	Tug Hill Operating, LLC	None	None	None	No, existing Marcellus permit. The well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	Currently a permit.
47-051-02248	Tug Hill Operating, LLC	None	None	None	No, existing Marcellus permit. The well is not deep enough to be within the expected fracture propagation from a Point Pleasant stimulation.	Currently a permit.

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Well: County = 51 Permit = 01085

Report Date: Tuesday, March 10, 2020 11:16 AM

Location Information: Well Name: ...

There is no Bottom Hole Location data for this well.

Owner Information: ...

Completion Information: ...

There is no Pay data for this well.

Production Gas Information (Volume in Bbl) table with columns for Date, Well Name, and various gas volume metrics.

Production Oil Information (Volume in Bbl) - some operators may have reported NGL under Oil

Production Oil Information (Volume in Bbl) table with columns for Date, Well Name, and various oil volume metrics.

Production NGL Information (Volume in Bbl) - some operators may have reported NGL under Oil

Production NGL Information (Volume in Bbl) table with columns for Date, Well Name, and various NGL volume metrics.

There is no Stratiography data for this well.

There is no Whether (S-Log) data for this well.

There is no Plugging data for this well.

Well: County = 51 Permit = 30008

Report Date: Tuesday, March 10, 2020 11:16 AM

Location Information: Well Name: ...

There is no Bottom Hole Location data for this well.

Owner Information: ...

Completion Information: ...

There is no Pay data for this well.

There is no Production Gas data for this well.

There is no Production Oil data for this well.

There is no Production NGL data for this well.

There is no Production Water data for this well.

There is no Stratiography data for this well.

There is no Whether (S-Log) data for this well.

There is no Plugging data for this well.

Well: County = 51 Permit = 30130

Report Date: Tuesday, March 10, 2020 11:16 AM

Location Information: Well Name: ...

There is no Bottom Hole Location data for this well.

Owner Information: ...

Completion Information: ...

There is no Pay data for this well.

There is no Production Gas data for this well.

There is no Production Oil data for this well.

There is no Production NGL data for this well.

There is no Production Water data for this well.

There is no Stratiography data for this well.

There is no Whether (S-Log) data for this well.

There is no Plugging data for this well.

Well: County = 51 Permit = 30195

Report Date: Tuesday, March 10, 2020 11:16 AM

Location Information: Well Name: ...

There is no Bottom Hole Location data for this well.

Owner Information: ...

Completion Information: ...

There is no Pay data for this well.

There is no Production Gas data for this well.

There is no Production Oil data for this well.

There is no Production NGL data for this well.

There is no Production Water data for this well.

There is no Stratiography data for this well.

There is no Whether (S-Log) data for this well.

There is no Plugging data for this well.

Well: County = 51 Permit = 70187

Report Date: Tuesday, March 10, 2020 11:16 AM

Location Information: Well Name: ...

There is no Bottom Hole Location data for this well.

Owner Information: ...

Completion Information: ...

There is no Pay data for this well.

There is no Production Gas data for this well.

There is no Production Oil data for this well.

There is no Production NGL data for this well.

There is no Production Water data for this well.

There is no Stratiography data for this well.

There is no Whether (S-Log) data for this well.

There is no Plugging data for this well.

Well: County = 51 Permit = 70202

Report Date: Tuesday, March 10, 2020 11:16 AM

Location Information: Well Name: ...

There is no Bottom Hole Location data for this well.

Owner Information: ...

Completion Information: ...

There is no Pay data for this well.

There is no Production Gas data for this well.

There is no Production Oil data for this well.

There is no Production NGL data for this well.

There is no Production Water data for this well.

There is no Stratiography data for this well.

There is no Whether (S-Log) data for this well.

There is no Plugging data for this well.

WV Department of Environmental Protection
 Location Information: Well Name: [REDACTED] County: [REDACTED] Permit: [REDACTED]
 System Identification Information: [REDACTED]
 Completion Information: [REDACTED]
 There is no Pay data for this well.
 There is no Production Gas data for this well.
 There is no Production Oil data for this well. ** some operators may have reported NGL under Oil.
 There is no Production NGL data for this well. ** some operators may have reported NGL under Oil.
 There is no Production Water data for this well.
 There is no Stratigraphy data for this well.
 There is no Unstable (S-Leg) data for this well.
 There is no Plugging data for this well.
 There is no Sample data for this well.

Report Date: Tuesday, March 19, 2020 10:14:14 AM

WV Department of Environmental Protection
 Location Information: Well Name: [REDACTED] County: [REDACTED] Permit: [REDACTED]
 System Identification Information: [REDACTED]
 Completion Information: [REDACTED]
 There is no Pay data for this well.
 There is no Production Gas data for this well.
 There is no Production Oil data for this well. ** some operators may have reported NGL under Oil.
 There is no Production NGL data for this well. ** some operators may have reported NGL under Oil.
 There is no Production Water data for this well.
 There is no Stratigraphy data for this well.
 There is no Unstable (S-Leg) data for this well.
 There is no Plugging data for this well.
 There is no Sample data for this well.

Report Date: Tuesday, March 19, 2020 10:23:46 AM

WV Department of Environmental Protection
 Location Information: Well Name: [REDACTED] County: [REDACTED] Permit: [REDACTED]
 System Identification Information: [REDACTED]
 Completion Information: [REDACTED]
 There is no Pay data for this well.
 There is no Production Gas data for this well.
 There is no Production Oil data for this well. ** some operators may have reported NGL under Oil.
 There is no Production NGL data for this well. ** some operators may have reported NGL under Oil.
 There is no Production Water data for this well.
 There is no Stratigraphy data for this well.
 There is no Unstable (S-Leg) data for this well.
 There is no Plugging data for this well.
 There is no Sample data for this well.

Report Date: Tuesday, March 19, 2020 10:30:41 AM

WV Department of Environmental Protection
 Location Information: Well Name: [REDACTED] County: [REDACTED] Permit: [REDACTED]
 System Identification Information: [REDACTED]
 Completion Information: [REDACTED]
 There is no Pay data for this well.
 There is no Production Gas data for this well.
 There is no Production Oil data for this well. ** some operators may have reported NGL under Oil.
 There is no Production NGL data for this well. ** some operators may have reported NGL under Oil.
 There is no Production Water data for this well.
 There is no Stratigraphy data for this well.
 There is no Unstable (S-Leg) data for this well.
 There is no Plugging data for this well.
 There is no Sample data for this well.

Report Date: Tuesday, March 19, 2020 11:07:02 AM

WV Department of Environmental Protection
 Location Information: Well Name: [REDACTED] County: [REDACTED] Permit: [REDACTED]
 System Identification Information: [REDACTED]
 Completion Information: [REDACTED]
 There is no Pay data for this well.
 There is no Production Gas data for this well.
 There is no Production Oil data for this well. ** some operators may have reported NGL under Oil.
 There is no Production NGL data for this well. ** some operators may have reported NGL under Oil.
 There is no Production Water data for this well.
 There is no Stratigraphy data for this well.
 There is no Unstable (S-Leg) data for this well.
 There is no Plugging data for this well.
 There is no Sample data for this well.

Report Date: Tuesday, March 19, 2020 11:07:02 AM

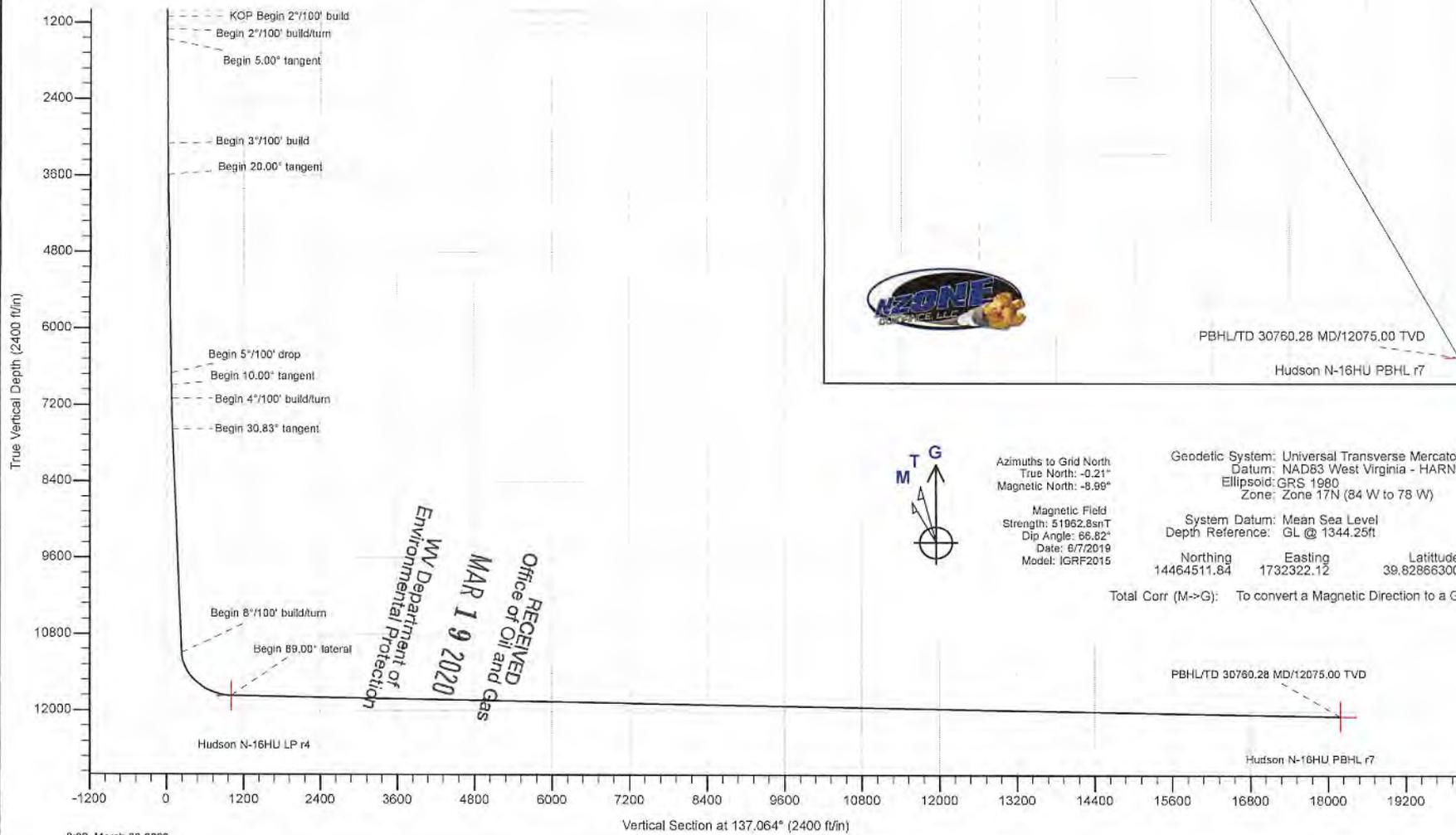
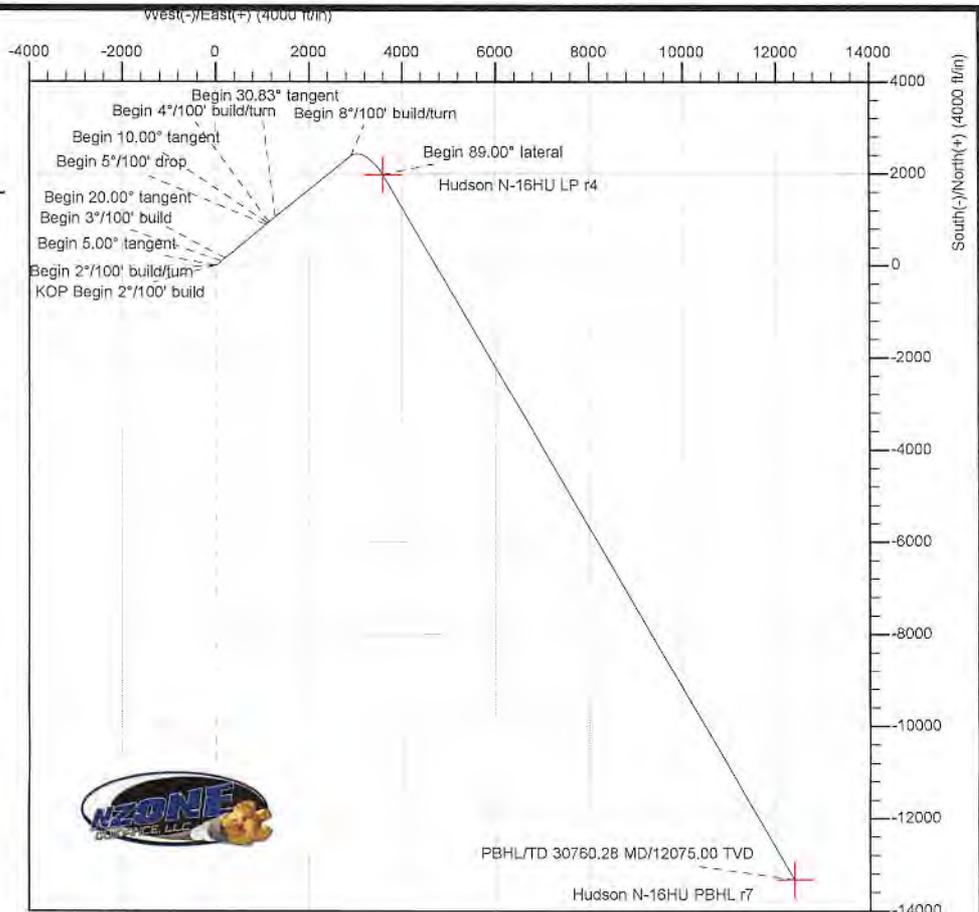
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Well: Hudson S-16 HU (slot P)
 Site: Hudson Alt North
 Project: Marshall County, West Virginia
 Design: rev7
 Rig:

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.000	0.00	
2	1100.00	0.00	0.000	1100.00	0.00	0.00	0.00	0.000	0.00	KOP Begin 2°/100' build
3	1300.00	4.00	90.000	1299.84	0.00	6.98	2.00	90.000	4.75	Begin 2°/100' build/turn
4	1460.79	5.00	50.000	1460.17	4.51	17.95	2.00	-92.952	8.93	Begin 5.00° tangent
5	3106.89	5.00	50.000	3106.00	96.72	127.86	0.00	0.000	16.28	Begin 3°/100' build
6	3606.89	20.00	50.000	3586.76	166.09	210.52	3.00	0.000	21.81	Begin 20.00° tangent
7	6919.93	20.00	50.000	6700.00	894.45	1078.55	0.00	0.000	79.85	Begin 5°/100' drop
8	7119.93	10.00	50.000	6892.94	927.68	1118.15	5.00	180.000	82.50	Begin 10.00° tangent
9	7330.19	10.00	50.000	7100.00	951.15	1146.12	0.00	0.000	84.37	Begin 4°/100' build/turn
10	7850.87	30.83	50.961	7585.31	1065.49	1265.91	4.00	1.384	95.88	Begin 30.83° tangent
11	11941.02	30.83	50.961	11097.65	2385.59	2913.81	0.00	0.000	238.31	Begin 8°/100' build/turn
12	13113.58	89.00	150.091	11768.25	1969.26	3600.05	8.00	98.364	1010.57	Begin 89.00° lateral
13	30760.28	89.00	150.091	12075.00-13324.86	12397.87		0.00	0.000	8200.53	PBHLTD 30760.28 MD/12075.00 TVD



Azimuths to Grid North
 True North: -0.21°
 Magnetic North: -8.99°
 Magnetic Field
 Strength: 51962.8nT
 Dip Angle: 66.82°
 Date: 6/7/2019
 Model: IGRF2015

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 @ 1344.25ft
 Northing: 14464511.84
 Easting: 1732322.12
 Latitude: 39.82866300
 Longitude: -80.67264300

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.99°

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Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Hudson S-16 HU (slot P)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1344.25ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1344.25ft
Site:	Hudson Alt North	North Reference:	Grid
Well:	Hudson S-16 HU (slot P)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev7		

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	Hudson Alt North				
Site Position:		Northing:	14,464,552.10 usft	Latitude:	39.82877400
From:	Lat/Long	Easting:	1,732,278.45 usft	Longitude:	-80.67279800
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.210 °

Well	Hudson S-16 HU (slot P)					
Well Position	+N-S	0.00 ft	Northing:	14,464,511.84 usft	Latitude:	39.82866300
	+E-W	0.00 ft	Easting:	1,732,322.11 usft	Longitude:	-80.67264300
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	1,344.25 ft

Wellbore	Original hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/7/2019	-8.780	66.819	51,962.84918309

Design	rev7				
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	137.064	

Plan Survey Tool Program	Date	3/6/2020			
Depth From (ft)	Depth To (ft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	30,760.28 rev7 (Original hole)	MWD MWD - Standard		

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Planning Report - Geographic

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Project:	Marshall County, West Virginia	MD Reference:	GL @ 1344.25ft
Site:	Hudson Alt North	North Reference:	Grid
Well:	Hudson S-16 HU (slot P)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev7		

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,100.00	0.00	0.000	1,100.00	0.00	0.00	0.00	0.00	0.00	0.000	
1,300.00	4.00	90.000	1,299.84	0.00	6.98	2.00	2.00	0.00	90.000	
1,460.79	5.00	50.000	1,460.17	4.51	17.96	2.00	0.62	-24.88	-92.952	
3,106.89	5.00	50.000	3,100.00	96.72	127.86	0.00	0.00	0.00	0.000	
3,606.89	20.00	50.000	3,586.76	166.09	210.52	3.00	3.00	0.00	0.000	
6,919.93	20.00	50.000	6,700.00	894.45	1,078.55	0.00	0.00	0.00	0.000	
7,119.93	10.00	50.000	6,892.94	927.68	1,118.15	5.00	-5.00	0.00	180.000	
7,330.19	10.00	50.000	7,100.00	951.15	1,146.12	0.00	0.00	0.00	0.000	
7,850.87	30.83	50.961	7,585.31	1,065.49	1,285.91	4.00	4.00	0.18	1.384	
11,941.02	30.83	50.961	11,097.65	2,385.59	2,913.81	0.00	0.00	0.00	0.000	
13,113.58	89.00	150.091	11,768.25	1,969.26	3,600.05	8.00	4.96	8.45	98.364	Hudson N-16HU LP r
30,760.28	89.00	150.091	12,075.00	-13,324.86	12,397.87	0.00	0.00	0.00	0.000	Hudson N-16HU PBH

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Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Hudson S-16 HU (slot P)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1344.25ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1344.25ft
Site:	Hudson Alt North	North Reference:	Grid
Well:	Hudson S-16 HU (slot P)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev7		

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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	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
100.00	0.00	0.000	100.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
200.00	0.00	0.000	200.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
300.00	0.00	0.000	300.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
400.00	0.00	0.000	400.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
500.00	0.00	0.000	500.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
600.00	0.00	0.000	600.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
700.00	0.00	0.000	700.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
800.00	0.00	0.000	800.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
900.00	0.00	0.000	900.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
1,000.00	0.00	0.000	1,000.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
1,100.00	0.00	0.000	1,100.00	0.00	0.00	14,464,511.84	1,732,322.11	39.82866300	-80.67264300	
KOP Begin 2°/100' build										
1,200.00	2.00	90.000	1,199.98	0.00	1.75	14,464,511.84	1,732,323.86	39.82866298	-80.67263678	
1,300.00	4.00	90.000	1,299.84	0.00	6.98	14,464,511.84	1,732,329.09	39.82866293	-80.67261814	
Begin 2°/100' build/turn										
1,400.00	4.38	62.836	1,399.58	1.74	13.86	14,464,513.58	1,732,335.98	39.82866765	-80.67259360	
1,460.79	5.00	50.000	1,460.17	4.51	17.96	14,464,516.34	1,732,340.07	39.82867519	-80.67257898	
Begin 5.00° tangent										
1,500.00	5.00	50.000	1,499.23	6.70	20.57	14,464,518.54	1,732,342.69	39.82868120	-80.67256963	
1,600.00	5.00	50.000	1,598.85	12.30	27.25	14,464,524.14	1,732,349.37	39.82869652	-80.67254578	
1,700.00	5.00	50.000	1,698.47	17.91	33.93	14,464,529.75	1,732,356.04	39.82871184	-80.67252192	
1,800.00	5.00	50.000	1,798.09	23.51	40.60	14,464,535.35	1,732,362.72	39.82872715	-80.67249807	
1,900.00	5.00	50.000	1,897.71	29.11	47.28	14,464,540.95	1,732,369.40	39.82874247	-80.67247421	
2,000.00	5.00	50.000	1,997.33	34.71	53.96	14,464,546.55	1,732,376.07	39.82875779	-80.67245036	
2,100.00	5.00	50.000	2,096.95	40.32	60.63	14,464,552.15	1,732,382.75	39.82877311	-80.67242651	
2,200.00	5.00	50.000	2,196.57	45.92	67.31	14,464,557.76	1,732,389.42	39.82878843	-80.67240265	
2,300.00	5.00	50.000	2,296.18	51.52	73.99	14,464,563.36	1,732,396.10	39.82880374	-80.67237880	
2,400.00	5.00	50.000	2,395.80	57.12	80.66	14,464,568.96	1,732,402.78	39.82881906	-80.67235495	
2,500.00	5.00	50.000	2,495.42	62.72	87.34	14,464,574.56	1,732,409.45	39.82883438	-80.67233109	
2,600.00	5.00	50.000	2,595.04	68.33	94.02	14,464,580.17	1,732,416.13	39.82884970	-80.67230724	
2,700.00	5.00	50.000	2,694.66	73.93	100.69	14,464,585.77	1,732,422.81	39.82886501	-80.67228338	
2,800.00	5.00	50.000	2,794.28	79.53	107.37	14,464,591.37	1,732,429.48	39.82888033	-80.67225953	
2,900.00	5.00	50.000	2,893.90	85.13	114.05	14,464,596.97	1,732,436.16	39.82889565	-80.67223568	
3,000.00	5.00	50.000	2,993.52	90.74	120.72	14,464,602.58	1,732,442.84	39.82891097	-80.67221182	
3,100.00	5.00	50.000	3,093.14	96.34	127.40	14,464,608.18	1,732,449.51	39.82892629	-80.67218797	
3,106.89	5.00	50.000	3,100.00	96.72	127.86	14,464,608.56	1,732,449.97	39.82892734	-80.67218633	
Begin 3°/100' build										
3,200.00	7.79	50.000	3,192.53	103.39	135.81	14,464,615.23	1,732,457.92	39.82894557	-80.67215794	
3,300.00	10.79	50.000	3,291.20	113.77	148.17	14,464,625.61	1,732,470.29	39.82897395	-80.67211374	
3,400.00	13.79	50.000	3,388.90	127.46	164.48	14,464,639.29	1,732,486.60	39.82901137	-80.67205548	
3,500.00	16.79	50.000	3,485.34	144.41	184.69	14,464,656.25	1,732,506.80	39.82905772	-80.67198329	
3,600.00	19.79	50.000	3,580.28	164.58	208.73	14,464,676.42	1,732,530.84	39.82911288	-80.67189740	
3,606.89	20.00	50.000	3,586.76	166.09	210.52	14,464,677.93	1,732,532.64	39.82911700	-80.67189098	
Begin 20.00° tangent										
3,700.00	20.00	50.000	3,674.25	186.56	234.92	14,464,698.40	1,732,557.03	39.82917297	-80.67180382	
3,800.00	20.00	50.000	3,768.22	208.54	261.12	14,464,720.38	1,732,583.23	39.82923308	-80.67171021	
3,900.00	20.00	50.000	3,862.19	230.53	287.32	14,464,742.37	1,732,609.43	39.82929319	-80.67161660	
4,000.00	20.00	50.000	3,956.16	252.51	313.52	14,464,764.35	1,732,635.63	39.82935330	-80.67152299	
4,100.00	20.00	50.000	4,050.13	274.50	339.72	14,464,786.34	1,732,661.83	39.82941341	-80.67142938	
4,200.00	20.00	50.000	4,144.10	296.48	365.92	14,464,808.32	1,732,688.03	39.82947352	-80.67133577	
4,300.00	20.00	50.000	4,238.07	318.47	392.12	14,464,830.31	1,732,714.24	39.82953363	-80.67124216	
4,400.00	20.00	50.000	4,332.04	340.45	418.32	14,464,852.29	1,732,740.44	39.82959374	-80.67114855	
4,500.00	20.00	50.000	4,426.01	362.44	444.52	14,464,874.27	1,732,766.64	39.82965385	-80.67105494	

