



west virginia department of environmental protection

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

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

Monday, October 22, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for KEITH STERN S-12HM
47-051-02104-00-00

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: KEITH STERN S-12HM
Farm Name: TH EXPLORATION, LLC
U.S. WELL NUMBER: 47-051-02104-00-00
Horizontal 6A New Drill
Date Issued: 10/22/2018

Promoting a healthy environment.



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**ORDER
ISSUED UNDER
WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 6A**

TO: Tug Hill Operating
380 Southpointe Boulevard, Plaza II, Suite 200
Cannonsburg, Pa 15317

DATE: July 25, 2018
ORDER NO.: 2018-W-4

INTRODUCTION

This Order (hereinafter "Order") is issued by the Office of Oil and Gas (hereinafter "OOG"), by and through its Chief, pursuant to the authority of W. Va. Code §§ 22-1-1, 22-6-1 and 22-6A-1 *et seq.* to Tug Hill Operating (hereinafter "Tug Hill" or "Operator"), collectively the "Parties."

FINDINGS OF THE CHIEF

In support of this Order, the Chief hereby finds the following:

1. OOG, an office within the West Virginia Department of Environmental Protection, is the agency with the duty and authority to execute and enforce W. Va. Code §22-6-1 and §22-6A-1 *et seq.*, and the rules and regulations promulgated thereunder.
2. Tug Hill is a "person" as defined by W. Va. Code §22-6-1(n), with a corporate address as 380 Southpointe Boulevard, Plaza II, Suite 200, Cannonsburg, Pa 15317
3. On May 5, 2018 Tug Hill submitted a well work permit application identified as API# 47-051-02041. The proposed well is to be located on the Keith Stern Pad in the Meade District of Marshall County, West Virginia.
4. On May 5, 2018 Tug Hill requested a waiver for Perennial Stream S1, Wetland W1 and Wetland W2 outlined in Attachment 1, from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-051-02041.

CONCLUSIONS OF LAW

1. West Virginia Code §22-1-6(d) requires, in part, that “in addition to other powers, duties and responsibilities granted and assigned to the secretary by this chapter, the secretary is authorized and empowered to... (3) Enter private lands to make surveys and inspections for environmental protection purposes; to investigate for violations of statutes or rules which the Office of Oil and Gas is charged with enforcing; to serve and execute warrants and processes; to make arrests; issue orders, which for the purposes of this chapter include consent agreements; and to otherwise enforce the statutes or rules which the Office of Oil and Gas is charged with enforcing.”
2. West Virginia Code §22-6A-2(a)(6) requires, in part, that “Concomitant with the broad powers to condition the issuance of well work permits, the secretary should also have broad authority to waive certain minimum requirements of this article when, in his or her discretion, such waiver is appropriate: *Provided*, That the secretary shall submit a written report of the number of waivers granted to the Legislature commencing January 1, 2013, and each year thereafter.”
3. West Virginia Code §22-6A-12(b) requires, in part, that “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 Office of Oil and Gas 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 Office of Oil and Gas 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.”

ORDER

West Virginia Code §22-6A-12(b) requires, in part, that “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. The Office of Oil and Gas grants the request for a waiver for Perennial Stream S1, Wetland W1 and Wetland W2 from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-051-02041. The Office of Oil and Gas hereby **ORDERS** that Tug Hill shall meet the following site construction and operational requirements for the Keith Stern Well Pad:

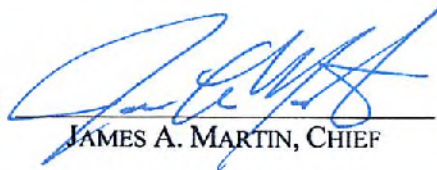
- a. A berm shall be constructed around the perimeter of the pad to contain any potential spills and storm water runoff. Berm is to be at least twenty-four inches (24”) in height;
- b. Erosion control blankets shall be installed on all slopes and down gradient locations of the pad as erosion and sediment controlling BMPs;
- c. Stream 1 shall be protected by twenty-four-inch (24”) compost filter sock and super silt fence. SedCatch inlet protection for existing culverts shall also be provided. This along with temporary and permanent vegetative cover will prevent sediment from reaching the stream.
- d. Wetlands W1 and W2 shall be protected by twenty-four-inch (24”) compost filter sock and super silt fence. This along with temporary and permanent vegetative cover will prevent sediment from reaching the wetlands
- e. Disturbed areas not used for operations shall be seeded and mulched per the seeding tables in the WVDEP-OOG Erosion and Sediment Control Manual;
- f. Drill cuttings and associated drilling mud shall be disposed of in a permitted landfill;
- g. Waste generated by the flowback treatment systems shall be sent to offsite disposal at a permitted landfill;
- h. Weekly site inspections shall be conducted to monitor and maintain the integrity of the BMP storm water controls;
- i. Weekly storm water and spill prevention inspections shall be conducted focusing on storm water and spill prevention BMPs and maintenance of these BMPs;
- j. Inspections of the storm water and spill prevention measures shall be conducted after any major storm event defined as a half inch (1/2”) rain within any twenty-four (24) hour period;
- k. Pad inspections shall be conducted no less than once a week to identify and mitigate potential deficiencies;
- l. All records from inspections shall be maintained on site for the life of the project and be available upon request.

Thus ORDERED, the 25th day of July, 2018.

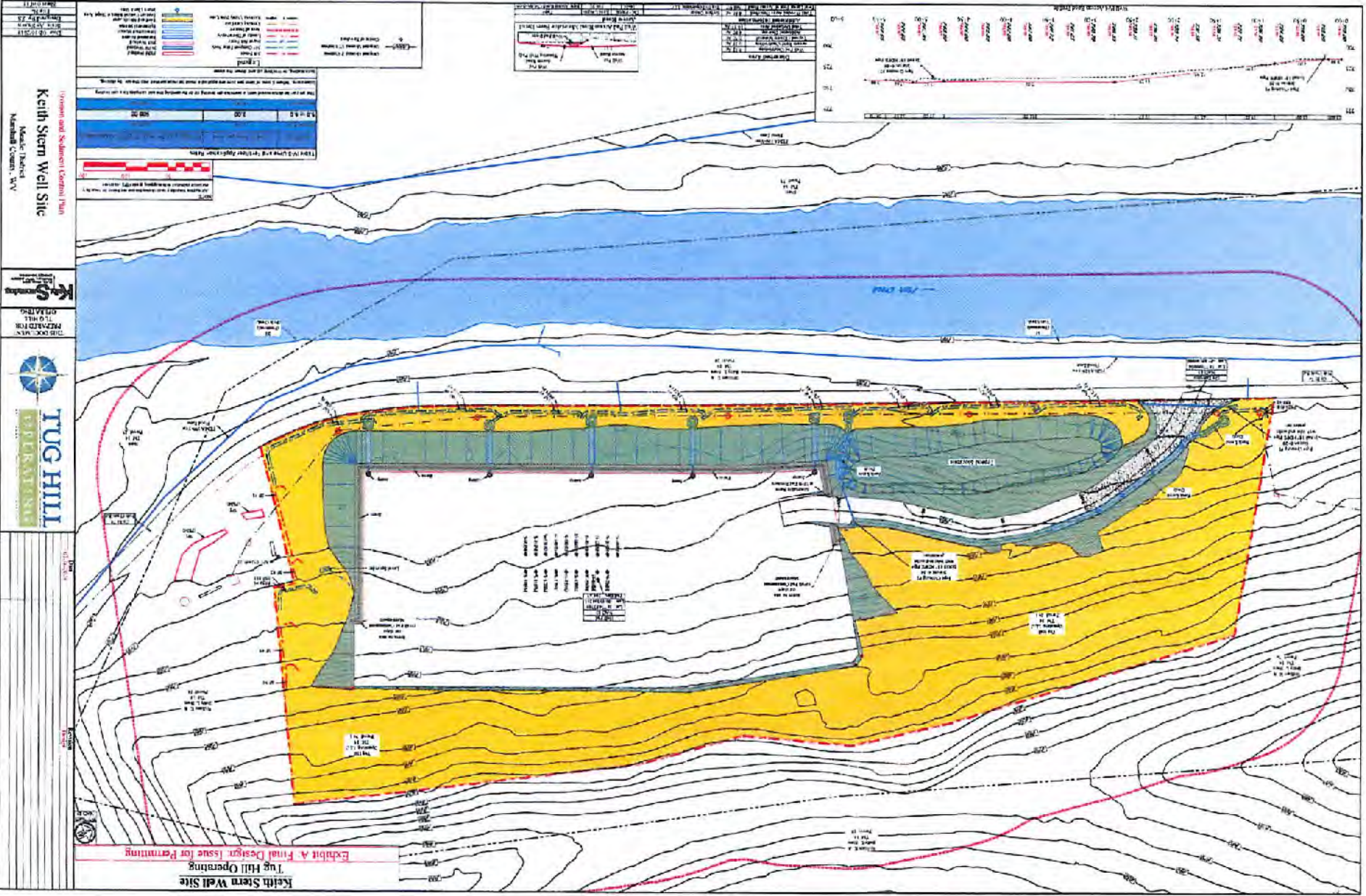
IN THE NAME OF THE STATE OF WEST VIRGINIA:

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

By:



JAMES A. MARTIN, CHIEF



Keith Stern Well Site
 Tug Hill Operating
 Exhibit A Final Design Issue for Permitting



Keith Stern Well Site
 Tug Hill Operating
 Exhibit A Final Design Issue for Permitting

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 Glenn Easton 7
Operator ID County District Quadrangle

2) Operator's Well Number: Keith Stern S-12HM Well Pad Name: Keith Stern

3) Farm Name/Surface Owner: TH Exploration, LLC Public Road Access: Fish Creek Road (County Route 74)

4) Elevation, current ground: 741.50' Elevation, proposed post-construction: 744.65'

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):
Marcellus is the target formation at a depth of 6281' - 6312', thickness of 51' and an anticipated approximate pressure of 3800 psi.

8) Proposed Total Vertical Depth: 6412'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 14,022'

11) Proposed Horizontal Leg Length: 7,033.35'

12) Approximate Fresh Water Strata Depths: 70'; 460'

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

14) Approximate Saltwater Depths: 1,740'

15) Approximate Coal Seam Depths: Sewickley Coal - 369' and Pittsburgh Coal - 454'

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: _____
Depth: _____
Seam: _____
Owner: _____

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WW-6B
(04/15)

API NO. 47- 051 -
OPERATOR WELL NO. Keith Stern S-12HM
Well Pad Name: Keith Stern

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259ft ³ (CTS)
Fresh Water	13 3/8"	NEW	J55	54.5#	560'	560'	739ft ³ (CTS)
Coal	13 3/8"	NEW	J55	54.5#	560'	560'	739ft ³ (CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,220'	2,200'	718ft ³ (CTS)
Production	5 1/2"	NEW	P110	20#	14,022'	14,022'	3592ft ³ (CTS)
Tubing	2 3/8"	NEW	N80	4.7#	6,891'		
Liners							

JS
8/1/18

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17.5"	.33	2,740	2,192	SEE #24	1.2
Coal	13 3/8"	17.5"	.33	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE #24	1.19
Production	5 1/2"	8 7/8" _ 8 3/4"	.361	12,640	10,112	SEE #24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

PACKERS

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

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WW-6B
(10/14)

API NO. 47-051 - _____

OPERATOR WELL NO. Keith Stern S-121IM

Well Pad Name: Keith Stern

JS
8/1/18

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

Drill through the Marcellus tagging less than 100' from the top of the Onondaga to get depths and log data. Plug back to proposed kick off point. Drill the horizontal section to planned and proposed TD. Run casing and cement to surface. Run Bond Log from app. 60 deg to surface. Make clean out run and stimulate.

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

Well to completed with approximately 17,580,000 lb. proppant and 271,800 barrels of water.
Max rate = 80bpm; max psi = 9,000#. ✓

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 10.35 acres

22) Area to be disturbed for well pad only, less access road (acres): 4.32 acres

23) Describe centralizer placement for each casing string:

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

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

*See attachment

25) Proposed borehole conditioning procedures:

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

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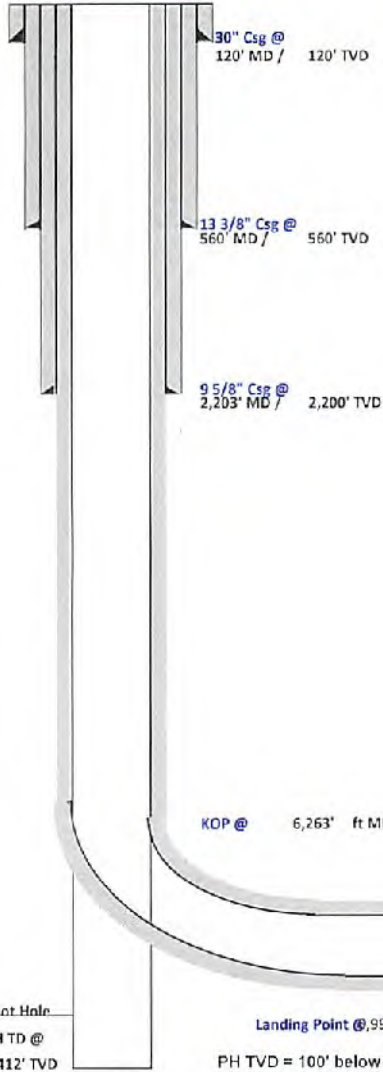
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*Note: Attach additional sheets as needed.



WELL NAME: Keith Stern S-12HM
 STATE: WV COUNTY: Marshall
 DISTRICT: Meade
 DF Elev: 744' GL Elev: 744'
 TD: 14,022'
 TH Latitude: 39.77474146
 TH Longitude: -80.69213727
 BH Latitude: 39.756397
 BH Longitude: -80.673011



FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	460
Sewickley Coal	369
Pittsburgh Coal	454
Big Lime	1611
Weir	1924
Berea	2116
Gordon	2381
Rhinestreet	5592
Genesee/Burkett	6106
Tully	6137
Hamilton	6172
Marcellus	6261
Landing Depth	6301
Onondaga	6312
Pilot Hole Depth	6412

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	560'	560'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,203'	2,200'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	14,022'	6,424'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	721	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	725	A	15	Air	1 Centralizer every other jt
Production	3,174	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc

Handwritten signature and date: 8/1/18

Pilot Hole
PH TD @
6,412' TVD

Landing Point @ 990' MD / 5,301' TVD
PH TVD = 100' below Onondaga Top

Lateral TD @ 14,022' ft MD
6,424' ft TVD

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4705102104



Tug Hill Operating, LLC Casing and Cement Program

Keith Stern S-12HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	560'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,203'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	14,022'	CTS

Cement

Conductor:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Conductor Cement mixed at 15.6 ppg, Y=1.2
Surface:	Premium NE-1 + 2% bwoc CaC12 + 46.5% Fresh Water – Surface Cement mixed at 15.6 ppg, Y=1.2
Intermediate:	Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.19
Kick Off Plug:	Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L - KOP Plug
Production:	50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.19

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Well: Keith Stern S-12 HM (slot N)
Site: Keith Stern
Project: Marshall County, West Virginia
Design: rev 1

SECTION DETAILS

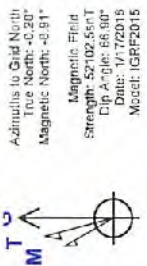
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	Tface	VSEct	Amulation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	KCP Begin 27100' build
3	1650.00	5.00	68.41	1546.88	-1.22	10.83	2.00	93.41	7.77	KCP Begin 500' tangent
4	3105.24	5.00	68.41	3100.00	-16.36	145.62	0.00	104.40	10.40	Begin 37100' build/turn
5	3605.16	28.82	96.20	3354.14	-41.26	373.52	3.00	-0.25	267.23	Begin 28.82° tangent
6	5265.02	28.82	96.20	5924.39	-164.33	1505.80	0.00	0.00	1375.76	Begin 137100' build/turn
7	6685.74	89.00	150.32	6301.30	-562.35	1916.42	10.00	58.06	1335.78	Begin 89.00° lateral section
8	14021.81	89.00	150.32	6424.30	-9560.66	5393.29	0.00	0.00	8573.56	PBHLTD 14021.80 MD/6424.00 TVD

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

System Datum: Mean Sea Level
 Depth Reference: GL @ 744.00usft

Northing: 14444858.01
 Easting: 1726616.63
 Latitude: 39.77474145
 Longitude: -80.65213727

