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west virginia department of environmental protection

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

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Thursday, May 03, 2018  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

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

Re: Permit Modification Approval for HEAVEN HILL 3-5HM  
47-051-01948-00-00

**Modification to Extend Lateral**

TUG HILL OPERATING, LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

A blue ink signature of James A. Martin, Chief, is written over a white background.

James A. Martin  
Chief

Operator's Well Number: HEAVEN HILL 3-5HM  
Farm Name: RICKY L. WHITLATCH  
U.S. WELL NUMBER: 47-051-01948-00-00  
Horizontal 6A New Drill  
Date Modification Issued: May 3, 2018

Promoting a healthy environment.

05/04/2018

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

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

2) Operator's Well Number: Heaven Hill 3-5HM Well Pad Name: Heaven Hill 3

3) Farm Name/Surface Owner: Ricky L. Whitlatch Public Road Access: Yeater Lane CR 21/11

4) Elevation, current ground: 1326' Elevation, proposed post-construction: 1326'

5) Well Type (a) Gas X Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_

Other \_\_\_\_\_

(b) If Gas Shallow x Deep \_\_\_\_\_

Horizontal X \_\_\_\_\_

*JW*  
*3/28/18*

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 6724 - 6776' thickness of 52' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,876'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 17,873'

11) Proposed Horizontal Leg Length: 10,465'

12) Approximate Fresh Water Strata Depths: 70', 1038'

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

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickly Coal - 946' and Pittsburgh Coal - 1031'

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

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

(a) If Yes, provide Mine Info: Name: Marshall County Coal Co. / Marshall County Mine  
Depth: 1031' TVD and 311' subsea level  
Seam: Pittsburgh #8  
Owner: Murray Energy / Consolidated Coal Co.

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18)

**CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	100'	100'	216FT^3(CTS)
Fresh Water	13 3/8"	NEW	H40	48#	1,120'	1,120'	1070ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	1,120'	1,120'	1070ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,802'	2,802'	918ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	17,873'	17,873'	4564ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		7,252'	
Liners							

*OC*  
*3/28/18*

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17 1/2"	.33	1,730	1,384	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	1,730	1,384	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE#24	1.19
Production	5 1/2"	8 7/8_8 3/4	.361	12,640	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 - 01948 MOD  
OPERATOR WELL NO. Heaven Hill 3-5HM  
Well Pad Name: Heaven Hill 3

*[Handwritten Signature]*  
3/28/18

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

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

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

Well to be completed with approximately 26,162,500 lb prop and approximately 404,491 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 18.43

22) Area to be disturbed for well pad only, less access road (acres): 7.15

23) Describe centralizer placement for each casing string:

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

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

\*See Attachment

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25) Proposed borehole conditioning procedures:

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

\*Note: Attach additional sheets as needed.

WW-6B Attachment to #24

**Conductor, Coal and Fresh Water Casing Cement:**

*Premium NE-1 + 2% CaCl*

- Premium NE-1 – Class A Portland API Spec
- CaCl – Calcium Chloride

**Intermediate Casing:**

*Premium NE-1 + 2% bwoc CaCl<sub>2</sub> + 46.5% Fresh Water*

- Premium NE-1 – Class A Portland API spec
- CaCl<sub>2</sub> – Calcium Chloride
- Cello Flake – Fluid Loss Preventer

**Kick Off Plug:**

*Class H Cement + 1% CD-32 + .7% Sodium Metasilicate + .1% R-3 + .75 gal/100sk FP-13L + 38% Fresh Water*

- Class H – Increased Compressive Strength Cement
- Sodium Metasilicate – Free Water Control; Early Strength Additive
- R-3 – Cement Retarder
- FP-13L – Anti-Foaming Agent
- CaCl<sub>2</sub> – Calcium Chloride
- Cello Flake – Fluid Loss Preventer