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Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Hudson S-16 HU (slot P)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1344.25ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1344.25ft
Site:	Hudson Alt North	North Reference:	Grid
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Wellbore:	Original hole		
Design:	rev7		

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Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
4,600.00	20.00	50.000	4,519.98	384.42	470.72	14,464,896.26	1,732,792.84	39.82971396	-80.67096133	
4,700.00	20.00	50.000	4,613.95	406.40	496.92	14,464,918.24	1,732,819.04	39.82977407	-80.67086772	
4,800.00	20.00	50.000	4,707.92	428.39	523.12	14,464,940.23	1,732,845.24	39.82983418	-80.67077411	
4,900.00	20.00	50.000	4,801.88	450.37	549.32	14,464,962.21	1,732,871.44	39.82989429	-80.67068050	
5,000.00	20.00	50.000	4,895.85	472.36	575.52	14,464,984.20	1,732,897.64	39.82995440	-80.67058689	
5,100.00	20.00	50.000	4,989.82	494.34	601.72	14,465,006.18	1,732,923.84	39.83001451	-80.67049328	
5,200.00	20.00	50.000	5,083.79	516.33	627.92	14,465,028.17	1,732,950.04	39.83007462	-80.67039967	
5,300.00	20.00	50.000	5,177.76	538.31	654.12	14,465,050.15	1,732,976.24	39.83013473	-80.67030606	
5,400.00	20.00	50.000	5,271.73	560.30	680.32	14,465,072.14	1,733,002.44	39.83019484	-80.67021245	
5,500.00	20.00	50.000	5,365.70	582.28	706.52	14,465,094.12	1,733,028.64	39.83025495	-80.67011883	
5,600.00	20.00	50.000	5,459.67	604.27	732.72	14,465,116.10	1,733,054.84	39.83031506	-80.67002522	
5,700.00	20.00	50.000	5,553.64	626.25	758.92	14,465,138.09	1,733,081.04	39.83037517	-80.66993161	
5,800.00	20.00	50.000	5,647.61	648.24	785.13	14,465,160.07	1,733,107.24	39.83043528	-80.66983800	
5,900.00	20.00	50.000	5,741.58	670.22	811.33	14,465,182.06	1,733,133.44	39.83049539	-80.66974439	
6,000.00	20.00	50.000	5,835.55	692.20	837.53	14,465,204.04	1,733,159.64	39.83055550	-80.66965077	
6,100.00	20.00	50.000	5,929.52	714.19	863.73	14,465,226.03	1,733,185.84	39.83061560	-80.66955716	
6,200.00	20.00	50.000	6,023.49	736.17	889.93	14,465,248.01	1,733,212.04	39.83067571	-80.66946355	
6,300.00	20.00	50.000	6,117.45	758.16	916.13	14,465,270.00	1,733,238.24	39.83073582	-80.66936994	
6,400.00	20.00	50.000	6,211.42	780.14	942.33	14,465,291.98	1,733,264.44	39.83079593	-80.66927632	
6,500.00	20.00	50.000	6,305.39	802.13	968.53	14,465,313.97	1,733,290.64	39.83085604	-80.66918271	
6,600.00	20.00	50.000	6,399.36	824.11	994.73	14,465,335.95	1,733,316.84	39.83091615	-80.66908910	
6,700.00	20.00	50.000	6,493.33	846.10	1,020.93	14,465,357.94	1,733,343.04	39.83097626	-80.66899548	
6,800.00	20.00	50.000	6,587.30	868.08	1,047.13	14,465,379.92	1,733,369.24	39.83103637	-80.66890187	
6,900.00	20.00	50.000	6,681.27	890.07	1,073.33	14,465,401.90	1,733,395.44	39.83109647	-80.66880825	
6,919.93	20.00	50.000	6,700.00	894.45	1,078.55	14,465,406.29	1,733,400.66	39.83110845	-80.66878960	
Begin 5°/100' drop										
7,000.00	16.00	50.000	6,776.13	910.35	1,097.50	14,465,422.19	1,733,419.61	39.83115192	-80.66872189	
7,100.00	11.00	50.000	6,873.34	925.35	1,115.37	14,465,437.18	1,733,437.48	39.83119293	-80.66865803	
7,119.93	10.00	50.000	6,892.94	927.68	1,118.15	14,465,439.52	1,733,440.27	39.83119931	-80.66864809	
Begin 10.00° tangent										
7,200.00	10.00	50.000	6,971.79	936.62	1,128.80	14,465,448.45	1,733,450.92	39.83122375	-80.66861004	
7,300.00	10.00	50.000	7,070.27	947.78	1,142.11	14,465,459.62	1,733,464.22	39.83125426	-80.66856251	
7,330.19	10.00	50.000	7,100.00	951.15	1,146.12	14,465,462.99	1,733,468.23	39.83126348	-80.66854816	
Begin 4°/100' build/turn										
7,400.00	12.79	50.305	7,168.43	959.98	1,156.71	14,465,471.82	1,733,478.83	39.83128763	-80.66851031	
7,500.00	16.79	50.567	7,265.10	976.23	1,176.40	14,465,488.07	1,733,498.51	39.83133206	-80.66843999	
7,600.00	20.79	50.730	7,359.75	996.65	1,201.30	14,465,508.49	1,733,523.42	39.83138788	-80.66835101	
7,700.00	24.79	50.843	7,451.92	1,021.13	1,231.31	14,465,532.97	1,733,553.42	39.83145481	-80.66824379	
7,800.00	28.79	50.926	7,541.17	1,049.56	1,266.28	14,465,561.40	1,733,588.39	39.83153252	-80.66811887	
7,850.87	30.83	50.961	7,585.31	1,065.49	1,285.91	14,465,577.33	1,733,608.02	39.83157607	-80.66804872	
Begin 30.83° tangent										
7,900.00	30.83	50.961	7,627.50	1,081.35	1,305.47	14,465,593.19	1,733,627.58	39.83161942	-80.66797886	
8,000.00	30.83	50.961	7,713.37	1,113.63	1,345.27	14,465,625.46	1,733,667.38	39.83170765	-80.66783666	
8,100.00	30.83	50.961	7,799.24	1,145.90	1,385.07	14,465,657.74	1,733,707.18	39.83179588	-80.66769447	
8,200.00	30.83	50.961	7,885.12	1,178.18	1,424.87	14,465,690.01	1,733,746.98	39.83188411	-80.66755227	
8,300.00	30.83	50.961	7,970.99	1,210.45	1,464.67	14,465,722.29	1,733,786.78	39.83197234	-80.66741007	
8,400.00	30.83	50.961	8,056.86	1,242.73	1,504.47	14,465,754.56	1,733,826.58	39.83206056	-80.66726788	
8,500.00	30.83	50.961	8,142.74	1,275.00	1,544.27	14,465,786.84	1,733,866.38	39.83214879	-80.66712568	
8,600.00	30.83	50.961	8,228.61	1,307.28	1,584.07	14,465,819.11	1,733,906.18	39.83223702	-80.66698348	
8,700.00	30.83	50.961	8,314.48	1,339.55	1,623.87	14,465,851.39	1,733,945.98	39.83232525	-80.66684129	
8,800.00	30.83	50.961	8,400.36	1,371.83	1,663.67	14,465,883.66	1,733,985.78	39.83241347	-80.66669909	
8,900.00	30.83	50.961	8,486.23	1,404.10	1,703.47	14,465,915.94	1,734,025.58	39.83250170	-80.66655689	
9,000.00	30.83	50.961	8,572.10	1,436.38	1,743.27	14,465,948.21	1,734,065.38	39.83258993	-80.66641469	
9,100.00	30.83	50.961	8,657.98	1,468.65	1,783.07	14,465,980.49	1,734,105.18	39.83267816	-80.66627249	



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Hudson S-16 HU (slot P)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1344.25ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1344.25ft
Site:	Hudson Alt North	North Reference:	Grid
Well:	Hudson S-16 HU (slot P)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev7		

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Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,200.00	30.83	50.961	8,743.85	1,500.93	1,822.87	14,466,012.76	1,734,144.98	39.83276638	-80.66613029
9,300.00	30.83	50.961	8,829.72	1,533.20	1,862.67	14,466,045.04	1,734,184.78	39.83285461	-80.66598809
9,400.00	30.83	50.961	8,915.60	1,565.48	1,902.47	14,466,077.31	1,734,224.58	39.83294284	-80.66584589
9,500.00	30.83	50.961	9,001.47	1,597.75	1,942.27	14,466,109.59	1,734,264.38	39.83303106	-80.66570369
9,600.00	30.83	50.961	9,087.34	1,630.03	1,982.07	14,466,141.86	1,734,304.19	39.83311929	-80.66556149
9,700.00	30.83	50.961	9,173.22	1,662.30	2,021.88	14,466,174.14	1,734,343.99	39.83320751	-80.66541929
9,800.00	30.83	50.961	9,259.09	1,694.58	2,061.68	14,466,206.42	1,734,383.79	39.83329574	-80.66527709
9,900.00	30.83	50.961	9,344.96	1,726.85	2,101.48	14,466,238.69	1,734,423.59	39.83338396	-80.66513488
10,000.00	30.83	50.961	9,430.84	1,759.13	2,141.28	14,466,270.97	1,734,463.39	39.83347219	-80.66499268
10,100.00	30.83	50.961	9,516.71	1,791.40	2,181.08	14,466,303.24	1,734,503.19	39.83356042	-80.66485048
10,200.00	30.83	50.961	9,602.58	1,823.68	2,220.88	14,466,335.52	1,734,542.99	39.83364864	-80.66470828
10,300.00	30.83	50.961	9,688.46	1,855.95	2,260.68	14,466,367.79	1,734,582.79	39.83373686	-80.66456607
10,400.00	30.83	50.961	9,774.33	1,888.23	2,300.48	14,466,400.07	1,734,622.59	39.83382509	-80.66442387
10,500.00	30.83	50.961	9,860.20	1,920.50	2,340.28	14,466,432.34	1,734,662.39	39.83391331	-80.66428166
10,600.00	30.83	50.961	9,946.08	1,952.78	2,380.08	14,466,464.62	1,734,702.19	39.83400154	-80.66413946
10,700.00	30.83	50.961	10,031.95	1,985.06	2,419.88	14,466,496.89	1,734,741.99	39.83408976	-80.66399725
10,800.00	30.83	50.961	10,117.83	2,017.33	2,459.68	14,466,529.17	1,734,781.79	39.83417799	-80.66385505
10,900.00	30.83	50.961	10,203.70	2,049.61	2,499.48	14,466,561.44	1,734,821.59	39.83426621	-80.66371284
11,000.00	30.83	50.961	10,289.57	2,081.88	2,539.28	14,466,593.72	1,734,861.39	39.83435443	-80.66357064
11,100.00	30.83	50.961	10,375.45	2,114.16	2,579.08	14,466,625.99	1,734,901.19	39.83444266	-80.66342843
11,200.00	30.83	50.961	10,461.32	2,146.43	2,618.88	14,466,658.27	1,734,940.99	39.83453088	-80.66328622
11,300.00	30.83	50.961	10,547.19	2,178.71	2,658.68	14,466,690.54	1,734,980.79	39.83461910	-80.66314402
11,400.00	30.83	50.961	10,633.07	2,210.98	2,698.48	14,466,722.82	1,735,020.59	39.83470733	-80.66300181
11,500.00	30.83	50.961	10,718.94	2,243.26	2,738.28	14,466,755.09	1,735,060.39	39.83479555	-80.66285960
11,600.00	30.83	50.961	10,804.81	2,275.53	2,778.08	14,466,787.37	1,735,100.19	39.83488377	-80.66271739
11,700.00	30.83	50.961	10,890.69	2,307.81	2,817.88	14,466,819.64	1,735,139.99	39.83497199	-80.66257518
11,800.00	30.83	50.961	10,976.56	2,340.08	2,857.68	14,466,851.92	1,735,179.79	39.83506022	-80.66243298
11,900.00	30.83	50.961	11,062.43	2,372.36	2,897.48	14,466,884.19	1,735,219.59	39.83514844	-80.66229077
11,941.02	30.83	50.961	11,097.65	2,385.59	2,913.81	14,466,897.43	1,735,235.92	39.83518462	-80.66223244
Begin 8°/100' build/turn									
12,000.00	30.46	60.199	11,148.43	2,402.55	2,938.54	14,466,914.39	1,735,260.64	39.83523094	-80.66214413
12,100.00	31.34	75.718	11,234.37	2,421.60	2,985.81	14,466,933.43	1,735,307.92	39.83528275	-80.66197546
12,200.00	33.95	89.776	11,318.69	2,428.14	3,039.02	14,466,939.97	1,735,361.13	39.83530015	-80.66178583
12,300.00	37.92	101.642	11,399.75	2,422.03	3,097.13	14,466,933.87	1,735,419.24	39.83528279	-80.66157893
12,400.00	42.87	111.359	11,475.96	2,403.41	3,159.00	14,466,915.25	1,735,481.11	39.83523101	-80.66135877
12,500.00	48.50	119.318	11,545.85	2,372.64	3,223.44	14,466,884.47	1,735,545.55	39.83514583	-80.66112966
12,600.00	54.59	125.956	11,608.06	2,330.31	3,289.18	14,466,842.14	1,735,611.29	39.83502889	-80.66089605
12,700.00	60.99	131.638	11,661.37	2,277.24	3,354.95	14,466,789.08	1,735,677.06	39.83488248	-80.66066248
12,800.00	67.60	136.644	11,704.75	2,214.48	3,419.47	14,466,726.31	1,735,741.58	39.83470944	-80.66043350
12,900.00	74.35	141.190	11,737.35	2,143.23	3,481.48	14,466,655.07	1,735,803.59	39.83451314	-80.66021358
13,000.00	81.18	145.443	11,758.54	2,064.90	3,539.78	14,466,576.73	1,735,861.88	39.83429741	-80.66000698
13,100.00	88.07	149.539	11,767.90	1,981.00	3,593.22	14,466,492.83	1,735,915.33	39.83406644	-80.65981774
13,113.58	89.00	150.091	11,768.25	1,969.26	3,600.05	14,466,481.09	1,735,922.16	39.83403413	-80.65979357
Begin 89.00° lateral									
13,200.00	89.00	150.091	11,769.75	1,894.36	3,643.13	14,466,406.20	1,735,965.24	39.83382600	-80.65964112
13,300.00	89.00	150.091	11,771.49	1,807.69	3,692.99	14,466,319.53	1,736,015.10	39.83358947	-80.65946471
13,400.00	89.00	150.091	11,773.23	1,721.03	3,742.84	14,466,232.86	1,736,064.95	39.83335094	-80.65928830
13,500.00	89.00	150.091	11,774.97	1,634.36	3,792.70	14,466,146.19	1,736,114.81	39.83311240	-80.65911189
13,600.00	89.00	150.091	11,776.71	1,547.69	3,842.56	14,466,059.53	1,736,164.66	39.83287387	-80.65893548
13,700.00	89.00	150.091	11,778.44	1,461.02	3,892.41	14,465,972.86	1,736,214.52	39.83263534	-80.65875907
13,800.00	89.00	150.091	11,780.18	1,374.35	3,942.27	14,465,886.19	1,736,264.37	39.83239681	-80.65858266
13,900.00	89.00	150.091	11,781.92	1,287.68	3,992.12	14,465,799.52	1,736,314.23	39.83215827	-80.65840625
14,000.00	89.00	150.091	11,783.66	1,201.01	4,041.98	14,465,712.85	1,736,364.08	39.83191974	-80.65822985
14,100.00	89.00	150.091	11,785.40	1,114.35	4,091.83	14,465,626.18	1,736,413.94	39.83168120	-80.65805344

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Planning Report - Geographic

Database:	DB_Aug1819_v14	Local Co-ordinate Reference:	Well Hudson S-16 HU (slot P)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1344.25ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1344.25ft
Site:	Hudson Alt North	North Reference:	Grid
Well:	Hudson S-16 HU (slot P)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev7		

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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
14,200.00	89.00	150.091	11,787.14	1,027.68	4,141.69	14,465,539.52	1,736,463.79	39.83144267	-80.65787704
14,300.00	89.00	150.091	11,788.87	941.01	4,191.54	14,465,452.85	1,736,513.65	39.83120414	-80.65770064
14,400.00	89.00	150.091	11,790.61	854.34	4,241.40	14,465,366.18	1,736,563.50	39.83096580	-80.65752424
14,500.00	89.00	150.091	11,792.35	767.67	4,291.25	14,465,279.51	1,736,613.36	39.83072707	-80.65734784
14,600.00	89.00	150.091	11,794.09	681.00	4,341.11	14,465,192.84	1,736,663.22	39.83048853	-80.65717144
14,700.00	89.00	150.091	11,795.83	594.34	4,390.96	14,465,106.17	1,736,713.07	39.83025000	-80.65699504
14,800.00	89.00	150.091	11,797.56	507.67	4,440.82	14,465,019.51	1,736,762.93	39.83001146	-80.65681865
14,900.00	89.00	150.091	11,799.30	421.00	4,490.68	14,464,932.84	1,736,812.78	39.82977292	-80.65664225
15,000.00	89.00	150.091	11,801.04	334.33	4,540.53	14,464,846.17	1,736,862.64	39.82953439	-80.65646586
15,100.00	89.00	150.091	11,802.78	247.66	4,590.39	14,464,759.50	1,736,912.49	39.82929585	-80.65628947
15,200.00	89.00	150.091	11,804.52	160.99	4,640.24	14,464,672.83	1,736,962.35	39.82905731	-80.65611308
15,300.00	89.00	150.091	11,806.26	74.32	4,690.10	14,464,586.16	1,737,012.20	39.82881878	-80.65593669
15,400.00	89.00	150.091	11,807.99	-12.34	4,739.95	14,464,499.50	1,737,062.06	39.82858024	-80.65576030
15,500.00	89.00	150.091	11,809.73	-99.01	4,789.81	14,464,412.83	1,737,111.91	39.82834170	-80.65558391
15,600.00	89.00	150.091	11,811.47	-185.68	4,839.66	14,464,326.16	1,737,161.77	39.82810316	-80.65540753
15,700.00	89.00	150.091	11,813.21	-272.35	4,889.52	14,464,239.49	1,737,211.62	39.82786463	-80.65523114
15,800.00	89.00	150.091	11,814.95	-359.02	4,939.37	14,464,152.82	1,737,261.48	39.82762609	-80.65505476
15,900.00	89.00	150.091	11,816.69	-445.69	4,989.23	14,464,066.15	1,737,311.33	39.82738755	-80.65487838
16,000.00	89.00	150.091	11,818.42	-532.35	5,039.08	14,463,979.49	1,737,361.19	39.82714901	-80.65470200
16,100.00	89.00	150.091	11,820.16	-619.02	5,088.94	14,463,892.82	1,737,411.04	39.82691047	-80.65452562
16,200.00	89.00	150.091	11,821.90	-705.69	5,138.79	14,463,806.15	1,737,460.90	39.82667193	-80.65434924
16,300.00	89.00	150.091	11,823.64	-792.36	5,188.65	14,463,719.48	1,737,510.75	39.82643339	-80.65417286
16,400.00	89.00	150.091	11,825.38	-879.03	5,238.51	14,463,632.81	1,737,560.61	39.82619485	-80.65399649
16,500.00	89.00	150.091	11,827.12	-965.70	5,288.36	14,463,546.14	1,737,610.46	39.82595631	-80.65382011
16,600.00	89.00	150.091	11,828.85	-1,052.37	5,338.22	14,463,459.48	1,737,660.32	39.82571777	-80.65364374
16,700.00	89.00	150.091	11,830.59	-1,139.03	5,388.07	14,463,372.81	1,737,710.18	39.82547923	-80.65346736
16,800.00	89.00	150.091	11,832.33	-1,225.70	5,437.93	14,463,286.14	1,737,760.03	39.82524069	-80.65329099
16,900.00	89.00	150.091	11,834.07	-1,312.37	5,487.78	14,463,199.47	1,737,809.89	39.82500215	-80.65311462
17,000.00	89.00	150.091	11,835.81	-1,399.04	5,537.64	14,463,112.80	1,737,859.74	39.82476360	-80.65293825
17,100.00	89.00	150.091	11,837.55	-1,485.71	5,587.49	14,463,026.13	1,737,909.60	39.82452506	-80.65276189
17,200.00	89.00	150.091	11,839.28	-1,572.38	5,637.35	14,462,939.47	1,737,959.45	39.82428652	-80.65258552
17,300.00	89.00	150.091	11,841.02	-1,659.04	5,687.20	14,462,852.80	1,738,009.31	39.82404798	-80.65240915
17,400.00	89.00	150.091	11,842.76	-1,745.71	5,737.06	14,462,766.13	1,738,059.16	39.82380944	-80.65223279
17,500.00	89.00	150.091	11,844.50	-1,832.38	5,786.91	14,462,679.46	1,738,109.02	39.82357089	-80.65205643
17,600.00	89.00	150.091	11,846.24	-1,919.05	5,836.77	14,462,592.79	1,738,158.87	39.82333235	-80.65188007
17,700.00	89.00	150.091	11,847.98	-2,005.72	5,886.62	14,462,506.13	1,738,208.73	39.82309380	-80.65170371
17,800.00	89.00	150.091	11,849.71	-2,092.39	5,936.48	14,462,419.46	1,738,258.58	39.82285526	-80.65152735
17,900.00	89.00	150.091	11,851.45	-2,179.06	5,986.34	14,462,332.79	1,738,308.44	39.82261672	-80.65135099
18,000.00	89.00	150.091	11,853.19	-2,265.72	6,036.19	14,462,246.12	1,738,358.29	39.82237817	-80.65117463
18,100.00	89.00	150.091	11,854.93	-2,352.39	6,086.05	14,462,159.45	1,738,408.15	39.82213963	-80.65099828
18,200.00	89.00	150.091	11,856.67	-2,439.06	6,135.90	14,462,072.78	1,738,458.00	39.82190108	-80.65082192
18,300.00	89.00	150.091	11,858.41	-2,525.73	6,185.76	14,461,986.12	1,738,507.86	39.82166254	-80.65064557
18,400.00	89.00	150.091	11,860.14	-2,612.40	6,235.61	14,461,899.45	1,738,557.71	39.82142399	-80.65046922
18,500.00	89.00	150.091	11,861.88	-2,699.07	6,285.47	14,461,812.78	1,738,607.57	39.82118545	-80.65029287
18,600.00	89.00	150.091	11,863.62	-2,785.73	6,335.32	14,461,726.11	1,738,657.42	39.82094690	-80.65011652
18,700.00	89.00	150.091	11,865.36	-2,872.40	6,385.18	14,461,639.44	1,738,707.28	39.82070835	-80.64994017
18,800.00	89.00	150.091	11,867.10	-2,959.07	6,435.03	14,461,552.77	1,738,757.14	39.82046981	-80.64976382
18,900.00	89.00	150.091	11,868.83	-3,045.74	6,484.89	14,461,466.11	1,738,806.99	39.82023126	-80.64958748
19,000.00	89.00	150.091	11,870.57	-3,132.41	6,534.74	14,461,379.44	1,738,856.85	39.81999271	-80.64941113
19,100.00	89.00	150.091	11,872.31	-3,219.08	6,584.60	14,461,292.77	1,738,906.70	39.81975417	-80.64923479
19,200.00	89.00	150.091	11,874.05	-3,305.75	6,634.46	14,461,206.10	1,738,956.56	39.81951562	-80.64905845
19,300.00	89.00	150.091	11,875.79	-3,392.41	6,684.31	14,461,119.43	1,739,006.41	39.81927707	-80.64888211
19,400.00	89.00	150.091	11,877.53	-3,479.08	6,734.17	14,461,032.76	1,739,056.27	39.81903852	-80.64870577
19,500.00	89.00	150.091	11,879.26	-3,565.75	6,784.02	14,460,946.10	1,739,106.12	39.81879997	-80.64852943
19,600.00	89.00	150.091	11,881.00	-3,652.42	6,833.88	14,460,859.43	1,739,155.98	39.81856142	-80.64835309