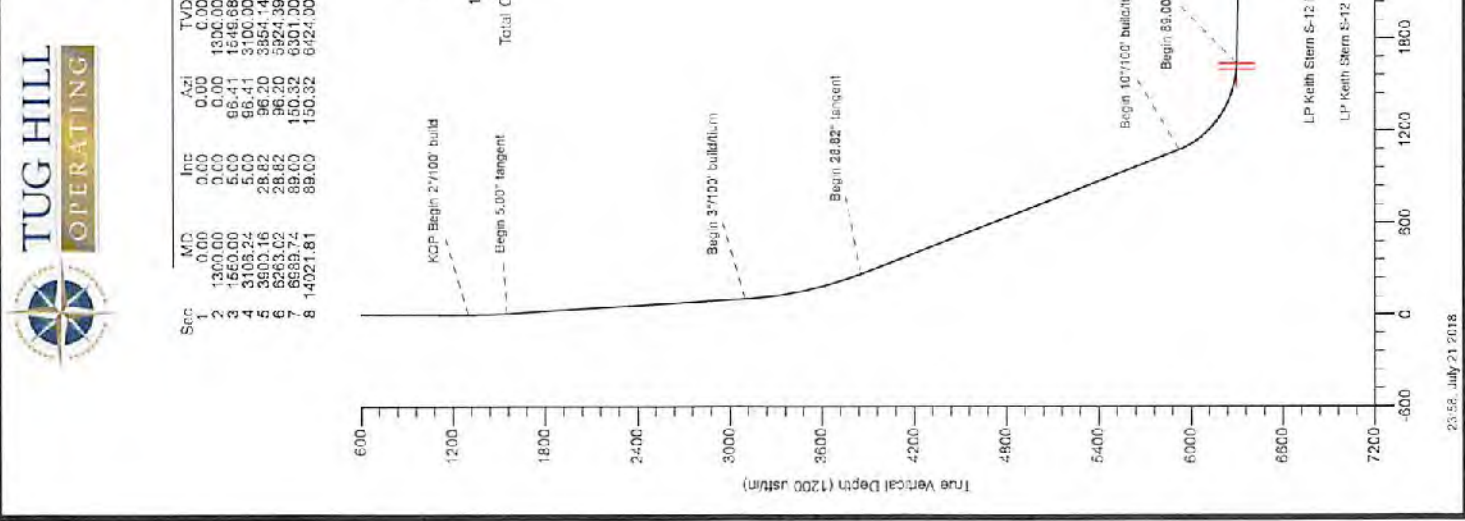
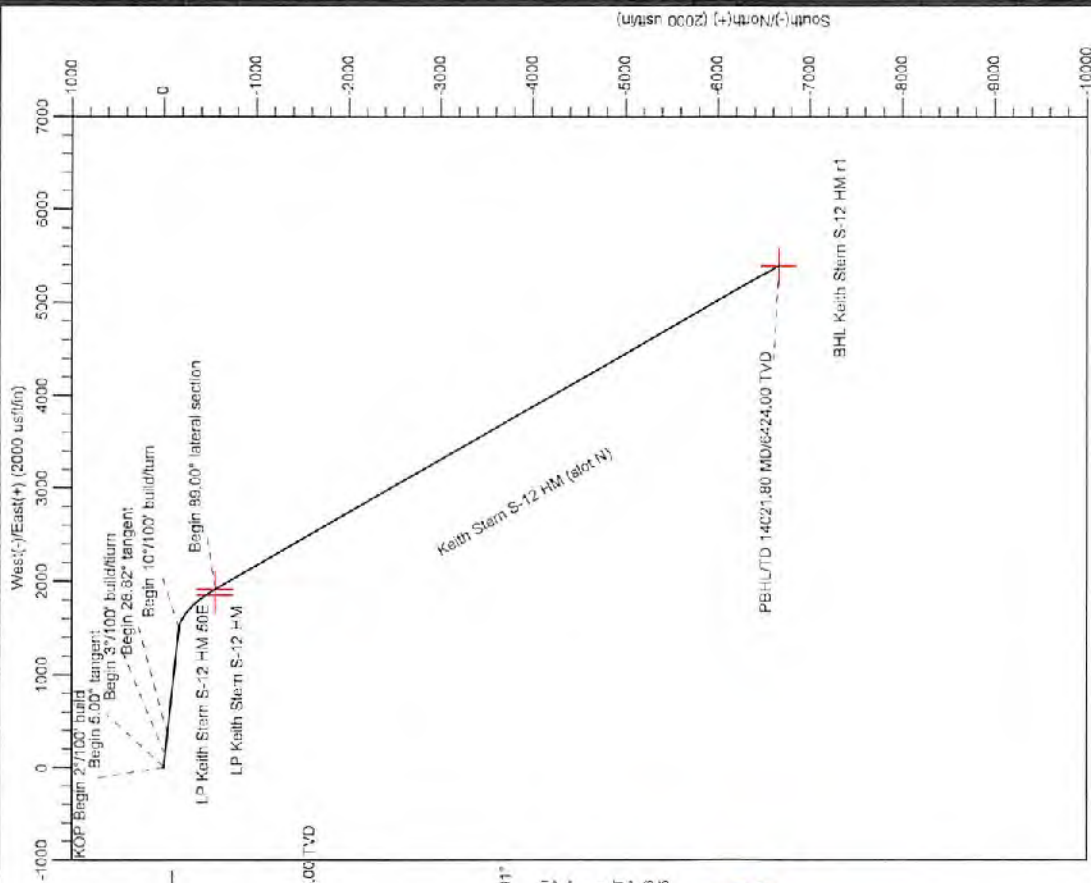
Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.91°



Admittis to Grid North
 True North: 4.91°
 Magnetic North: 4.91°



Magnetic Field
 Strength: 52102.55rT
 Dip Angle: 66.90°
 Date: 1/17/2015
 Model: IGRF2015



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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Keith Stern S-12 HM (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 744.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 744.00usft
Site:	Keith Stern	North Reference:	Grid
Well:	Keith Stern S-12 HM (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

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	Keith Stern				
Site Position:		Northing:	14,444,890.33 usft	Latitude:	39.77483004
From:	Lat/Long	Easting:	1,726,932.47 usft	Longitude:	-80.69208046
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20 °

Well	Keith Stern S-12 HM (slot N)					
Well Position	+N/-S	0.00 usft	Northing:	14,444,858.02 usft	Latitude:	39.77474146
	+E/-W	0.00 usft	Easting:	1,726,916.62 usft	Longitude:	-80.69213727
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	744.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/17/2018	-8.71	66.90	52,102.46908110

Design	rev1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	140.96

Plan Survey Tool Program	Date	7/21/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	14,021.81 rev1 (Original Hole)	MWD	MWD - Standard

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,550.00	5.00	96.41	1,549.68	-1.22	10.83	2.00	2.00	0.00	96.41	
3,106.24	5.00	96.41	3,100.00	-16.36	145.62	0.00	0.00	0.00	0.00	
3,900.16	28.82	96.20	3,854.14	-41.26	373.52	3.00	3.00	-0.03	-0.25	
6,263.02	26.62	96.20	5,924.39	-164.33	1,505.80	0.00	0.00	0.00	0.00	
6,989.74	89.00	150.32	6,301.00	-552.35	1,916.42	10.00	8.28	7.45	58.06	LP Keith Stern S-12 H
14,021.81	89.00	150.32	6,424.00	-6,680.66	5,398.29	0.00	0.00	0.00	0.00	BHL Keith Stern S-12



Planning Report - Geographic

Database:	DB_Jul2218dt_v14	Local Co-ordinate Reference:	Well Keith Stern S-12 HM (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 744.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 744.00usft
Site:	Keith Stern	North Reference:	Grid
Well:	Keith Stern S-12 HM (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
100.00	0.00	0.00	100.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
200.00	0.00	0.00	200.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
300.00	0.00	0.00	300.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
400.00	0.00	0.00	400.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
500.00	0.00	0.00	500.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
600.00	0.00	0.00	600.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
700.00	0.00	0.00	700.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
800.00	0.00	0.00	800.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
900.00	0.00	0.00	900.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,444,858.02	1,726,916.62	39.77474146	-80.69213727	
KOP Begin 2°/100' build										
1,400.00	2.00	96.41	1,399.98	-0.19	1.73	14,444,857.82	1,726,918.36	39.77474091	-80.69213110	
1,500.00	4.00	96.41	1,499.83	-0.78	6.93	14,444,857.24	1,726,923.58	39.77473926	-80.69211260	
1,550.00	5.00	96.41	1,549.68	-1.22	10.83	14,444,856.80	1,726,927.46	39.77473602	-80.69209873	
Begin 5.00° tangent										
1,600.00	5.00	96.41	1,599.49	-1.70	15.16	14,444,856.31	1,726,931.79	39.77473654	-80.69208332	
1,700.00	5.00	96.41	1,899.11	-2.88	23.82	14,444,855.34	1,726,940.45	39.77473389	-80.69205251	
1,800.00	5.00	96.41	1,798.73	-3.65	32.49	14,444,854.37	1,726,949.11	39.77473113	-80.69202170	
1,900.00	5.00	96.41	1,898.35	-4.82	41.15	14,444,853.39	1,726,957.77	39.77472838	-80.69199088	
2,000.00	5.00	96.41	1,997.97	-5.60	49.81	14,444,852.42	1,726,966.43	39.77472562	-80.69196007	
2,100.00	5.00	96.41	2,097.59	-6.57	58.47	14,444,851.45	1,726,975.09	39.77472287	-80.69192926	
2,200.00	5.00	96.41	2,197.21	-7.54	67.13	14,444,850.46	1,726,983.75	39.77472012	-80.69189844	
2,300.00	5.00	96.41	2,296.82	-8.51	75.79	14,444,849.50	1,726,992.42	39.77471736	-80.69186763	
2,400.00	5.00	96.41	2,396.44	-9.49	84.45	14,444,848.53	1,727,001.08	39.77471461	-80.69183682	
2,500.00	5.00	96.41	2,496.06	-10.46	93.11	14,444,847.56	1,727,009.74	39.77471185	-80.69180600	
2,599.99	5.00	96.41	2,595.68	-11.43	101.77	14,444,846.58	1,727,018.40	39.77470910	-80.69177519	
2,699.99	5.00	96.41	2,695.30	-12.41	110.44	14,444,845.61	1,727,027.06	39.77470635	-80.69174438	
2,799.99	5.00	96.41	2,794.92	-13.38	119.10	14,444,844.64	1,727,035.72	39.77470359	-80.69171356	
2,899.99	5.00	96.41	2,894.54	-14.35	127.76	14,444,843.66	1,727,044.38	39.77470084	-80.69168275	
2,999.99	5.00	96.41	2,994.16	-15.33	136.42	14,444,842.69	1,727,053.04	39.77469808	-80.69165194	
3,099.99	5.00	96.41	3,093.78	-16.30	145.08	14,444,841.72	1,727,061.70	39.77469533	-80.69162112	
3,105.24	5.00	96.41	3,100.00	-16.36	145.82	14,444,841.66	1,727,062.24	39.77469516	-80.69161920	
Begin 3°/100' build/turn										
3,199.99	7.81	96.32	3,193.16	-17.52	156.02	14,444,840.50	1,727,072.64	39.77469188	-80.69158221	
3,299.99	10.81	96.28	3,291.83	-19.29	172.10	14,444,838.73	1,727,088.72	39.77468685	-80.69152500	
3,399.99	13.81	96.25	3,389.52	-21.82	193.29	14,444,836.40	1,727,109.82	39.77468027	-80.69144959	
3,499.99	16.81	96.24	3,485.96	-24.49	219.54	14,444,833.53	1,727,136.17	39.77467213	-80.69135621	
3,599.99	19.81	96.22	3,580.88	-27.90	250.77	14,444,830.12	1,727,167.40	39.77466248	-80.69124510	
3,699.99	22.81	96.22	3,674.03	-31.84	286.90	14,444,826.16	1,727,203.53	39.77465132	-80.69111656	
3,799.99	25.81	96.21	3,765.15	-36.29	327.83	14,444,821.73	1,727,244.45	39.77463670	-80.69097086	
3,899.99	28.81	96.20	3,853.99	-41.25	373.44	14,444,816.77	1,727,290.06	39.77462455	-80.69080870	
3,900.16	28.82	96.20	3,854.14	-41.26	373.52	14,444,816.76	1,727,290.14	39.77462462	-80.69080841	
Begin 28.82° tangent										
3,999.99	28.82	96.20	3,941.61	-46.46	421.36	14,444,811.56	1,727,337.98	39.77460989	-80.69063821	
4,099.99	28.82	96.20	4,029.23	-51.87	469.26	14,444,806.35	1,727,385.90	39.77459513	-80.69046773	
4,199.99	28.82	96.20	4,116.84	-56.87	517.20	14,444,801.14	1,727,433.82	39.77458037	-80.69029724	
4,299.99	28.82	96.20	4,204.46	-62.08	565.12	14,444,795.93	1,727,481.74	39.77456561	-80.69012676	
4,399.99	28.82	96.20	4,292.07	-67.29	613.04	14,444,790.73	1,727,529.66	39.77455085	-80.68995627	
4,499.99	28.82	96.20	4,379.69	-72.50	660.96	14,444,785.52	1,727,577.58	39.77453609	-80.68978579	
4,599.99	28.82	96.20	4,467.30	-77.71	708.88	14,444,780.31	1,727,625.50	39.77452133	-80.68961530	

AUG 6 2018



Planning Report - Geographic

WV Department of
 Environmental Protection

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Keith Stem S-12 HM (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 744.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 744.00usft
Site:	Keith Stem	North Reference:	Grid
Well:	Keith Stem S-12 HM (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,699.99	28.82	96.20	4,554.92	-82.92	756.79	14,444,775.10	1,727,673.42	39.77450857	-80.68944482
4,799.99	28.82	96.20	4,642.54	-89.13	804.71	14,444,769.69	1,727,721.34	39.77449181	-80.68927433
4,899.99	28.82	96.20	4,730.15	-93.33	852.63	14,444,764.68	1,727,769.26	39.77447705	-80.68910385
4,999.99	28.82	96.20	4,817.77	-98.54	900.55	14,444,759.47	1,727,817.18	39.77446229	-80.68893336
5,099.99	28.82	96.20	4,905.38	-103.75	948.47	14,444,754.26	1,727,865.10	39.77444753	-80.68876288
5,199.99	28.82	96.20	4,993.00	-108.96	996.39	14,444,749.06	1,727,913.02	39.77443277	-80.68859239
5,299.99	28.82	96.20	5,080.61	-114.17	1,044.31	14,444,743.85	1,727,960.94	39.77441800	-80.68842191
5,399.99	28.82	96.20	5,168.23	-119.38	1,092.23	14,444,738.64	1,728,008.86	39.77440324	-80.68825142
5,499.99	28.82	96.20	5,255.85	-124.59	1,140.15	14,444,733.43	1,728,056.78	39.77438848	-80.68808094
5,599.99	28.82	96.20	5,343.46	-129.79	1,188.07	14,444,728.22	1,728,104.70	39.77437372	-80.68791046
5,699.99	28.82	96.20	5,431.06	-135.00	1,235.99	14,444,723.01	1,728,152.62	39.77435895	-80.68773997
5,799.99	28.82	96.20	5,518.69	-140.21	1,283.91	14,444,717.80	1,728,200.54	39.77434419	-80.68756949
5,899.99	28.82	96.20	5,606.31	-145.42	1,331.83	14,444,712.60	1,728,248.46	39.77432943	-80.68739900
5,999.99	28.82	96.20	5,693.93	-150.63	1,379.75	14,444,707.39	1,728,296.38	39.77431466	-80.68722852
6,099.99	28.82	96.20	5,781.54	-155.84	1,427.67	14,444,702.18	1,728,344.30	39.77429990	-80.68705804
6,199.99	28.82	96.20	5,869.16	-161.05	1,475.59	14,444,696.97	1,728,392.22	39.77428514	-80.68688755
6,293.02	28.82	96.20	5,924.36	-164.33	1,505.60	14,444,693.69	1,728,422.42	39.77427583	-80.68678009
Begin 10°/100' build/turn									
6,299.99	30.92	102.32	5,956.45	-167.32	1,523.94	14,444,690.70	1,728,440.57	39.77426745	-80.68671556
6,399.99	37.73	115.37	6,039.09	-185.96	1,576.82	14,444,672.05	1,728,493.45	39.77421576	-80.68652758
6,499.99	45.59	124.72	6,113.82	-219.49	1,633.98	14,444,638.52	1,728,550.60	39.77412310	-80.68632459
6,599.99	54.02	131.78	6,178.34	-266.92	1,693.66	14,444,591.10	1,728,610.29	39.77399230	-80.68611276
6,699.99	62.79	137.44	6,230.71	-326.78	1,754.08	14,444,531.24	1,728,670.69	39.77382732	-80.68589853
6,799.99	71.75	142.26	6,269.33	-397.26	1,813.35	14,444,460.76	1,728,729.98	39.77363318	-80.68568841
6,899.99	80.82	148.81	6,293.04	-476.22	1,869.72	14,444,381.79	1,728,786.35	39.77341578	-80.68548878
6,989.74	89.00	150.32	6,301.00	-552.35	1,916.42	14,444,305.67	1,728,833.04	39.77320527	-80.68532353
Begin 89.00° lateral section									
6,999.99	89.00	150.32	6,301.16	-561.25	1,921.49	14,444,296.77	1,728,838.12	39.77318178	-80.68530559
7,099.99	89.00	150.32	6,302.93	-648.11	1,971.01	14,444,209.60	1,728,887.63	39.77294275	-80.68513046
7,199.99	89.00	150.32	6,304.66	-734.96	2,020.52	14,444,123.04	1,728,937.14	39.77270372	-80.68495532
7,299.99	89.00	150.32	6,306.43	-821.84	2,070.03	14,444,036.18	1,728,986.66	39.77246470	-80.68478019
7,399.99	89.00	150.32	6,308.18	-908.70	2,119.55	14,443,949.31	1,729,036.17	39.77222567	-80.68460507
7,499.99	89.00	150.32	6,309.92	-995.57	2,169.06	14,443,862.45	1,729,085.69	39.77198664	-80.68442994
7,599.98	89.00	150.32	6,311.67	-1,082.43	2,218.58	14,443,775.59	1,729,135.20	39.77174761	-80.68425481
7,699.98	89.00	150.32	6,313.42	-1,169.30	2,268.09	14,443,688.72	1,729,184.71	39.77150858	-80.68407969
7,799.98	89.00	150.32	6,315.17	-1,256.16	2,317.60	14,443,601.86	1,729,234.23	39.77126955	-80.68390456
7,899.98	89.00	150.32	6,316.92	-1,343.02	2,367.12	14,443,515.00	1,729,283.74	39.77103052	-80.68372944
7,999.98	89.00	150.32	6,318.67	-1,429.89	2,416.63	14,443,428.13	1,729,333.26	39.77079149	-80.68355432
8,099.98	89.00	150.32	6,320.42	-1,516.75	2,466.15	14,443,341.27	1,729,382.77	39.77055246	-80.68337920
8,199.98	89.00	150.32	6,322.17	-1,603.61	2,515.66	14,443,254.40	1,729,432.28	39.77031343	-80.68320408
8,299.98	89.00	150.32	6,323.92	-1,690.48	2,565.17	14,443,167.54	1,729,481.80	39.77007440	-80.68302896
8,399.98	89.00	150.32	6,325.67	-1,777.34	2,614.69	14,443,080.68	1,729,531.31	39.76983537	-80.68285384
8,499.98	89.00	150.32	6,327.42	-1,864.20	2,664.20	14,442,993.81	1,729,580.83	39.76959634	-80.68267873
8,599.98	89.00	150.32	6,329.17	-1,951.07	2,713.72	14,442,906.95	1,729,630.34	39.76935731	-80.68250361
8,699.98	89.00	150.32	6,330.91	-2,037.93	2,763.23	14,442,820.09	1,729,679.86	39.76911828	-80.68232850
8,799.98	89.00	150.32	6,332.66	-2,124.79	2,812.74	14,442,733.22	1,729,729.37	39.76887924	-80.68215339
8,899.98	89.00	150.32	6,334.41	-2,211.66	2,862.26	14,442,646.36	1,729,778.88	39.76864021	-80.68197828
8,999.98	89.00	150.32	6,336.16	-2,298.52	2,911.77	14,442,559.50	1,729,828.40	39.76840118	-80.68180317
9,099.98	89.00	150.32	6,337.91	-2,385.38	2,961.29	14,442,472.63	1,729,877.91	39.76816215	-80.68162806
9,199.98	89.00	150.32	6,339.66	-2,472.25	3,010.80	14,442,385.77	1,729,927.43	39.76792311	-80.68145295
9,299.98	89.00	150.32	6,341.41	-2,559.11	3,060.32	14,442,298.91	1,729,976.94	39.76768408	-80.68127785
9,399.98	89.00	150.32	6,343.16	-2,645.97	3,109.83	14,442,212.04	1,730,026.45	39.76744504	-80.68110274
9,499.98	89.00	150.32	6,344.91	-2,732.84	3,159.34	14,442,125.18	1,730,075.97	39.76720601	-80.68092764
9,599.98	89.00	150.32	6,346.66	-2,819.70	3,208.86	14,442,038.32	1,730,125.48	39.76696696	-80.68075253