**Production Casing Cement:**

Lead: *50:50 (Poz:Premium NE-1) + .2% R-3 + .2% MPA-170 + .75 gal/100sk FP-13L*

Tail: *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*

- Poz – Fly Ash
- Premium NE-1 – Class A Portland API spec
- R-3 – Cement Retarder
- MPA-170 – Gelling Agent
- FP-13L – Anti-Foaming Agent
- ASA-301 – Free Water Control Agent
- BA-10A – Bonding Agent
- ASCA-1 – Solubility Additive

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WELL NAME: Heaven Hill 3-SHM  
 STATE: West Virginia COUNTY: Marshall  
 DISTRICT: Meade  
 DEPTH: 1,326' GR Elev: 1,326'  
 ID: 17,873'  
 PH Latitude: 39.80863272  
 PH Longitude: -80.69317425  
 BH Latitude: 39.77952674  
 BH Longitude: -80.66909367

30" Csg @ 100' MD / 100' TVD

13 3/8" Csg @ 1,120' MD / 1,120' TVD

9 5/8" Csg @ 2,802' MD / 2,800' TVD

KOP @ 6,752' ft MD

Landing Point @ 408' MD / 6,753' TVD  
 PH TVD = 100' below Onondaga Top

Pilot Hole  
 PH TD @ 6,876' TVD

05/04/2018

FORMATION TOPS	Depth TVD
Deepest Fresh Water	1038
Sewickley Coal	946
Pittsburgh Coal	1031
Big Lime	2050
Weir	2486
Berea	2684
Gordon	2946
Rhinestreet	6058
Genesee/Burkett	6586
Tully	6617
Hamilton	6650
Marcellus	6724
Landing Depth	6753
Onondaga	6776
Pilot Hole Depth	6876

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	100'	100'	BW	BW	Surface
Surface	17.5	13 3/8	1,120'	1,120'	48	H40	Surface
Intermediate 1	12 1/4	9 5/8	2,802'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	17,873'	6,936'	20	P110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Sacks	Class	Density	Fluid Type	Centralizer Notes	
Conductor	291	A	15.6	None	
Surface	1,097	A	15.6	3 Centralizers at equal distance	
Intermediate 1	896	A	15	1 Centralizer every other jt	
Production	4,027	A	14.5	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to s/c	

*Handwritten signature and date: 3/28/18*

Lateral TD @ 17,873' ft MD  
 6,936 ft TVD

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## Tug Hill Operating, LLC Casing and Cement Program

### Heaven Hill 3-5HM

#### Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	100'	CTS
Surface	13 3/8"	H40	17 1/2"	1,120'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,802'	CTS
Production	5 1/2"	P110	8 7/8 x 8 3/4"	17,873'	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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51-0194840D

**Well:** Heaven Hill 3-5 HM (H)  
**Site:** Heaven Hill 3  
**Project:** Marshall County, West Virginia  
**Design:** rev5



**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	TFace	V/sect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 27100' build
2	1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	Begin 3.00° tangent
3	1350.00	3.00	127.70	1349.63	-2.40	3.11	2.00	127.70	3.71	Begin 27100' build
4	2602.20	3.00	127.70	2600.00	-52.08	57.38	0.00	0.00	80.36	Begin 25.76° tangent
5	3660.77	25.76	126.63	3629.69	-184.04	217.32	3.00	-1.20	255.97	Begin 107100' build
6	5752.22	25.76	126.63	5714.30	-956.65	1296.84	0.00	0.00	1515.56	Begin 89.00° lateral section
7	7407.73	89.00	150.24	6753.00	-1381.50	1697.07	10.00	26.08	2034.11	Begin 99.00° lateral section
8	17873.10	89.00	150.24	6753.00	-1381.50	1697.07	10.00	0.00	2480.97	PBHLTD 17873.10 MDI6936.00 TVD