Planning Report - Geographic

Database: DB_Aug1919_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Hudson Alt North
 Well: Hudson S-16 HU (slot P)
 Wellbore: Original hole
 Design: rev7

Local Co-ordinate Reference: Well Hudson S-16 HU (slot P)
 TVD Reference: GL @ 1344.25ft
 MD Reference: GL @ 1344.25ft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N-S (ft)	+E-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
19,700.00	89.00	150.091	11,882.74	-3,739.09	6,883.73	14,460,772.76	1,739,205.83	39.81832287	-80.64817676
19,800.00	89.00	150.091	11,884.48	-3,825.76	6,933.59	14,460,686.09	1,739,255.69	39.81808433	-80.64800042
19,900.00	89.00	150.091	11,886.22	-3,912.42	6,983.44	14,460,599.42	1,739,305.54	39.81784578	-80.64782409
20,000.00	89.00	150.091	11,887.96	-3,999.09	7,033.30	14,460,512.75	1,739,355.40	39.81760723	-80.64764775
20,100.00	89.00	150.091	11,889.69	-4,085.76	7,083.15	14,460,426.09	1,739,405.25	39.81736868	-80.64747142
20,200.00	89.00	150.091	11,891.43	-4,172.43	7,133.01	14,460,339.42	1,739,455.11	39.81713013	-80.64729509
20,300.00	89.00	150.091	11,893.17	-4,259.10	7,182.86	14,460,252.75	1,739,504.96	39.81689157	-80.64711876
20,400.00	89.00	150.091	11,894.91	-4,345.77	7,232.72	14,460,166.08	1,739,554.82	39.81665302	-80.64694244
20,500.00	89.00	150.091	11,896.65	-4,432.44	7,282.57	14,460,079.41	1,739,604.67	39.81641447	-80.64676611
20,600.00	89.00	150.091	11,898.39	-4,519.10	7,332.43	14,459,992.74	1,739,654.53	39.81617592	-80.64658979
20,700.00	89.00	150.091	11,900.12	-4,605.77	7,382.29	14,459,906.08	1,739,704.39	39.81593737	-80.64641346
20,800.00	89.00	150.091	11,901.86	-4,692.44	7,432.14	14,459,819.41	1,739,754.24	39.81569882	-80.64623714
20,900.00	89.00	150.091	11,903.60	-4,779.11	7,482.00	14,459,732.74	1,739,804.10	39.81546026	-80.64606082
21,000.00	89.00	150.091	11,905.34	-4,865.78	7,531.85	14,459,646.07	1,739,853.95	39.81522171	-80.64588450
21,100.00	89.00	150.091	11,907.08	-4,952.45	7,581.71	14,459,559.40	1,739,903.81	39.81498316	-80.64570818
21,200.00	89.00	150.091	11,908.82	-5,039.11	7,631.56	14,459,472.73	1,739,953.66	39.81474461	-80.64553186
21,300.00	89.00	150.091	11,910.55	-5,125.78	7,681.42	14,459,386.07	1,740,003.52	39.81450605	-80.64535554
21,400.00	89.00	150.091	11,912.29	-5,212.45	7,731.27	14,459,299.40	1,740,053.37	39.81426750	-80.64517923
21,500.00	89.00	150.091	11,914.03	-5,299.12	7,781.13	14,459,212.73	1,740,103.23	39.81402894	-80.64500292
21,600.00	89.00	150.091	11,915.77	-5,385.79	7,830.98	14,459,126.06	1,740,153.08	39.81379039	-80.64482660
21,700.00	89.00	150.091	11,917.51	-5,472.46	7,880.84	14,459,039.39	1,740,202.94	39.81355184	-80.64465029
21,800.00	89.00	150.091	11,919.25	-5,559.13	7,930.69	14,458,952.73	1,740,252.79	39.81331328	-80.64447398
21,900.00	89.00	150.091	11,920.98	-5,645.79	7,980.55	14,458,866.06	1,740,302.65	39.81307473	-80.64429767
22,000.00	89.00	150.091	11,922.72	-5,732.46	8,030.40	14,458,779.39	1,740,352.50	39.81283617	-80.64412136
22,100.00	89.00	150.091	11,924.46	-5,819.13	8,080.26	14,458,692.72	1,740,402.36	39.81259761	-80.64394506
22,200.00	89.00	150.091	11,926.20	-5,905.80	8,130.12	14,458,606.05	1,740,452.21	39.81235906	-80.64376875
22,300.00	89.00	150.091	11,927.94	-5,992.47	8,179.97	14,458,519.38	1,740,502.07	39.81212050	-80.64359245
22,400.00	89.00	150.091	11,929.67	-6,079.14	8,229.83	14,458,432.72	1,740,551.92	39.81188195	-80.64341614
22,500.00	89.00	150.091	11,931.41	-6,165.80	8,279.68	14,458,346.05	1,740,601.78	39.81164339	-80.64323984
22,600.00	89.00	150.091	11,933.15	-6,252.47	8,329.54	14,458,259.38	1,740,651.63	39.81140483	-80.64306354
22,700.00	89.00	150.091	11,934.89	-6,339.14	8,379.39	14,458,172.71	1,740,701.49	39.81116627	-80.64288724
22,800.00	89.00	150.091	11,936.63	-6,425.81	8,429.25	14,458,086.04	1,740,751.35	39.81092772	-80.64271094
22,900.00	89.00	150.091	11,938.37	-6,512.48	8,479.10	14,457,999.37	1,740,801.20	39.81068916	-80.64253464
23,000.00	89.00	150.091	11,940.10	-6,599.15	8,528.96	14,457,912.71	1,740,851.06	39.81045060	-80.64235835
23,100.00	89.00	150.091	11,941.84	-6,685.82	8,578.81	14,457,826.04	1,740,900.91	39.81021204	-80.64218205
23,200.00	89.00	150.091	11,943.58	-6,772.48	8,628.67	14,457,739.37	1,740,950.77	39.80997348	-80.64200576
23,300.00	89.00	150.091	11,945.32	-6,859.15	8,678.52	14,457,652.70	1,741,000.62	39.80973493	-80.64182947
23,400.00	89.00	150.091	11,947.06	-6,945.82	8,728.38	14,457,566.03	1,741,050.48	39.80949637	-80.64165318
23,500.00	89.00	150.091	11,948.80	-7,032.49	8,778.24	14,457,479.36	1,741,100.33	39.80925781	-80.64147689
23,600.00	89.00	150.091	11,950.53	-7,119.16	8,828.09	14,457,392.70	1,741,150.19	39.80901925	-80.64130060
23,700.00	89.00	150.091	11,952.27	-7,205.83	8,877.95	14,457,306.03	1,741,200.04	39.80878069	-80.64112431
23,800.00	89.00	150.091	11,954.01	-7,292.49	8,927.80	14,457,219.36	1,741,249.90	39.80854213	-80.64094803
23,900.00	89.00	150.091	11,955.75	-7,379.16	8,977.66	14,457,132.69	1,741,299.75	39.80830357	-80.64077174
24,000.00	89.00	150.091	11,957.49	-7,465.83	9,027.51	14,457,046.02	1,741,349.61	39.80806501	-80.64059546
24,100.00	89.00	150.091	11,959.23	-7,552.50	9,077.37	14,456,959.35	1,741,399.46	39.80782644	-80.64041917
24,200.00	89.00	150.091	11,960.96	-7,639.17	9,127.22	14,456,872.69	1,741,449.32	39.80758788	-80.64024289
24,300.00	89.00	150.091	11,962.70	-7,725.84	9,177.08	14,456,786.02	1,741,499.17	39.80734932	-80.64006661
24,400.00	89.00	150.091	11,964.44	-7,812.51	9,226.93	14,456,699.35	1,741,549.03	39.80711076	-80.63989033
24,500.00	89.00	150.091	11,966.18	-7,899.17	9,276.79	14,456,612.68	1,741,598.88	39.80687220	-80.63971406
24,600.00	89.00	150.091	11,967.92	-7,985.84	9,326.64	14,456,526.01	1,741,648.74	39.80663363	-80.63953778
24,700.00	89.00	150.091	11,969.66	-8,072.51	9,376.50	14,456,439.34	1,741,698.60	39.80639507	-80.63936150
24,800.00	89.00	150.091	11,971.39	-8,159.18	9,426.35	14,456,352.68	1,741,748.45	39.80615651	-80.63918523
24,900.00	89.00	150.091	11,973.13	-8,245.85	9,476.21	14,456,266.01	1,741,798.31	39.80591795	-80.63900896
25,000.00	89.00	150.091	11,974.87	-8,332.52	9,526.07	14,456,179.34	1,741,848.16	39.80567938	-80.63883269
25,100.00	89.00	150.091	11,976.61	-8,419.18	9,575.92	14,456,092.67	1,741,898.02	39.80544082	-80.63865642



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Hudson S-16 HU (slot P)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1344.25ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1344.25ft
Site:	Hudson Alt North	North Reference:	Grid
Well:	Hudson S-16 HU (slot P)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev7		

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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	
25,200.00	89.00	150.091	11,978.35	-8,505.85	9,625.78	14,456,006.00	1,741,947.87	39.80520225	-80.63848015	
25,300.00	89.00	150.091	11,980.09	-8,592.52	9,675.63	14,455,919.33	1,741,997.73	39.80496369	-80.63830388	
25,400.00	89.00	150.091	11,981.82	-8,679.19	9,725.49	14,455,832.67	1,742,047.58	39.80472513	-80.63812761	
25,500.00	89.00	150.091	11,983.56	-8,765.86	9,775.34	14,455,746.00	1,742,097.44	39.80448656	-80.63795135	
25,600.00	89.00	150.091	11,985.30	-8,852.53	9,825.20	14,455,659.33	1,742,147.29	39.80424800	-80.63777508	
25,700.00	89.00	150.091	11,987.04	-8,939.20	9,875.05	14,455,572.66	1,742,197.15	39.80400943	-80.63759882	
25,800.00	89.00	150.091	11,988.78	-9,025.86	9,924.91	14,455,485.99	1,742,247.00	39.80377086	-80.63742256	
25,900.00	89.00	150.091	11,990.51	-9,112.53	9,974.76	14,455,399.33	1,742,296.86	39.80353230	-80.63724630	
26,000.00	89.00	150.091	11,992.25	-9,199.20	10,024.62	14,455,312.66	1,742,346.71	39.80329373	-80.63707004	
26,100.00	89.00	150.091	11,993.99	-9,285.87	10,074.47	14,455,225.99	1,742,396.57	39.80305517	-80.63689378	
26,200.00	89.00	150.091	11,995.73	-9,372.54	10,124.33	14,455,139.32	1,742,446.42	39.80281660	-80.63671752	
26,300.00	89.00	150.091	11,997.47	-9,459.21	10,174.18	14,455,052.65	1,742,496.28	39.80257803	-80.63654127	
26,400.00	89.00	150.091	11,999.21	-9,545.88	10,224.04	14,454,965.98	1,742,546.13	39.80233946	-80.63636501	
26,500.00	89.00	150.091	12,000.94	-9,632.54	10,273.90	14,454,879.32	1,742,595.99	39.80210090	-80.63618876	
26,600.00	89.00	150.091	12,002.68	-9,719.21	10,323.75	14,454,792.65	1,742,645.84	39.80186233	-80.63601250	
26,700.00	89.00	150.091	12,004.42	-9,805.88	10,373.61	14,454,705.98	1,742,695.70	39.80162376	-80.63583625	
26,800.00	89.00	150.091	12,006.16	-9,892.55	10,423.46	14,454,619.31	1,742,745.56	39.80138519	-80.63566000	
26,900.00	89.00	150.091	12,007.90	-9,979.22	10,473.32	14,454,532.64	1,742,795.41	39.80114662	-80.63548376	
27,000.00	89.00	150.091	12,009.64	-10,065.89	10,523.17	14,454,445.97	1,742,845.27	39.80090805	-80.63530751	
27,100.00	89.00	150.091	12,011.37	-10,152.55	10,573.03	14,454,359.31	1,742,895.12	39.80066949	-80.63513126	
27,200.00	89.00	150.091	12,013.11	-10,239.22	10,622.88	14,454,272.64	1,742,944.98	39.80043092	-80.63495502	
27,300.00	89.00	150.091	12,014.85	-10,325.89	10,672.74	14,454,185.97	1,742,994.83	39.80019235	-80.63477877	
27,400.00	89.00	150.091	12,016.59	-10,412.56	10,722.59	14,454,099.30	1,743,044.69	39.79995378	-80.63460253	
27,500.00	89.00	150.091	12,018.33	-10,499.23	10,772.45	14,454,012.63	1,743,094.54	39.79971521	-80.63442629	
27,600.00	89.00	150.091	12,020.07	-10,585.90	10,822.30	14,453,925.96	1,743,144.40	39.79947663	-80.63425005	
27,700.00	89.00	150.091	12,021.80	-10,672.57	10,872.16	14,453,839.30	1,743,194.25	39.79923806	-80.63407381	
27,800.00	89.00	150.091	12,023.54	-10,759.23	10,922.01	14,453,752.63	1,743,244.11	39.79899949	-80.63389757	
27,900.00	89.00	150.091	12,025.28	-10,845.90	10,971.87	14,453,665.96	1,743,293.96	39.79876092	-80.63372134	
28,000.00	89.00	150.091	12,027.02	-10,932.57	11,021.73	14,453,579.29	1,743,343.82	39.79852235	-80.63354510	
28,100.00	89.00	150.091	12,028.76	-11,019.24	11,071.58	14,453,492.62	1,743,393.67	39.79828378	-80.63336887	
28,200.00	89.00	150.091	12,030.50	-11,105.91	11,121.44	14,453,405.95	1,743,443.53	39.79804521	-80.63319263	
28,300.00	89.00	150.091	12,032.23	-11,192.58	11,171.29	14,453,319.29	1,743,493.38	39.79780663	-80.63301640	
28,400.00	89.00	150.091	12,033.97	-11,279.24	11,221.15	14,453,232.62	1,743,543.24	39.79756806	-80.63284017	
28,500.00	89.00	150.091	12,035.71	-11,365.91	11,271.00	14,453,145.95	1,743,593.09	39.79732949	-80.63266394	
28,600.00	89.00	150.091	12,037.45	-11,452.58	11,320.86	14,453,059.28	1,743,642.95	39.79709091	-80.63248772	
28,700.00	89.00	150.091	12,039.19	-11,539.25	11,370.71	14,452,972.61	1,743,692.80	39.79685234	-80.63231149	
28,800.00	89.00	150.091	12,040.93	-11,625.92	11,420.57	14,452,885.94	1,743,742.66	39.79661377	-80.63213526	
28,900.00	89.00	150.091	12,042.66	-11,712.59	11,470.42	14,452,799.28	1,743,792.52	39.79637519	-80.63195904	
29,000.00	89.00	150.091	12,044.40	-11,799.26	11,520.28	14,452,712.61	1,743,842.37	39.79613662	-80.63178282	
29,100.00	89.00	150.091	12,046.14	-11,885.92	11,570.13	14,452,625.94	1,743,892.23	39.79589804	-80.63160659	
29,200.00	89.00	150.091	12,047.88	-11,972.59	11,619.99	14,452,539.27	1,743,942.08	39.79565947	-80.63143037	
29,300.00	89.00	150.091	12,049.62	-12,059.26	11,669.85	14,452,452.60	1,743,991.94	39.79542090	-80.63125415	
29,400.00	89.00	150.091	12,051.35	-12,145.93	11,719.70	14,452,365.93	1,744,041.79	39.79518232	-80.63107794	
29,500.00	89.00	150.091	12,053.09	-12,232.60	11,769.56	14,452,279.27	1,744,091.65	39.79494374	-80.63090172	
29,600.00	89.00	150.091	12,054.83	-12,319.27	11,819.41	14,452,192.60	1,744,141.50	39.79470517	-80.63072550	
29,700.00	89.00	150.091	12,056.57	-12,405.93	11,869.27	14,452,105.93	1,744,191.36	39.79446659	-80.63054929	
29,800.00	89.00	150.091	12,058.31	-12,492.60	11,919.12	14,452,019.26	1,744,241.21	39.79422801	-80.63037308	
29,900.00	89.00	150.091	12,060.05	-12,579.27	11,968.98	14,451,932.59	1,744,291.07	39.79398944	-80.63019686	
30,000.00	89.00	150.091	12,061.78	-12,665.94	12,018.83	14,451,845.92	1,744,340.92	39.79375086	-80.63002065	
30,100.00	89.00	150.091	12,063.52	-12,752.61	12,068.69	14,451,759.26	1,744,390.78	39.79351228	-80.62984444	
30,200.00	89.00	150.091	12,065.26	-12,839.28	12,118.54	14,451,672.59	1,744,440.63	39.79327370	-80.62966823	
30,300.00	89.00	150.091	12,067.00	-12,925.95	12,168.40	14,451,585.92	1,744,490.49	39.79303513	-80.62949203	
30,400.00	89.00	150.091	12,068.74	-13,012.61	12,218.25	14,451,499.25	1,744,540.34	39.79279655	-80.62931582	
30,500.00	89.00	150.091	12,070.48	-13,099.28	12,268.11	14,451,412.58	1,744,590.20	39.79255797	-80.62913962	
30,600.00	89.00	150.091	12,072.21	-13,185.95	12,317.96	14,451,325.92	1,744,640.05	39.79231939	-80.62896341	



Planning Report - Geographic

Database:	DB_Aug1919_v14	Local Co-ordinate Reference:	Well Hudson S-16 HU (slot P)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1344.25ft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 1344.25ft
Site:	Hudson Alt North	North Reference:	Grid
Well:	Hudson S-16 HU (slot P)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original hole		
Design:	rev7		

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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
30,700.00	89.00	150.091	12,073.95	-13,272.62	12,367.82	14,451,239.25	1,744,689.91	39.79208081	-80.62878721
30,760.28	89.00	150.091	12,075.00	-13,324.86	12,397.87	14,451,187.01	1,744,719.96	39.79193700	-80.62868100
PBHL/TD 30760.28 MD/12075.00 TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Hudson N-16HU LP r4 - hit/miss target - Shape - Point	0.00	0.000	11,768.25	1,969.26	3,600.05	14,466,481.09	1,735,922.16	39.83403413	-80.65979357
Hudson N-16HU PBHL r - plan hits target center - Point	0.00	0.000	12,075.00	-13,324.86	12,397.87	14,451,187.01	1,744,719.96	39.79193700	-80.62868100

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,100.00	1,100.00	0.00	0.00	KOP Begin 2°/100' build	
1,300.00	1,299.84	0.00	6.98	Begin 2°/100' build/turn	
1,460.79	1,460.17	4.51	17.96	Begin 5.00° tangent	
3,106.89	3,100.00	96.72	127.86	Begin 3°/100' build	
3,606.89	3,586.76	166.09	210.52	Begin 20.00° tangent	
6,919.93	6,700.00	894.45	1,078.55	Begin 5°/100' drop	
7,119.93	6,892.94	927.68	1,118.15	Begin 10.00° tangent	
7,330.19	7,100.00	951.15	1,146.12	Begin 4°/100' build/turn	
7,850.87	7,585.31	1,065.49	1,285.91	Begin 30.83° tangent	
11,941.02	11,097.65	2,385.59	2,913.81	Begin 8°/100' build/turn	
13,113.58	11,768.25	1,969.26	3,600.05	Begin 89.00° lateral	
30,760.28	12,075.00	-13,324.86	12,397.87	PBHL/TD 30760.28 MD/12075.00 TVD	

4705102329

WW-9
(4/16)

API Number 47 - 051 -

Operator's Well No. Hudson S-16HU

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) Grave Creek Quadrangle Glen Easton 7.5'

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

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

Company Official Title Vice President - Geoscience

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WV Department of
Environmental Protection

Subscribed and sworn before me this 25th day of February, 20 20

[Signature]