Planning Report - Geographic

WV Department of
Environmental Protection

Database:	DB_Jul2218dt_v14	Local Co-ordinate Reference:	Well Keith Stern S-12 HM (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 744.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 744.00usft
Site:	Keith Stern	North Reference:	Grid
Well:	Keith Stern S-12 HM (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,699.98	89.00	150.32	6,348.41	-2,906.56	3,258.37	14,441,951.45	1,730,175.00	39.76672794	-80.68057743	
9,799.98	89.00	150.32	6,350.15	-2,993.43	3,307.89	14,441,864.59	1,730,224.51	39.76648891	-80.68040233	
9,899.98	89.00	150.32	6,351.90	-3,060.29	3,357.40	14,441,777.73	1,730,274.02	39.76624987	-80.68022723	
9,999.98	89.00	150.32	6,353.65	-3,167.15	3,406.91	14,441,690.88	1,730,323.54	39.76601084	-80.68005214	
10,099.98	89.00	150.32	6,355.40	-3,254.02	3,456.43	14,441,604.00	1,730,373.05	39.76577180	-80.67987704	
10,199.98	89.00	150.32	6,357.15	-3,340.88	3,505.94	14,441,517.14	1,730,422.57	39.76553277	-80.67970185	
10,299.98	89.00	150.32	6,358.90	-3,427.74	3,555.46	14,441,430.27	1,730,472.08	39.76529373	-80.67952685	
10,399.98	89.00	150.32	6,360.65	-3,514.61	3,604.97	14,441,343.41	1,730,521.59	39.76505469	-80.67935178	
10,499.98	89.00	150.32	6,362.40	-3,601.47	3,654.48	14,441,256.55	1,730,571.11	39.76481586	-80.67917667	
10,599.98	89.00	150.32	6,364.15	-3,688.34	3,704.00	14,441,169.68	1,730,620.62	39.76457662	-80.67900158	
10,699.98	89.00	150.32	6,365.90	-3,775.20	3,753.51	14,441,082.82	1,730,670.14	39.76433758	-80.67882649	
10,799.98	89.00	150.32	6,367.65	-3,862.06	3,803.03	14,440,995.96	1,730,719.65	39.76409854	-80.67865140	
10,899.98	89.00	150.32	6,369.40	-3,948.93	3,852.54	14,440,909.09	1,730,769.16	39.76385951	-80.67847631	
10,999.98	89.00	150.32	6,371.14	-4,035.79	3,902.05	14,440,822.23	1,730,818.68	39.76362047	-80.67830123	
11,099.98	89.00	150.32	6,372.89	-4,122.65	3,951.57	14,440,735.36	1,730,868.19	39.76338143	-80.67812614	
11,199.98	89.00	150.32	6,374.64	-4,209.52	4,001.08	14,440,648.50	1,730,917.71	39.76314239	-80.67795106	
11,299.98	89.00	150.32	6,376.39	-4,296.38	4,050.60	14,440,561.64	1,730,967.22	39.76290335	-80.67777598	
11,399.98	89.00	150.32	6,378.14	-4,383.24	4,100.11	14,440,474.77	1,731,016.73	39.76266431	-80.67760090	
11,499.98	89.00	150.32	6,379.89	-4,470.11	4,149.62	14,440,387.91	1,731,066.25	39.76242527	-80.67742582	
11,599.98	89.00	150.32	6,381.64	-4,556.97	4,199.14	14,440,301.05	1,731,115.76	39.76218623	-80.67725074	
11,699.98	89.00	150.32	6,383.39	-4,643.83	4,248.65	14,440,214.18	1,731,165.28	39.76194720	-80.67707566	
11,799.98	89.00	150.32	6,385.14	-4,730.70	4,298.17	14,440,127.32	1,731,214.79	39.76170815	-80.67690059	
11,899.98	89.00	150.32	6,386.89	-4,817.56	4,347.68	14,440,040.46	1,731,264.31	39.76146911	-80.67672551	
11,999.98	89.00	150.32	6,388.64	-4,904.42	4,397.19	14,439,953.59	1,731,313.82	39.76123007	-80.67655044	
12,099.98	89.00	150.32	6,390.36	-4,991.29	4,446.71	14,439,866.73	1,731,363.33	39.76099103	-80.67637537	
12,199.98	89.00	150.32	6,392.13	-5,078.15	4,496.22	14,439,779.87	1,731,412.85	39.76075199	-80.67620030	
12,299.98	89.00	150.32	6,393.88	-5,165.01	4,545.74	14,439,693.00	1,731,462.36	39.76051295	-80.67602523	
12,399.98	89.00	150.32	6,395.63	-5,251.88	4,595.25	14,439,606.14	1,731,511.88	39.76027391	-80.67585016	
12,499.98	89.00	150.32	6,397.38	-5,338.74	4,644.77	14,439,519.28	1,731,561.39	39.76003487	-80.67567509	
12,599.98	89.00	150.32	6,399.13	-5,425.60	4,694.28	14,439,432.41	1,731,610.90	39.75979582	-80.67550003	
12,699.97	89.00	150.32	6,400.88	-5,512.47	4,743.79	14,439,345.55	1,731,660.42	39.75955678	-80.67532496	
12,799.97	89.00	150.32	6,402.63	-5,599.33	4,793.31	14,439,258.69	1,731,709.93	39.75931774	-80.67514990	
12,899.97	89.00	150.32	6,404.38	-5,686.19	4,842.82	14,439,171.82	1,731,759.45	39.75907870	-80.67497483	
12,999.97	89.00	150.32	6,406.13	-5,773.06	4,892.34	14,439,084.96	1,731,808.96	39.75883965	-80.67479977	
13,099.97	89.00	150.32	6,407.88	-5,859.92	4,941.85	14,438,998.10	1,731,858.47	39.75860061	-80.67462471	
13,199.97	89.00	150.32	6,409.63	-5,946.78	4,991.36	14,438,911.23	1,731,907.99	39.75836156	-80.67444965	
13,299.97	89.00	150.32	6,411.37	-6,033.65	5,040.88	14,438,824.37	1,731,957.50	39.75812252	-80.67427460	
13,399.97	89.00	150.32	6,413.12	-6,120.51	5,090.39	14,438,737.51	1,732,007.02	39.75788348	-80.67409954	
13,499.97	89.00	150.32	6,414.87	-6,207.38	5,139.91	14,438,650.64	1,732,056.53	39.75764443	-80.67392448	
13,599.97	89.00	150.32	6,416.62	-6,294.24	5,189.42	14,438,563.78	1,732,106.04	39.75740539	-80.67374943	
13,699.97	89.00	150.32	6,418.37	-6,381.10	5,238.93	14,438,476.92	1,732,155.56	39.75716634	-80.67357438	
13,799.97	89.00	150.32	6,420.12	-6,467.97	5,288.45	14,438,390.05	1,732,205.07	39.75692730	-80.67339933	
13,899.97	89.00	150.32	6,421.87	-6,554.83	5,337.96	14,438,303.19	1,732,254.59	39.75668825	-80.67322428	
13,999.97	89.00	150.32	6,423.62	-6,641.69	5,387.48	14,438,216.32	1,732,304.10	39.75644920	-80.67304923	
14,021.80	89.00	150.32	6,424.00	-6,660.65	5,398.28	14,438,197.36	1,732,314.91	39.75639702	-80.67301102	
PBHL/TD 14021.80 MD/6424.00 TVD										
14,021.81	89.00	150.32	6,424.00	-6,660.66	5,398.28	14,438,197.36	1,732,314.91	39.75639700	-80.67301100	



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Keith Stern S-12 HM (slot N)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 744.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL @ 744.00usft
Site:	Keith Stern	North Reference:	Grid
Well:	Keith Stern S-12 HM (slot N)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LP Keith Stern S-12 HM - plan hits target center - Point	0.00	0.00	6,301.00	-552.35	1,916.42	14,444,305.66	1,728,833.04	39.77320626	-80.68532353
LP Keith Stern S-12 HM - plan misses target center by 51.82usft at 6958.46usft MD (6299.67 TVD, -525.38 N, 1900.64 E) - Point	0.00	0.00	6,301.00	-552.35	1,856.42	14,444,305.66	1,728,773.04	39.77320684	-80.68553708
BHL Keith Stern S-12 HI - plan hits target center - Point	0.00	0.01	6,424.00	-6,660.66	5,398.29	14,436,197.36	1,732,314.91	39.75639700	-80.67301100

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,300.00	1,300.00	0.00	0.00	KOP Begin 2°/100' build
1,550.00	1,549.88	-1.22	10.83	Begin 5.00° tangent
3,106.24	3,100.00	-16.36	145.62	Begin 3°/100' build/turn
3,900.16	3,854.14	-41.26	373.52	Begin 28.82° tangent
6,263.02	5,924.38	-164.33	1,505.80	Begin 10°/100' build/turn
6,989.74	6,301.00	-552.35	1,916.42	Begin 89.00° lateral section
14,021.80	6,424.00	-6,660.65	5,398.28	PBHL/TD 14021.80 MD/6424.00 TVD

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WW-9
(4/16)

API Number 47 - 051 -
Operator's Well No. Keith Stem S-12HM

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

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FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

WV Department of
Environmental Protection

Operator Name Tug Hill Operating, LLC OP Code 494510851
Watershed (HUC 10) Fish 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 (SWI-1021 / WV0109165) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EGR1386426)

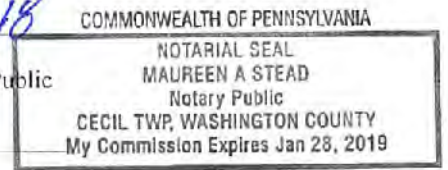
Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

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

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

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

Subscribed and sworn before me this 2 day of AUG., 20 18
Maureen A Stead Notary Public
My commission expires 1/28/19



Form WW-9

Operator's Well No. Keith Stern S-12HM

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 19.18 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: *John Unholtz*

Comments:

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WV Department of
Environmental Protection

Title: Oil and Gas Inspector

Date: 8/1/18

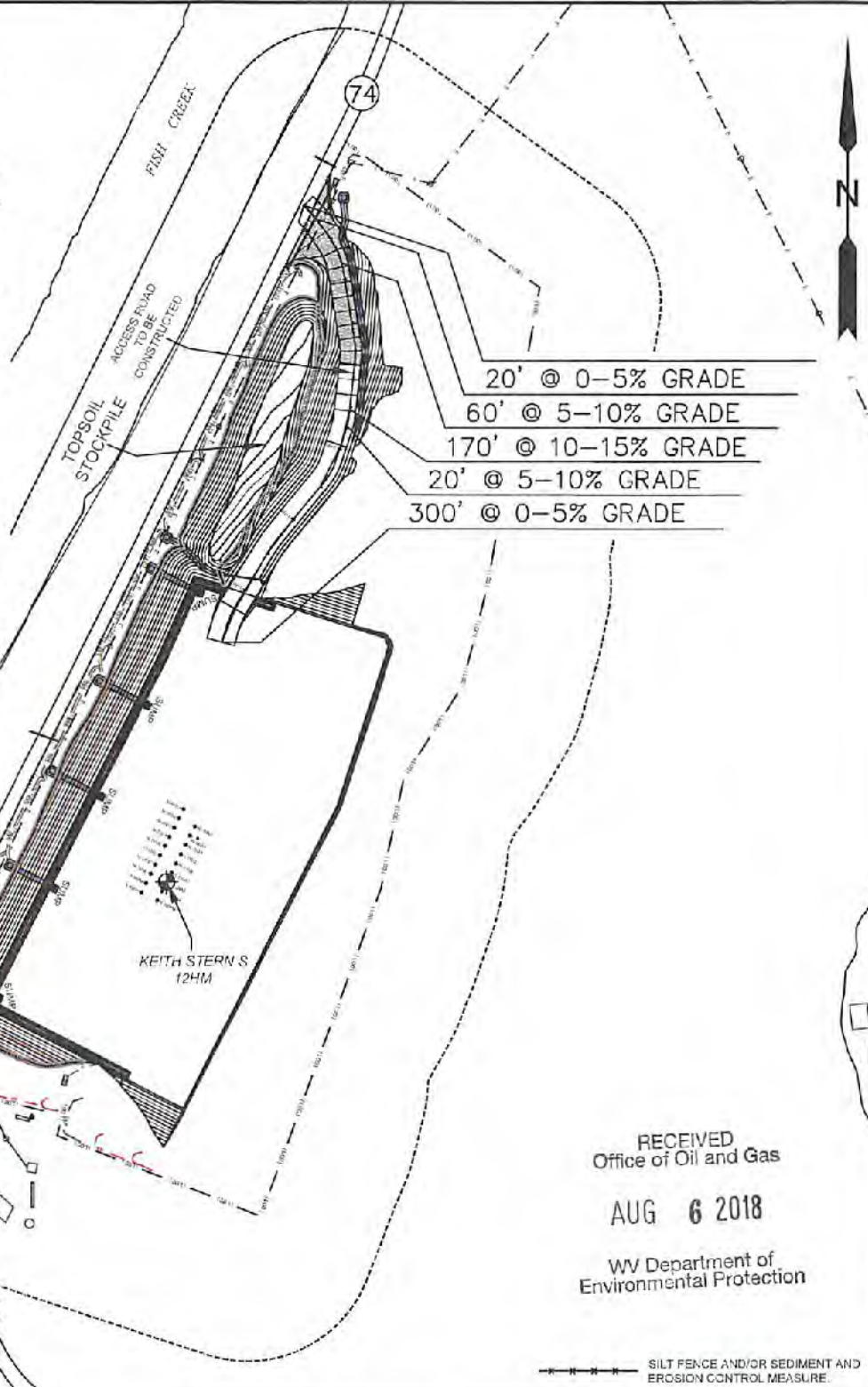
Field Reviewed? () Yes

() No

PROPOSED KEITH STERN S - 12HM

NOTES:

1. Ⓞ - DENOTES INSTALL 18" PVC CULVERT AND APPLY APPROPRIATE SEDIMENT OUTLET CONTROL (RIP RAP SPLASH PAD)
2. DRAWING NOT TO SCALE
3. 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.
4. INSTALL CULVERTS AS SHOWN ON RECLAMATION PLAN OR AS FIELD CONDITIONS REQUIRE.
5. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
6. TEMPORARILY SEED AND MULCH ALL SLOPS UPON CONSTRUCTION OF LOCATION.
7. ALL CUT AND FILL SLOPES ARE 2H : 1V SLOPE.
8. ALL TREES 6" INCHES AND ABOVE ARE TO BE CUT AND STACKED. BRUSH SLASHINGS ARE TO BE UTILIZED DOWN SLOPE OF SITE AND STRUCTURES TO ACT AS A CONTROL BARRIER IF AVAILABLE.
9. SEE KEITH STERN S SITE PLAN PREPARED BY KELLEY SURVEYING, FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.



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----- SILT FENCE AND/OR SEDIMENT AND EROSION CONTROL MEASURE

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www.slsurveys.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR: TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317	
COUNTY	DISTRICT	DATE	SCALE
MARSHALL	MEADE	07/31/2018	NONE
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8811	07/31/2018	NONE



**TUG HILL
OPERATING**



Well Site Safety Plan
Tug Hill Operating, LLC

John
8/1/18

Well Name: Keith Stern S-12HM

Pad Location: Keith Stern Pad

Marshall County, West Virginia

UTM meters , NADD83, Zone 17:

Northing: 4,402,801.53

Easting: 526,365.24

August 2018

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WW-9

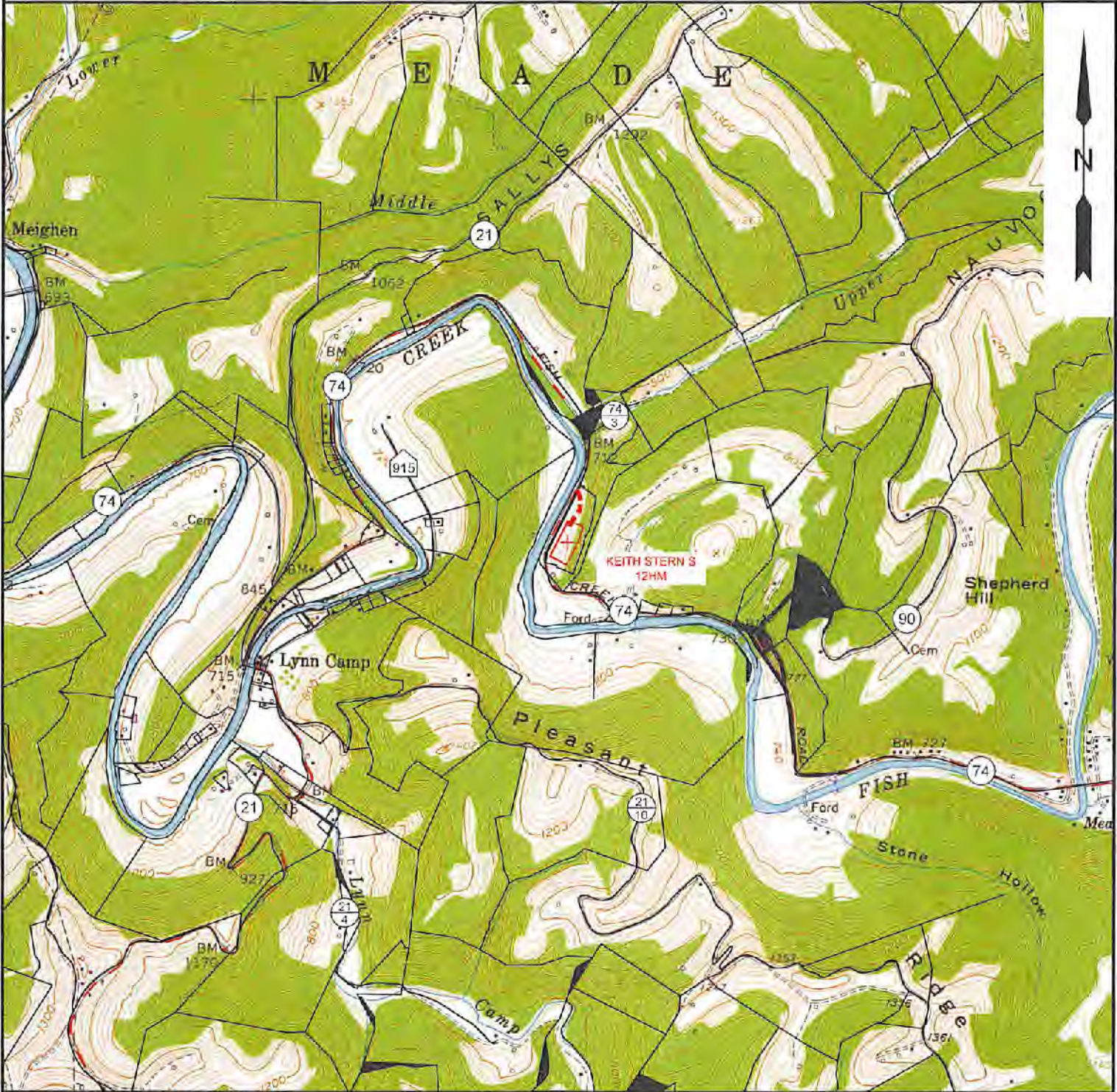
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PROPOSED KEITH STERN S - 12HM

SUPPLEMENT PG. 2



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE DISTRICT
PROCTOR, WV

LAT: 39.7137712
LON: -80.8258327
LOCATED: S 80°11'49" W AT 43,719.31' FROM THE CENTER OF KEITH STERN S WELL PAD LOCATION.