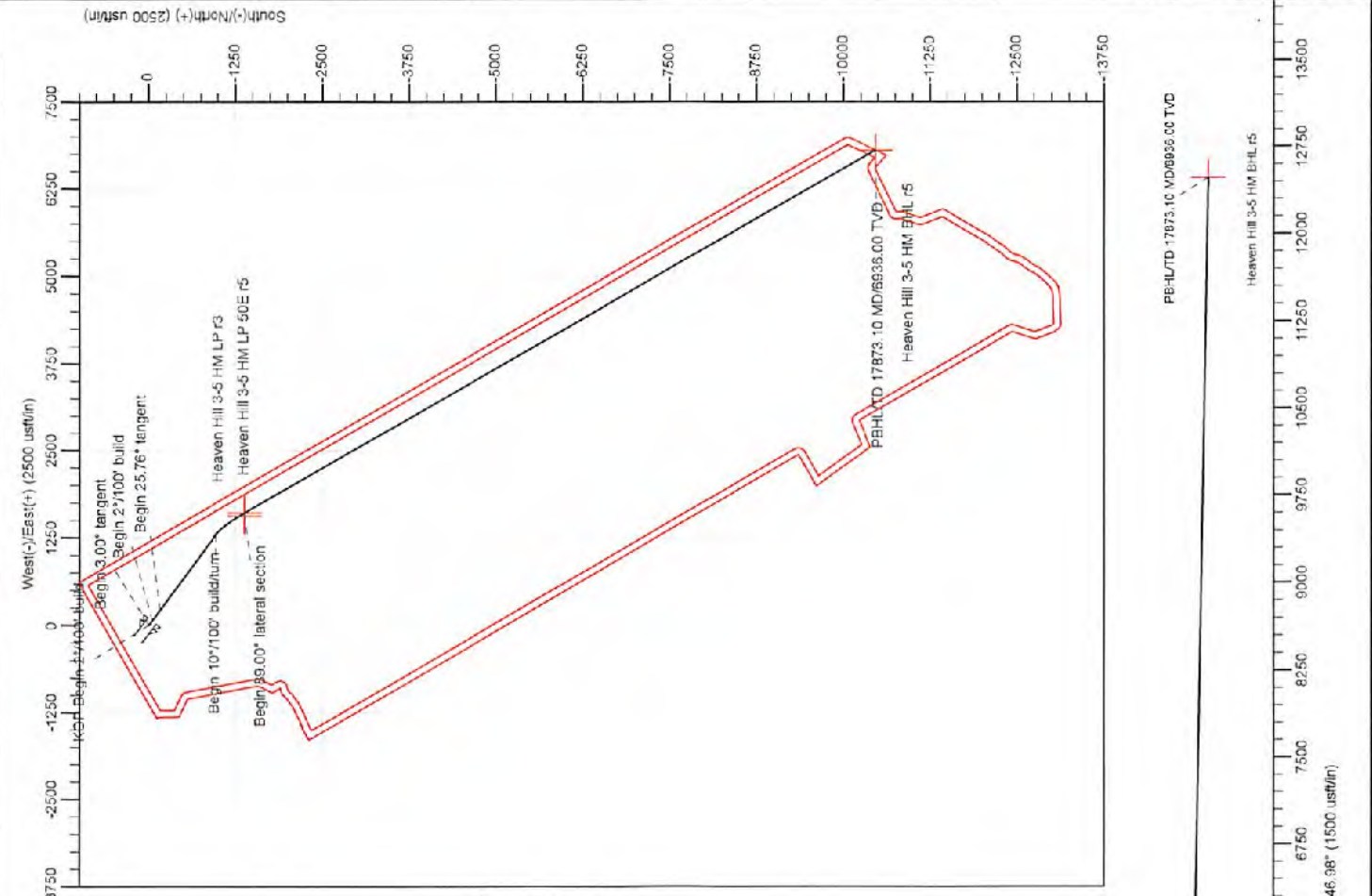
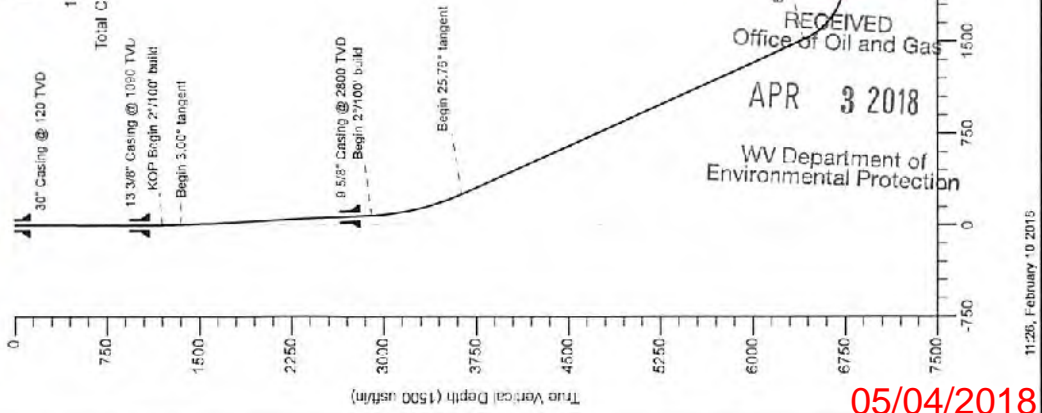
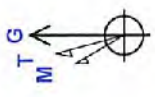
**Geocentric System:** Universal Transverse Mercator (US Survey Feet)  
**Datum:** NAD83 West Virginia - HARN  
**Ellipsoid:** GRS 1990  
**Zone:** 17N (84-W to 78-W)