Notary Public

My commission expires 2-10-2024

Commonwealth of Pennsylvania - Notary Seal
Chester Arthur West IV, Notary Public
Washington County
My commission expires February 10, 2024
Commission number 1267179
Member, Pennsylvania Association of Notaries

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 22.94 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: *Jane Uehls*

Comments: _____

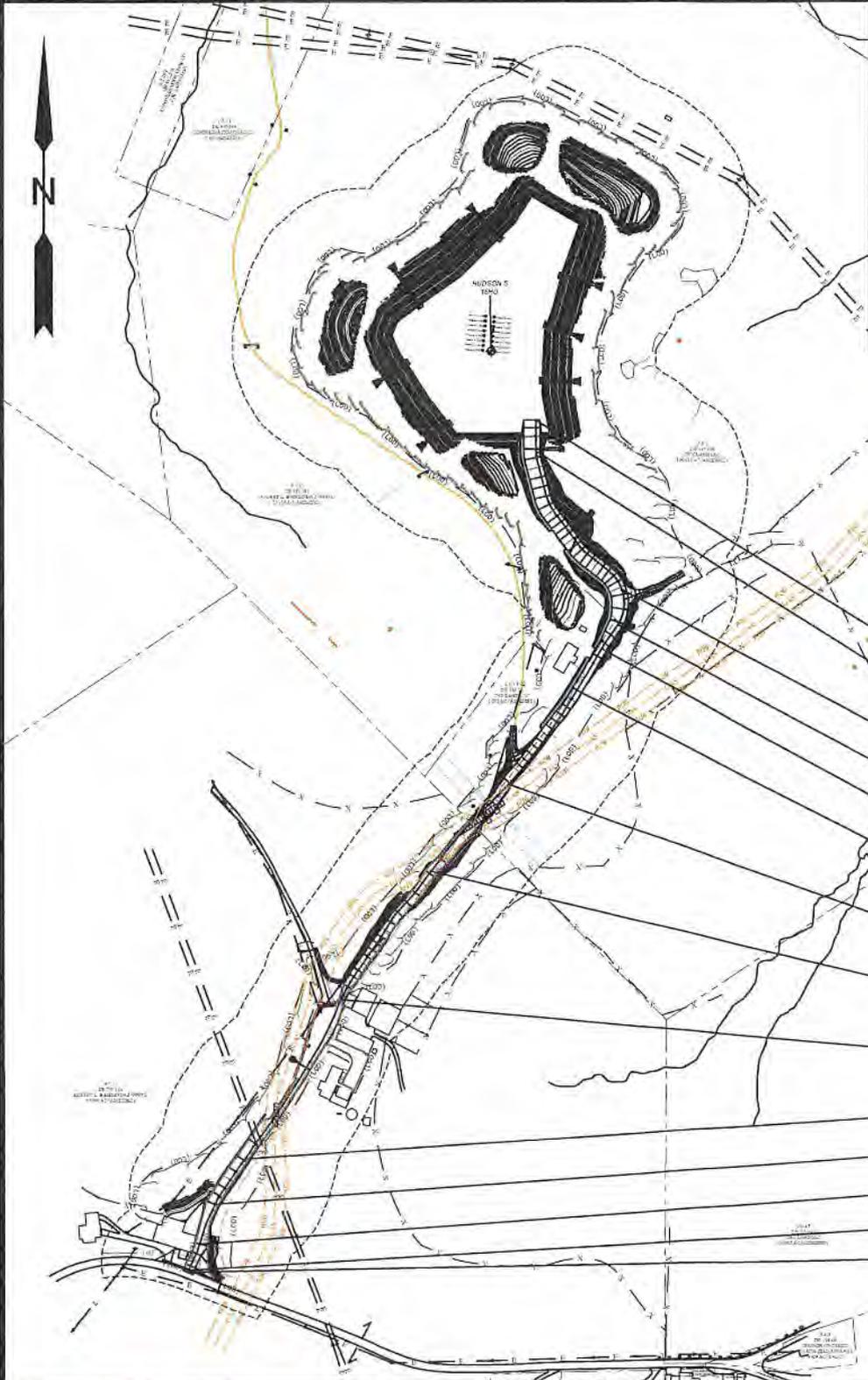
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Title: Oil and Gas Inspector

Date: 3/11/2020

Field Reviewed? Yes No

PROPOSED HUDSON S - 16HU



- NOTES:**
1. DRAWING NOT TO SCALE
 2. 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.
 3. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
 4. SEE HUDSON SOUTH SITE PLAN PREPARED BY KELLEY SURVEYING, FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.

- 86' @ 0-8% GRADE
- 412' @ 8-12% GRADE
- 86' @ 0-5% GRADE
- 71' @ 5-10% GRADE
- 118' @ 0-5% GRADE
- 283' @ 5-10% GRADE
- 285' @ 0-5% GRADE
- 383' @ 5-10% GRADE
- 455' @ 0-5% GRADE
- 133' @ 5-10% GRADE
- 105' @ 0-5% GRADE
- 70' @ 5-10% GRADE
- 5' @ 0-5% GRADE

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 slswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8911	03/10/20	NONE

TUG HILL OPERATING

4705102329



Well Site Safety Plan

Tug Hill Operating, LLC

ju
3/11/2020

Well Name: Hudson S-16HU

Location: Hudson Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

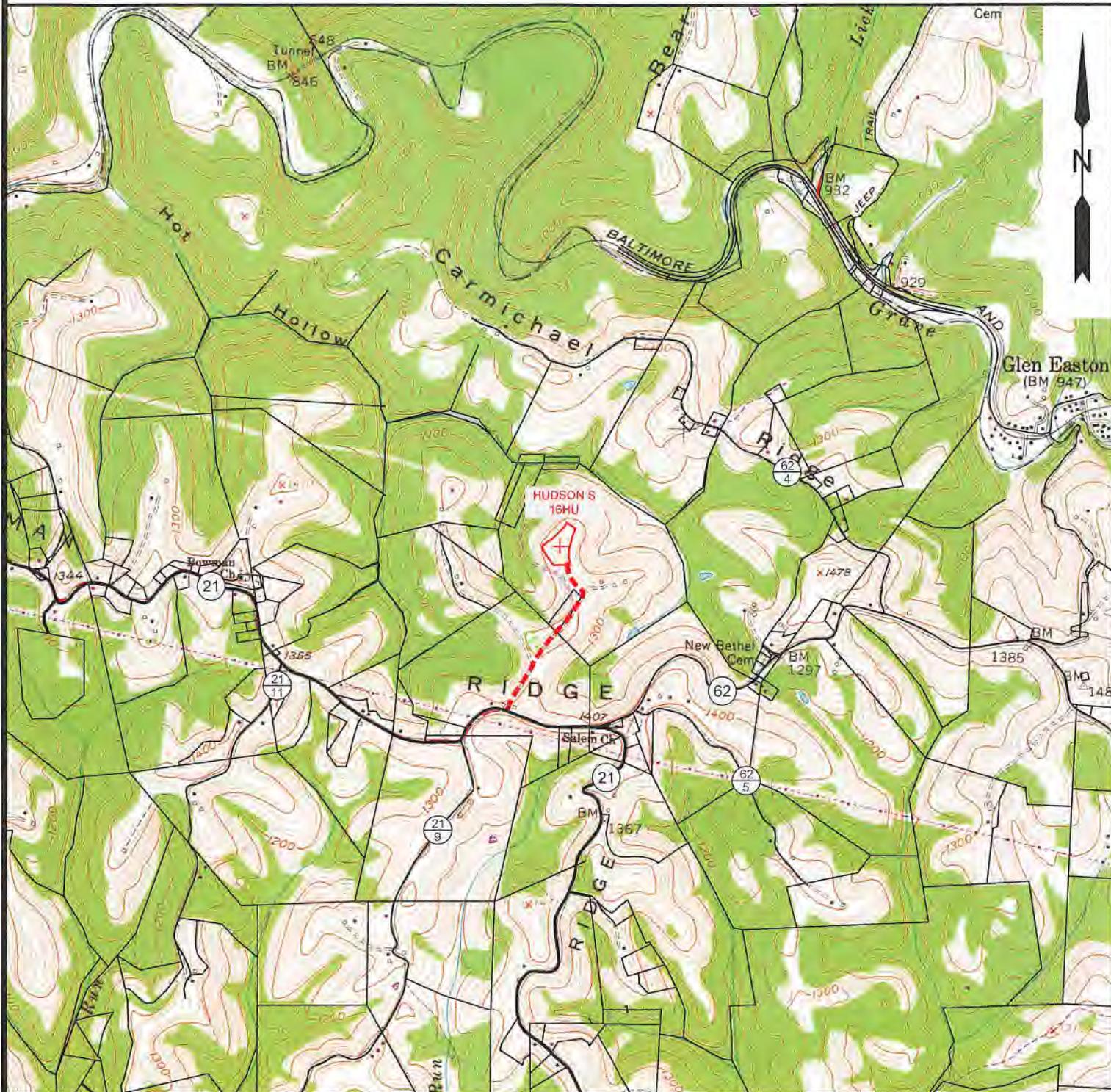
Northing: 4,408,791.97

Easting: 528,012.83

February 2020

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Office of Oil and Gas
MAR 19 2020
WV Department of
Environmental Protection

PROPOSED HUDSON S - 16HU



NOTE: CLOSEST WATER PURVEYOR
CITY OF CAMERON - FRANK WALKER RESERVOIR
CAMDEN, WV

LAT: 39.829865
LON: -80.573724
LOCATED: N 89°55'26" E AT 27,779.45' FROM THE CENTER OF HUDSON S WELL PAD LOCATION.



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254 East Beckley Bypass | Beckley, WV 25801 | 304.253.5296
slswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
DRAWN BY		DATE	SCALE
K.G.M.		03/10/2020	1" - 2000'

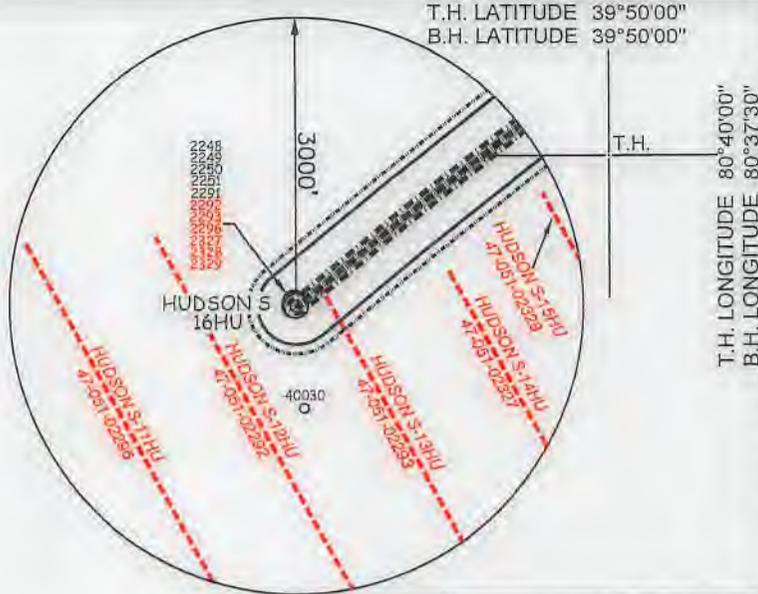


TUG HILL
OPERATING

**HUDSON S LEASE
UTICA UNIT - 591.18 AC±
WELL 16HU
TUG HILL OPERATING**

MAP/PARCEL	ADJOINING SURFACE OWNER LIST	ACRES
9-2-9.2	CONSOLIDATION COAL CO.	1.00
9-2-9.3	RAYMOND E. & CINDY WHITE, ET AL	1.00E
9-3-1.1	CONSOLIDATION COAL CO.	5.00
9-3-1.2	CONSOLIDATION COAL CO.	1.00
9-3-1.3	CNX LAND CO. LLC	2.245
9-3-2.2	JOHN W. & RACHEL A. HOLPP	0.483
9-3-4.3	JOHN W. & RACHEL A. HOLPP	0.870
9-3-4.4	JIM & GINGER REGIEC	1.004
9-3-6.1	JOSEPH L. MILETO, II	1.046E
9-3-18.2	RAYMOND E. & CINDY WHITE, ET AL	2.103
9-3-18.3	RAYMOND & CINDY WHITE	0.086
9-3-19	CNX LAND CO. LLC	0.5
9-5-10	ROBERT J. & MELINDA J. WHITE	27.957
9-5-10.1	CNX LAND CO. LLC	8.453
9-8-5.1	CNX LAND CO. LLC	1.040
9-8-5.2	CNX LAND CO. LLC	4.586
9-8-6.1	MARK E. WOOD & SUNNI H. HARTLEY	1.423

TAG	SURFACE OWNER	PARCEL	ACRES
A	CNX LAND LLC	9-3-1	106.935
B	JOHN W. & RACHEL A. HOLPP	9-3-2.5	56.259
C	STEPHEN W. JOHNSON	9-3-2.3	0.591
D	KENNETH F. LIGHTNER, ET UX	9-3-2.1	0.940
E	JAMES & GINGER REGIEC	9-3-2	29.49
F	JAMES & GINGER REGIEC	9-3-4.7	25.025
G	LISA A. MOWRY	9-3-3	68.30
H	JIM & GINGER REGIEC	9-3-4.4	1.044
I	GRANT M. & MALISSA D. CARTER	9-3-4.5	50.543
J	GRANT M. & MALISSA D. CARTER	9-3-4	7.507
K	GRANT M. & MALISSA D. CARTER	9-3-4.2	0.720
L	DAVID E. WEST, ET UX	9-3-4.6	12.035
M	RAYMOND E. & CINDY L. WHITE	9-3-20	127.00
N	DANIEL WEST, ET UX	9-3-4.1	0.986
O	JOHN & RACHEL HOLPP	9-3-4.3	0.870
P	JOSEPH L. MILETO, II	9-3-6.1	1.046E
Q	ALVIN D. & CAROL D. BARRETT	9-3-6	29.9702
R	LLOYD ANDREW BEE, ET UX	9-3-18.1	1.010
S	LLOYD ANDREW BEE, ET UX	9-3-18	19.921
T	ALVIN D. & CAROL D. BARRETT	9-3-7	27.19
U	CNX LAND LLC	9-3-17	77.66
V	KENNETH L. & CAROL J. NEELY - TODD	9-8-7	8.613
W	CNX LAND LLC	9-8-6	27.596
X	LARRY S. NEELY	9-8-7.1	76.055
Y	JAMES RICHARD BLAKE, ET UX	9-8-9	42.49
Z	JAMES RICHARD BLAKE, ET UX	9-8-8	49.86
AA	GLEN G. GORCZYCA	9-9-5	25.12
BB	MARY LOU RUBINI, ET AL	9-9-4	268.39
CC	JOSEPH B. & JUDITH PATRELLO	9-9-9.1	149.924
DD	MARVIN D. & ADA C. DOBBS (LIFE), ET AL	9-9-5	76.25
EE	MARTIN DAVIS	9-9-10	6.00
FF	GARY W. MORRIS	9-9-12	54.74
GG	GARY W. MORRIS	9-9-11	14.00
HH	DANNY R. & FRANCES V. KERNS ESTATE	9-9-14	48.308
II	DANNY R. & FRANCES V. KERNS ESTATE	7-1-3	58.00
JJ	DANNY R. & FRANCES V. KERNS ESTATE	7-8-1	27.00
KK	DANNY R. & FRANCES V. KERNS ESTATE	7-8-2	94.00
LL	GEO A. HURRIS	7-8-14	95.44
MM	BLAINE E. STERN, JR	7-8-13	104.92
NN	BLAINE E. STERN, JR	7-8-11	60.62
OO	CONSOLIDATION COAL COMPANY	7-1-4	32.00



(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

NAD'83 S.P.C.(FT)	N. 466,090.76	E. 1,639,175.98
NAD'83 GEO.	LAT-(N) 39.828663	LONG-(W) 80.672643
NAD'83 UTM (M)	N. 4,408,782.03	E. 528,012.84

LANDING POINT

NAD'83 S.P.C.(FT)	N. 488,000.2	E. 1,642,809.7
NAD'83 GEO.	LAT-(N) 39.834034	LONG-(W) 80.659794
NAD'83 UTM (M)	N. 4,409,392.3	E. 529,110.1

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 472,556.1	E. 1,851,353.5
NAD'83 GEO.	LAT-(N) 39.791937	LONG-(W) 80.828681
NAD'83 UTM (M)	N. 4,404,730.6	E. 531,791.7

REFERENCES



NOTES ON SURVEY

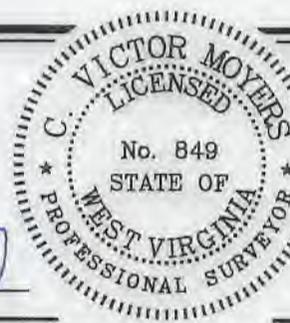
- NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
- WELL SPOT CIRCLE & TOPD MARK SCALE ARE 1"=2000'
- PROPOSED LATERAL OR TOP HOLE OF HUDSON S-16HU (47-051-02329) IS WITHIN 3000' OF THE TOP HOLES OR LATERALS OF HUDSON S-11HU (47-051-02295), HUDSON S-12HU (47-051-02292), HUDSON S-13HU (47-051-02293), HUDSON S-14HU (47-051-02327), HUDSON S-15HU (47-051-02328).
- MINIMUM OFFSET SPACING REQUIREMENTS EXEMPTED BY WAIVER WITH THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS AND OFFSET LEASEHOLDER AGREEMENTS AS PROVIDED BY TUG HILL OPERATING.



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254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slew.com

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 849 *C. Victor Moyers*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE APRIL 1, 20 20
APRIL 17, JULY 16, AUGUST 12;
REVISED SEPT. 16, SEPT. 22, DEC. 22, 20 20
OPERATORS WELL NO. HUDSON S-16HU
API WELL NO. 47 - 051 - 02329
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8911P16HUR7.dwg
HUDSON S-16HU REV7
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



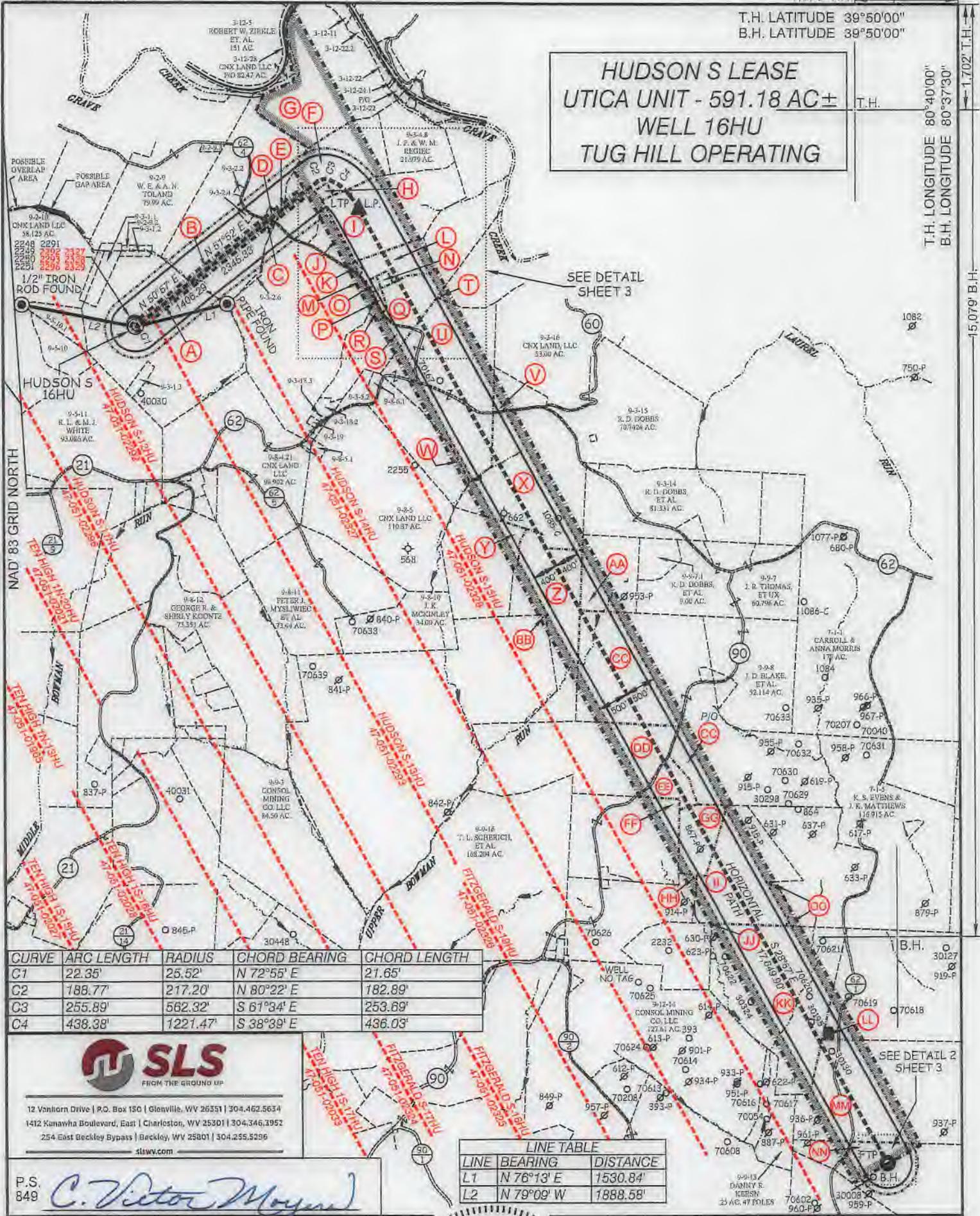
WELL TYPE: OIL GAS INJECTION WASTE DISPOSAL IF "GAS" PRODUCTION STORAGE DEEP SHALLOW
LOCATION: GROUND = 1,366.80' ELEVATION PROPOSED = 1,344.81' WATERSHED HOT HOLLOW OF GRAVE CREEK (HUC 10)
DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'
SURFACE OWNER CNX LAND LLC ACREAGE 106.935±
ROYALTY OWNER CHARLENE L. BAKER, ET AL ACREAGE 106.935±
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER
PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION POINT PLEASANT
ESTIMATED DEPTH TVD: 12,001' / TMD: 30,760'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS CT CORPORATION SYSTEM
FORT WORTH, TX 76107 ADDRESS 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

COUNTY NAME
PERMIT

T.H. LATITUDE 39°50'00"
B.H. LATITUDE 80°50'00"

**HUDSON S LEASE
UTICA UNIT - 591.18 AC±
WELL 16HU
TUG HILL OPERATING**



CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	22.35'	25.52'	N 72°55' E	21.65'
C2	188.77'	217.20'	N 80°22' E	182.89'
C3	255.89'	562.32'	S 61°34' E	253.69'
C4	438.38'	1221.47'	S 38°39' E	436.03'



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slsw.com

P.S. 849 *C. Victor Moyers*

LINE TABLE

LINE	BEARING	DISTANCE
L1	N 76°13' E	1530.84'
L2	N 79°09' W	1888.58'



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

LEGEND

- UNIT BOUNDARY
- LEASED TRACTS INSIDE UNIT BOUNDARY
- SURFACE LINE
- PROPOSED UTICA WELL LATERAL
- 400' OFFSET LINE
- 500' OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- PROPOSED FIRST TAKE POINT
- PROPOSED LAST TAKE POINT
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- SURFACE OWNER (SEE TABLE)
- LEASE # (SEE ADDITIONAL SHEETS)

SCALE 1" = 2000' FILE NO. 8911P16HUR7.dwg
HUDSON S-16HU REV7
DATE APRIL 1, 20 20
APRIL 17, JULY 16, AUGUST 12, 20 20
REVISED SEPT. 16, SEPT. 22, DEC. 22, 20 20
OPERATORS WELL NO. HUDSON S-16HU
API WELL 47 - 051 - 02329
NO. STATE COUNTY PERMIT

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



WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD
FORT WORTH, TX 76107 CHARLESTON, WV 25313

T.H. LONGITUDE 80°40'00"
B.H. LONGITUDE 80°37'30"

15,079' B.H.