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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.		07/31/2018	1" = 2000'

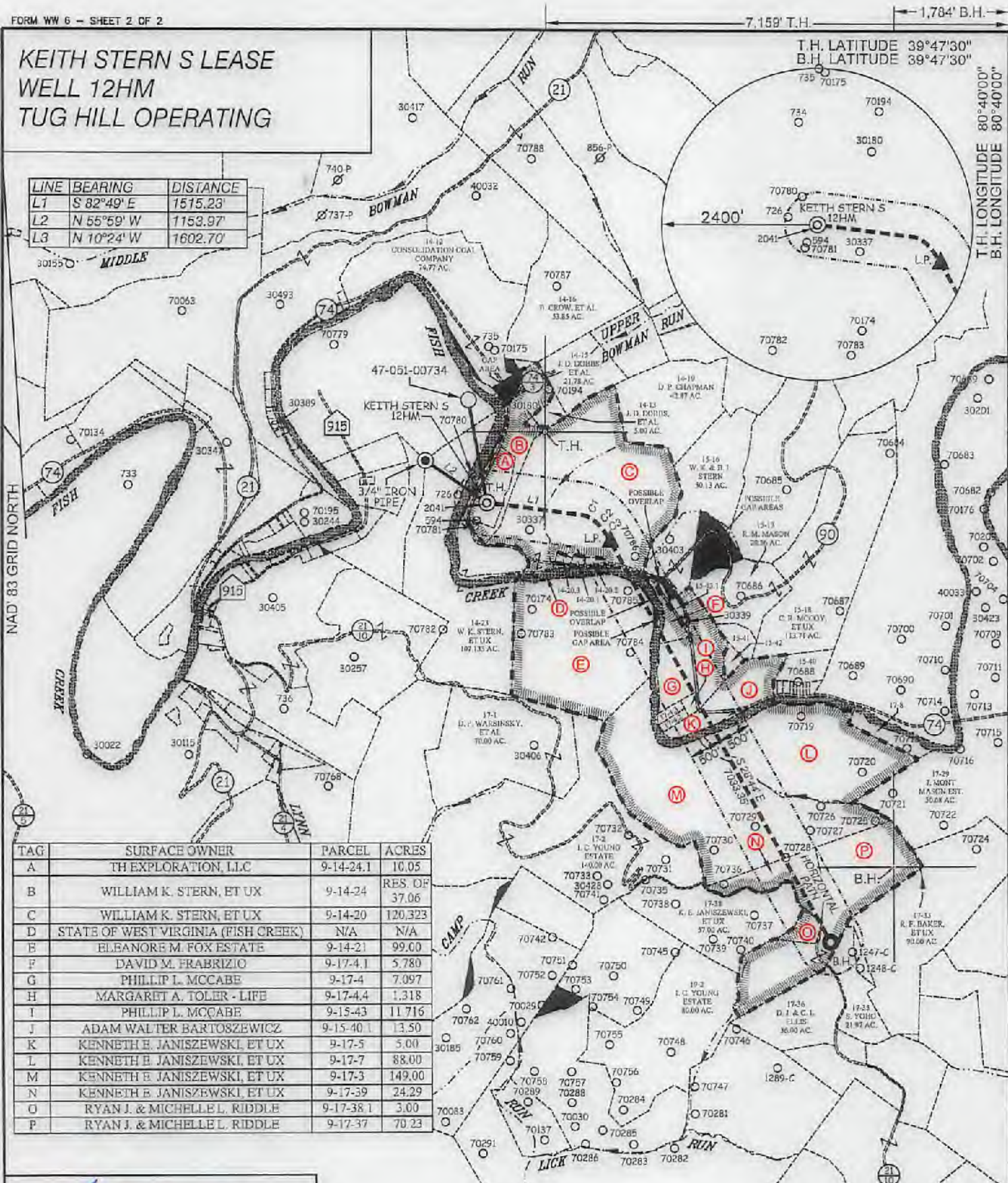


TUG HILL
OPERATING

**KEITH STERN S LEASE
WELL 12HM
TUG HILL OPERATING**

LINE	BEARING	DISTANCE
L1	S 82°49' E	1515.23'
L2	N 55°59' W	1153.97'
L3	N 10°24' W	1602.70'

NAD 83 GRID NORTH



TAG	SURFACE OWNER	PARCEL	ACRES
A	TH EXPLORATION, LLC	9-14-24.1	10.05
B	WILLIAM K. STERN, ET UX	9-14-24	RES. OR 37.06
C	WILLIAM K. STERN, ET UX	9-14-20	120.323
D	STATE OF WEST VIRGINIA (FISH CREEK)	N/A	N/A
E	ELANORE M. FOX ESTATE	9-14-21	99.00
F	DAVID M. FRABRIZIO	9-17-4.1	5.780
G	PHILLIP L. MCCABE	9-17-4	7.097
H	MARGARIT A. TOLER - LIFE	9-17-4.4	1.318
I	PHILLIP L. MCCABE	9-15-4.3	11.716
J	ADAM WALTER BARTOSZEWICZ	9-15-40.1	13.50
K	KENNETH E. JANISZEWSKI, ET UX	9-17-5	5.00
L	KENNETH E. JANISZEWSKI, ET UX	9-17-7	88.00
M	KENNETH E. JANISZEWSKI, ET UX	9-17-3	149.00
N	KENNETH E. JANISZEWSKI, ET UX	9-17-39	24.29
O	RYAN J. & MICHELLE L. RIDDLE	9-17-38.1	3.00
P	RYAN J. & MICHELLE L. RIDDLE	9-17-37	70.23

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	123.60'	286.29'	S 67°04' E	122.64'
C2	223.87'	779.20'	S 46°34' E	223.11'
C3	233.24'	1359.58'	S 33°42' E	232.96'

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

NAD'83 S.P.C.(FT)	N. 486,523.41	E. 1,633,440.82
NAD'83 GEC	LAT-(N) 39.774741	LONG-(W) 80.692137
NAD'83 UTM (M)	N. 4,402,801.53	E. 526,365.24

LANDING POINT

NAD'83 S.P.C.(FT)	N. 465,938.9	E. 1,635,348.5
NAD'83 GEC	LAT-(N) 39.773208	LONG-(W) 80.685324
NAD'83 UTM (M)	N. 4,402,693.2	E. 526,949.4

BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 459,771.2	E. 1,538,728.9
NAD'83 GEC	LAT-(N) 39.756307	LONG-(W) 80.673011
NAD'83 UTM (M)	N. 4,400,771.4	E. 528,010.6



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

P.S. 677
Gregory A. Smith

LEGEND

LEASE LINE	
SURFACE LINE	
WELL LATERAL	
OFFSET LINE	
TIE LINE	
CREEK	
ROAD	
COUNTY ROUTE	
PROPOSED WELL	
EXISTING WELL	
PERMITTED WELL	
TAX MAP-PARCEL	00-00
LEASE # (SEE WW-6A1)	
SURFACE OWNER (SEE TABLE)	

SCALE 1" = 2000' FILE NO. 8811P12HMv2.dwg
DATE JULY 31, 2018
REVISED _____, 20____
OPERATORS WELL NO. KEITH STERN S-12HM
API WELL NO. 47-051-02104
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 CT CORPORATION SYSTEM
FORT WORTH, TX 76107	5400 D BIG TYLER ROAD
	CHARLESTON, WV 25313

COUNTY NAME
PERMIT

**KEITH STERN S LEASE
WELL 12HM
TUG HILL OPERATING**

T.H. LATITUDE 39°47'30"
B.H. LATITUDE 39°47'30"

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

NAD'83 S.P.C.(FT)	N. 465,523.41	E. 1,633,440.92
NAD'83 GEO.	LAT-(N) 39.774741	LONG-(W) 80.692137
NAD'83 UTM (M)	N. 4,402,838.2	E. 526,365.24

LANDING POINT

NAD'83 S.P.C.(FT)	N. 459,938.9	E. 1,635,348.5
NAD'83 GEO.	LAT-(N) 39.773206	LONG-(W) 80.686324
NAD'83 UTM (M)	N. 4,402,838.2	E. 526,949.4

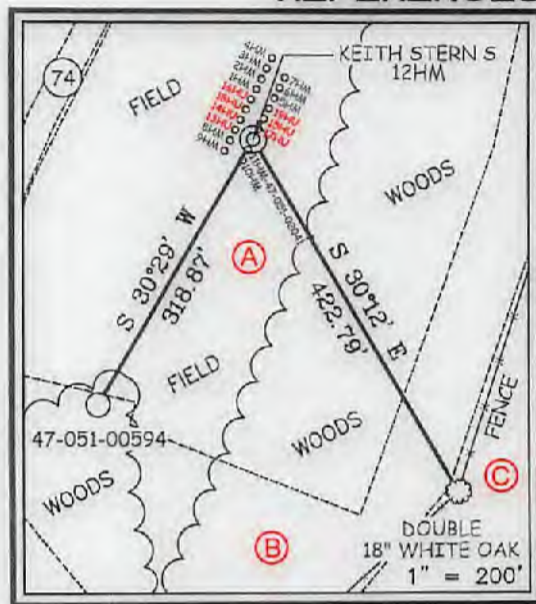
BOTTOM HOLE

NAD'83 S.P.C.(FT)	N. 459,771.2	E. 1,636,728.9
NAD'83 GEO.	LAT-(N) 39.756397	LONG-(W) 80.673011
NAD'83 UTM (M)	N. 4,400,771.4	E. 528,010.6

T.H. LONGITUDE 80°40'00"
B.H. LONGITUDE 80°40'00"
6,166' T.H.
12,847' B.H.

TAX MAP/PCL	ADJOINING SURFACE OWNER	ACRES
14-20.1	WILLIAM K. STERN, ET UX	1.321
14-20.2	WILLIAM K. STERN, ET UX	1.525
14-20.3	WILLIAM K. STERN, ET UX	0.831
15-40	ROBERT WILLIAM BERISFORD	13.50
15-41	CHARLES RICHARD MCCOY, ET UX	4.50
15-42	ROBERT MATHEW MASON	2.63
15-43.1	MARGARET A. TOLER - LIFE, ET AL	3.284
17-4.2	RICKY E. DAVIS	1.301
17-4.3	SYLVIA JEAN NEEHOUSE	1.329
17-8	KEN & SUSAN JANISZEWSKI	6.00

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 & TOPO MARK SCALE IS 1"=2000'

5/11/18

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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.
677 *Gregory A. Smith*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
DATE JULY 31, 20 18
REVISED _____, 20 ____
OPERATORS WELL NO. KEITH STERN S-12HM
API WELL NO. 47 - 051 - 02104
STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8811P12HMv2.dwg
SCALE 1" = 2000'
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK)

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

WELL TYPE: OIL _____ GAS X INJECTION _____ WASTE DISPOSAL _____ IF "GAS" PRODUCTION X STORAGE _____ DEEP _____ SHALLOW X

LOCATION: GROUND = 742.90' ELEVATION PROPOSED = 744.65' WATERSHED FISH CREEK (HUC 10)
DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER TH EXPLORATION, LLC ACREAGE 10.05±
ROYALTY OWNER ISAAC CROW, ET AL - SEE WW-6A1 ACREAGE 10.05±
LEASE NO. SEE WW-6A1

PROPOSED WORK: DRILL X CONVERT _____ DRILL DEEPER _____ REDRILL _____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION _____ PERFORATE NEW FORMATION _____ PLUG AND ABANDON _____ CLEAN OUT AND REPLUG _____ OTHER _____
PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD: 6,412' / TMD: 14,022'

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

COUNTY NAME
PERMIT

WW-6A1
(5/13)

Operator's Well No. Keith Stern S-12HM

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

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

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

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

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

*See attached pages

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

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

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

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

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

ASSIGNMENT AND CONVEYANCE

This Assignment and Conveyance (this "*Assignment*") is from STATOIL USA ONSHORE PROPERTIES INC., a Delaware corporation ("*Assignor*"), to TH Exploration, LLC, a Texas limited liability company ("*Assignee*"), and is executed on August 22, 2016 (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 June 19, 2016 (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 the Target Formations and INsofar AND ONLY INsofar as they cover those lands described on Exhibit A (the "*Leasehold Rights*") and (ii) any surface use agreements that relate to such Leasehold Rights (collectively with the Leasehold Rights, the "*Conveyed Assets*"). Assignor does hereby reserve unto itself the right and subsurface easement to drill through the Leasehold Rights to access the those depths and formations in the Leases other than the Target Formations and (y) to shoot seismic, sonic, or other energy or waves through the Leasehold Rights and to receive, record and evaluate such energy or waves, including those reflected from or in any way pertaining to the reserved depths, and to utilize any and all other exploration technologies that image the subsurface of the leasehold including the reserved depths and to receive, record and evaluate all images resulting therefrom.

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

ARTICLE 2 SPECIAL WARRANTY OF TITLE AND DISCLAIMERS

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

Section 2.2 Disclaimers of Warranties and Representations.

(a) EXCEPT AS EXPRESSLY REPRESENTED OTHERWISE IN SECTION VI OF THE ACREAGE TRADE AGREEMENT OR THIS ASSIGNMENT, ASSIGNOR MAKES NO, AND HEREBY EXPRESSLY DISCLAIMS, ANY REPRESENTATION OR WARRANTY, EXPRESS, IMPLIED OR STATUTORY, INCLUDING AS TO (I) TITLE TO THE LEASEHOLD RIGHTS, (II) THE CONTENTS, CHARACTER OR NATURE OF ANY

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ASSIGNMENT AND CONVEYANCE

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

ARTICLE 1
ASSIGNMENT OF ASSETS

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

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

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

ARTICLE 2
SPECIAL WARRANTY OF TITLE AND DISCLAIMERS

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

Section 2.2 Disclaimers of Warranties and Representations.

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

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Copy
Pg. 1-13

DPS LAND SERVICES CORP
6000 TOWN CENTER BOULEVARD, SUITE 145
CANDLERBURG PA 15317-5841

BOOK 101



Tract No. _____ Fish Creek - Marshall County
Sale _____ 156 Ac M/L
Lease No. _____

**THE STATE OF WEST VIRGINIA OIL AND GAS LEASE
NO SURFACE USE
(4 YEAR PAID-UP LEASE)**

This Oil and Gas Lease (this "Lease") is dated and effective as of 25th September 2018, (the "Effective Date"), by and between the **WEST VIRGINIA DIVISION OF NATURAL RESOURCES**, a division of the West Virginia Department of Commerce, whose address is 324 Fourth Avenue, South Charleston, West Virginia 25303, party of the first part, hereinafter designated as LESSOR, and **TH EXPLORATION, LLC**, a Texas limited liability company, whose address is 1320 S. University Drive, Suite 500, Fort Worth, Texas 76107, party of the second part, hereinafter designated as LESSEE.

UNDER AND PURSUANT TO THE PROVISIONS OF THE CONSTITUTION AND LAWS OF THE STATE OF WEST VIRGINIA RELATING TO LEASING PUBLIC LANDS BELONGING TO THE STATE OF WEST VIRGINIA, WITNESSETH:

1. **Grant of Lease.** In consideration of the bonus of Six Thousand One Hundred and Eleven Dollars (\$6,111.00) per acre, which shall be due and paid-in-full to Lessor upon the execution of this Lease; the royalties to be paid as required by this Lease; and the covenants, obligations, stipulations and conditions as set forth herein, Lessor does hereby demise, lease and let unto the Lessee the following described tracts of land for the sole purpose and with the exclusive right of exploring, drilling, completing, operating for, and producing oil, gas, and other liquid or gaseous hydrocarbons (including, by way of example and not limitation, any and all natural gas liquids such as butane, ethane, isobutane, natural gasolines, pentanes, propane, and similar liquids or byproducts) produced in association with the oil or gas in or underlying the Leased Premises (the "Granted Minerals"), situated in County, West Virginia, and being more particularly described as follows:

LEGAL DESCRIPTION

The Granted Minerals underlay Fish Creek located in Franklin and Meade District, Marshall County, West Virginia, being the area underlying the said Creek from the ordinary low water marks on each side of the stream, starting at Latitude 39.789879, Longitude 80.749702 and ending upstream at Latitude 39.7657111, Longitude 80.678471, containing One Hundred and Fifty Six Acres (156.0 acres), more or less (the "Leased Premises") as shown on the map attached hereto as Exhibit A and incorporated herein. Lessor represents and warrants to Lessee that the West Virginia Division of Natural Resources is the proper agency or instrumentality of the State of West Virginia to enter into this Lease for the purpose of leasing the Granted Minerals and Leased Premises to Lessee on the terms set forth herein, and that the Director of the West Virginia Division of Natural Resources is vested with the full legal authority and is duly authorized to execute this Lease on behalf of the Lessor and the State of West Virginia.