**System Datum:** Mean Sea Level  
**Depth Reference:** GL=1326 @ 1326.00usft  
**Northing:** 14457197.78  
**Easting:** 1726582.97  
**Latitude:** 39.80863272  
**Longitude:** -80.66317425

**Total Corr (M->G):** To convert a Magnetic Direction to a Grid Direction, Subtract: 8.82°

**Admitts to Grid North:**  
 True North: 0.20°  
 Magnetic North: -0.92°

**Magnetic Field:**  
 Strength: 52107.45nT  
 Dip Angle: 66.02°  
 Date: 2/10/2018  
 Model: IGRF2015



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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 3-5 HM (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1326 @ 1326.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1326 @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3-5 HM (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev5		

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	Heaven Hill 3				
Site Position:		Northing:	14,457,178.77 usft	Latitude:	39.80858060
From:	Lat/Long	Easting:	1,726,571.98 usft	Longitude:	-80.69321360
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.20 °

Well	Heaven Hill 3-5 HM (H)					
Well Position	+N-S	0.00 usft	Northing:	14,457,197.78 usft	Latitude:	39.80863272
	+E-W	0.00 usft	Easting:	1,726,582.97 usft	Longitude:	-80.69317425
Position Uncertainty	0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	1,328.00 usft	

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/10/2018	-8.72	66.92	52,107.41500802

Design	rev5				
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	146.98	

Plan Survey Tool Program	Date	2/10/2018			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	17,873.10 rev5 (Original Hole)	MWD	MWD - Standard	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,350.00	3.00	127.70	1,349.93	-2.40	3.11	2.00	2.00	0.00	127.70	
2,902.20	3.00	127.70	2,900.00	-52.06	67.38	0.00	0.00	0.00	0.00	
3,660.77	25.78	126.63	3,629.99	-164.04	217.32	3.00	3.00	-0.14	-1.20	
6,752.22	25.78	126.63	6,414.30	-985.65	1,295.34	0.00	0.00	0.00	0.00	
7,407.73	89.00	150.24	6,753.00	-1,381.50	1,607.07	10.00	9.65	3.60	26.09	Heaven Hill 3-5 HM LI
17,873.10	89.00	150.24	6,936.00	-10,464.98	6,801.37	0.00	0.00	0.00	0.00	Heaven Hill 3-5 HM B

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Planning Report - Geographic