COUNTY NAME

PERMIT

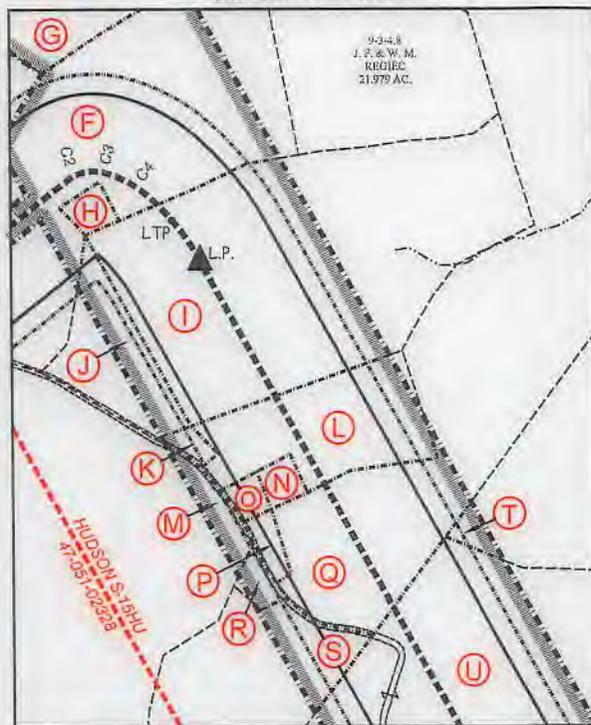
**HUDSON S LEASE
UTICA UNIT - 591.18 AC ±
WELL 16HU
TUG HILL OPERATING**



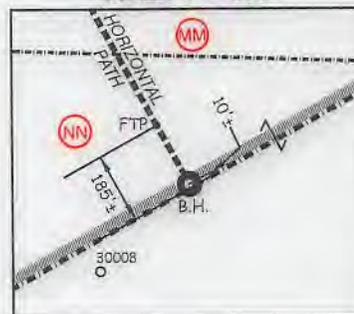
12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slwv.com

NO.	Lease ID	Parcel	Tags	Grantor, Lessor, Etc.	Deed Book/Page	
1	10*26041	9-3-1	A	FREDDIE C WHITE AND VIOLET L WHITE, ET AL	728	527
2	10*28190	9-3-2.5	B	J RUSSELL LOGSDON, ET AL	1068	309
3	10*28190	9-3-2.3	C	J RUSSELL LOGSDON, ET AL	1068	309
4	10*28190	9-3-2.1	D	J RUSSELL LOGSDON, ET AL	1068	309
5	10*28190	9-3-2	E	J RUSSELL LOGSDON, ET AL	1068	309
6	10*31219	9-3-4.7	F	DONNA FAYE EARNEST, ET AL	690	341
7	10*18339	9-3-3	G	RESOURCE MINERALS HEADWATER I LP	940	448
8	10*31219	9-3-4.4	H	DONNA FAYE EARNEST, ET AL	690	341
9	10*31219	9-3-4.5	I	DONNA FAYE EARNEST, ET AL	690	341
10	10*31219	9-3-4	J	DONNA FAYE EARNEST, ET AL	690	341
11	10*31219	9-3-4.2	K	DONNA FAYE EARNEST, ET AL	690	341
12	10*31219	9-3-4.6	L	DONNA FAYE EARNEST, ET AL	690	341
13	10*21345	9-3-20	M	AARON PARRY SR AND JANA PARRY TRUSTEES AARON PARRY SR & JANA PARRY REV LIV TRUS	957	280
14	10*31219	9-3-4.1	N	DONNA FAYE EARNEST, ET AL	690	341
15	10*31219	9-3-4.3	O	DONNA FAYE EARNEST, ET AL	690	341
16	10*28454	9-3-6.1	P	TRAVIS J POSTLETHWAIT	1072	379
17	10*31225	9-3-6	Q	ALVIN D. BARRETT	727	112
18	10*21412	9-3-18.1	R	GARY DOBBS AND SUSAN DOBBS	957	270
19	10*21412	9-3-18	S	GARY DOBBS AND SUSAN DOBBS	957	270
20	NA	9-3-7	T	ALVIN D. BARRETT	726	464
21	10*21602	9-3-17	U	CAROL STACY SAUNDERS, ET AL	959	289
22	10*28092	9-8-7	V	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, ET AL	1073	370
23	10*21602	9-8-6	W	CAROL STACY SAUNDERS, ET AL	959	289
24	10*28092	9-8-7.1	X	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, ET AL	1073	370
25	10*22055	9-8-9	Y	STONE HILL MINERALS HOLDINGS LLC, ET AL	1010	226
26	10*22055	9-8-8	Z	STONE HILL MINERALS HOLDINGS LLC, ET AL	1010	226
27	10*19634	9-9-6	AA	JANICE L PIETERSE, ET AL	960	153
28	10*31001	9-9-4	BB	ERIC KATZMEYER, ET AL	791	226
29	10*22615	9-9-9.1	CC	DAVID D MURRAY AND MARY ANN MURRAY, ET AL	965	591
30	10*28244	9-9-5	DD	MICHAEL D DOBBS AND STEPHANIE J DOBBS, ET AL	1068	569
31	10*27304	9-9-10	EE	H3 LLC	1058	559
32	10*21859	9-9-12	FF	GARY WAYNE MORRIS	960	192
33	10*21859	9-9-11	GG	GARY WAYNE MORRIS	960	192
34	10*28697	9-9-14	HH	DANNY S KERNS, ET AL	1075	134
35	10*17969	7-1-3	II	BOUNTY MINERALS LLC, ET AL	928	424
36	10*25518	7-8-1	JJ	DANNY S KERNS, ET AL	1010	532
37	10*25518	7-8-2	KK	DANNY S KERNS, ET AL	1010	532
38	10*25508	7-8-14	LL	THE AMY M TOUPS FAMILY TRUST OF 2013 DATED JUNE 14, 2013	827	119
39	10*25501	7-8-13	MM	AMP FUND III LP, ET AL	925	459
40	10*23026	7-8-11	NN	BLAINE E STERN JR AND CONNIE J STERN	977	339
41	10*26562	7-1-4	OO	MARTHA SUE FORBES	1038	510

DETAIL
SCALE: 1" = 1000'



DETAIL 2
SCALE: 1" = 500'



FILE NO. 8911P16HUR7.dwg
HUDSON S-16HU REV7

DATE APRIL 1, 20 20
REVISED APRIL 17, JULY 16, AUGUST 12,
SEPT. 16, SEPT. 22, DEC. 22, 20 20

OPERATORS WELL NO. HUDSON S-16HU
API WELL NO. 47 — 051 — 02329
NO. STATE COUNTY PERMIT



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



P.S.
849

C. Victor Moyers

WELL OPERATOR TUG HILL OPERATING, LLC
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
FORT WORTH, TX 76107

DESIGNATED AGENT DIANNA STAMPER
ADDRESS CT CORPORATION SYSTEM
5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

COUNTY NAME

PERMIT

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

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

(1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;

(2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

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

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

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

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

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

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

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

WW-6A1 (Well Bore Tracts)

Operator's Well No. Hudson S - 16HU

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment
10*26041	9-3-1	A	FREDDIE C WHITE AND VIOLET L WHITE	CHESAPEAKE APPALACHIA LLC	1/8+	728	527		Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/386	Statoil USA Onshore Properties Inc to Chevron USA Inc: 30/427	Chesapeake Appalachia LLC to Chevron USA Inc: 30/461	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26044	9-3-1	A	JOYCE A WALLACE	CHEVRON USA INC	1/8+	863	296		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26047	9-3-1	A	ROBERT D BLAKE AND ATHENA LIBERTY BLAKE	CHEVRON USA INC	1/8+	863	138		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26048	9-3-1	A	LOIS J ELIAS AND LOUIS J ELIAS	CHEVRON USA INC	1/8+	861	599		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26049	9-3-1	A	MARY H HUBBS	CHEVRON USA INC	1/8+	863	560		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26050	9-3-1	A	BERNARD O CROW AND KAREN S CROW	CHEVRON USA INC	1/8+	863	627		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26051	9-3-1	A	ROBERT W KIDNER	CHEVRON USA INC	1/8+	863	644		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26052	9-3-1	A	BETTY J BLAKE	CHEVRON USA INC	1/8+	863	545		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26053	9-3-1	A	ANTHONY T MOORE	CHEVRON USA INC	1/8+	854	343		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26054	9-3-1	A	HIRAM VERNON MOORE	CHEVRON USA INC	1/8+	854	353		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26055	9-3-1	A	LARRY W MOORE SR	CHEVRON USA INC	1/8+	854	348		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26056	9-3-1	A	RONALD W MOORE	CHEVRON USA INC	1/8+	854	338		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26057	9-3-1	A	JOHN PURDY AND BRENDA S PURDY	CHEVRON USA INC	1/8+	854	420		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26058	9-3-1	A	CAROLE J WOOD	CHEVRON USA INC	1/8+	854	415		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26059	9-3-1	A	TERRY L BLAKE	CHEVRON USA INC	1/8+	854	215		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26060	9-3-1	A	ROBERT C BLAKE AND LYN BLAKE	CHEVRON USA INC	1/8+	854	333		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95

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Office of Oil and Gas
N/A
FEB 22 2021

WW-6A1 (Well Bore Tracts)

Operator's Well No. Hudson S - 16HU

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment
10*26061	9-3-1	A	RODNEY W AND LINDA L HUBBS	CHEVRON USA INC	1/8+	854	435		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26062	9-3-1	A	SHANNON ROGER AND LORRAINE HUBBS	CHEVRON USA INC	1/8+	854	233		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26063	9-3-1	A	PATTY L RINE AND FLOYD D RINE	CHEVRON USA INC	1/8+	854	238		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26064	9-3-1	A	CATHARINE LEE BLAKE	CHEVRON USA INC	1/8+	863	550		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26066	9-3-1	A	DANNY E AND MARVA L BEYSER	CHEVRON USA INC	1/8+	858	36		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26067	9-3-1	A	DONALD DEAN BEYSER	CHEVRON USA INC	1/8+	858	41		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26068	9-3-1	A	GARY F BLAKE AND DORIS E BLAKE	CHEVRON USA INC	1/8+	858	31		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26069	9-3-1	A	MARILYN SUE REILLEY	CHEVRON USA INC	1/8+	857	597		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26070	9-3-1	A	MARY W HOLMES	CHEVRON USA INC	1/8+	857	602		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26071	9-3-1	A	CHARLENE LORRAINE BAKER	CHEVRON USA INC	1/8+	857	607		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26072	9-3-1	A	JAMES L BLAKE	CHEVRON USA INC	1/8+	857	616		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26073	9-3-1	A	DARLENE L BEYSER	CHEVRON USA INC	1/8+	860	176		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26074	9-3-1	A	RANDYLYN MOORE AKA RANDY MOORE	CHEVRON USA INC	1/8+	860	166		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26075	9-3-1	A	BETTY JOANN CECIL	CHEVRON USA INC	1/8+	860	119		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26076	9-3-1	A	DORIS IMOGENE GARRISON	CHEVRON USA INC	1/8+	860	114		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26077	9-3-1	A	DOROTHY J AND ROBERT M BLAKE	CHEVRON USA INC	1/8+	860	104		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95

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WW-6A1 (Well Bore Tracts)

Operator's Well No. Hudson S - 16HU

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment
10*26078	9-3-1	A	VELMA RUTH HARRIS	CHEVRON USA INC	1/8+	860	228		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26079	9-3-1	A	MARY O'DESSA HARRIS LOUDEN	CHEVRON USA INC	1/8+	860	109		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26080	9-3-1	A	SHARON DIANE HOLMES JAHN AND WILLIAM HENRY JAHN III - W/H	CHEVRON USA INC	1/8+	860	217		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26081	9-3-1	A	CYNTHIA JEAN AND EDDIE W WILSON	CHEVRON USA INC	1/8+	861	545		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26082	9-3-1	A	BRIAN C AND SARA M LUTZ	CHEVRON USA INC	1/8+	861	550		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26083	9-3-1	A	WILLIAM S BLAKE JR	CHEVRON USA INC	1/8+	861	535		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26084	9-3-1	A	CYNTHIA A AND JAMES O DAVIDSON	CHEVRON USA INC	1/8+	889	46		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26085	9-3-1	A	CLYDE R AND JANA HIGGINS	CHEVRON USA INC	1/8+	861	508		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26086	9-3-1	A	DELMAS W AND ROSE HIGGINS	CHEVRON USA INC	1/8+	861	503		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26087	9-3-1	A	JERRY L AND DENISE HIGGINS	CHEVRON USA INC	1/8+	861	526		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26088	9-3-1	A	SHIRL W AND DORIS HIGGINS	CHEVRON USA INC	1/8+	861	540		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26089	9-3-1	A	ALVA L AND SHIRLEY HIGGINS	CHEVRON USA INC	1/8+	861	521		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26090	9-3-1	A	H DEAN AND KAREN HIGGINS	CHEVRON USA INC	1/8+	861	516		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26091	9-3-1	A	JOELENE M MANN	CHEVRON USA INC	1/8+	864	55		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26092	9-3-1	A	SHAWN J AND SARAH E CREWS	CHEVRON USA INC	1/8+	864	50		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26093	9-3-1	A	JOYCE HOLMES CONE AND WILLIAM CONE - W/H	CHEVRON USA INC	1/8+	861	493		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95

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Office of Oil and Gas

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WV Department of
Environmental Protection

WW-6A1 (Well Bore Tracts)

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment
10*26094	9-3-1	A	MARK L CURRY	CHEVRON USA INC	1/8+	865	102		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26095	9-3-1	A	CHRISTINA C MUNSON	CHEVRON USA INC	1/8+	865	107		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26097	9-3-1	A	DAVID L BEYSER	CHEVRON USA INC	1/8+	865	173		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26098	9-3-1	A	KIMBERLY J HOLDER	CHEVRON USA INC	1/8+	867	87		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26099	9-3-1	A	CAROL TROWBRIDGE ET VIR	CHEVRON USA INC	1/8+	866	138		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26100	9-3-1	A	JOSEPH L AND ROSE MARIE MAUPIN	CHEVRON USA INC	1/8+	866	67		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26120	9-3-1	A	JAMES D AND LINDA D YOCUM	CHEVRON USA INC	1/8+	884	635		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26121	9-3-1	A	BETTY BRYNER	CHEVRON USA INC	1/8+	871	64		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26236	9-3-1	A	GERALD W QUIGLEY AND VICKI L QUIGLEY	CHEVRON USA INC	1/8+	884	50		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26237	9-3-1	A	FREDA L CAMPBELL	CHEVRON USA INC	1/8+	889	40		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26238	9-3-1	A	MARSHA L MERCER	CHEVRON USA INC	1/8+	883	639		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26287	9-3-1	A	IVAN R AND MARY A BLAKE	CHEVRON USA INC	1/8+	888	542		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26288	9-3-1	A	REBECCA J BLAKE	CHEVRON USA INC	1/8+	888	571		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26289	9-3-1	A	DUANETTA B BLAKE FROMHART	CHEVRON USA INC	1/8+	888	574		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26291	9-3-1	A	BARBARA A BLAKE MASON	CHEVRON USA INC	1/8+	901	125		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95
10*26292	9-3-1	A	JUDITH L BLAKE	CHEVRON USA INC	1/8+	882	329		N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC & TH Exploration LLC: 43/95

**RECEIVED
Office of Oil and Gas**

FEB 22 2021

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Environmental Protection**

WW-6A1 (Well Bore Tracts)

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment
10*28442	9-3-2.1	D	WILLIAM N LOSDON AND SHIRLEY A LOGSDON	TH EXPLORATION LLC	1/8+	1072	377		N/A	N/A	N/A	N/A
10*28190	9-3-2	E	J RUSSELL LOGSDON	TH EXPLORATION LLC	1/8+	1068	309		N/A	N/A	N/A	N/A
10*28191	9-3-2	E	JANICE L EARNEST	TH EXPLORATION LLC	1/8+	1068	307		N/A	N/A	N/A	N/A
10*28192	9-3-2	E	SHAREE SAMS	TH EXPLORATION LLC	1/8+	1068	305		N/A	N/A	N/A	N/A
10*28193	9-3-2	E	SHIRLEY E BURTON AND OKLA D BURTON	TH EXPLORATION LLC	1/8+	1068	303		N/A	N/A	N/A	N/A
10*28194	9-3-2	E	LLOYD L & DONNA F EARNEST	TH EXPLORATION LLC	1/8+	1068	301		N/A	N/A	N/A	N/A
10*28442	9-3-2	E	WILLIAM N LOSDON AND SHIRLEY A LOGSDON	TH EXPLORATION LLC	1/8+	1072	377		N/A	N/A	N/A	N/A
10*31219	9-3-4.7	F	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31220	9-3-4.7	F	SHIRLEY E. BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690	344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31221	9-3-4.7	F	J. RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688	580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31222	9-3-4.7	F	WILLIAM N. LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690	347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31223	9-3-4.7	F	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31224	9-3-4.7	F	DOROTHY L. HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690	483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31219	9-3-4.5	I	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31220	9-3-4.5	I	SHIRLEY E. BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690	344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31221	9-3-4.5	I	J. RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688	580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76

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10*31222	9-3-4.5	I	WILLIAM N. LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690	347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31223	9-3-4.5	I	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31224	9-3-4.5	I	DOROTHY L. HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690	483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31219	9-3-4.6	L	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31220	9-3-4.6	L	SHIRLEY E. BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690	344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31221	9-3-4.6	L	J. RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688	580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31222	9-3-4.6	L	WILLIAM N. LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690	347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31223	9-3-4.6	L	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31224	9-3-4.6	L	DOROTHY L. HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690	483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31225	9-3-6	Q	ALVIN D. BARRETT	CHESAPEAKE APPALACHIA LLC	1/8+	727	112	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*21602	9-3-17	U	CAROL STACY SAUNDERS	TH EXPLORATION LLC	1/8+	959	289		N/A	N/A	N/A	N/A
10*21604	9-3-17	U	WILLIAM EDWARD STACY AND JACQUELINE L STACY	TH EXPLORATION LLC	1/8+	958	428		N/A	N/A	N/A	N/A
10*22616	9-3-17	U	JAMES YOHO AND SANDRA YOHO	TH EXPLORATION LLC	1/8+	968	281		N/A	N/A	N/A	N/A
10*22618	9-3-17	U	DANIEL YOHO	TH EXPLORATION LLC	1/8+	966	636		N/A	N/A	N/A	N/A
10*22721	9-3-17	U	WINIFRED G TURNER	TH EXPLORATION LLC	1/8+	988	134		N/A	N/A	N/A	N/A
10*22796	9-3-17	U	MARLENE YOHO	TH EXPLORATION LLC	1/8+	972	87		N/A	N/A	N/A	N/A
10*22880	9-3-17	U	GREGORY K GLOVER	TH EXPLORATION LLC	1/8+	977	85		N/A	N/A	N/A	N/A