Marshall County
Jan Pest, Clerk
Instrument 1446408
10/05/2018 @ 12:30:05 PM
OIL & GAS LEASE
Book 1019 @ Page 373
Pages Recorded 14
Recording Cost \$ 21.1

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10*15605	9-14-24.1	A	ISAAC CROW ET UX	JOHN G CRAWFORD	1/8+	74 394	The Wheeling Natural gas Company to The Manufacturers L&H Co: 148/389	The Manufacturers L&H Co. to Union Gasoline & Oil Corp: 197/120	Union Gasoline & Oil Corp to The Preston Oil Co: 2/136	The Preston Oil Co to The Manufacturers L&H Co: 2/225	Merger - The Manufacturers L&H Co into Columbia Gas Transmission Corp: 422/204	Columbia Gas Transmission Corp to Columbia Natural Resources Inc: 537/518	Cert. of Conversion - Columbia Natural Resources Inc to Columbia Natural Resources LLC: 19/398	Columbia Natural Resources LLC to Chesapeake Appalachia LLC: 650/63	Chesapeake Appalachia LLC to Statoil Hydro USA Onshore Properties Inc: 675/279	Name Change - Statoilhydro USA Onshore Properties Inc to Statoil USA Onshore Properties Inc - Online database: 11/30/2009	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 LLC: 36/148
10*15605	9-14-24	B	ISAAC CROW ET UX	JOHN G CRAWFORD	1/8+	74 394	The Wheeling Natural gas Company to The Manufacturers L&H Co: 148/389	The Manufacturers L&H Co. to Union Gasoline & Oil Corp: 197/120	Union Gasoline & Oil Corp to The Preston Oil Co: 2/136	The Preston Oil Co to The Manufacturers L&H Co: 2/225	Merger - The Manufacturers L&H Co into Columbia Gas Transmission Corp: 422/204	Columbia Gas Transmission Corp to Columbia Natural Resources Inc: 537/518	Cert. of Conversion - Columbia Natural Resources Inc to Columbia Natural Resources LLC: 19/398	Columbia Natural Resources LLC to Chesapeake Appalachia LLC: 650/63	Chesapeake Appalachia LLC to Statoil Hydro USA Onshore Properties Inc: 675/279	Name Change - Statoilhydro USA Onshore Properties Inc to Statoil USA Onshore Properties Inc - Online database: 11/30/2009	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 LLC: 36/148
10*15509	9-14-20	C	WILLIAM K STERN AND BETTY L STERN	NPAR LLC	1/8+	718 320	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chief, Radler & Enerplus Resources Corp. to Chevron USA Inc: 26/130	NPAR LLC to Chevron USA Inc: 756/332	Chevron USA Inc to TH Exploration LLC: 36/148
LI-17-J/25-1986	FISH CREEK	D	WV DEPT OF COMMERCE, DIVISION OF NATURAL RESOURCES	TH EXPLORATION LLC	N/A	NOT RECORDED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.243.1	9-14-21	E	MARY A FOX	TH EXPLORATION LLC	1/8+	879 332	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.243.2	9-14-21	E	PAUL G FOX	TH EXPLORATION LLC	1/8+	879 335	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.243.3	9-14-21	E	MARK H FOX	TH EXPLORATION LLC	1/8+	879 338	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.243.4	9-14-21	E	DAVID E FOX	TH EXPLORATION LLC	1/8+	876 55	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.243.5	9-14-21	E	LOUIS T FOX AND KAREN A FOX	TH EXPLORATION LLC	1/8+	876 58	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.243.6	9-14-21	E	THOMAS J FOX	TH EXPLORATION LLC	1/8+	876 61	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*15836	9-17-4.1	F	LUCINDA RAE ALLEN AND DAVID A ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	742 79	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15837	9-17-4.1	F	ANITA DIANE ANTILL AND TERRY ANTILL	CHESAPEAKE APPALACHIA LLC	1/8+	742 85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

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10*15842	9-17-4.1	F	HOMER L SIMMONS AND GLADYS R SIMMONS	CHESAPEAKE APPALACHIA LLC	1/8+	742 329	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*16007	9-17-4.1	F	MARY LOU KITTELBERGER AND FREDERICK W KITTELBERGER	CHESAPEAKE APPALACHIA LLC	1/8+	799 436	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/85	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*16008	9-17-4.1	F	DONNA KAY ALLEN AND ROGER ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	801 222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/85	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*17169	9-17-4.1	F	ALMA L VAN SCYOC	CHESAPEAKE APPALACHIA LLC	1/8+	692 404	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 32/247	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256	
10*17171	9-17-4.1	F	OPAL MICKEY	CHESAPEAKE APPALACHIA LLC	1/8+	690 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 32/247	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256	
10*17173	9-17-4.1	F	LLOYD R. EVANS	CHESAPEAKE APPALACHIA LLC	1/8+	694 526	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/479	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256	
10*17500	9-17-4.1	F	TRACY L AND KEITH W BARNBY	TH EXPLORATION LLC	1/8+	916 116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17666	9-17-4.1	F	LILA FAYE BONAR SNODGRASS AND DONALD T SNODGRASS	TH EXPLORATION LLC	1/8+	949 172	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17673	9-17-4.1	F	JAMES PERRY COCHRAN	TH EXPLORATION LLC	1/8+	932 567	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17707	9-17-4.1	F	JACQUELYN S FERRARI AND JOHN C FERRARI	TH EXPLORATION LLC	1/8+	949 177	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17709	9-17-4.1	F	CAROL GONGOLA	TH EXPLORATION LLC	1/8+	949 167	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*17765	9-17-4.1	F	ROBERTA YOUNG	TH EXPLORATION LLC	1/8+	949 163	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17840	9-17-4.1	F	RONALD D KOONTZ & BETH ANN KOONTZ	TH EXPLORATION LLC	1/8+	942 432	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17886	9-17-4.1	F	ANNETTE CAIN HANKINS AND HOWARD RONALD HANKINS	TH EXPLORATION LLC	1/8+	924 536	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17887	9-17-4.1	F	LEO C HILKE AND BETTY M HILKE	TH EXPLORATION LLC	1/8+	924 531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17977	9-17-4.1	F	BRANNEN DAUGHERTY	TH EXPLORATION LLC	1/8+	925 359	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17980	9-17-4.1	F	ANITA RAE MILLER	TH EXPLORATION LLC	1/8+	925 370	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17981	9-17-4.1	F	MICHAEL E SWIFT AND MELODY A SWIFT	TH EXPLORATION LLC	1/8+	925 372	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18031	9-17-4.1	F	LEE ANNE MILLER	TH EXPLORATION LLC	1/8+	927 222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18092	9-17-4.1	F	DAVID MCDOWELL AND CRYSTAL MCDOWELL	TH EXPLORATION LLC	1/8+	927 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18093	9-17-4.1	F	JENNIFER WHEATON	TH EXPLORATION LLC	1/8+	927 289	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18094	9-17-4.1	F	BONNIE GRISELL	TH EXPLORATION LLC	1/8+	927 231	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18095	9-17-4.1	F	TEXYN L MILLER AND GEORGIA A MILLER	TH EXPLORATION LLC	1/8+	927 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18098	9-17-4.1	F	LISA ANN MCDOWELL AND ROBERT JOSEPH HILL	TH EXPLORATION LLC	1/8+	939 263	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18099	9-17-4.1	F	RAE ELLEN FLOYD AND KENNETH FLOYD	TH EXPLORATION LLC	1/8+	927 233	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18107	9-17-4.1	F	ANITA MAE MASON	TH EXPLORATION LLC	1/8+	927 238	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18167	9-17-4.1	F	NEIL CALL AND MELINDA CALL	TH EXPLORATION LLC	1/8+	927 492	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18168	9-17-4.1	F	SANDRA YANAGAWA	TH EXPLORATION LLC	1/8+	927 498	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18169	9-17-4.1	F	KAREN K WILLIAMS	TH EXPLORATION LLC	1/8+	927 628	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18170	9-17-4.1	F	KAREN MCDOWELL CECIL AND JAMES E CECIL	TH EXPLORATION LLC	1/8+	927 633	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18192	9-17-4.1	F	STEPHEN S MASON AND CAROLE K MASON	TH EXPLORATION LLC	1/8+	928 625	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18193	9-17-4.1	F	CAROLYN LEE FUREY AND MARTIN J FUREY	TH EXPLORATION LLC	1/8+	949 158	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18194	9-17-4.1	F	PAMELA BEYLER AND CHAD R BEYLER	TH EXPLORATION LLC	1/8+	928 630	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18197	9-17-4.1	F	BARBARA K BURLEY AND DAVID K BURLEY	TH EXPLORATION LLC	1/8+	928 641	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18198	9-17-4.1	F	MARY THERESA SOLEAU AND THOMAS SOLEAU	TH EXPLORATION LLC	1/8+	928 643	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18199	9-17-4.1	F	LAWRENCE J VAUGHN AND GAIL L VAUGHN	TH EXPLORATION LLC	1/8+	928 532	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18260	9-17-4.1	F	GEMMA RUDY AND TIMOTHY RUDY	TH EXPLORATION LLC	1/8+	928 584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*18295	9-17-4.1	F	THOMAS R BAKER AND VICKIE L BAKER	TH EXPLORATION LLC	1/8+	929 262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18298	9-17-4.1	F	MAUREEN GREGG	TH EXPLORATION LLC	1/8+	929 273	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18300	9-17-4.1	F	ROBERT W ODOM AND CASSANDRA L ODOM	TH EXPLORATION LLC	1/8+	929 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18360	9-17-4.1	F	JOCELYN AKERS	TH EXPLORATION, LLC	1/8+	944 420	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18361	9-17-4.1	F	MARY JO CAIN	TH EXPLORATION LLC	1/8+	931 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18417	9-17-4.1	F	CHERYL L HILL	TH EXPLORATION LLC	1/8+	932 577	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18487	9-17-4.1	F	NANCY L STANGEL AND JOHN J STANGEL	TH EXPLORATION LLC	1/8+	933 113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18488	9-17-4.1	F	CHARLINE M ENGLE AND KEVIN E ENGLE	TH EXPLORATION LLC	1/8+	933 118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18508	9-17-4.1	F	LUANNE BONAR	TH EXPLORATION LLC	1/8+	925 351	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18517	9-17-4.1	F	LORI SHANAHAN AND PATRICK SHANAHAN	TH EXPLORATION LLC	1/8+	933 575	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18613	9-17-4.1	F	JANE LOUISE CAIN AND DANIEL CARL HOLTZ	TH EXPLORATION LLC	1/8+	934 603	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18655	9-17-4.1	F	PATRICIA L LEHN	TH EXPLORATION LLC	1/8+	936 95	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18656	9-17-4.1	F	PAMELA CALL	TH EXPLORATION LLC	1/8+	936 100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18658	9-17-4.1	F	ELIZABETH JANE KELLER	TH EXPLORATION LLC	1/8+	936 107	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18659	9-17-4.1	F	CATHERINE P MASON	TH EXPLORATION LLC	1/8+	936 112	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18799	9-17-4.1	F	CHARLES J DARMAFALL DECEASED	TH EXPLORATION LLC	1/8+	937 634	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18805	9-17-4.1	F	CINDY STEVENS TOZIER	TH EXPLORATION LLC	1/8+	937 628	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19403	9-17-4.1	F	LAWRENCE R LOTZ	TH EXPLORATION LLC	1/8+	951 114	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19404	9-17-4.1	F	HOWARD M CAIN AND EMMA JEAN CAIN	TH EXPLORATION LLC	1/8+	939 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19476	9-17-4.1	F	WINONA RIDDLE	TH EXPLORATION LLC	1/8+	941 331	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19689	9-17-4.1	F	EDMOND TURGEON JR AND CATHY STEVENS TURGEON	TH EXPLORATION LLC	1/8+	944 156	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19702	9-17-4.1	F	WV MINERALS INC	TH EXPLORATION LLC	1/8+	951 108	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19715	9-17-4.1	F	EILEEN HALL	TH EXPLORATION LLC	1/8+	944 416	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19716	9-17-4.1	F	MARY G ARTER	TH EXPLORATION LLC	1/8+	944 408	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19717	9-17-4.1	F	GENELDA L BRIGHT AND CHARLES W BRIGHT	TH EXPLORATION LLC	1/8+	944 403	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19718	9-17-4.1	F	CHRISTOPHER DAUGHERTY & JENNIFER R DAUGHERTY	TH EXPLORATION LLC	1/8+	944 412	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*19871	9-17-4.1	F	CARL D MASON AND ALICE MASON	TH EXPLORATION LLC	1/8+	945 593	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19879	9-17-4.1	F	MARY V GILSON AND WALTER M GILSON	TH EXPLORATION LLC	1/8+	945 588	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19933	9-17-4.1	F	MARY ANN GRIFFITH	TH EXPLORATION LLC	1/8+	948 555	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19937	9-17-4.1	F	JAMES D STEVENS AND DOROTHY M STEVENS	TH EXPLORATION LLC	1/8+	949 151	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19938	9-17-4.1	F	JOHN H STEVENS AND LYNDIA L STEVENS	TH EXPLORATION LLC	1/8+	949 144	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21026	9-17-4.1	F	NANCY M MORGAN	TH EXPLORATION LLC	1/8+	951 110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21211	9-17-4.1	F	NILA JEAN BAYLES	TH EXPLORATION LLC	1/8+	951 118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21841	9-17-4.1	F	ENERGY DEEP RESOURCES INC	TH EXPLORATION LLC	1/8+	959 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21842	9-17-4.1	F	JOSEPH NOKOVICH	TH EXPLORATION LLC	1/8+	959 635	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21927	9-17-4.1	F	BLACK GOLD GROUP LTD	TH EXPLORATION LLC	1/8+	964 474	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21940	9-17-4.1	F	ALYSIA JORDAN & TERRY M JORDAN	TH EXPLORATION LLC	1/8+	953 346	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22376	9-17-4.1	F	MARGARET KUCHARZ AND JAMES C KUCHARZ	TH EXPLORATION LLC	1/8+	962 270	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22412	9-17-4.1	F	CHAD E LONGFELLOW	TH EXPLORATION LLC	1/8+	963 124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22599	9-17-4.1	F	BRYANT R SWIFT AND KATHY SWIFT	TH EXPLORATION LLC	1/8+	966 456	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22776	9-17-4.1	F	JAMES ROBERT WELLS	TH EXPLORATION LLC	1/8+	970 19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22849	9-17-4.1	F	NEIL MCELROY AND SUE MASON MCELROY	TH EXPLORATION LLC	1/8+	977 44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22851	9-17-4.1	F	JOHN J HELLSTERN AND LYNN D HELLSTERN	TH EXPLORATION LLC	1/8+	977 39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22853	9-17-4.1	F	RONALD LEE HENSLEY AND MARY ANN HENSLEY	TH EXPLORATION LLC	1/8+	977 34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23076	9-17-4.1	F	JACK R BERISFORD	TH EXPLORATION LLC	1/8+	984 43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23260	9-17-4.1	F	IDA M TRAVIS ET AL	TH EXPLORATION LLC	1/8+	988 73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.1	9-17-4.1	F	DAVID LEE FRANKLIN	TH EXPLORATION LLC	1/8+	874 312	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.27	9-17-4.1	F	MARSHA BERISFORD	TH EXPLORATION LLC	1/8+	902 425	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.33	9-17-4.1	F	JOHN H HILKE AND ALIDA HILKE	TH EXPLORATION LLC	1/8+	898 602	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.36	9-17-4.1	F	GAREN MCDOWELL AND ELIZABETH MCDOWELL	TH EXPLORATION LLC	1/8+	898 615	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.37	9-17-4.1	F	SUSAN H KEY	TH EXPLORATION LLC	1/8+	898 621	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.38	9-17-4.1	F	TIMOTHY MCDOWELL AND CYNTHIA MCDOWELL	TH EXPLORATION LLC	1/8+	902 431	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*47051.219.39	9-17-4.1	F	ALICE THIPPHAVONG AND VISITH THIPPHAVONG	TH EXPLORATION LLC	1/8+	902 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
10*15836	9-17-4	G	LUCINDA RAE ALLEN AND DAVID A ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	742 79	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15837	9-17-4	G	ANITA DIANE ANTILL AND TERRY ANTILL	CHESAPEAKE APPALACHIA LLC	1/8+	742 85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15842	9-17-4	G	HOMER L SIMMONS AND GLADYS R SIMMONS	CHESAPEAKE APPALACHIA LLC	1/8+	742 329	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*16007	9-17-4	G	MARY LOU KITTELBERGER AND FREDERICK W KITTELBERGER	CHESAPEAKE APPALACHIA LLC	1/8+	799 436	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/85	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*16008	9-17-4	G	DONNA KAY ALLEN AND ROGER ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	801 222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/85	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*17169	9-17-4	G	ALMA L VAN SCYOC	CHESAPEAKE APPALACHIA LLC	1/8+	692 404	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 32/247	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17171	9-17-4	G	OPAL MICKEY	CHESAPEAKE APPALACHIA LLC	1/8+	690 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 32/247	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256