Database: DB\_Jul2216dt\_v14  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia  
 Site: Heaven Hill 3  
 Well: Heaven Hill 3-5 HM (H)  
 Wellbore: Original Hole  
 Design: rev5

Local Co-ordinate Reference: Well Heaven Hill 3-5 HM (H)  
 TVD Reference: GL=1326 @ 1326.00usft  
 MD Reference: GL=1326 @ 1326.00usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

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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	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
100.00	0.00	0.00	100.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
200.00	0.00	0.00	200.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
300.00	0.00	0.00	300.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
400.00	0.00	0.00	400.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
500.00	0.00	0.00	500.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
600.00	0.00	0.00	600.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
700.00	0.00	0.00	700.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
800.00	0.00	0.00	800.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
900.00	0.00	0.00	900.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,457,197.78	1,726,582.97	39.80863272	-80.69317425	
<b>KOP Begin 2°/100' build</b>										
1,300.00	2.00	127.70	1,299.98	-1.07	1.38	14,457,196.72	1,726,584.35	39.80862978	-80.69316935	
1,350.00	3.00	127.70	1,349.93	-2.40	3.11	14,457,195.38	1,726,586.08	39.80862610	-80.69316322	
<b>Begin 3.00° tangent</b>										
1,400.00	3.00	127.70	1,399.86	-4.00	5.18	14,457,193.78	1,726,588.15	39.80862169	-80.69315587	
1,500.00	3.00	127.70	1,499.73	-7.20	9.32	14,457,190.58	1,726,592.29	39.80861286	-80.69314116	
1,600.00	3.00	127.70	1,599.59	-10.40	13.46	14,457,187.38	1,726,596.43	39.80860403	-80.69312645	
1,700.00	3.00	127.70	1,699.45	-13.60	17.60	14,457,184.18	1,726,600.57	39.80859520	-80.69311175	
1,800.00	3.00	127.70	1,799.31	-16.80	21.74	14,457,180.98	1,726,604.71	39.80858637	-80.69309704	
1,900.00	3.00	127.70	1,899.18	-20.00	25.88	14,457,177.78	1,726,608.85	39.80857754	-80.69308234	
2,000.00	3.00	127.70	1,999.04	-23.20	30.02	14,457,174.58	1,726,612.99	39.80856872	-80.69306763	
2,100.00	3.00	127.70	2,098.90	-26.40	34.16	14,457,171.38	1,726,617.13	39.80855989	-80.69305292	
2,200.00	3.00	127.70	2,198.77	-29.61	38.30	14,457,168.18	1,726,621.27	39.80855106	-80.69303822	
2,300.00	3.00	127.70	2,298.63	-32.81	42.45	14,457,164.98	1,726,625.41	39.80854223	-80.69302351	