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10*22881	9-3-17	U	MARLIS GLOVER	TH EXPLORATION LLC	1/8+	977 87		N/A	N/A	N/A	N/A
10*23033	9-3-17	U	MAXINE BEYSER	TH EXPLORATION LLC	1/8+	977 346		N/A	N/A	N/A	N/A
10*23034	9-3-17	U	NINA L KOVACS	TH EXPLORATION LLC	1/8+	977 348		N/A	N/A	N/A	N/A
10*23107	9-3-17	U	JOEL DAMON GLOVER	TH EXPLORATION LLC	1/8+	983 620		N/A	N/A	N/A	N/A
10*23141	9-3-17	U	DEBORAH A LOMBARDO	TH EXPLORATION LLC	1/8+	984 7		N/A	N/A	N/A	N/A
10*23142	9-3-17	U	KIMBERLY S GLOVER	TH EXPLORATION LLC	1/8+	984 5		N/A	N/A	N/A	N/A
10*23161	9-3-17	U	KATHLEEN J GLOVER	TH EXPLORATION LLC	1/8+	983 618		N/A	N/A	N/A	N/A
10*23162	9-3-17	U	AARON BOYLES AND TRACI BOYLES	TH EXPLORATION LLC	1/8+	983 622		N/A	N/A	N/A	N/A
10*23163	9-3-17	U	EDWIN WOOLLEY AND DEBORAH L WOOLLEY	TH EXPLORATION LLC	1/8+	983 571		N/A	N/A	N/A	N/A
10*23176	9-3-17	U	CAROL M YOHO	TH EXPLORATION LLC	1/8+	984 9		N/A	N/A	N/A	N/A
10*23181	9-3-17	U	MICHAEL L GREENWOOD AND PEGGY ANNE GREENWOOD	TH EXPLORATION LLC	1/8+	983 627		N/A	N/A	N/A	N/A
10*23192	9-3-17	U	JEFFREY C YOHO	TH EXPLORATION LLC	1/8+	984 472		N/A	N/A	N/A	N/A
10*23313	9-3-17	U	DIANE DEVAULT	TH EXPLORATION LLC	1/8+	988 136		N/A	N/A	N/A	N/A
10*23419	9-3-17	U	GARY MCPHERON AND SHELLEY ANN MCPHERON	TH EXPLORATION LLC	1/8+	988 492		N/A	N/A	N/A	N/A
10*23420	9-3-17	U	SALLY LEE ORTIZ RIVERA	TH EXPLORATION LLC	1/8+	988 490		N/A	N/A	N/A	N/A
10*24781	9-3-17	U	DENISE MARIE ROGERS AND GEORGE M ROGERS	TH EXPLORATION LLC	1/8+	1027 578		N/A	N/A	N/A	N/A
10*24782	9-3-17	U	RICHARD A HEUSER	TH EXPLORATION LLC	1/8+	1027 572		N/A	N/A	N/A	N/A
10*24783	9-3-17	U	BRUCE W JOHNSON AND TERRI L JOHNSON	TH EXPLORATION LLC	1/8+	1027 569		N/A	N/A	N/A	N/A
10*25224	9-3-17	U	MAUREEN WILSON	TH EXPLORATION LLC	1/8+	1030 141		N/A	N/A	N/A	N/A
10*25701	9-3-17	U	TIMOTHY KRUS AND BARBARA KRUS	TH EXPLORATION LLC	1/8+	1034 239		N/A	N/A	N/A	N/A
10*25716	9-3-17	U	RUSSELL BREDBENNER	TH EXPLORATION LLC	1/8+	1035 23		N/A	N/A	N/A	N/A
10*26406	9-3-17	U	PURPLEBURGH VENTURES, LLC	TH EXPLORATION LLC	1/8+	1033 117		N/A	N/A	N/A	N/A
10*26410	9-3-17	U	MARCELLUS TX MINERAL PRNTR LTD	TH EXPLORATION LLC	1/8+	1034 242		N/A	N/A	N/A	N/A
10*26411	9-3-17	U	PENNMARC RESOURCES II LP	TH EXPLORATION LLC	1/8+	1034 244		N/A	N/A	N/A	N/A
10*26412	9-3-17	U	MCCROW ENERGY PARTNERS II LLC	TH EXPLORATION LLC	1/8+	1034 247		N/A	N/A	N/A	N/A
10*26413	9-3-17	U	WILDES MINERAL INTERESTS LLC	TH EXPLORATION LLC	1/8+	1034 250		N/A	N/A	N/A	N/A
10*26414	9-3-17	U	APPALACHIAN BASIN MINERALS LP	TH EXPLORATION LLC	1/8+	1034 218		N/A	N/A	N/A	N/A
10*26631	9-3-17	U	JOSEPH R ZBOZIEN	TH EXPLORATION LLC	1/8+	1039 322		N/A	N/A	N/A	N/A
10*27106	9-3-17	U	JASMINE LEIGH HALL PENA C/O ROBERT HALL	TH EXPLORATION LLC	1/8+	1050 217		N/A	N/A	N/A	N/A
10*27229	9-3-17	U	ESTATE OF KENNETH R ANDERSON	TH EXPLORATION LLC	1/8+	1068 311		N/A	N/A	N/A	N/A
10*28092	9-3-17	U	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073 370		N/A	N/A	N/A	N/A
10*28647	9-3-17	U	BRYAN S LEHNER	TH EXPLORATION LLC	1/8+	1076 65		N/A	N/A	N/A	N/A
10*31002	9-3-17	U	MARK F HEUSER	CHEVRON USA INC	1/8+	791 247		N/A	N/A	N/A	N/A

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Exploration II LLC: 45/593
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10*31005	9-3-17	U	GARY KEITH BERGER	CHEVRON USA INC	1/8+	793	358		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31006	9-3-17	U	JAMES S WILSON	CHEVRON USA INC	1/8+	793	375		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31007	9-3-17	U	CAROL D ELMORE	CHEVRON USA INC	1/8+	793	383		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31008	9-3-17	U	NORMA V PRATICO	CHEVRON USA INC	1/8+	794	532		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31009	9-3-17	U	MARGARET LEE HALL	CHEVRON USA INC	1/8+	795	414		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31010	9-3-17	U	JULIANNE ERDOS	CHEVRON USA INC	1/8+	795	57		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31011	9-3-17	U	MARVIN C WILSON	CHEVRON USA INC	1/8+	795	350		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31012	9-3-17	U	JAMES P OVIES	CHEVRON USA INC	1/8+	797	368		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31013	9-3-17	U	BERTHA LYNN KLUG	CHEVRON USA INC	1/8+	797	548		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31014	9-3-17	U	CHERYL FOX BRAUCH	CHEVRON USA INC	1/8+	800	489		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31015	9-3-17	U	CAROL FOX VALLANDINGHAM	CHEVRON USA INC	1/8+	800	564		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31016	9-3-17	U	JESSICA M CHAVEZ	CHEVRON USA INC	1/8+	804	393		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31017	9-3-17	U	PHILLIP A WILSON	CHEVRON USA INC	1/8+	805	421		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31018	9-3-17	U	JUANITA S HATCH LIVING TRUST	CHEVRON USA INC	1/8+	831	438		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31019	9-3-17	U	EDWARD F WILSON	CHEVRON USA INC	1/8+	813	564		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31020	9-3-17	U	MATTHEW L GROSSAINT	CHEVRON USA INC	1/8+	818	6		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31021	9-3-17	U	TROY THOMAS WILSON	CHEVRON USA INC	1/8+	828	352		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31022	9-3-17	U	ELLA JEAN MCCARDLE	CHEVRON USA INC	1/8+	828	374		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31027	9-3-17	U	LOU ANN GROSSAINT	CHEVRON USA INC	1/8+	829	470		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31029	9-3-17	U	JESSE ALLEN WILSON	CHEVRON USA INC	1/8+	831	355		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31034	9-3-17	U	APRIL DAWN HOGAN	CHEVRON USA INC	1/8+	835	248		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31035	9-3-17	U	KIMBERLY SUE PIERSON	CHEVRON USA INC	1/8+	835	271		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31036	9-3-17	U	JOSEPH RICHARD FOX	CHEVRON USA INC	1/8+	800	546		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31043	9-3-17	U	DIANE M BAYLESS	CHEVRON USA INC	1/8+	798	97		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593

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10*31044	9-3-17	U	DENNIS M WILSON	CHEVRON USA INC	1/8+	798	97		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31045	9-3-17	U	DAVID H WILSON	CHEVRON USA INC	1/8+	798	77		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31046	9-3-17	U	SANDRA J WILSON	CHEVRON USA INC	1/8+	794	605		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31047	9-3-17	U	MARY C MCKENNA	CHEVRON USA INC	1/8+	795	49		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31048	9-3-17	U	LAURENCE E WILSON JR	CHEVRON USA INC	1/8+	800	154		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31049	9-3-17	U	ROBERT L ARCHER	CHEVRON USA INC	1/8+	803	45		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31050	9-3-17	U	KATHERINE JEAN CONNELLY	CHEVRON USA INC	1/8+	803	30		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31051	9-3-17	U	STEVEN M ARCHER	CHEVRON USA INC	1/8+	803	38		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*31052	9-3-17	U	WILLIAM R WISE	CHEVRON USA INC	1/8+	805	407		N/A	N/A	N/A	Chevron USA Ince to TH Exploration II LLC: 45/593
10*29630	9-3-17	U	BERNARD E. KURLICH FAMILY TRUST*	TH EXPLORATION LLC	1/8+	1096	331		N/A	N/A	N/A	N/A
10*29626	9-3-17	U	HARRY RICHARDSON*	TH EXPLORATION LLC	1/8+	1096	365		N/A	N/A	N/A	N/A
10*29628	9-3-17	U	JANET M. SMITH*	TH EXPLORATION LLC	1/8+	1096	347		N/A	N/A	N/A	N/A
10*29624	9-3-17	U	RACHAEL MARIE MCLARDY*	TH EXPLORATION LLC	1/8+	1096	353		N/A	N/A	N/A	N/A
10*29614	9-3-17	U	REV. JANE D. BEARDEN*	TH EXPLORATION LLC	1/8+	1096	371		N/A	N/A	N/A	N/A
10*29632	9-3-17	U	ROBERT WISE LIVING TRUST*	TH EXPLORATION LLC	1/8+	1096	323		N/A	N/A	N/A	N/A
10*29630	9-3-17	U	BERNARD E. KURLICH FAMILY* TRUST	TH EXPLORATION LLC	1/8+	1096	331		N/A	N/A	N/A	N/A
10*29616	9-3-17	U	HEIRS OF LAWRENCE OSTRY*	TH EXPLORATION LLC	1/8+	1096	339		N/A	N/A	N/A	N/A
10*28092	9-8-7.1	X	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073	370		N/A	N/A	N/A	N/A
10*28808	9-8-7.1	X	HOLLY MARIE EBERSOLE	TH EXPLORATION LLC	1/8+	1078	47		N/A	N/A	N/A	N/A
10*22055	9-8-8	Z	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1010	226		N/A	N/A	N/A	N/A
10*28649	9-8-8	Z	KENNETH M MCCARDLE AND DELORES MCCARDLE	TH EXPLORATION LLC	1/8+	1075	483		N/A	N/A	N/A	N/A
10*28809	9-8-8	Z	LUCY MCCARDLE	TH EXPLORATION LLC	1/8+	1077	468		N/A	N/A	N/A	N/A
10*28810	9-8-8	Z	LEROY ANDERSON AND DONNA KAY ANDERSON	TH EXPLORATION LLC	1/8+	1077	261		N/A	N/A	N/A	N/A
10*28866	9-8-8	Z	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1072	230		N/A	N/A	N/A	N/A
10*28987	9-8-8	Z	ALLDALE MINERALS II LP	TH EXPLORATION LLC	1/8+	1080	558		N/A	N/A	N/A	N/A
10*47051.086.12	9-8-8	Z	ROBERT GENE WILLIAMS	TH EXPLORATION LLC	1/8+	957	86		N/A	N/A	N/A	N/A
10*47051.086.13	9-8-8	Z	WILLIAM O TURNER AND LISA ANN TURNER	TH EXPLORATION LLC	1/8+	941	401		N/A	N/A	N/A	N/A
10*47051.086.14	9-8-8	Z	KATHE A TURNER	TH EXPLORATION LLC	1/8+	941	429		N/A	N/A	N/A	N/A
10*47051.086.15	9-8-8	Z	REBA J CURTIS	TH EXPLORATION LLC	1/8+	1023	540		N/A	N/A	N/A	N/A
10*47051.086.16	9-8-8	Z	LORETTA L FREELOVE	TH EXPLORATION LLC	1/8+	941	433		N/A	N/A	N/A	N/A
10*19634	9-9-6	AA	JANICE L PIETERSE	TH EXPLORATION LLC	1/8+	960	153		N/A	N/A	N/A	N/A

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									N/A	N/A	N/A	N/A
10*19637	9-9-6	AA	RANDY K AND ALICE E BOWER	TH EXPLORATION LLC	1/8+	961	501		N/A	N/A	N/A	N/A
10*19703	9-9-6	AA	WILLIAM M BECKER AND KATHARINE B BECKER	TH EXPLORATION LLC	1/8+	944	616		N/A	N/A	N/A	N/A
10*19880	9-9-6	AA	R RICK HYRE	TH EXPLORATION LLC	1/8+	944	623		N/A	N/A	N/A	N/A
10*19930	9-9-6	AA	TODD W BULLARD AND BETH H BULLARD	TH EXPLORATION LLC	1/8+	949	270		N/A	N/A	N/A	N/A
10*21243	9-9-6	AA	NORMAN B AND JO ELLEN KAUBLE	TH EXPLORATION LLC	1/8+	952	394		N/A	N/A	N/A	N/A
10*21404	9-9-6	AA	WILLIAM W HYRE AND NOREEN M HYRE	TH EXPLORATION LLC	1/8+	953	542		N/A	N/A	N/A	N/A
10*21499	9-9-6	AA	SAMUEL J RICKEY	TH EXPLORATION LLC	1/8+	953	250		N/A	N/A	N/A	N/A
10*22525	9-9-6	AA	JOHN P RICKEY & ROSE HOWELL RICKEY	TH EXPLORATION LLC	1/8+	964	525		N/A	N/A	N/A	N/A
10*23294	9-9-6	AA	GLENN GORCZYCA AND JANE GORCZYCA	TH EXPLORATION LLC	1/8+	988	103		N/A	N/A	N/A	N/A
10*26711	9-9-6	AA	CNX GAS COMPANY LLC	TH EXPLORATION LLC	1/8+	1074	593		N/A	N/A	N/A	N/A
10*27266	9-9-6	AA	HEIRS OF DONALD AND ANITA RICKEY*	TH EXPLORATION LLC	1/8+	1052	121		N/A	N/A	N/A	N/A
10*27947	9-9-6	AA	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1063	568		N/A	N/A	N/A	N/A
10*29833	9-9-9.1	CC	SkyPoint Resources, LLC	TH EXPLORATION LLC	1/8+	1103	556	N/A	N/A	N/A	N/A	N/A
10*22745	9-9-9.1	CC	BONNIE J JENKINS	TH EXPLORATION LLC	1/8+	968	288	N/A	N/A	N/A	N/A	N/A
10*23314	9-9-9.1	CC	CYNTHIA WATSON	TH EXPLORATION LLC	1/8+	988	499	N/A	N/A	N/A	N/A	N/A
10*23353	9-9-9.1	CC	SHARON E MCDONALD AND HAROLD S MCDONALD	TH EXPLORATION LLC	1/8+	988	495	N/A	N/A	N/A	N/A	N/A
10*25718	9-9-9.1	CC	KATHLEEN JEANNE B JENKINS	TH EXPLORATION LLC	1/8+	1035	13	N/A	N/A	N/A	N/A	N/A
10*25719	9-9-9.1	CC	NICHOLE M JENKINS	TH EXPLORATION LLC	1/8+	1035	17	N/A	N/A	N/A	N/A	N/A
10*26494	9-9-9.1	CC	JOHN P JENKINS	TH EXPLORATION LLC	1/8+	1037	434	N/A	N/A	N/A	N/A	N/A
10*29231	9-9-9.1	CC	JOHN P JENKINS	TH EXPLORATION LLC	1/8+	1078	45	N/A	N/A	N/A	N/A	N/A
10*29231	9-9-9.1	CC	COLE DALE GRIMM	TH EXPLORATION LLC	1/8+	1078	45	N/A	N/A	N/A	N/A	N/A
10*29244	9-9-9.1	CC	SHARON ANN PETERSON	TH EXPLORATION LLC	1/8+	1086	501	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31023	9-9-9.1	CC	LUANN N HIMMELFARB	CHEVRON USA INC	1/8+	828	403	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31024	9-9-9.1	CC	DOUGLAS A WAYSON	CHEVRON USA INC	1/8+	828	610	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31025	9-9-9.1	CC	DAWNETTA MARIE WAYSON	CHEVRON USA INC	1/8+	828	616	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31026	9-9-9.1	CC	DONALD CARMICHAEL	CHEVRON USA INC	1/8+	829	225	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31028	9-9-9.1	CC	DAVID W CHAPMAN	CHEVRON USA INC	1/8+	829	470	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31030	9-9-9.1	CC	ROBERT BRANDT WAYSON	CHEVRON USA INC	1/8+	831	362	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31031	9-9-9.1	CC	GREGORY L CHAPMAN	CHEVRON USA INC	1/8+	831	490	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31032	9-9-9.1	CC	SARAH LEONA MCGLONE	CHEVRON USA INC	1/8+	831	537	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31033	9-9-9.1	CC	JUDITH ELLEN DOTY	CHEVRON USA INC	1/8+	834	426	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593

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10*31037	9-9-9.1	CC	LINDA S COLEMAN FKA FINEGAN	CHEVRON USA INC	1/8+	836	319	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31038	9-9-9.1	CC	MARGARET ANN JONES	CHEVRON USA INC	1/8+	837	364	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31039	9-9-9.1	CC	PATRICK PAUL TRUEX	CHEVRON USA INC	1/8+	847	514	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31040	9-9-9.1	CC	JOSEPH B & JUDITH M PATRELLO	CHEVRON USA INC	1/8+	848	472	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*31042	9-9-9.1	CC	DANIEL W CHAPMAN	CHEVRON USA INC	1/8+	915	564	N/A	N/A	N/A	N/A	Chevron USA Inc to TH Exploration II LLC: 45/593
10*28244	9-9-5	DD	MICHAEL D DOBBS AND STEPHANIE J DOBBS	TH EXPLORATION LLC	1/8+	1068	569		N/A	N/A	N/A	N/A
10*28340	9-9-5	DD	PAMELA POSTLETHWAIT AND SCOTT POSTLETHWAIT	TH EXPLORATION LLC	1/8+	1071	427		N/A	N/A	N/A	N/A
10*27304	9-9-10	EE	H3 LLC	TH EXPLORATION LLC	1/8+	1058	559		N/A	N/A	N/A	N/A
10*21859	9-9-11	GG	GARY WAYNE MORRIS	TH EXPLORATION LLC	1/8+	960	192		N/A	N/A	N/A	N/A
10*17969	7-1-3	II	BOUNTY MINERALS LLC	TH EXPLORATION LLC	1/8+	928	424	N/A	N/A	N/A	N/A	N/A
10*26562	7-1-3	II	MARTHA SUE FORBES	TH EXPLORATION LLC	1/8+	1038	510	N/A	N/A	N/A	N/A	N/A
10*26563	7-1-3	II	SCOTT SHOTT AIF JOY A SHOTT	TH EXPLORATION LLC	1/8+	1038	513	N/A	N/A	N/A	N/A	N/A
10*26632	7-1-3	II	MORGAN GIBSON	TH EXPLORATION LLC	1/8+	1039	319	N/A	N/A	N/A	N/A	N/A
10*26636	7-1-3	II	THOMAS SHOTT	TH EXPLORATION LLC	1/8+	1039	316	N/A	N/A	N/A	N/A	N/A
10*26691	7-1-3	II	DANIEL C SHOTT	TH EXPLORATION LLC	1/8+	1041	218	N/A	N/A	N/A	N/A	N/A
10*26970	7-1-3	II	THE ESTATE OF JOHN C SHOTT	TH EXPLORATION LLC	1/8+	1046	190	N/A	N/A	N/A	N/A	N/A
10*26971	7-1-3	II	GRACE R SHOTT-CLARDY	TH EXPLORATION LLC	1/8+	1046	194	N/A	N/A	N/A	N/A	N/A
10*27090	7-1-3	II	HUGH I SHOTT II AIF BETTY SHOTT	TH EXPLORATION LLC	1/8+	1053	9	N/A	N/A	N/A	N/A	N/A
10*27091	7-1-3	II	BRIDGITTE BLAYKE JONES	TH EXPLORATION LLC	1/8+	1050	204	N/A	N/A	N/A	N/A	N/A
10*27092	7-1-3	II	JAMES H SHOTT III	TH EXPLORATION LLC	1/8+	1050	201	N/A	N/A	N/A	N/A	N/A
10*28172	7-1-3	II	BETTY BROWN GORDON	TH EXPLORATION LLC	1/8+	1067	394	N/A	N/A	N/A	N/A	N/A
PENDING	7-1-3	II	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1097	513	N/A	N/A	N/A	N/A	N/A
10*29904	7-1-3	II	PAIGE FRANCIS*	TH EXPLORATION LLC	1/8+	1104	212	N/A	N/A	N/A	N/A	N/A
10*29905	7-1-3	II	NANCY BROWN HEREFORD REVOCABLE TRUST*	TH EXPLORATION LLC	1/8+	1102	309	N/A	N/A	N/A	N/A	N/A
10*29906	7-1-3	II	JOSEPH HITE BILLES*	TH EXPLORATION LLC	1/8+	1102	309	N/A	N/A	N/A	N/A	N/A
10*29907	7-1-3	II	BLODWEN H COURTNEY REVOCABLE TRUST*	TH EXPLORATION LLC	1/8+	1102	309	N/A	N/A	N/A	N/A	N/A
10*29908	7-1-3	II	EQT PRODUCTION COMPANY	TH EXPLORATION LLC	1/8+	1100	528	N/A	N/A	N/A	N/A	N/A
10*25518	7-8-2	KK	DANNY S KERNS	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1010	532		N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25520	7-8-2	KK	DEENA J PALOMO	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1009	357		N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25522	7-8-2	KK	REGINA D FIGUEROA	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1010	535		N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515

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10*25501	7-8-13	MM	AMP FUND III LP	AMERICAN PETROLEUM PARTNERS LLC	1/8+	925	459		N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503
10*25514	7-8-13	MM	FREDERICK S MARCO & REBECCA J MARCO	BLUE ROAN RESOURCES LLC	1/8+	911	244		N/A	N/A	Blue Roan Resources LLC to American Petroleum Partners Operating LLC: 38/174	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503
10*25528	7-8-13	MM	KAREN JEAN CHAMBERS	BLUE ROAN RESOURCES LLC	1/8+	911	246		N/A	N/A	Blue Roan Resources LLC to American Petroleum Partners Operating LLC: 38/174	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503
10*25556	7-8-13	MM	RIDGETOP ROYALTIES LLC	AMERICAN PETROLEUM PARTNERS LLC	1/8+	910	11		N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/503
10*23026	7-8-11	NN	BLAINE E STERN JR AND CONNIE J STERN	TH EXPLORATION LLC	1/8+	977	339		N/A	N/A	N/A	N/A