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10*17173	9-17-4	G	LLOYD R. EVANS	CHESAPEAKE APPALACHIA LLC	1/8+	694 526	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/479	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17500	9-17-4	G	TRACY L AND KEITH W BARNBY	TH EXPLORATION LLC	1/8+	916 116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17666	9-17-4	G	LILA FAYE BONAR SNODGRASS AND DONALD T SNODGRASS	TH EXPLORATION LLC	1/8+	949 172	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17673	9-17-4	G	JAMES PERRY COCHRAN	TH EXPLORATION LLC	1/8+	932 567	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17707	9-17-4	G	JACQUELYN S FERRARI AND JOHN C FERRARI	TH EXPLORATION LLC	1/8+	949 177	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17709	9-17-4	G	CAROL GONGOLA	TH EXPLORATION LLC	1/8+	949 167	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17765	9-17-4	G	ROBERTA YOUNG	TH EXPLORATION LLC	1/8+	949 163	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17840	9-17-4	G	RONALD D KOONTZ & BETH ANN KOONTZ	TH EXPLORATION LLC	1/8+	942 432	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17886	9-17-4	G	ANNETTE CAIN HANKINS AND HOWARD RONALD HANKINS	TH EXPLORATION LLC	1/8+	924 536	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17887	9-17-4	G	LEO C HILKE AND BETTY M HILKE	TH EXPLORATION LLC	1/8+	924 531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17977	9-17-4	G	BRANNEN DAUGHERTY	TH EXPLORATION LLC	1/8+	925 359	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17980	9-17-4	G	ANITA RAE MILLER	TH EXPLORATION LLC	1/8+	925 370	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17981	9-17-4	G	MICHAEL E SWIFT AND MELODY A SWIFT	TH EXPLORATION LLC	1/8+	925 372	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18031	9-17-4	G	LEE ANNE MILLER	TH EXPLORATION LLC	1/8+	927 222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18092	9-17-4	G	DAVID MCDOWELL AND CRYSTAL MCDOWELL	TH EXPLORATION LLC	1/8+	927 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18093	9-17-4	G	JENNIFER WHEATON	TH EXPLORATION LLC	1/8+	927 289	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18094	9-17-4	G	BONNIE GRISELL	TH EXPLORATION LLC	1/8+	927 231	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18095	9-17-4	G	TEXYN L MILLER AND GEORGIA A MILLER	TH EXPLORATION LLC	1/8+	927 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18098	9-17-4	G	LISA ANN MCDOWELL AND ROBERT JOSEPH HILL	TH EXPLORATION LLC	1/8+	939 263	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18099	9-17-4	G	RAE ELLEN FLOYD AND KENNETH FLOYD	TH EXPLORATION LLC	1/8+	927 233	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18107	9-17-4	G	ANITA MAE MASON	TH EXPLORATION LLC	1/8+	927 238	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18167	9-17-4	G	NEIL CALL AND MELINDA CALL	TH EXPLORATION LLC	1/8+	927 492	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18168	9-17-4	G	SANDRA YANAGAWA	TH EXPLORATION LLC	1/8+	927 498	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*18169		G	KAREN K WILLIAMS	1/8+	927	628	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18170		G	KAREN MCDOWELL CECIL AND JAMES E CECIL	1/8+	927	633	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18192		G	STEPHEN S MASON AND CAROLE K MASON	1/8+	928	625	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18193		G	CAROLYN LEE FUREY AND MARTIN J FUREY	1/8+	949	158	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18194		G	PAMELA BEYLER AND CHAD R BEYLER	1/8+	928	630	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18197		G	BARBARA K BURLEY AND DAVID K BURLEY	1/8+	928	641	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18198		G	MARY THERESA SOLEAU AND THOMAS SOLEAU	1/8+	928	643	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18199		G	LAWRENCE J VAUGHN AND GAIL L VAUGHN	1/8+	928	532	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18260		G	GEMMA RUDY AND TIMOTHY RUDY	1/8+	928	584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18295		G	THOMAS R BAKER AND VICKIE L BAKER	1/8+	929	262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18298		G	MAUREEN GREGG	1/8+	929	273	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18300		G	ROBERT W ODOM AND CASSANDRA L ODOM	1/8+	929	283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18360		G	JOCELYN AKERS	1/8+	944	420	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18361		G	MARY JO CAIN	1/8+	931	407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18417		G	CHERYL L HILL	1/8+	932	577	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18487		G	NANCY L STANGEL AND JOHN J STANGEL	1/8+	933	113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18488		G	CHARLINE M ENGLE AND KEVIN E ENGLE	1/8+	933	118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18508		G	PATRICIA LUANNE BONAR	1/8+	925	351	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18517		G	LORI SHANAHAN AND PATRICK SHANAHAN	1/8+	933	575	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18613		G	JANE LOUISE CAIN AND DANIEL CARL HOLTZ	1/8+	934	603	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18655		G	PATRICIA L LEHN	1/8+	936	95	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18656		G	PAMELA CALL	1/8+	936	100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18658		G	ELIZABETH JANE KELLER	1/8+	936	107	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18659		G	CATHERINE P MASON	1/8+	936	112	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18799		G	CHARLES J DARMAFALL DECEASED	1/8+	937	634	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18805		G	CNDY STEVENS TOZIER	1/8+	937	628	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*19403	9-17-4	G	LAWRENCE R LOTZ	TH EXPLORATION LLC	1/8+	951 114	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19404	9-17-4	G	HOWARD M CAIN AND EMMA JEAN CAIN	TH EXPLORATION LLC	1/8+	939 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19476	9-17-4	G	WINONA RIDDLE	TH EXPLORATION LLC	1/8+	941 331	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19689	9-17-4	G	EDMOND TURGEON JR AND CATHY STEVENS TURGEON	TH EXPLORATION LLC	1/8+	944 156	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19702	9-17-4	G	VV MINERALS INC	TH EXPLORATION LLC	1/8+	951 108	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19715	9-17-4	G	EILEEN HALL	TH EXPLORATION LLC	1/8+	944 416	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19716	9-17-4	G	MARY G ARTER	TH EXPLORATION LLC	1/8+	944 408	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19717	9-17-4	G	GENELDA L BRIGHT AND CHARLES W BRIGHT	TH EXPLORATION LLC	1/8+	944 403	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19718	9-17-4	G	CHRISTOPHER DAUGHERTY & JENNIFER R DAUGHERTY	TH EXPLORATION LLC	1/8+	944 412	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19871	9-17-4	G	CARL D MASON AND ALICE MASON	TH EXPLORATION LLC	1/8+	945 593	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19879	9-17-4	G	MARY V GILSON AND WALTER M GILSON	TH EXPLORATION LLC	1/8+	945 588	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19933	9-17-4	G	MARY ANN GRIFFITH	TH EXPLORATION LLC	1/8+	948 555	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19937	9-17-4	G	JAMES D STEVENS AND DOROTHY M STEVENS	TH EXPLORATION LLC	1/8+	949 151	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19938	9-17-4	G	JOHN H STEVENS AND LYNDA L STEVENS	TH EXPLORATION LLC	1/8+	949 144	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21026	9-17-4	G	NANCY M MORGAN	TH EXPLORATION LLC	1/8+	951 110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21211	9-17-4	G	NILA JEAN BAYLES	TH EXPLORATION LLC	1/8+	951 118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21841	9-17-4	G	ENERGY DEEP RESOURCES INC	TH EXPLORATION LLC	1/8+	959 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21842	9-17-4	G	JOSEPH NOKOVICH	TH EXPLORATION LLC	1/8+	959 635	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21927	9-17-4	G	BLACK GOLD GROUP LTD	TH EXPLORATION LLC	1/8+	964 474	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21940	9-17-4	G	ALYSIA JORDAN & TERRY M JORDAN	TH EXPLORATION LLC	1/8+	953 346	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22376	9-17-4	G	MARGARET KUCHARZ AND JAMES C KUCHARZ	TH EXPLORATION LLC	1/8+	962 270	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22412	9-17-4	G	CHAD E LONGFELLOW	TH EXPLORATION LLC	1/8+	963 124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22599	9-17-4	G	BRYANT R SWIFT AND KATHY SWIFT	TH EXPLORATION LLC	1/8+	966 456	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22776	9-17-4	G	JAMES ROBERT WELLS	TH EXPLORATION LLC	1/8+	970 19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22849	9-17-4	G	NEIL MCELROY AND SUE MASON MCELROY	TH EXPLORATION LLC	1/8+	977 44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22851	9-17-4	G	JOHN J HELLSTERN AND LYNN D HELLSTERN	TH EXPLORATION LLC	1/8+	977 39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*22853	9-17-4	G	RONALD LEE HENSLEY AND MARY ANN HENSLEY	TH EXPLORATION LLC	1/8+	977 34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23076	9-17-4	G	JACK R BERISFORD	TH EXPLORATION LLC	1/8+	984 43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23260	9-17-4	G	IDA M TRAVIS ET AL	TH EXPLORATION LLC	1/8+	988 73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.1	9-17-4	G	DAVID LEE FRANKLIN	TH EXPLORATION LLC	1/8+	874 312	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.27	9-17-4	G	MARSHA BERISFORD	TH EXPLORATION LLC	1/8+	902 425	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.33	9-17-4	G	JOHN H HILKE AND ALIDA HILKE	TH EXPLORATION LLC	1/8+	898 602	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.36	9-17-4	G	GAREN MCDOWELL AND ELIZABETH MCDOWELL	TH EXPLORATION LLC	1/8+	898 615	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.37	9-17-4	G	SUSAN H KEY	TH EXPLORATION LLC	1/8+	898 621	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.38	9-17-4	G	TIMOTHY MCDOWELL AND CYNTHIA MCDOWELL	TH EXPLORATION LLC	1/8+	902 431	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.39	9-17-4	G	ALICE THIPPHAVONG AND VISITH THIPPHAVONG	TH EXPLORATION LLC	1/8+	902 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*15836	9-17-4.4	H	LUCINDA RAE ALLEN AND DAVID A ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	742 79	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15837	9-17-4.4	H	ANITA DIANE ANTILL AND TERRY ANTILL	CHESAPEAKE APPALACHIA LLC	1/8+	742 85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15842	9-17-4.4	H	HOMER L SIMMONS AND GLADYS R SIMMONS	CHESAPEAKE APPALACHIA LLC	1/8+	742 329	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*16007	9-17-4.4	H	MARY LOU KITTELBERGER AND FREDERICK W KITTELBERGER	CHESAPEAKE APPALACHIA LLC	1/8+	799 436	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/85	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

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10*16008	9-17-4.4	H	DONNA KAY ALLEN AND ROGER ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	801 222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/85	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*17169	9-17-4.4	H	ALMA L VAN SCYOC	CHESAPEAKE APPALACHIA LLC	1/8+	692 404	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 32/247	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256	
10*17171	9-17-4.4	H	OPAL MICKEY	CHESAPEAKE APPALACHIA LLC	1/8+	690 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 32/247	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256	
10*17173	9-17-4.4	H	LLOYD R. EVANS	CHESAPEAKE APPALACHIA LLC	1/8+	694 526	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/479	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256	
10*17500	9-17-4.4	H	TRACY L AND KEITH W BARNBY	TH EXPLORATION LLC	1/8+	916 116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17666	9-17-4.4	H	LILA FAYE BONAR SNODGRASS AND DONALD T SNODGRAS	TH EXPLORATION LLC	1/8+	949 172	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17673	9-17-4.4	H	JAMES PERRY COCHRAN	TH EXPLORATION LLC	1/8+	932 567	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17707	9-17-4.4	H	JACQUELYN S FERRARI AND JOHN C FERRARI	TH EXPLORATION LLC	1/8+	949 177	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17709	9-17-4.4	H	CAROL GONGOLA	TH EXPLORATION LLC	1/8+	949 167	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17765	9-17-4.4	H	ROBERTA YOUNG	TH EXPLORATION LLC	1/8+	949 163	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17840	9-17-4.4	H	RONALD D KOONTZ & BETH ANN KOONTZ	TH EXPLORATION LLC	1/8+	942 432	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17886	9-17-4.4	H	ANNETTE CAIN HANKINS AND HOWARD RONALD HANKINS	TH EXPLORATION LLC	1/8+	924 536	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17887	9-17-4.4	H	LEO C HILKE AND BETTY M HILKE	TH EXPLORATION LLC	1/8+	924 531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17977	9-17-4.4	H	BRANNEN DAUGHERTY	TH EXPLORATION LLC	1/8+	925 359	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17980	9-17-4.4	H	ANITA RAE MILLER	TH EXPLORATION LLC	1/8+	925 370	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17981	9-17-4.4	H	MICHAEL E SWIFT AND MELODY A SWIFT	TH EXPLORATION LLC	1/8+	925 372	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*18031	9-17-4.4	H	LEE ANNE MILLER	TH EXPLORATION LLC	1/8+	927 222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18092	9-17-4.4	H	DAVID MCDOWELL AND CRYSTAL MCDOWELL	TH EXPLORATION LLC	1/8+	927 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18093	9-17-4.4	H	JENNIFER WHEATON	TH EXPLORATION LLC	1/8+	927 289	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18094	9-17-4.4	H	BONNIE GRISELL	TH EXPLORATION LLC	1/8+	927 231	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18095	9-17-4.4	H	TEXYN L MILLER AND GEORGIA A MILLER	TH EXPLORATION LLC	1/8+	927 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18098	9-17-4.4	H	LISA ANN MCDOWELL AND ROBERT JOSEPH HILL	TH EXPLORATION LLC	1/8+	939 263	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18099	9-17-4.4	H	RAE ELLEN FLOYD AND KENNETH FLOYD	TH EXPLORATION LLC	1/8+	927 233	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18107	9-17-4.4	H	ANITA MAE MASON	TH EXPLORATION LLC	1/8+	927 238	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18167	9-17-4.4	H	NEIL CALL AND MELINDA CALL	TH EXPLORATION LLC	1/8+	927 492	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18168	9-17-4.4	H	SANDRA YANAGAWA	TH EXPLORATION LLC	1/8+	927 498	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18169	9-17-4.4	H	KAREN K WILLIAMS	TH EXPLORATION LLC	1/8+	927 628	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18170	9-17-4.4	H	KAREN MCDOWELL CECIL AND JAMES E CECIL	TH EXPLORATION LLC	1/8+	927 633	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18192	9-17-4.4	H	STEPHEN S MASON AND CAROLE K MASON	TH EXPLORATION LLC	1/8+	928 625	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18193	9-17-4.4	H	CAROLYN LEE FUREY AND MARTIN J FUREY	TH EXPLORATION LLC	1/8+	949 158	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18194	9-17-4.4	H	PAMELA BEYLER AND CHAD R BEYLER	TH EXPLORATION LLC	1/8+	928 630	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18197	9-17-4.4	H	BARBARA K BURLEY AND DAVID K BURLEY	TH EXPLORATION LLC	1/8+	928 641	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18198	9-17-4.4	H	MARY THERESA SOLEAU AND THOMAS SOLEAU	TH EXPLORATION LLC	1/8+	928 643	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18199	9-17-4.4	H	LAWRENCE J VAUGHN AND GAIL L VAUGHN	TH EXPLORATION LLC	1/8+	928 532	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18260	9-17-4.4	H	GEMMA RUDY AND TIMOTHY RUDY	TH EXPLORATION LLC	1/8+	928 584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18295	9-17-4.4	H	THOMAS R BAKER AND VICKIE L BAKER	TH EXPLORATION LLC	1/8+	929 262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18298	9-17-4.4	H	MAUREEN GREGG	TH EXPLORATION LLC	1/8+	929 273	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18300	9-17-4.4	H	ROBERT W ODOM AND CASSANDRA L ODOM	TH EXPLORATION LLC	1/8+	929 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18360	9-17-4.4	H	JOCELYN AKERS	TH EXPLORATION, LLC	1/8+	944 420	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18361	9-17-4.4	H	MARY JO CAIN	TH EXPLORATION LLC	1/8+	931 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18417	9-17-4.4	H	CHERYL L HILL	TH EXPLORATION LLC	1/8+	932 577	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18487	9-17-4.4	H	NANCY L STANGEL AND JOHN J STANGEL	TH EXPLORATION LLC	1/8+	933 113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*18488	9-17-4.4	H	CHARLINE M ENGLE AND KEVIN E ENGLE	TH EXPLORATION LLC	1/8+	933 118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18508	9-17-4.4	H	LUANNE BONAR	TH EXPLORATION LLC	1/8+	925 351	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18517	9-17-4.4	H	LORI SHANAHAN AND PATRICK SHANAHAN	TH EXPLORATION LLC	1/8+	933 575	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18613	9-17-4.4	H	JANE LOUISE CAIN AND DANIEL CARL HOLTZ	TH EXPLORATION LLC	1/8+	934 603	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18655	9-17-4.4	H	PATRICIA L LEHN	TH EXPLORATION LLC	1/8+	936 95	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18656	9-17-4.4	H	PAMELA CALL	TH EXPLORATION LLC	1/8+	936 100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18658	9-17-4.4	H	ELIZABETH JANE KELLER	TH EXPLORATION LLC	1/8+	936 107	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18659	9-17-4.4	H	CATHERINE P MASON	TH EXPLORATION LLC	1/8+	936 112	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18799	9-17-4.4	H	CHARLES J DARMAFALL DECEASED	TH EXPLORATION LLC	1/8+	937 634	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18805	9-17-4.4	H	CINDY STEVENS TOZIER	TH EXPLORATION LLC	1/8+	937 628	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19403	9-17-4.4	H	LAWRENCE R LOTZ	TH EXPLORATION LLC	1/8+	951 114	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19404	9-17-4.4	H	HOWARD M CAIN AND EMMA JEAN CAIN	TH EXPLORATION LLC	1/8+	939 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19476	9-17-4.4	H	WINONA RIDDLE	TH EXPLORATION LLC	1/8+	941 331	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19689	9-17-4.4	H	EDMOND TURGEON JR AND CATHY STEVENS TURGEON	TH EXPLORATION LLC	1/8+	944 156	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19702	9-17-4.4	H	WV MINERALS INC	TH EXPLORATION LLC	1/8+	951 108	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19715	9-17-4.4	H	EILEEN HALL	TH EXPLORATION LLC	1/8+	944 416	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19716	9-17-4.4	H	MARY G ARTER	TH EXPLORATION LLC	1/8+	944 408	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19717	9-17-4.4	H	GENELDA L BRIGHT AND CHARLES W BRIGHT	TH EXPLORATION LLC	1/8+	944 403	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19718	9-17-4.4	H	CHRISTOPHER DAUGHERTY & JENNIFER R DAUGHERTY	TH EXPLORATION LLC	1/8+	944 412	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19871	9-17-4.4	H	CARL D MASON AND ALICE MASON	TH EXPLORATION LLC	1/8+	945 593	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19879	9-17-4.4	H	MARY V GILSON AND WALTER M GILSON	TH EXPLORATION LLC	1/8+	945 588	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19933	9-17-4.4	H	MARY ANN GRIFFITH	TH EXPLORATION LLC	1/8+	948 555	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19937	9-17-4.4	H	JAMES D STEVENS AND DOROTHY M STEVENS	TH EXPLORATION LLC	1/8+	949 151	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19938	9-17-4.4	H	JOHN H STEVENS AND LYNDA L STEVENS	TH EXPLORATION LLC	1/8+	949 144	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21026	9-17-4.4	H	NANCY M MORGAN	TH EXPLORATION LLC	1/8+	951 110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21211	9-17-4.4	H	NILA JEAN BAYLES	TH EXPLORATION LLC	1/8+	951 118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*21841	9-17-4.4	H	ENERGY DEEP RESOURCES INC	TH EXPLORATION LLC	1/8+	959 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21842	9-17-4.4	H	JOSEPH NOKOVICH	TH EXPLORATION LLC	1/8+	959 635	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21927	9-17-4.4	H	BLACK GOLD GROUP LTD	TH EXPLORATION LLC	1/8+	964 474	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21940	9-17-4.4	H	ALYSIA JORDAN & TERRY M JORDAN	TH EXPLORATION LLC	1/8+	953 346	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22376	9-17-4.4	H	MARGARET KUCHARZ AND JAMES C KUCHARZ	TH EXPLORATION LLC	1/8+	962 270	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22412	9-17-4.4	H	CHAD E LONGFELLOW	TH EXPLORATION LLC	1/8+	963 124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22599	9-17-4.4	H	BRYANT R SWIFT AND KATHY SWIFT	TH EXPLORATION LLC	1/8+	966 456	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22776	9-17-4.4	H	JAMES ROBERT WELLS	TH EXPLORATION LLC	1/8+	970 19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22849	9-17-4.4	H	NEIL MCELROY AND SUE MASON MCELROY	TH EXPLORATION LLC	1/8+	977 44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22851	9-17-4.4	H	JOHN J HELLSTERN AND LYNN D HELLSTERN	TH EXPLORATION LLC	1/8+	977 39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22853	9-17-4.4	H	RONALD LEE HENSLEY AND MARY ANN HENSLEY	TH EXPLORATION LLC	1/8+	977 34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23076	9-17-4.4	H	JACK R BERISFORD	TH EXPLORATION LLC	1/8+	984 43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23260	9-17-4.4	H	IDA M TRAVIS ET AL	TH EXPLORATION LLC	1/8+	988 73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.1	9-17-4.4	H	DAVID LEE FRANKLIN	TH EXPLORATION LLC	1/8+	874 312	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.27	9-17-4.4	H	MARSHA BERISFORD	TH EXPLORATION LLC	1/8+	902 425	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.33	9-17-4.4	H	JOHN H HILKE AND ALIDA HILKE	TH EXPLORATION LLC	1/8+	898 602	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.36	9-17-4.4	H	GAREN MCDOWELL AND ELIZABETH MCDOWELL	TH EXPLORATION LLC	1/8+	898 615	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.37	9-17-4.4	H	SUSAN H KEY	TH EXPLORATION LLC	1/8+	898 621	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.38	9-17-4.4	H	TIMOTHY MCDOWELL AND CYNTHIA MCDOWELL	TH EXPLORATION LLC	1/8+	902 431	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.39	9-17-4.4	H	ALICE THIPPHAVONG AND VISITH THIPPHAVONG	TH EXPLORATION LLC	1/8+	902 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*15974	9-15-43	I	ROGER BRIGHT AND SUSAN LEIMER - DECEASED	CHESAPEAKE APPALACHIA LLC	1/8+	777 222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 29/325	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC into SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*17887	9-15-43	I	LEO C HILKE AND BETTY M HILKE	TH EXPLORATION LLC	1/8+	924 531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18486	9-15-43	I	LUCINDA R ALLEN & DAVID A ALLEN	TH EXPLORATION LLC	1/8+	933 111	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*18618	9-15-43	I	ANITA D ANTILL & TERRY ANTILL	TH EXPLORATION LLC	1/8+	934 615	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18767	9-15-43	I	HOMER L SIMMONS AND GLADYS R SIMMONS	TH EXPLORATION LLC	1/8+	938 486	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.33	9-15-43	I	JOHN H HILKE AND ALIDA HILKE	TH EXPLORATION LLC	1/8+	898 602	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.37	9-15-43	I	SUSAN H KEY	TH EXPLORATION LLC	1/8+	898 621	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.39	9-15-43	I	ALICE THIPPHAVONG AND VISITH THIPPHAVONG	TH EXPLORATION LLC	1/8+	902 437	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21095	9-15-40.1	J	TIMOTHY LEE COLLEY	TH EXPLORATION LLC	1/8+	951 200	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21096	9-15-40.1	J	GEORGE L DUNN AND NANCY MARIE DUNN	TH EXPLORATION LLC	1/8+	951 194	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21097	9-15-40.1	J	JAMES DUNN AND DONNA K DUNN	TH EXPLORATION LLC	1/8+	951 197	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21205	9-15-40.1	J	RONALD W REINBEAU	TH EXPLORATION LLC	1/8+	953 86	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21207	9-15-40.1	J	KEITH W STORCH AND DEBORAH A STORCH	TH EXPLORATION LLC	1/8+	951 209	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21208	9-15-40.1	J	JOHN T CRISWELL AND CATHERINE A CRISWELL	TH EXPLORATION LLC	1/8+	951 206	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21210	9-15-40.1	J	PETER G STORCH AND LAURIE L STORCH	TH EXPLORATION LLC	1/8+	951 203	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21231	9-15-40.1	J	JENNIFER SHAWN GLOVER	TH EXPLORATION LLC	1/8+	953 89	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21232	9-15-40.1	J	JEFFREY BRYAN CRISWELL	TH EXPLORATION LLC	1/8+	953 92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21233	9-15-40.1	J	WILLIAM LINSLEY CRISWELL	TH EXPLORATION LLC	1/8+	953 95	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21398	9-15-40.1	J	LYNN ELLIOTT AND JUDITH ELLIOTT	TH EXPLORATION LLC	1/8+	957 301	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21399	9-15-40.1	J	MARY M MORRIS	TH EXPLORATION LLC	1/8+	956 642	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21528	9-15-40.1	J	PATRICIA KIRCHNER	TH EXPLORATION LLC	1/8+	959 305	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21839	9-15-40.1	J	WILLIAM BRYAN COLLEY	TH EXPLORATION LLC	1/8+	959 445	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21845	9-15-40.1	J	PATRICIA DOFKA	TH EXPLORATION LLC	1/8+	959 448	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21865	9-15-40.1	J	FRANK A STORCH JR AND SUSAN STORCH	TH EXPLORATION LLC	1/8+	959 442	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21872	9-15-40.1	J	ROSEMARIE BERISFORD	TH EXPLORATION LLC	1/8+	953 484	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21874	9-15-40.1	J	CHAZ AARON COLLEY AND DANA COLLINS	TH EXPLORATION LLC	1/8+	953 475	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21957	9-15-40.1	J	CATHERINE I AND ERNEST M SILVERIO	TH EXPLORATION LLC	1/8+	960 15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21966	9-15-40.1	J	DAVID HALL AND SANDRA SUE HALL	TH EXPLORATION LLC	1/8+	959 644	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21973	9-15-40.1	J	REID ELATRACHE AND TONYA ELATRACHE	TH EXPLORATION LLC	1/8+	960 502	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*21980	9-15-40.1	J	CHARLES C SEAMON	TH EXPLORATION LLC	1/8+	954 344	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21989	9-15-40.1	J	NEIL SCHAFFER AND CHRISTAL L SCHAFFER	TH EXPLORATION LLC	1/8+	953 481	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22112	9-15-40.1	J	EMMA JO CRISWELL	TH EXPLORATION LLC	1/8+	961 349	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22127	9-15-40.1	J	JUDITH L BENEDICT AND LOUIS G BENEDICT	TH EXPLORATION LLC	1/8+	961 343	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22159	9-15-40.1	J	JOSHUA W SEAMON	TH EXPLORATION LLC	1/8+	953 478	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22833	9-15-40.1	J	RANDY W MORRIS SR AND CHERYL MORRIS	TH EXPLORATION LLC	1/8+	966 465	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*15836	9-17-5	K	LUCINDA RAE ALLEN AND DAVID A ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	742 79	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15837	9-17-5	K	ANITA DIANE ANTILL AND TERRY ANTILL	CHESAPEAKE APPALACHIA LLC	1/8+	742 85	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15842	9-17-5	K	HOMER L SIMMONS AND GLADYS R SIMMONS	CHESAPEAKE APPALACHIA LLC	1/8+	742 329	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*16007	9-17-5	K	MARY LOU KITTELBERGER AND FREDERICK W KITTELBERGER	CHESAPEAKE APPALACHIA LLC	1/8+	799 436	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/85	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*16008	9-17-5	K	DONNA KAY ALLEN AND ROGER ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	801 222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 31/85	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