2,400.00	3.00	127.70	2,398.49	-36.01	46.59	14,457,161.78	1,726,629.56	39.80853340	-80.69300881	
2,500.00	3.00	127.70	2,498.36	-39.21	50.73	14,457,158.58	1,726,633.70	39.80852457	-80.69299410	
2,600.00	3.00	127.70	2,598.22	-42.41	54.87	14,457,155.38	1,726,637.84	39.80851575	-80.69297939	
2,700.00	3.00	127.70	2,698.08	-45.61	59.01	14,457,152.17	1,726,641.98	39.80850692	-80.69296469	
2,800.00	3.00	127.70	2,797.94	-48.81	63.15	14,457,148.97	1,726,646.12	39.80849809	-80.69294998	
2,900.00	3.00	127.70	2,897.81	-52.01	67.29	14,457,145.77	1,726,650.26	39.80848926	-80.69293528	
2,902.20	3.00	127.70	2,900.00	-52.08	67.38	14,457,145.70	1,726,650.35	39.80848907	-80.69293495	
<b>Begin 2°/100' build</b>										
3,000.00	5.93	127.11	2,997.50	-56.69	73.44	14,457,141.09	1,726,656.41	39.80847633	-80.69291344	
3,100.00	8.93	126.90	3,096.64	-64.48	83.77	14,457,133.30	1,726,666.74	39.80845486	-80.69287674	
3,200.00	11.93	126.80	3,194.98	-75.34	98.26	14,457,122.45	1,726,681.23	39.80842491	-80.69282527	
3,300.00	14.93	126.74	3,292.23	-89.24	116.87	14,457,108.54	1,726,699.84	39.80838655	-80.69275918	
3,400.00	17.93	126.70	3,388.14	-106.15	139.55	14,457,091.63	1,726,722.52	39.80833999	-80.69267855	
3,500.00	20.93	126.67	3,482.43	-126.02	166.23	14,457,071.76	1,726,749.20	39.80828506	-80.69258389	
3,600.00	23.93	126.65	3,574.85	-148.81	196.84	14,457,048.98	1,726,779.81	39.80822221	-80.69247517	
3,660.77	25.76	126.63	3,629.99	-164.04	217.32	14,457,033.74	1,726,800.29	39.80818017	-80.69240241	
<b>Begin 25.76° tangent</b>										
3,700.00	25.76	126.63	3,665.33	-174.21	231.00	14,457,023.57	1,726,813.97	39.80815211	-80.69235382	
3,800.00	25.76	126.63	3,755.39	-200.14	265.88	14,456,997.64	1,726,848.84	39.80808057	-80.69222997	
3,900.00	25.76	126.63	3,845.46	-228.07	300.75	14,456,971.71	1,726,883.72	39.80800903	-80.69210612	
4,000.00	25.76	126.63	3,935.52	-252.00	335.62	14,456,945.78	1,726,918.59	39.80793749	-80.69198227	
4,100.00	25.76	126.63	4,025.59	-277.93	370.49	14,456,919.85	1,726,953.46	39.80786595	-80.69185842	
4,200.00	25.76	126.63	4,115.65	-303.86	405.36	14,456,893.92	1,726,988.33	39.80779441	-80.69173457	
4,300.00	25.76	126.63	4,205.72	-329.79	440.23	14,456,867.99	1,727,023.20	39.80772287	-80.69161073	
4,400.00	25.76	126.63	4,295.78	-355.72	475.10	14,456,842.06	1,727,058.07	39.80765133	-80.69148688	
4,500.00	25.76	126.63	4,385.84	-381.65	509.97	14,456,816.13	1,727,092.94	39.80757979	-80.69136303	
4,600.00	25.76	126.63	4,475.91	-407.58	544.84	14,456,790.20	1,727,127.81	39.80750825	-80.69123918	