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10*18339	9-3-3	G	RESOURCE MINERALS HEADWATER I LP	TH EXPLORATION LLC	1/8+	940	448	N/A	N/A	N/A	N/A	N/A
10*26562	7-1-4	OO	MARTHA SUE FORBES	TH EXPLORATION LLC	1/8+	1038	510	N/A	N/A	N/A	N/A	N/A
10*21448	7-1-4	OO	JAMES I BLAKE	TH EXPLORATION LLC	1/8+	957	264	N/A	N/A	N/A	N/A	N/A
10*17969	7-1-4	OO	BOUNTY MINERALS LLC	TH EXPLORATION LLC	1/8+	928	424	N/A	N/A	N/A	N/A	N/A
10*19490	7-1-4	OO	BRIAN C AND SARA M LUTZ	TH EXPLORATION LLC	1/8+	943	19	N/A	N/A	N/A	N/A	N/A
10*19705	7-1-4	OO	LOUIS J ELIAS AND LOUIS J ELIAS JR	TH EXPLORATION LLC	1/8+	944	633	N/A	N/A	N/A	N/A	N/A
10*19744	7-1-4	OO	JILL L HENNEN AND ALEXANDER O BARNETT	TH EXPLORATION LLC	1/8+	944	635	N/A	N/A	N/A	N/A	N/A
10*26563	7-1-4	OO	SCOTT SHOTT AIF JOY A SHOTT	TH EXPLORATION LLC	1/8+	1038	513	N/A	N/A	N/A	N/A	N/A
10*26632	7-1-4	OO	MORGAN GIBSON	TH EXPLORATION LLC	1/8+	1039	319	N/A	N/A	N/A	N/A	N/A
10*26636	7-1-4	OO	THOMAS SHOTT	TH EXPLORATION LLC	1/8+	1039	316	N/A	N/A	N/A	N/A	N/A
10*26691	7-1-4	OO	DANIEL C SHOTT	TH EXPLORATION LLC	1/8+	1041	218	N/A	N/A	N/A	N/A	N/A
10*26970	7-1-4	OO	THE ESTATE OF JOHN C SHOTT	TH EXPLORATION LLC	1/8+	1046	190	N/A	N/A	N/A	N/A	N/A
10*26971	7-1-4	OO	GRACE R SHOTT-CLARDY	TH EXPLORATION LLC	1/8+	1046	194	N/A	N/A	N/A	N/A	N/A
10*27090	7-1-4	OO	HUGH I SHOTT II AIF BETTY SHOTT	TH EXPLORATION LLC	1/8+	1053	9	N/A	N/A	N/A	N/A	N/A
10*27091	7-1-4	OO	BRIDGITTE BLAYKE JONES	TH EXPLORATION LLC	1/8+	1050	204	N/A	N/A	N/A	N/A	N/A
10*27092	7-1-4	OO	JAMES H SHOTT III	TH EXPLORATION LLC	1/8+	1050	201	N/A	N/A	N/A	N/A	N/A
10*28172	7-1-4	OO	BETTY BROWN GORDON	TH EXPLORATION LLC	1/8+	1067	394	N/A	N/A	N/A	N/A	N/A
10*17969	7-1-4	OO	BOUNTY MINERALS LLC	TH EXPLORATION LLC	1/8+	928	424	N/A	N/A	N/A	N/A	N/A
10*25589	7-1-4	OO	CHESTNUT HOLDINGS INC	FOSSIL CREEK OHIO, LLC	1/8+	848	256	N/A	N/A	N/A	Fossil Creek Ohio, LLC to American Petroleum Partners Operating, LLC: 40/477	American Petroleum Partners Operating, LLC to TH Exploration LLC: 43/503
10*28929	7-1-4	OO	SUSAN SHRIVER*	TH EXPLORATION LLC	1/8+	1077	14	N/A	N/A	N/A	N/A	N/A
10*28630	7-1-4	OO	THE NANCY BROWN HEREFORD REVOCABLE LIVING TRUST*	TH EXPLORATION LLC	1/8+	1072	408	N/A	N/A	N/A	N/A	N/A
10*28898	7-1-4	OO	PAIGE FRANCIS*	TH EXPLORATION LLC	1/8+	1076	314	N/A	N/A	N/A	N/A	N/A
10*28329	7-1-4	OO	THE UNKNOWN HEIRS OF JOSEPH HITE BILLES ET UX*	TH EXPLORATION LLC	1/8+	1068	135	N/A	N/A	N/A	N/A	N/A
10*31219	9-3-4.4	H	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31220	9-3-4.4	H	SHIRLEY E. BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690	344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31221	9-3-4.4	H	J. RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688	580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31222	9-3-4.4	H	WILLIAM N. LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690	347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76

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10*31223	9-3-4.4	H	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31224	9-3-4.4	H	DOROTHY L. HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690	483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31219	9-3-4	J	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31220	9-3-4	J	SHIRLEY E. BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690	344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31221	9-3-4	J	J. RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688	580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31222	9-3-4	J	WILLIAM N. LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690	347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31223	9-3-4	J	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31224	9-3-4	J	DOROTHY L. HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690	483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31219	9-3-4.2	K	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31220	9-3-4.2	K	SHIRLEY E. BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690	344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31221	9-3-4.2	K	J. RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688	580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31222	9-3-4.2	K	WILLIAM N. LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690	347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76

WW-6A1 (Non Well Bore Tracts)

Operator's Well No. Hudson S - 16HU

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10*31223	9-3-4.2	K	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31224	9-3-4.2	K	DOROTHY L. HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690	483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*21345	9-3-20	M	AARON PARRY SR AND JANA PARRY TRUSTEES AARON PARRY SR & JANA PARRY REV LIV TRUS	TH EXPLORATION LLC	1/8+	957	280	N/A	N/A	N/A	N/A	N/A
10*22474	9-3-20	M	DAVID W PHILLIPS AND ROSEMARIE PHILLIPS	TH EXPLORATION LLC	1/8+	964	17	N/A	N/A	N/A	N/A	N/A
10*22820	9-3-20	M	ROBERT J APPEGATE AND JOANNE APPEGATE	TH EXPLORATION LLC	1/8+	983	603	N/A	N/A	N/A	N/A	N/A
10*22821	9-3-20	M	GILMER B JOHNSON AND ELIZABETH D JOHNSON	TH EXPLORATION LLC	1/8+	983	609	N/A	N/A	N/A	N/A	N/A
10*22867	9-3-20	M	ALAN J MOORE AND BARBARA A MOORE	TH EXPLORATION LLC	1/8+	977	73	N/A	N/A	N/A	N/A	N/A
10*22868	9-3-20	M	JAMES L PHILLIPS AND CHERYL A PHILLIPS	TH EXPLORATION LLC	1/8+	977	77	N/A	N/A	N/A	N/A	N/A
10*22869	9-3-20	M	ERIC J GONZALES AND DIANA J GONZALES	TH EXPLORATION LLC	1/8+	977	81	N/A	N/A	N/A	N/A	N/A
10*31219	9-3-4.1	N	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31220	9-3-4.1	N	SHIRLEY E. BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690	344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31221	9-3-4.1	N	J. RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688	580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31222	9-3-4.1	N	WILLIAM N. LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690	347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31223	9-3-4.1	N	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31224	9-3-4.1	N	DOROTHY L. HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690	483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31219	9-3-4.3	O	DONNA FAYE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	341	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76

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10*31220	9-3-4.3	O	SHIRLEY E. BURTON	CHESAPEAKE APPALACHIA LLC	1/8+	690	344	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31221	9-3-4.3	O	J. RUSSELL LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	688	580	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31222	9-3-4.3	O	WILLIAM N. LOGSDON	CHESAPEAKE APPALACHIA LLC	1/8+	690	347	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31223	9-3-4.3	O	JANICE LEE EARNEST	CHESAPEAKE APPALACHIA LLC	1/8+	690	350	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*31224	9-3-4.3	O	DOROTHY L. HARRIS	CHESAPEAKE APPALACHIA LLC	1/8+	690	483	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*28454	9-3-6.1	P	TRAVIS J POSTLETHWAIT	TH EXPLORATION LLC	1/8+	1072	379	N/A	N/A	N/A	N/A	N/A
10*21412	9-3-18.1	R	GARY DOBBS AND SUSAN DOBBS	TH EXPLORATION LLC	1/8+	957	270	N/A	N/A	N/A	N/A	N/A
10*22474	9-3-18.1	R	DAVID W PHILLIPS AND ROSEMARIE PHILLIPS	TH EXPLORATION LLC	1/8+	964	17	N/A	N/A	N/A	N/A	N/A
10*22820	9-3-18.1	R	ROBERT J APPELGATE AND JOANNE APPELGATE	TH EXPLORATION LLC	1/8+	983	603	N/A	N/A	N/A	N/A	N/A
10*22821	9-3-18.1	R	GILMER B JOHNSON AND ELIZABETH D JOHNSON	TH EXPLORATION LLC	1/8+	983	609	N/A	N/A	N/A	N/A	N/A
10*22867	9-3-18.1	R	ALAN J MOORE AND BARBARA A MOORE	TH EXPLORATION LLC	1/8+	977	73	N/A	N/A	N/A	N/A	N/A
10*22868	9-3-18.1	R	JAMES L PHILLIPS AND CHERYL A PHILLIPS	TH EXPLORATION LLC	1/8+	977	77	N/A	N/A	N/A	N/A	N/A
10*22869	9-3-18.1	R	ERIC J GONZALES AND DIANA J GONZALES	TH EXPLORATION LLC	1/8+	977	81	N/A	N/A	N/A	N/A	N/A
10*25747	9-3-18.1	R	RUTH MARY RIGGS DARNLEY CONNERS	TH EXPLORATION LLC	1/8+	1037	432	N/A	N/A	N/A	N/A	N/A
10*21412	9-3-18	S	GARY DOBBS AND SUSAN DOBBS	TH EXPLORATION LLC	1/8+	957	270	N/A	N/A	N/A	N/A	N/A
10*22474	9-3-18	S	DAVID W PHILLIPS AND ROSEMARIE PHILLIPS	TH EXPLORATION LLC	1/8+	964	17	N/A	N/A	N/A	N/A	N/A
10*22820	9-3-18	S	ROBERT J APPELGATE AND JOANNE APPELGATE	TH EXPLORATION LLC	1/8+	983	603	N/A	N/A	N/A	N/A	N/A
10*22821	9-3-18	S	GILMER B JOHNSON AND ELIZABETH D JOHNSON	TH EXPLORATION LLC	1/8+	983	609	N/A	N/A	N/A	N/A	N/A
10*22867	9-3-18	S	ALAN J MOORE AND BARBARA A MOORE	TH EXPLORATION LLC	1/8+	977	73	N/A	N/A	N/A	N/A	N/A
10*22868	9-3-18	S	JAMES L PHILLIPS AND CHERYL A PHILLIPS	TH EXPLORATION LLC	1/8+	977	77	N/A	N/A	N/A	N/A	N/A
10*22869	9-3-18	S	ERIC J GONZALES AND DIANA J GONZALES	TH EXPLORATION LLC	1/8+	977	81	N/A	N/A	N/A	N/A	N/A

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10*25747	9-3-18	S	RUTH MARY RIGGS DARNLEY CONNERS	TH EXPLORATION LLC	1/8+	1037	432	N/A	N/A	N/A	N/A	N/A
NA	9-3-7	T	ALVIN D. BARRETT	CHESAPEAKE APPALACHIA LLC	1/8+	726	464	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/31	Chesapeake Appalachia LLC to SWN Production Company, LLC: 33/110	Statoil USA Onshore Properties Inc to Equinor USA Onshore Properties Inc: 30/427	SWN Production Company LLC to TH Exploration LLC: 46/87	Equinor USA Onshore Properties Inc to TH Exploration LLC: 46/76
10*28092	9-8-7	V	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073	370	N/A	N/A	N/A	N/A	N/A
10*29269	9-8-7	V	TIMOTHY N NEELY	TH EXPLORATION LLC	1/8+	1090	135	N/A	N/A	N/A	N/A	N/A
10*29271	9-8-7	V	BRIAN L NEELY	TH EXPLORATION LLC	1/8+	1090	133	N/A	N/A	N/A	N/A	N/A
10*29272	9-8-7	V	TAMMY SUE MCDONALD	TH EXPLORATION LLC	1/8+	1090	137	N/A	N/A	N/A	N/A	N/A
10*29333	9-8-7	V	STEVEN L NEELY	TH EXPLORATION LLC	1/8+	1091	505	N/A	N/A	N/A	N/A	N/A
10*21602	9-8-6	W	CAROL STACY SAUNDERS	TH EXPLORATION LLC	1/8+	959	289	N/A	N/A	N/A	N/A	N/A
10*21604	9-8-6	W	WILLIAM EDWARD STACY AND JACQUELINE L STACY	TH EXPLORATION LLC	1/8+	958	428	N/A	N/A	N/A	N/A	N/A
10*22616	9-8-6	W	JAMES YOHO AND SANDRA YOHO	TH EXPLORATION LLC	1/8+	968	281	N/A	N/A	N/A	N/A	N/A
10*22618	9-8-6	W	DANIEL YOHO	TH EXPLORATION LLC	1/8+	966	636	N/A	N/A	N/A	N/A	N/A
10*22721	9-8-6	W	WINIFRED G TURNER	TH EXPLORATION LLC	1/8+	988	134	N/A	N/A	N/A	N/A	N/A
10*22796	9-8-6	W	MARLENE YOHO	TH EXPLORATION LLC	1/8+	972	87	N/A	N/A	N/A	N/A	N/A
10*22880	9-8-6	W	GREGORY K GLOVER	TH EXPLORATION LLC	1/8+	977	85	N/A	N/A	N/A	N/A	N/A
10*22881	9-8-6	W	MARLIS GLOVER	TH EXPLORATION LLC	1/8+	977	87	N/A	N/A	N/A	N/A	N/A
10*23033	9-8-6	W	MAXINE BEYSER	TH EXPLORATION LLC	1/8+	977	346	N/A	N/A	N/A	N/A	N/A
10*23034	9-8-6	W	NINA L KOVACS	TH EXPLORATION LLC	1/8+	977	348	N/A	N/A	N/A	N/A	N/A
10*23107	9-8-6	W	JOEL DAMON GLOVER	TH EXPLORATION LLC	1/8+	983	620	N/A	N/A	N/A	N/A	N/A
10*23141	9-8-6	W	DEBORAH A LOMBARDO	TH EXPLORATION LLC	1/8+	984	7	N/A	N/A	N/A	N/A	N/A
10*23142	9-8-6	W	KIMBERLY S GLOVER	TH EXPLORATION LLC	1/8+	984	5	N/A	N/A	N/A	N/A	N/A
10*23161	9-8-6	W	KATHLEEN J GLOVER	TH EXPLORATION LLC	1/8+	983	618	N/A	N/A	N/A	N/A	N/A
10*23162	9-8-6	W	AARON BOYLES AND TRACI BOYLES	TH EXPLORATION LLC	1/8+	983	622	N/A	N/A	N/A	N/A	N/A
10*23163	9-8-6	W	EDWIN WOOLLEY AND DEBORAH L WOOLLEY	TH EXPLORATION LLC	1/8+	983	571	N/A	N/A	N/A	N/A	N/A
10*23176	9-8-6	W	CAROL M YOHO	TH EXPLORATION LLC	1/8+	984	9	N/A	N/A	N/A	N/A	N/A
10*23181	9-8-6	W	MICHAEL L GREENWOOD AND PEGGY ANNE GREENWOOD	TH EXPLORATION LLC	1/8+	983	627	N/A	N/A	N/A	N/A	N/A
10*23192	9-8-6	W	JEFFREY C YOHO	TH EXPLORATION LLC	1/8+	984	472	N/A	N/A	N/A	N/A	N/A
10*23313	9-8-6	W	DIANE DEVAULT	TH EXPLORATION LLC	1/8+	988	136	N/A	N/A	N/A	N/A	N/A
10*23419	9-8-6	W	GARY MCPHERON AND SHELLEY ANN MCPHERON	TH EXPLORATION LLC	1/8+	988	492	N/A	N/A	N/A	N/A	N/A
10*23420	9-8-6	W	SALLY LEE ORTIZ RIVERA	TH EXPLORATION LLC	1/8+	988	490	N/A	N/A	N/A	N/A	N/A
10*23739	9-8-6	W	APPALACHIAN BASIN MINERALS LP	TH EXPLORATION LLC	1/8+	1011	538	N/A	N/A	N/A	N/A	N/A
10*23740	9-8-6	W	PENNMARC RESOURCES II LP	TH EXPLORATION LLC	1/8+	1011	532	N/A	N/A	N/A	N/A	N/A
10*23741	9-8-6	W	MCCROW ENERGY PARTNERS II LLC	TH EXPLORATION LLC	1/8+	1011	515	N/A	N/A	N/A	N/A	N/A
10*23742	9-8-6	W	PURPLEBURGH VENTURES, LLC	TH EXPLORATION LLC	1/8+	1011	536	N/A	N/A	N/A	N/A	N/A
10*23743	9-8-6	W	WILDES MINERAL INTERESTS LLC	TH EXPLORATION LLC	1/8+	1011	534	N/A	N/A	N/A	N/A	N/A
10*23749	9-8-6	W	MARCELLUS TX MINERAL PRTRNR LTD	TH EXPLORATION LLC	1/8+	1012	193	N/A	N/A	N/A	N/A	N/A

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10*24781	9-8-6	W	DENISE MARIE ROGERS AND GEORGE M ROGERS	TH EXPLORATION LLC	1/8+	1027	578	N/A	N/A	N/A	N/A	N/A
10*24782	9-8-6	W	RICHARD A HEUSER	TH EXPLORATION LLC	1/8+	1027	572	N/A	N/A	N/A	N/A	N/A
10*24783	9-8-6	W	BRUCE W JOHNSON AND TERRI L JOHNSON	TH EXPLORATION LLC	1/8+	1027	569	N/A	N/A	N/A	N/A	N/A
10*25224	9-8-6	W	MAUREEN WILSON	TH EXPLORATION LLC	1/8+	1030	141	N/A	N/A	N/A	N/A	N/A
10*25701	9-8-6	W	TIMOTHY KRUS AND BARBARA KRUS	TH EXPLORATION LLC	1/8+	1034	239	N/A	N/A	N/A	N/A	N/A
10*25716	9-8-6	W	RUSSELL BREDBENNER	TH EXPLORATION LLC	1/8+	1035	23	N/A	N/A	N/A	N/A	N/A
10*26631	9-8-6	W	JOSEPH R ZBOZIEN	TH EXPLORATION LLC	1/8+	1039	322	N/A	N/A	N/A	N/A	N/A
10*27106	9-8-6	W	JASMINE LEIGH HALL PENNA C/O ROBERT HALL	TH EXPLORATION LLC	1/8+	1050	217	N/A	N/A	N/A	N/A	N/A
10*27229	9-8-6	W	ESTATE OF KENNETH R ANDERSON	TH EXPLORATION LLC	1/8+	1068	311	N/A	N/A	N/A	N/A	N/A
10*28092	9-8-6	W	WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	TH EXPLORATION LLC	1/8+	1073	370	N/A	N/A	N/A	N/A	N/A
10*28647	9-8-6	W	BRYAN S LEHNER	TH EXPLORATION LLC	1/8+	1076	65	N/A	N/A	N/A	N/A	N/A
10*31002	9-8-6	W	MARK F HEUSER	TH EXPLORATION LLC	1/8+	791	247	N/A	N/A	N/A	N/A	N/A
10*31005	9-8-6	W	GARY KEITH BERGER	TH EXPLORATION LLC	1/8+	793	358	N/A	N/A	N/A	N/A	N/A
10*31006	9-8-6	W	JAMES S WILSON	TH EXPLORATION LLC	1/8+	793	375	N/A	N/A	N/A	N/A	N/A
10*31007	9-8-6	W	CAROL D ELMORE	TH EXPLORATION LLC	1/8+	793	383	N/A	N/A	N/A	N/A	N/A
10*31008	9-8-6	W	NORMA V PRATICO	TH EXPLORATION LLC	1/8+	794	532	N/A	N/A	N/A	N/A	N/A
10*31009	9-8-6	W	MARGARET LEE HALL	TH EXPLORATION LLC	1/8+	795	414	N/A	N/A	N/A	N/A	N/A
10*31010	9-8-6	W	JULIANNE ERDOS	TH EXPLORATION LLC	1/8+	795	57	N/A	N/A	N/A	N/A	N/A
10*31011	9-8-6	W	MARVIN C WILSON	TH EXPLORATION LLC	1/8+	795	350	N/A	N/A	N/A	N/A	N/A
10*31012	9-8-6	W	JAMES P OVIES	TH EXPLORATION LLC	1/8+	797	368	N/A	N/A	N/A	N/A	N/A
10*31013	9-8-6	W	BERTHA LYNN KLUG	TH EXPLORATION LLC	1/8+	797	548	N/A	N/A	N/A	N/A	N/A
10*31014	9-8-6	W	CHERYL FOX BRAUCH	TH EXPLORATION LLC	1/8+	800	489	N/A	N/A	N/A	N/A	N/A
10*31015	9-8-6	W	CAROL FOX VALLANDINGHAM	TH EXPLORATION LLC	1/8+	800	564	N/A	N/A	N/A	N/A	N/A
10*31016	9-8-6	W	JESSICA M CHAVEZ	TH EXPLORATION LLC	1/8+	804	393	N/A	N/A	N/A	N/A	N/A
10*31017	9-8-6	W	PHILLIP A WILSON	TH EXPLORATION LLC	1/8+	805	421	N/A	N/A	N/A	N/A	N/A
10*31018	9-8-6	W	JUANITA S HATCH LIVING TRUST	TH EXPLORATION LLC	1/8+	831	438	N/A	N/A	N/A	N/A	N/A
10*31019	9-8-6	W	EDWARD F WILSON	TH EXPLORATION LLC	1/8+	813	564	N/A	N/A	N/A	N/A	N/A
10*31020	9-8-6	W	MATTHEW L GROSSAINT	TH EXPLORATION LLC	1/8+	818	6	N/A	N/A	N/A	N/A	N/A
10*31021	9-8-6	W	TROY THOMAS WILSON	TH EXPLORATION LLC	1/8+	828	352	N/A	N/A	N/A	N/A	N/A
10*31022	9-8-6	W	ELLA JEAN MCCARDLE	TH EXPLORATION LLC	1/8+	828	374	N/A	N/A	N/A	N/A	N/A
10*31027	9-8-6	W	LOU ANN GROSSAINT	TH EXPLORATION LLC	1/8+	829	470	N/A	N/A	N/A	N/A	N/A
10*31029	9-8-6	W	JESSE ALLEN WILSON	TH EXPLORATION LLC	1/8+	831	355	N/A	N/A	N/A	N/A	N/A
10*31034	9-8-6	W	APRIL DAWN HOGAN	TH EXPLORATION LLC	1/8+	835	248	N/A	N/A	N/A	N/A	N/A
10*31035	9-8-6	W	KIMBERLY SUE PIERSON	TH EXPLORATION LLC	1/8+	835	271	N/A	N/A	N/A	N/A	N/A
10*31036	9-8-6	W	JOSEPH RICHARD FOX	TH EXPLORATION LLC	1/8+	800	546	N/A	N/A	N/A	N/A	N/A
10*31043	9-8-6	W	DIANE M BAYLESS	TH EXPLORATION LLC	1/8+	798	97	N/A	N/A	N/A	N/A	N/A
10*31044	9-8-6	W	DENNIS M WILSON	TH EXPLORATION LLC	1/8+	798	97	N/A	N/A	N/A	N/A	N/A
10*31045	9-8-6	W	DAVID H WILSON	TH EXPLORATION LLC	1/8+	798	77	N/A	N/A	N/A	N/A	N/A
10*31046	9-8-6	W	SANDRA J WILSON	TH EXPLORATION LLC	1/8+	794	605	N/A	N/A	N/A	N/A	N/A
10*31047	9-8-6	W	MARY C MCKENNA	TH EXPLORATION LLC	1/8+	795	49	N/A	N/A	N/A	N/A	N/A
10*31048	9-8-6	W	LAURENCE E WILSON JR	TH EXPLORATION LLC	1/8+	800	154	N/A	N/A	N/A	N/A	N/A
10*31049	9-8-6	W	ROBERT L ARCHER	TH EXPLORATION LLC	1/8+	803	45	N/A	N/A	N/A	N/A	N/A
10*31050	9-8-6	W	KATHERINE JEAN CONNELLY	TH EXPLORATION LLC	1/8+	803	30	N/A	N/A	N/A	N/A	N/A
10*31051	9-8-6	W	STEVEN M ARCHER	TH EXPLORATION LLC	1/8+	803	38	N/A	N/A	N/A	N/A	N/A