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10*17169	9-17-5	K	ALMA L VAN SCYOC	CHESAPEAKE APPALACHIA LLC	1/8+	692 404	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 32/247	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17171	9-17-5	K	OPAL MICKEY	CHESAPEAKE APPALACHIA LLC	1/8+	690 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 32/247	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17173	9-17-5	K	LLOYD R. EVANS	CHESAPEAKE APPALACHIA LLC	1/8+	694 526	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 23/479	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	Statoil USA Onshore Properties Inc to TH Exploration LLC: 41/238	SWN Production Company LLC to TH Exploration LLC: 41/256
10*17500	9-17-5	K	TRACY L AND KEITH W BARNBY	TH EXPLORATION LLC	1/8+	916 116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17666	9-17-5	K	LILA FAYE BONAR SNODGRASS AND DONALD T SNODGRAS	TH EXPLORATION LLC	1/8+	949 172	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17673	9-17-5	K	JAMES PERRY COCHRAN	TH EXPLORATION LLC	1/8+	932 567	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17707	9-17-5	K	JACQUELYN S FERRARI AND JOHN C FERRARI	TH EXPLORATION LLC	1/8+	949 177	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17709	9-17-5	K	CAROL GONGOLA	TH EXPLORATION LLC	1/8+	949 167	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17765	9-17-5	K	ROBERTA YOUNG	TH EXPLORATION LLC	1/8+	949 163	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17840	9-17-5	K	RONALD D KOONTZ & BETH ANN KOONTZ	TH EXPLORATION LLC	1/8+	942 432	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17886	9-17-5	K	ANNETTE CAIN HANKINS AND HOWARD RONALD HANKINS	TH EXPLORATION LLC	1/8+	924 536	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17887	9-17-5	K	LEO C HILKE AND BETTY M HILKE	TH EXPLORATION LLC	1/8+	924 531	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17977	9-17-5	K	BRANNEN DAUGHERTY	TH EXPLORATION LLC	1/8+	925 359	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17980	9-17-5	K	ANITA RAE MILLER	TH EXPLORATION LLC	1/8+	925 370	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17981	9-17-5	K	MICHAEL E SWIFT AND MELODY A SWIFT	TH EXPLORATION LLC	1/8+	925 372	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18019	9-17-5	K	SUSAN H KEY	TH EXPLORATION LLC	1/8+	927 272	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18020	9-17-5	K	ALICE THIPPHAVONG AND VISITH THIPPHAVONG	TH EXPLORATION LLC	1/8+	927 270	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18031	9-17-5	K	LEE ANNE MILLER	TH EXPLORATION LLC	1/8+	927 222	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*18092	9-17-5	K	DAVID MCDOWELL AND CRYSTAL MCDOWELL	TH EXPLORATION LLC	1/8+	927 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18093	9-17-5	K	JENNIFER WHEATON	TH EXPLORATION LLC	1/8+	927 289	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18094	9-17-5	K	BONNIE GRISELL	TH EXPLORATION LLC	1/8+	927 231	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18095	9-17-5	K	TEXYN L MILLER AND GEORGIA A MILLER	TH EXPLORATION LLC	1/8+	927 287	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18098	9-17-5	K	LISA ANN MCDOWELL AND ROBERT JOSEPH HILL	TH EXPLORATION LLC	1/8+	939 263	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18099	9-17-5	K	RAE ELLEN FLOYD AND KENNETH FLOYD	TH EXPLORATION LLC	1/8+	927 233	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18107	9-17-5	K	ANITA MAE MASON	TH EXPLORATION LLC	1/8+	927 238	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18113	9-17-5	K	JOHN H HILKE	TH EXPLORATION LLC	1/8+	927 159	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18167	9-17-5	K	NEIL CALL AND MELINDA CALL	TH EXPLORATION LLC	1/8+	927 492	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18168	9-17-5	K	SANDRA YANAGAWA	TH EXPLORATION LLC	1/8+	927 498	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18169	9-17-5	K	KAREN K WILLIAMS	TH EXPLORATION LLC	1/8+	927 628	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18170	9-17-5	K	KAREN MCDOWELL CECIL AND JAMES E CECIL	TH EXPLORATION LLC	1/8+	927 633	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18192	9-17-5	K	STEPHEN S MASON AND CAROLE K MASON	TH EXPLORATION LLC	1/8+	928 625	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18193	9-17-5	K	CAROLYN LEE FUREY AND MARTIN J FUREY	TH EXPLORATION LLC	1/8+	949 158	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18194	9-17-5	K	PAMELA BEYLER AND CHAD R BEYLER	TH EXPLORATION LLC	1/8+	928 630	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18197	9-17-5	K	BARBARA K BURLEY AND DAVID K BURLEY	TH EXPLORATION LLC	1/8+	928 641	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18198	9-17-5	K	MARY THERESA SOLEAU AND THOMAS SOLEAU	TH EXPLORATION LLC	1/8+	928 643	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18199	9-17-5	K	LAWRENCE J VAUGHN AND GAIL L VAUGHN	TH EXPLORATION LLC	1/8+	928 532	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18260	9-17-5	K	GEMMA RUDY AND TIMOTHY RUDY	TH EXPLORATION LLC	1/8+	928 584	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18295	9-17-5	K	THOMAS R BAKER AND VICKIE L BAKER	TH EXPLORATION LLC	1/8+	929 262	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18298	9-17-5	K	MAUREEN GREGG	TH EXPLORATION LLC	1/8+	929 273	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18300	9-17-5	K	ROBERT W ODOM AND CASSANDRA L ODOM	TH EXPLORATION LLC	1/8+	929 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18360	9-17-5	K	JOCELYN AKERS	TH EXPLORATION, LLC	1/8+	944 420	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18361	9-17-5	K	MARY JO CAIN	TH EXPLORATION LLC	1/8+	931 407	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18417	9-17-5	K	CHERYL L HILL	TH EXPLORATION LLC	1/8+	932 577	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18487	9-17-5	K	NANCY L STANGEL AND JOHN J STANGEL	TH EXPLORATION LLC	1/8+	933 113	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*18488	9-17-5	K	CHARLINE M ENGLE AND KEVIN E ENGLE	TH EXPLORATION LLC	1/8+	933 118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18508	9-17-5	K	LUANNE BONAR	TH EXPLORATION LLC	1/8+	925 351	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18517	9-17-5	K	LORI SHANAHAH AND PATRICK SHANAHAH	TH EXPLORATION LLC	1/8+	933 575	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18613	9-17-5	K	JANE LOUISE CAIN AND DANIEL CARL HOLTZ	TH EXPLORATION LLC	1/8+	934 603	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18655	9-17-5	K	PATRICIA L LEHN	TH EXPLORATION LLC	1/8+	936 95	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18656	9-17-5	K	PAMELA CALL	TH EXPLORATION LLC	1/8+	936 100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18658	9-17-5	K	ELIZABETH JANE KELLER	TH EXPLORATION LLC	1/8+	936 107	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18659	9-17-5	K	CATHERINE P MASON	TH EXPLORATION LLC	1/8+	936 112	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18799	9-17-5	K	CHARLES J DARMAFALL DECEASED	TH EXPLORATION LLC	1/8+	937 634	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18805	9-17-5	K	CINDY STEVENS TOZIER	TH EXPLORATION LLC	1/8+	937 628	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19373	9-17-5	K	JESSICA WHEATON	TH EXPLORATION LLC	1/8+	931 411	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19403	9-17-5	K	LAWRENCE R LOTZ	TH EXPLORATION LLC	1/8+	951 114	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19404	9-17-5	K	HOWARD M CAIN AND EMMA JEAN CAIN	TH EXPLORATION LLC	1/8+	939 283	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19476	9-17-5	K	WINONA RIDDLE	TH EXPLORATION LLC	1/8+	941 331	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19689	9-17-5	K	EDMOND TURGEON JR AND CATHY STEVENS TURGEON	TH EXPLORATION LLC	1/8+	944 156	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19702	9-17-5	K	WV MINERALS INC	TH EXPLORATION LLC	1/8+	951 108	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19715	9-17-5	K	EILEEN HALL	TH EXPLORATION LLC	1/8+	944 416	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19716	9-17-5	K	MARY G ARTER	TH EXPLORATION LLC	1/8+	944 408	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19717	9-17-5	K	GENELDA L BRIGHT AND CHARLES W BRIGHT	TH EXPLORATION LLC	1/8+	944 403	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19718	9-17-5	K	CHRISTOPHER DAUGHERTY & JENNIFER R DAUGHERTY	TH EXPLORATION LLC	1/8+	944 412	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19871	9-17-5	K	CARL D MASON AND ALICE MASON	TH EXPLORATION LLC	1/8+	945 593	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19879	9-17-5	K	MARY V GILSON AND WALTER M GILSON	TH EXPLORATION LLC	1/8+	945 588	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19933	9-17-5	K	MARY ANN GRIFFITH	TH EXPLORATION LLC	1/8+	948 555	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19937	9-17-5	K	JAMES D STEVENS AND DOROTHY M STEVENS	TH EXPLORATION LLC	1/8+	949 151	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19938	9-17-5	K	JOHN H STEVENS AND LYNDA L STEVENS	TH EXPLORATION LLC	1/8+	949 144	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21026	9-17-5	K	NANCY M MORGAN	TH EXPLORATION LLC	1/8+	951 110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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10*21211	9-17-5	K	NILA JEAN BAYLES	TH EXPLORATION LLC	1/8+	951 118	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21841	9-17-5	K	ENERGY DEEP RESOURCES INC	TH EXPLORATION LLC	1/8+	959 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21842	9-17-5	K	JOSEPH NOKOVICH	TH EXPLORATION LLC	1/8+	959 635	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21927	9-17-5	K	BLACK GOLD GROUP LTD	TH EXPLORATION LLC	1/8+	964 474	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21940	9-17-5	K	ALYSIA JORDAN & TERRY M JORDAN	TH EXPLORATION LLC	1/8+	953 346	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22376	9-17-5	K	MARGARET KUCHARZ AND JAMES C KUCHARZ	TH EXPLORATION LLC	1/8+	962 270	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22412	9-17-5	K	CHAD E LONGFELLOW	TH EXPLORATION LLC	1/8+	963 124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22599	9-17-5	K	BRYANT R SWIFT AND KATHY SWIFT	TH EXPLORATION LLC	1/8+	966 456	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22776	9-17-5	K	JAMES ROBERT WELLS	TH EXPLORATION LLC	1/8+	970 19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22849	9-17-5	K	NEIL MCELROY AND SUE MASON MCELROY	TH EXPLORATION LLC	1/8+	977 44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22851	9-17-5	K	JOHN J HELLSTERN AND LYNN D HELLSTERN	TH EXPLORATION LLC	1/8+	977 39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*22853	9-17-5	K	RONALD LEE HENSLEY AND MARY ANN HENSLEY	TH EXPLORATION LLC	1/8+	977 34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23076	9-17-5	K	JACK R BERISFORD	TH EXPLORATION LLC	1/8+	984 43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*23260	9-17-5	K	IDA M TRAVIS ET AL	TH EXPLORATION LLC	1/8+	988 73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.1	9-17-5	K	DAVID LEE FRANKLIN	TH EXPLORATION LLC	1/8+	874 312	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.27	9-17-5	K	MARSHA BERISFORD	TH EXPLORATION LLC	1/8+	902 425	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.219.36	9-17-5	K	GAREN MCDOWELL AND ELIZABETH MCDOWELL	TH EXPLORATION LLC	1/8+	898 615	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*15833	9-17-7	L	LUCINDA RAE ALLEN AND DAVID A ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	742 73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/166	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15834	9-17-7	L	ANITA DIANE ANTILL AND TERRY ANTILL	CHESAPEAKE APPALACHIA LLC	1/8+	742 110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/166	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*15841	9-17-7	L	HOMER L SIMMONS AND GLADYS R SIMMONS	CHESAPEAKE APPALACHIA LLC	1/8+	742 366	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/166	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15832	9-17-3	M	ANITA DIANE ANTILL AND TERRY ANTILL	CHESAPEAKE APPALACHIA LLC	1/8+	742 121	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15835	9-17-3	M	LUCINDA RAE ALLEN AND DAVID A ALLEN	CHESAPEAKE APPALACHIA LLC	1/8+	742 104	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15847	9-17-3	M	ROGER BRIGHT AND SUSAN LEIMER - DECEASED	CHESAPEAKE APPALACHIA LLC	1/8+	743 285	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15848	9-17-3	M	HOMER L SIMMONS AND GLADYS R SIMMONS	CHESAPEAKE APPALACHIA LLC	1/8+	745 194	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15855	9-17-3	M	ALICE THIPPHAVONG AND VISITH THIPPHAVONG	CHESAPEAKE APPALACHIA LLC	1/8+	747 635	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15856	9-17-3	M	LEO C HILKE AND BETTY M HILKE	CHESAPEAKE APPALACHIA LLC	1/8+	747 629	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455