SI-01948  
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Planning Report - Geographic

Database:	DB_Jul2218dt_v14	Local Co-ordinate Reference:	Wall Heaven Hill 3-5 HM (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1326 @ 1326.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1326 @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3-5 HM (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev5		

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Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
4,700.00	25.76	126.63	4,565.97	-433.51	579.71	14,456,764.27	1,727,162.66	39.80743671	-80.69111534	
4,800.00	25.76	126.63	4,658.04	-459.44	614.58	14,456,738.34	1,727,187.55	39.80736517	-80.69099149	
4,900.00	25.76	126.63	4,746.10	-485.37	649.45	14,456,712.41	1,727,232.42	39.80729363	-80.69086764	
5,000.00	25.76	126.63	4,836.17	-511.30	684.32	14,456,686.48	1,727,267.29	39.80722209	-80.69074380	
5,100.00	25.76	126.63	4,926.23	-537.23	719.19	14,456,660.55	1,727,302.16	39.80715055	-80.69061995	
5,200.00	25.76	126.63	5,016.30	-563.16	754.07	14,456,634.62	1,727,337.03	39.80707801	-80.69049610	
5,300.00	25.76	126.63	5,106.36	-589.09	788.94	14,456,608.69	1,727,371.91	39.80700746	-80.69037226	
5,400.00	25.76	126.63	5,196.43	-615.02	823.81	14,456,582.76	1,727,406.78	39.80693592	-80.69024841	
5,500.00	25.76	126.63	5,286.49	-640.95	858.68	14,456,556.83	1,727,441.65	39.80686438	-80.69012457	
5,600.00	25.76	126.63	5,376.56	-666.88	893.55	14,456,530.90	1,727,476.52	39.80679284	-80.69000072	
5,700.00	25.76	126.63	5,466.62	-692.81	928.42	14,456,504.97	1,727,511.39	39.80672130	-80.68987688	
5,800.00	25.76	126.63	5,556.69	-718.74	963.29	14,456,479.04	1,727,546.26	39.80664976	-80.68975303	
5,900.00	25.76	126.63	5,646.75	-744.67	998.16	14,456,453.11	1,727,581.13	39.80657821	-80.68962919	
6,000.00	25.76	126.63	5,736.82	-770.60	1,033.03	14,456,427.18	1,727,616.00	39.80650667	-80.68950534	
6,100.00	25.76	126.63	5,826.88	-796.53	1,067.90	14,456,401.25	1,727,650.87	39.80643513	-80.68938150	
6,200.00	25.76	126.63	5,916.95	-822.46	1,102.77	14,456,375.32	1,727,685.74	39.80636359	-80.68925766	
6,300.00	25.76	126.63	6,007.01	-848.39	1,137.64	14,456,349.39	1,727,720.61	39.80629205	-80.68913381	
6,400.00	25.76	126.63	6,097.08	-874.32	1,172.51	14,456,323.46	1,727,755.48	39.80622050	-80.68900997	
6,500.00	25.76	126.63	6,187.14	-900.25	1,207.39	14,456,297.53	1,727,790.35	39.80614896	-80.68888613	
6,600.00	25.76	126.63	6,277.21	-926.18	1,242.26	14,456,271.60	1,727,825.23	39.80607742	-80.68876229	
6,700.00	25.76	126.63	6,367.27	-952.11	1,277.13	14,456,245.67	1,727,860.10	39.80600587	-80.68863844	
6,752.22	25.76	126.63	6,414.30	-965.65	1,295.34	14,456,232.13	1,727,878.31	39.80596851	-80.68857377	
<b>Begin 10°/100' build/turn</b>										
6,800.00	30.12	130.82	6,456.51	-979.69	1,312.75	14,456,218.09	1,727,895.72	39.80592979	-80.68851195	
6,900.00	39.53	136.78	6,538.53	-1,019.39	1,353.63	14,456,178.40	1,727,936.60	39.80582040	-80.68836688	
7,000.00	49.14	140.74	6,609.99	-1,071.99	1,399.47	14,456,125.79	1,727,982.44	39.80567548	-80.68820432	
7,100.00	58.88	143.68	6,668.70	-1,135.92	1,448.88	14,456,061.67	1,728,031.84	39.80549947	-80.68802919	
7,200.00	68.63	146.06	6,712.89	-1,209.21	1,500.35	14,455,988.57	1,728,083.32	39.80529769	-80.68784681	
7,300.00	78.43	148.15	6,741.22	-1,289.65	1,552.33	14,455,908.13	1,728,135.30	39.80507628	-80.68766274	