WW-6A1 (Non Well Bore Tracts)

Operator's Well No. Hudson S - 16HU

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment
10*31052	9-8-6	W	WILLIAM R WISE	TH EXPLORATION LLC	1/8+	805	407	N/A	N/A	N/A	N/A	N/A
PENDING	9-8-6	W	BRADLEY B. LEHNER*	TH EXPLORATION LLC	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A
PENDING	9-8-6	W	HARRY RICHARDSON*	TH EXPLORATION LLC	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A
PENDING	9-8-6	W	JANET M. SMITH*	TH EXPLORATION LLC	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A
PENDING	9-8-6	W	RACHAEL MARIE MCLARDY*	TH EXPLORATION LLC	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A
PENDING	9-8-6	W	REV. JANE D. BEARDEN*	TH EXPLORATION LLC	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A
PENDING	9-8-6	W	ROBERT WISE LIVING TRUST*	TH EXPLORATION LLC	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A
PENDING	9-8-6	W	BERNARD E. KURLICH FAMILY TRUST*	TH EXPLORATION LLC	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A
PENDING	9-8-6	W	HEIRS OF LAWRENCE OSTRY*	TH EXPLORATION LLC	1/8+	PENDING	PENDING	N/A	N/A	N/A	N/A	N/A
10*22055	9-8-9	Y	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1010	226	N/A	N/A	N/A	N/A	N/A
10*28649	9-8-9	Y	KENNETH M MCCARDLE AND DELORES MCCARDLE	TH EXPLORATION LLC	1/8+	1075	483	N/A	N/A	N/A	N/A	N/A
10*28809	9-8-9	Y	LUCY MCCARDLE	TH EXPLORATION LLC	1/8+	1077	468	N/A	N/A	N/A	N/A	N/A
10*28810	9-8-9	Y	LEROY ANDERSON AND DONNA KAY ANDERSON	TH EXPLORATION LLC	1/8+	1077	261	N/A	N/A	N/A	N/A	N/A
10*28866	9-8-9	Y	STONE HILL MINERALS HOLDINGS LLC	TH EXPLORATION LLC	1/8+	1072	230	N/A	N/A	N/A	N/A	N/A
10*28987	9-8-9	Y	ALLDALE MINERALS II LP	TH EXPLORATION LLC	1/8+	1080	558	N/A	N/A	N/A	N/A	N/A
10*47051.086.12	9-8-9	Y	ROBERT GENE WILLIAMS	TH EXPLORATION LLC	1/8+	957	86	N/A	N/A	N/A	N/A	N/A
10*47051.086.13	9-8-9	Y	WILLIAM O TURNER AND LISA ANN TURNER	TH EXPLORATION LLC	1/8+	941	401	N/A	N/A	N/A	N/A	N/A
10*47051.086.14	9-8-9	Y	KATHE A TURNER	TH EXPLORATION LLC	1/8+	941	429	N/A	N/A	N/A	N/A	N/A
10*47051.086.15	9-8-9	Y	REBA J CURTIS	TH EXPLORATION LLC	1/8+	1023	540	N/A	N/A	N/A	N/A	N/A
10*47051.086.16	9-8-9	Y	LORETTA L FREELOVE	TH EXPLORATION LLC	1/8+	941	433	N/A	N/A	N/A	N/A	N/A
10*31001	9-9-4	BB	ERIC KATZMEYER	TH EXPLORATION LLC	1/8+	791	226	N/A	N/A	N/A	N/A	N/A
10*31003	9-9-4	BB	DAVID & SHIRLEY KATZMEYER	TH EXPLORATION LLC	1/8+	792	226	N/A	N/A	N/A	N/A	N/A
10*31004	9-9-4	BB	MARY LOU RUBINI FKA MILLER	TH EXPLORATION LLC	1/8+	793	287	N/A	N/A	N/A	N/A	N/A
10*21859	9-9-12	FF	GARY WAYNE MORRIS	TH EXPLORATION LLC	1/8+	960	192	N/A	N/A	N/A	N/A	N/A
10*28697	9-9-14	HH	DANNY S KERNS	TH EXPLORATION LLC	1/8+	1075	134	N/A	N/A	N/A	N/A	N/A
10*28698	9-9-14	HH	DEENA JANINE PALOMO	TH EXPLORATION LLC	1/8+	1075	140	N/A	N/A	N/A	N/A	N/A
10*28699	9-9-14	HH	REGINA D FIGUEROA	TH EXPLORATION LLC	1/8+	1075	137	N/A	N/A	N/A	N/A	N/A
10*25518	7-8-1	JJ	DANNY S KERNS	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1010	532	N/A	N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25520	7-8-1	JJ	DEENA J PALOMO	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1009	357	N/A	N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25522	7-8-1	JJ	REGINA D FIGUEROA	AMERICAN PETROLEUM PARTNERS LLC	1/8+	1010	535	N/A	N/A	N/A	N/A	American Petroleum Partners Operating LLC to TH Exploration LLC: 43/515
10*25508	7-8-14	LL	THE AMY M TOUPS FAMILY TRUST OF 2013 DATED JUNE 14, 2013	FOSSIL CREEK OHIO LLC	1/8+	827	119	N/A	N/A	34/410 Fossil Creek Ohio LLC to Gulfport Energy Corporation	36/588 Gulfport Energy Corporation and Fossil Creek Ohio LLC to American Petroleum Partners Operating LLC	43/503 American Petroleum Partners Operating LLC to TH Exploration LLC

WW-6A1 (Non Well Bore Tracts)

Operator's Well No. Hudson S - 16HU

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment	Assignment	Assignment
10*25509	7-8-14	LL	ELIZABETH A PADDEN	FOSSIL CREEK OHIO LLC	1/8+	827	123	N/A	N/A	34/410 Fossil Creek Ohio LLC to Gulfport Energy Corporation	36/588 Gulfport Energy Corporation and Fossil Creek Ohio LLC to American Petroleum Partners Operating LLC	43/503 American Petroleum Partners Operating LLC to TH Exploration LLC
10*25510	7-8-14	LL	JOHN M PADDEN	FOSSIL CREEK OHIO LLC	1/8+	827	121	N/A	N/A	34/410 Fossil Creek Ohio LLC to Gulfport Energy Corporation	36/588 Gulfport Energy Corporation and Fossil Creek Ohio LLC to American Petroleum Partners Operating LLC	43/503 American Petroleum Partners Operating LLC to TH Exploration LLC

ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from EQUINOR USA ONSHORE PROPERTIES INC, a Delaware Corporation ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on August 26th, 2020 (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 May 18, 2020 (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 and Exhibit A-1 (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.

In the event that the Marcellus Shale Formation (as further described in the definition of "Marcellus" below) or the Utica/Point Pleasant Formation (as further described in the definition of "Utica" below) is defined within the vesting language of the Leases or any other associated documents vesting Assignor with rights in such formations to a greater extent than the definitions of "Marcellus" or "Utica" as provided in this Assignment, this Assignment shall convey all right, title, and interest into the Conveyed Depths (as listed on the attached Exhibit A and Exhibit A-1) to the greatest extent possible whether as defined in this Assignment or as defined in the Leases or any other associated documents, whichever is broader.

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 WARRANTY, EXPRESS, IMPLIED OR STATUTORY, INCLUDING AS TO (I) TITLE TO THE LEASEHOLD RIGHTS, (II) THE CONTENTS, CHARACTER OR NATURE OF ANY DESCRIPTIVE MEMORANDUM, OR ANY REPORT OF ANY OF ITS PETROLEUM ENGINEERING CONSULTANTS, OR ANY GEOLOGICAL OR SEISMIC DATA OR INTERPRETATION, RELATING TO THE LEASEHOLD RIGHTS, (III) THE QUANTITY,

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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.

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STATE OF WEST VIRGINIA §
 §
COUNTY OF MARSHALL §

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 24th day of June 2020 (the "Effective Date"), by and between CHEVRON U.S.A. INC., a Pennsylvania corporation, with an address at 700 Cherrington Parkway, Coraopolis, PA 15108 (hereinafter "Assignor") and TH EXPLORATION II, LLC, a Texas limited liability company, with an address at 1320 S. University Drive, Suite 500, Fort Worth, TX 76107 (hereinafter "Assignee").

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"), subject to any applicable overriding royalty interests and midstream obligations;

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

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

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

2. Payment. Within 15 days of execution of this Assignment by both parties, Assignee agrees to tender payment to Assignor in the amount and manner described in Exhibit "B".

3. No Warranty. The Assignment is made on an "as is, where is" basis without warranty of any kind and is subject to any existing liens, encumbrances or burdens, including specifically any overriding royalty interests or midstream dedications, attached to or affecting the Leases. Assignor makes no, and expressly disclaims any, representation or warranty to Assignee regarding the Leases or title thereto, whether express, statutory or implied, in fact, at law, common law, in equity or otherwise.

4. Existing Obligations. This Assignment is made subject to and Assignee agrees to accept and perform all obligations under any existing agreements that affect the Leases, including Assignor's remaining obligations under any gathering, processing or other midstream contracts as those contracts relate specifically to the Leases.



4705102329

March 18, 2020

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

RE: Hudson S-16HU

Subject: Marshall County Route 62, County Route 62/1 and County Route 90 Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC (THO) hereby submits this letter as confirmation that THO has obtained the right to drill, extract and produce the minerals under Marshall County Route 62, County Route 62/1 and County Route 90 in the area reflected on the Hudson S-16HU well plat. THO has conducted a full title search in the relevant Court House to confirm its ownership under said County Routes and is not currently aware of any recorded document that would suggest an ownership other than THO.

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

Sincerely,

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

RECEIVED
Office of Oil and Gas
MAR 19 2020
WV Department of
Environmental Protection

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

Date of Notice Certification: 03/18/2020

API No. 47-051

Operator's Well No. Hudson S-16HU

Well Pad Name: Hudson

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>528,012.83</u>
County:	<u>Marshall</u>	UTM NAD 83 Northing:	<u>4,408,791.97</u>
District:	<u>Meade</u>	Public Road Access:	<u>Roberts Ridge Road (CR 21)</u>
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>CNX Land, LLC</u>
Watershed:	<u>Grave Creek (HUC 10)</u>		

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

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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Office of Oil and Gas
MAR 19 2020
WV Department of
Environmental Protection

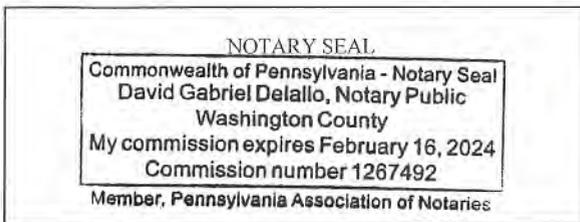
Required Attachments:

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

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-hilop.com</u>



Subscribed and sworn before me this 18 day of MARCH, 2020.

David Gabriel Delallo Notary Public

My Commission Expires 2/16/2024

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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(9-13)

API NO. 47- 051 -
OPERATOR WELL NO. Hudson S-16HU
Well Pad Name: Hudson

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: 3/16/2020 Date Permit Application Filed: 3/18/2020

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: CNX Land Resources, LLC Attn: Casey Saunders (Well Pad)
Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: Robert L. and Melinda J. White (Access Road)
Address: 129 Freddie's Lane
Glen Easton, WV 26039

Name: _____
Address: _____

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

COAL OWNER OR LESSEE
Name: Consolidation Coal Company
Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

COAL OPERATOR
Name: Murray American Energy, Inc. attn: Mason Smith
Address: 46226 National Road
St. Clairsville, OH 43905

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

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

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WV Department of Environmental Protection

*Please attach additional forms if necessary

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(8-13)

API NO. 47- 051 -
OPERATOR WELL NO. Hudson S-16HU
Well Pad Name: Hudson

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/office-of-air-and-gas/pages/default.aspx.

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Well Location Restrictions

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

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(8-13)

API NO. 47-051 -
OPERATOR WELL NO. Hudson S-16HU
Well Pad Name: Hudson

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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.**

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(8-13)

API NO. 47-051 -
OPERATOR WELL NO. Hudson S-16HU
Well Pad Name: Hudson

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. Hudson S-16HU
Well Pad Name: Hudson

Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this ____ day of _____.

Notary Public

My Commission Expires _____

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Environmental Protection

Exhibit WW-6A**Supplement Pg. 1A**

Tug Hill Operating, LLC
 380 Southpointe Blvd, Suite 200
 Cannonsburg, PA 15137

Residences within Two-Thousand Feet (2,000')

Well: Hudson S – 16HU
 District: Meade
 State: WV

There are four (4) residences, no business or commercial sites, no churches, no schools or no emergency facilities within two-thousand feet (2,000') of the above referenced well location.

Residence (#1) TM 3 Pcl. 1.3 CNX Land LLC Phone: None Found Physical Address: 143 Freddies Ln Proctor, WV 26055 Tax Address: 1000 Consol Energy Dr. Canonsburg, PA 15317-6506	Residence (#2) TM 5 Pcl. 11 Robert L. & Melinda J. White Phone: 740-667-3018; 304-845-2703 (Robert Andrew Williams – Reverse Address); 304-845-3756 (Melinda J. White); 304-845-4858 (Robert L. White) Physical Address: 129 Freddies Ln Proctor, WV 26055 Tax Address: 129 Freddies Ln Glen Easton, WV 26039	Residence (#3) TM 5 Pcl. 10 Robert L. & Melinda J. White Phone: 304-845-0562 (Charlotte A. Streight – Reverse Address) Physical Address: 443 Freddies Ln Proctor, WV 26055 Tax Address: 129 Freddies Ln Glen Easton, WV 26039
Residence (#4) TM 5 Pcl. 10 Robert L. & Melinda J. White Phone: 304-845-6068; 304-845-3756 (Robert L. White Jr. – Reverse Address); 304-845-3759 (Melinda J. White) Physical Address: 642 Freddies Ln Proctor, WV 26055 Tax Address: 129 Freddies Ln Glen Easton, WV 26039		<div style="text-align: right;"> RECEIVED Office of Oil and Gas MAR 19 2020 </div>

WV Department of
 Environmental Protection

PROPOSED HUDSON S - 16HU



NOTE: THERE APPEARS TO BE FOUR (4) POSSIBLE WATER SOURCES WITHIN 2,000'.

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12 Vanhorn Drive | P.O. Box 150 | Glenville, WV 26351 | 304.462.5634
1412 Kanawha Boulevard, East | Charleston, WV 25301 | 304.346.3952
254 East Beckley Bypass | Beckley, WV 25801 | 304.255.5296
slswv.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8911	03/10/2020	1" - 1000'



WV Department of Environmental Protection
WTC HILL
OPERATING

WW-6A
(8-13)

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API NO. 47-051 -
OPERATOR WELL NO. Hudson 8-184U
Well Pad Name: Hudson

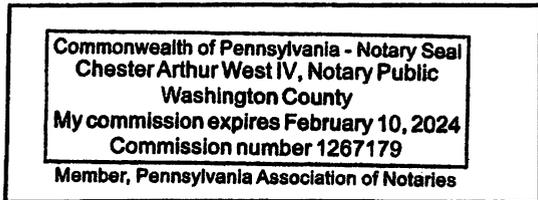
Notice is hereby given by:

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

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

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 16th day of March, 2020.

[Signature] Notary Public

My Commission Expires 2-10-2024

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Environmental Protection

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

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

Date of Notice: 6/4/2019 **Date of Planned Entry:** 6/11/2019

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: CNX Land Resources, LLC Attn: Casey Saunders (Well Pad)
 Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

Name: Robert L. and Melinda J. White (Access Road)
 Address: 129 Freddie's Lane
Glen Easton, WV 26039

Name: _____
 Address: _____

COAL OWNER OR LESSEE

Name: Consolidation Coal Company
 Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: Charlene L. Baker *See attached list
 Address: 5523 Roberts Ridge Road
Moundsville, WV 26041

*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>39.82881036; -80.67262857</u>
County: <u>Marshall</u>	Public Road Access: <u>Co. Route 21</u>
District: <u>Meade</u>	Watershed: <u>Grave Creek</u>
Quadrangle: <u>Glen Easton</u>	Generally used farm name: <u>CNX Land Resources, LLC</u>

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

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Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC

Telephone: 724-749-8388

Email: amiller@tug-hillop.com

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

Facsimile: 724-338-2030

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.

4705102329

**Additional Mineral Owners for Notice
WW-6A3
Hudson Pad**

Black Gold Group
P.O. Box 85
Strasburg, OH 44680

Catherine Lee Blake
101 Tomlinson Ave.
Moundsville, WV 26041

Ivan R. Blake
2315 Wolf Run Rd.
Cameron, WV 26033

Judith L. Blake
515 Meade Ave.
Akron, OH 44305

Robert C. Blake
1400 Third St.
Moundsville, WV 26041

Terry L. Blake
213 Birch Ave.
Moundsville, WV 26041

Betty Joan Cecil
200 Simmons Dr.
Moundsville, WV 26041

Bernard R. Crow
78 Dwight Ave.
Moundsville, WV 26041

Mark L. Curry
14 Pilgrims Way
Bentonville, VA 22610

Lois J. Elias
17 East Paxton Ave.
Wheeling, WV 26033

Dorothy J. Harris
2212 Turkey Run Rd.
Buckhannon, WV 26201

Jane Lynn Hendrickson
236 Westwood Dr.
Circleville, OH 43113

Betty J. Blake
2 Portsmouth Rd.
Front Royal, VA 22630

Gary F. Blake
3801 Needham Rd.
Mansfield, OH 44904

James L. Blake
P.O. Box 124
Farson, WY 82932

Rebecca J. Blake
1506 6th St.
Moundsville, WV 26041

Robert D. Blake
3757 Main St.
Weirton, WV 26062

William S. Blake Jr.
P.O. Box 349
Comfort, WV 25049

Shawn J. Crews
39 Branch Ln.
Broadway, NC 27505

Jay C. Curry
635 Minebanck Rd.
Middletown, VA 22645

Cynthia A. Davidson
7079 Hayes Orangeville Road NE
Burghill, OH 44404

Daunetta B. Fromhart
1309 Center St.
Moundsville, WV 26041

Velma Ruth Harris
3307 Bowman Ridge Rd.
Glen Easton, WV 26039

Jill Lori Hennen
2004 Baxter Ave.
Orlando, FL 32806

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Alva L. Higgins
4466 Templeton Road NW
Warren, OH 44481

H. Dean Higgins
9729 Gladstone Rd.
North Jackson, OH 44451

Jerry L. Higgins
3460 Park Avenue Ext.
Warren, OH 44481

Kimberly J. Holder
5815 Highway 217
Erwin, NC 28339

Rodney W. Hubbs
305 Sentimental Dr.
Moundsville, WV 26041

Robert W. Kidner
7757 Hansgrove Ct.
Dublin, OH 43016

Brian C. Lutz
364 Roseberry Ln.
Wheeling, WV 26003

Barbara A. Mason
363 Ridgeview Lane
Moundsville, WV 26041

Joseph L. Maupin
34626 Morning Glory Glen
Zephyrhills, FL 33541

Christina C. Munson
14 Pilgrims Way
Bentonville, VA 22610

Brenda S. Purdy
1404 Third St.
Moundsville, WV 26041

Carol J. Trowbridge
34710 Morning Glory Glen
Zephyrhills, FL 33541

Carol Jean Wood
106 Arlington Ave.
Moundsville, WV 26041

Clyde R. Higgins
2601 Milton Newton Rd.
Newton Falls, OH 44444

Delmas W. Higgins
7316 Elm St.
Newton Falls, OH 44444

Shirl W. Higgins
5241 Pritchard Ohltown Rd.
Newton Falls, OH 44444

Mary H. Hubbs
17 Hubbs Ln.
Moundsville, WV 26041

Shannon Roger Hubbs
27 Bowman Ridge
Moundsville, WV 26041

Mary O. Louden
10 Sandy Ave.
Moundsville, WV 26041

Jolene M. Mann
494 Longfellow Ave.
Worthington, OH 43085

Master Mineral Holdings II, L.P.
P.O. Box 10886
Midland, TX 79702

Diana L. McKinney
275 Skyline Dr.
Moundsville, WV 26041

Potomac Mineral Group LLC
615 Washington Rd. Ste 201
Pittsburgh, PA 15228

Patty L. Rine
801 Benton St.
Apt. 2204
Searcy, AR 72143

Cynthia Jean Wilson
1709 Bennis Church Place
Virginia Beach, VA 23455

Betty Bryner
P.O. Box 270
Bruceton Mills, WV 26525

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Betty Wilkinson
9271 Barn Swallow Lane
Marshall, VA 20115

Doris Garrison
28 Hickory Avenue
Moundsville, WV 26041

Arthur Lee Waryck
912 Tomlinson Avenue
Glen Dale, WV 26038

Larry Vernon Moore, Sr.
135 Clover Hill Ln
Newport, VA 24128

Dennis F. Moore
471 Peal Dr, 104
Proctor, WV 26055

Freda L. Campbell
307 Elizabeth Street
Glen Dale, WV 26038

Joan A. Gieger
621 Pepperdine Avenue
Edmond, OK 33013

Mary W. Holmes
197 Spindle Lane
Moundsville, WV 26041

Freddie C. White
RR 1 Box 59A
Glen Easton, WV 26039

Joyce A. Wallace
4107 Shoemaker Hollow Road
New Philadelphia, OH 44663

Linda G. Moore
720 3rd Avenue
Apt. 312
New Cumberland, WV 26047

Carl Caldwell
501 Morgantown Avenue
Apartment 201
Barnesville, OH 43713

Crystal Thomas
1402 Sixth Street
Moundsville, WV 26041

Hiram Vernon Moore
609 Pink Apartment Rd
Davenport, FL 33837

Ronald Wayne Moore
434 Moores Ln
New Cumberland, WV 26047

Anthony T. Moore
215 Ash Avenue
Moundsville, WV 26041

James D. Yocum
5200 NW 31st Avenue
Apartment B 38
Ft. Lauderdale, FL 33309

Joyce Elaine Cone
1831 Old Westminster Pike
Finksburg, MD 21048

Marilyn Sue Reilly
197 Spindle Lane
Moundsville, WV 26041

Sharon Diane Jahn
2802 Spindle Lane
Bowie, MD 20715

Tamala Schollick
112 Jennifer Drive
Moundsville, WV 26041

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

Byrd E. White, III
Secretary of Transportation

January 30, 2020

Jimmy Wriston, P. E.
Deputy Secretary/
Acting 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 Hudson Pad, Marshall County
Hudson S-16HU Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2019-0353 issued to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 21 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,

A handwritten signature in blue ink that reads "Gary K. Clayton".

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

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MAR 19 2020

WV Department of
Environmental Protection

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



TUG HILL

2705102329

PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Hudson S-16HU

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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