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WW-6A1 Supplement

Operator's Well No. Keith Stern S - 12HM

Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*15870	9-17-3	M	JOHN H HILKE AND ALIDA HILKE	CHESAPEAKE APPALACHIA LLC	1/8+	750 206	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*15872	9-17-3	M	SUSAN H KEY	CHESAPEAKE APPALACHIA LLC	1/8+	751 191	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 27/50	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*47051.185.1	9-17-39	N	HOMER L SIMMONS AND GLADYS R SIMMONS	TH EXPLORATION LLC	1/8+	885 68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.185.2	9-17-39	N	LUCINDA RAE ALLEN AND DAVID A ALLEN	TH EXPLORATION LLC	1/8+	894 482	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.185.3	9-17-39	N	ANITA DIANE ANTILL AND TERRY ANTILL	TH EXPLORATION LLC	1/8+	885 71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.185.1	9-17-38.1	O	HOMER L SIMMONS AND GLADYS R SIMMONS	TH EXPLORATION LLC	1/8+	885 68	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.185.2	9-17-38.1	O	LUCINDA RAE ALLEN AND DAVID A ALLEN	TH EXPLORATION LLC	1/8+	894 482	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*47051.185.3	9-17-38.1	O	ANITA DIANE ANTILL AND TERRY ANTILL	TH EXPLORATION LLC	1/8+	885 71	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*15802	9-17-37	P	TOM GOULDSBERRY	CHESAPEAKE APPALACHIA LLC	1/8+	683 640	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/636	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*15803	9-17-37	P	CHARLOTTE CROW	CHESAPEAKE APPALACHIA LLC	1/8+	683 631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/636	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	
10*15804	9-17-37	P	JOE GOULDSBERRY	CHESAPEAKE APPALACHIA LLC	1/8+	683 637	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/636	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455	

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Lease ID	Parcel	Tag	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment		
10*15805	9-17-37	P	MARY ELLEN CHAMBERS	CHESAPEAKE APPALACHIA LLC	1/8+	694 82	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 32/247	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15806	9-17-37	P	JOANNE FOX	CHESAPEAKE APPALACHIA LLC	1/8+	683 634	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/636	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15807	9-17-37	P	GLORIS VAN SCYOC	CHESAPEAKE APPALACHIA LLC	1/8+	685 190	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/636	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15808	9-17-37	P	ANGELA YOHO	CHESAPEAKE APPALACHIA LLC	1/8+	685 193	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/471	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15809	9-17-37	P	RYAN J AND MICHELE L RIDDLE	CHESAPEAKE APPALACHIA LLC	1/8+	687 225	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 22/471	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15810	9-17-37	P	FLOSSIE P RUTAN	CHESAPEAKE APPALACHIA LLC	1/8+	690 266	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 24/338	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*15811	9-17-37	P	SANDRA M WINSLOW	CHESAPEAKE APPALACHIA LLC	1/8+	719 51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Chesapeake Appalachia LLC to Statoil USA Onshore Properties Inc: 26/42	Statoil USA Onshore Properties Inc to SWN Exchange Titleholder LLC: 33/424	Chesapeake Appalachia LLC to SWN Production Company LLC: 33/110	Merger - SWN Exchange Titleholder LLC to SWN Production Company LLC: 19/624	SWN Production Company LLC to TH Exploration LLC: 36/431	Statoil USA Onshore Properties Inc to TH Exploration LLC: 36/455
10*21969	9-17-37	P	MARK WESLEY RICHARDSON	TH EXPLORATION LLC	1/8+	960 507	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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WV Department of
Environmental Protection



August 3, 2018

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

RE: Keith Stern S-12HM

Subject: Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC will not be drilling, extracting or producing any minerals under any WV County or State Routes in the area reflected on the Keith Stern S-12HM well plat.

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

Sincerely,

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

Amy L. Miller
Permitting Specialist – Appalachia Region

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WV Department of
Environmental Protection

WW-6AC
(1/12)

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

Date of Notice Certification: 08/03/2018

API No. 47- 051 - _____
Operator's Well No. Keith Stern S-12HM
Well Pad Name: Keith Stern

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>526,365.24</u>
County: <u>Marshall</u>	Northing: <u>4,402,801.53</u>
District: <u>Meade</u>	Public Road Access: <u>Fish Creek Road (County Route 74)</u>
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>TH Exploration, LLC</u>
Watershed: <u>Fish Creek (HUC 10)</u>	

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

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

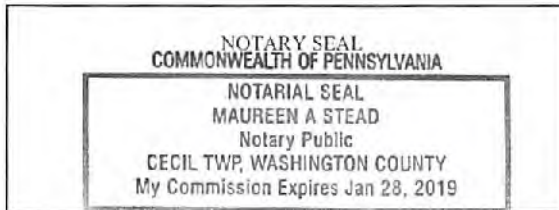
Required Attachments:

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

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>300 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-hillop.com</u>



Subscribed and sworn before me this 3 day of AUG, 2018.
Maureen A Stead Notary Public
 My Commission Expires 1/28/19

Oil and Gas Privacy Notice:

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

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WV Department of
Environmental Protection

WW-6A
(9-13)

API NO. 4705102104
OPERATOR WELL NO. Keith Stern S-12HM
Well Pad Name: Keith Stern

**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: 8/2/2018 **Date Permit Application Filed:** 8/3/2018

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Notice of:

AUG 6 2018

WV Department of
Environmental Protection

- 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: TH Exploration, LLC (Access Road and Well Pad) /
 Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15318

COAL OWNER OR LESSEE
 Name: CONSOL Energy, Inc. Attn: Casey Saunders /
 Address: 1000 CONSOL Energy Drive
Canonsburg, PA 15317

Name: _____
 Address: _____

COAL OPERATOR
 Name: _____
 Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: _____
 Address: _____

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

Name: _____
 Address: _____

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

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

*Please attach additional forms if necessary

WW-6A
(8-13)

AUG 6 2018

WV Department of
Environmental Protection**Notice is hereby given:**

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

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(8-13)

API NO. 47-051 - _____
OPERATOR WELL NO. Keith Stern S-12HM
Well Pad Name: Keith Stern

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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WV Department of
Environmental Protection

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

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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Environmental Protection

WW-6A
(8-13)

API NO. 47-051 **4705102104**
OPERATOR WELL NO. Keith Stern S-12HM
Well Pad Name: Keith Stern

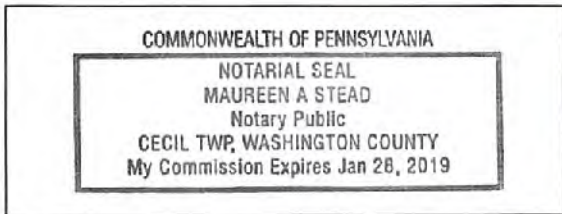
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 2 day of AUG. 2018.
Maureen A Stead Notary Public
My Commission Expires 1/28/19

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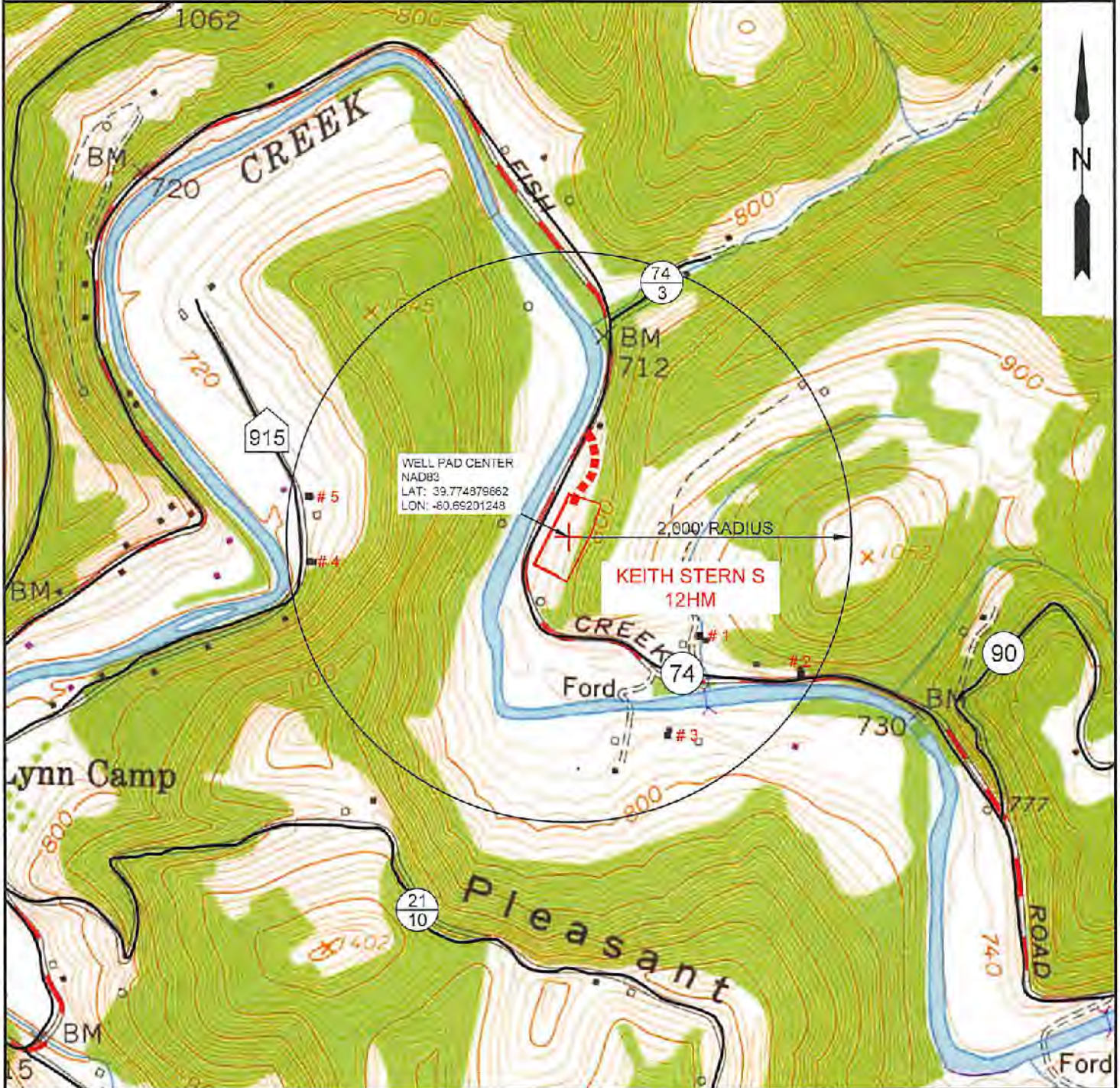
AUG 6 2018

PROPOSED

SUPPLEMENT PG. 1B

WV Department of
Environmental Protection

KEITH STERN S - 12HM



NOTE: THERE APPEARS TO BE FIVE (5) POSSIBLE WATER SOURCES WITHIN 2,000'.

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26031 • (304) 462-5634
www.slsurveys.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.	8811	07/31/2018	1" = 1000'

TUG HILL
OPERATING

Affidavit of Personal Service

State Of Pennsylvania

County Of Washington

The undersigned, being first duly sworn, says that the undersigned served a true and complete copy of all sides of--

- (1) Notice on Form WW-2(A) ___ / WW-3(A) ___ / WW-4(A) ___ / WW-5(A) ___ / WW-6(A) X, WW-6A5
- (2) Application on Form WW-2(B) ___ / WW-3(B) ___ / WW-4(B) ___ / WW-5(B) ___ / WW-6(B) ___
- (3) Plat showing the well location on Form WW-6, and
- (4) Construction and Reclamation Plan on Form WW-9

--all with respect to operator's Well No. Keith Stern S-12HM located in Meade District, Washington County, West Virginia, upon the person or organization named--

TH Exploration, LLC

--by delivering the same in Washington County, State of Pennsylvania on the 3rd day of August, 2018 in the manner specified below.

[COMPLETE THE APPROPRIATE SECTION]

For an individual:

Handing it to him ___ / her ___ / or, because he ___ / she ___ / refused to take it when offered it, by leaving it in his ___ / her ___ / presence.

Handing it to a member of his or her family above the age of 16 years named _____ who resides at the usual place of abode of the person to be served, and asking the family member to give it to the person to be served as soon as possible.

For a partnership:

Handing it to _____, a partner of the partnership or, because the partner refused to take it when I handed it over, by leaving it in the presence of the partner.

For a limited partnership:

Handing it to the general partner, named _____, or, because the general partner refused to take it when I tried to hand it over, by leaving it in the presence of the general partner.

For a corporation:

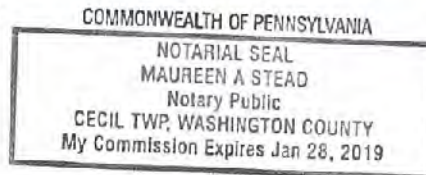
Handing it to the corporation's employee Y / officer ___ / director ___ / attorney in fact ___ / named David Delallo.

Amy Miller
(Signature of person executing service)

Taken, subscribed and sworn before me this 3 day of Aug, 2018.
My commission expires 1/20/19

Maureen A Stead
Notary Public

(AFFIX SEAL IF NOTARIZED OUTSIDE THE STATE)



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WV Department of
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: KEITH STERN S – 12HM
 District: Meade (House #'s 1-5)
 State: WV

There are five (5) residences, no businesses, no churches, no schools or no emergency facilities within two-thousand feet (2,000') of the above referenced well location.

<p>House 1 TM 14 Pcl. 20 William K. Stern, Et Ux Phone: 304-843-1478 (Per Address – Keith, Betty & Ginger Sue Stern) Physical Address: 14912 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: Same</p>	<p>House 2 TM 14 Pcl. 20.1 William K. Stern, Et Ux Phone: 304-843-1478 (Per Address – Keith, Betty & Ginger Sue Stern) Physical Address: 15056 Fish Creek Rd. Glen Easton, WV 26039 Tax Address: 14912 Fish Creek Rd. Glen Easton, WV 26039</p>	<p>House 3 TM 14 Pcl. 21 Eleanore M. Fox Est. Phone: 304-845-6016 (Per Tax Address – Thomas Fox) Physical Address: None Found – Appears to be an old home. Tax Address: 100 Lynn Camp Ln. Glen Easton, WV 26039-9707</p>
<p>House 4 TM 14 Pcl. 27 Patrick J. Shellhase Phone: 304-845-0742; 304-810-0258 Physical Address: 593 Crow Dr. Glen Easton, WV 26039 Tax Address: 2300 7th St. Moundsville, WV 26041</p>	<p>House 5 TM 14 Pcl. 25 Patricia A. Dugas Phone: None Found Physical Address: 681 Crow Dr. Glen Easton, WV 26039 Tax Address: Same</p>	

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WV Department of
 Environmental Protection

WW-6A3
(1/12)

Operator Well No. Keith Stern S-12HM

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: 12/11/17 **Date of Planned Entry:** 12/18/17

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: TH Exploration, LLC (Access Road and Well Pad)
Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15318

Name: _____
Address: _____

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: Consol Energy, Inc.
Address: CNX Center, 1000 Consol Energy Drive
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: William K. and Betty L. Stern
Address: 14912 Fish Creek Road
Glen Easton, WV 26039

*please attach additional forms if necessary

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WV Department of
Environmental Protection

Notice is hereby given:

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

State: West Virginia
County: Marshall
District: Meade
Quadrangle: Glen Easton 7.5'

Approx. Latitude & Longitude: 39.7748867, -80.6920362
Public Road Access: Fish Creek Road (County Route 74)
Watershed: Fish Creek (HUC 10)
Generally used farm name: TH Exploration, LLC

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

Notice is hereby given by:

Well Operator: Tug Hill Operating, LLC
Telephone: 724-749-8386
Email: amiller@tug-hilltop.com

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

Oil and Gas Privacy Notice:

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

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

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

Date of Notice: 08/02/2018 **Date Permit Application Filed:** 08/03/2018

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

CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

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

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

Name: TH Exploration, LLC Name: _____
Address: 380 Southpointe Boulevard, Plaza II, Suite 200 Address: _____
Canonsburg, PA 15318 _____

Notice is hereby given:

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

State: West Virginia UTM NAD 83 Easting: 526,365.24
County: Marshall Northing: 4,402,801.53
District: Meade Public Road Access: Fish Creek Road (County Route 74)
Quadrangle: Glen Easton 7.5' Generally used farm name: TH Exploration, LLC
Watershed: Fish Creek (HUC 10)

This Notice Shall Include:

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

Well Operator: Tug Hill Operating, LLC Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Telephone: 724-749-8388 Canonsburg, PA 15317
Email: amiller@tug-hilltop.com Facsimile: 724-336-2030

Oil and Gas Privacy Notice:

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

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WV Department of
Environmental Protection

Affidavit of Personal Service

State Of Pennsylvania
County Of Washington

The undersigned, being first duly sworn, says that the undersigned served a true and complete copy of all sides of--

- (1) Notice on Form WW-2 (A) / WW-3 (A) / WW-4 (A) / WW-5 (A) / WW-6 (A) X, WW-6A5
- (2) Application on Form WW-2 (B) / WW-3 (B) / WW-4 (B) / WW-5 (B) / WW-6 (B) X
- (3) Plat showing the well location on Form WW-6, and
- (4) Construction and Reclamation Plan on Form WW-9

--all with respect to operator's Well No. Keith Stern N-6HM located in Meade District, Marshall County, West Virginia, upon the person or organization named--

TH Exploration, LLC

--by delivering the same in Washington County, State of Pennsylvania on the 3rd day of August, 2018 in the manner specified below.

[COMPLETE THE APPROPRIATE SECTION]

For an individual:

Handing it to him / her / or, because he / she / refused to take it when offered it, by leaving it in his / her / presence.

Handing it to a member of his or her family above the age of 16 years named who resides at the usual place of abode of the person to be served, and asking the family member to give it to the person to be served as soon as possible.

For a partnership:

Handing it to , a partner of the partnership or, because the partner refused to take it when I handed it over, by leaving it in the presence of the partner.

For a limited partnership:

Handing it to the general partner, named , or, because the general partner refused to take it when I tried to hand it over, by leaving it in the presence of the general partner.

For a corporation:

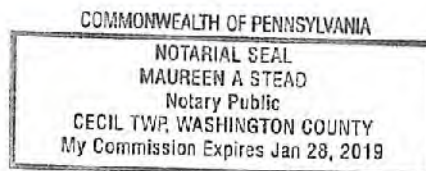
Handing it to the corporation's employee / officer / director / attorney in fact / named David Delallo.

Amy Muller
(Signature of person executing service)

Taken, subscribed and sworn before me this 3 day of Aug. 20 18.
My commission expires 1/28/19

Maureen A Stead
Notary Public

(AFFIX SEAL IF NOTARIZED OUTSIDE THE STATE)



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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

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

February 20, 2018

Jill M. Newman
Deputy Commissioner

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

Subject: DOH Permit for the Keith Stern Pad, Marshall County

Keith Stern 1HM	Keith Stern 2HM	Keith Stern 3HM	Keith Stern 4HM
Keith Stern 5HM	Keith Stern 6HM	Keith Stern 7HM	Keith Stern 8HM
Keith Stern 9HM	Keith Stern 10HM	Keith Stern 11HM	Keith Stern 12HM
Keith Stern 13HU	Keith Stern 14HU	Keith Stern 15HU	Keith Stern 16HU
Keith Stern 17HU	Keith Stern 18HU	Keith Stern 19HU	

Dear Mr. Martin,

This well pad will be accessed from a DOH permit #06-2018-0068 which has been issued to Tug Hill Operating, LLC for access to the State Road for well sites located off of Marshall County Route 74 SLS.

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

Very Truly Yours,

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

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

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PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Keith Stern S-12HM

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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