7,400.00	88.24	150.09	6,752.81	-1,374.79	1,603.23	14,455,822.99	1,728,188.20	39.80484196	-80.68748257	
7,407.73	89.00	150.24	6,753.00	-1,381.50	1,607.07	14,455,816.26	1,728,190.04	39.80482352	-80.68746896	
<b>Begin 89.00° lateral section</b>										
7,500.00	89.00	150.24	6,754.61	-1,461.58	1,652.87	14,455,736.20	1,728,235.84	39.80460314	-80.68730689	
7,600.00	89.00	150.24	6,756.36	-1,548.38	1,702.50	14,455,649.40	1,728,285.47	39.80436430	-80.68713125	
7,700.00	89.00	150.24	6,758.11	-1,635.18	1,752.13	14,455,562.61	1,728,335.10	39.80412546	-80.68695561	
7,800.00	89.00	150.24	6,759.86	-1,721.97	1,801.77	14,455,475.81	1,728,384.74	39.80388663	-80.68677997	
7,900.00	89.00	150.24	6,761.61	-1,808.77	1,851.40	14,455,389.02	1,728,434.37	39.80364779	-80.68660433	
8,000.00	89.00	150.24	6,763.36	-1,895.56	1,901.03	14,455,302.22	1,728,484.00	39.80340895	-80.68642869	
8,100.00	89.00	150.24	6,765.11	-1,982.36	1,950.67	14,455,215.42	1,728,533.64	39.80317011	-80.68625305	
8,200.00	89.00	150.24	6,766.85	-2,069.15	2,000.30	14,455,128.63	1,728,583.27	39.80293127	-80.68607741	
8,300.00	89.00	150.24	6,768.60	-2,155.95	2,049.93	14,455,041.83	1,728,632.90	39.80269243	-80.68590178	
8,400.00	89.00	150.24	6,770.35	-2,242.75	2,099.57	14,454,955.04	1,728,682.54	39.80245359	-80.68572615	
8,500.00	89.00	150.24	6,772.10	-2,329.54	2,149.20	14,454,868.24	1,728,732.17	39.80221474	-80.68555051	
8,600.00	89.00	150.24	6,773.85	-2,416.34	2,198.83	14,454,781.45	1,728,781.80	39.80197590	-80.68537488	
8,700.00	89.00	150.24	6,775.60	-2,503.13	2,248.47	14,454,694.65	1,728,831.44	39.80173706	-80.68519925	
8,800.00	89.00	150.24	6,777.35	-2,589.93	2,298.10	14,454,607.85	1,728,881.07	39.80149822	-80.68502362	
8,900.00	89.00	150.24	6,779.09	-2,676.72	2,347.73	14,454,521.06	1,728,930.70	39.80125938	-80.68484799	
9,000.00	89.00	150.24	6,780.84	-2,763.52	2,397.37	14,454,434.26	1,728,980.33	39.80102054	-80.68467237	
9,100.00	89.00	150.24	6,782.59	-2,850.32	2,447.00	14,454,347.47	1,729,029.97	39.80078169	-80.68449674	
9,200.00	89.00	150.24	6,784.34	-2,937.11	2,496.63	14,454,260.67	1,729,079.60	39.80054285	-80.68432112	
9,300.00	89.00	150.24	6,786.09	-3,023.91	2,546.27	14,454,173.88	1,729,129.23	39.80030401	-80.68414550	
9,400.00	89.00	150.24	6,787.84	-3,110.70	2,595.90	14,454,087.08	1,729,178.87	39.80006516	-80.68396987	
9,500.00	89.00	150.24	6,789.59	-3,197.50	2,645.53	14,454,000.28	1,729,228.50	39.79982632	-80.68379425	
9,600.00	89.00	150.24	6,791.33	-3,284.29	2,695.16	14,453,913.49	1,729,278.13	39.79958748	-80.68361863	



Planning Report - Geographic

<b>Database:</b>	DB_Jul2216dt_v14	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3-5 HM (H)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL=1326 @ 1326.00usft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL=1326 @ 1326.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3-5 HM (H)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev5		

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Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,700.00	89.00	150.24	6,793.08	-3,371.09	2,744.80	14,453,826.69	1,729,327.77	39.79934863	-80.68344302	
9,800.00	89.00	150.24	6,794.83	-3,457.88	2,794.43	14,453,739.90	1,729,377.40	39.79910979	-80.68326740	
9,900.00	89.00	150.24	6,795.58	-3,544.68	2,844.05	14,453,653.10	1,729,427.03	39.79887094	-80.68309178	
10,000.00	89.00	150.24	6,798.33	-3,631.48	2,893.70	14,453,566.31	1,729,476.67	39.79863210	-80.68291617	
10,100.00	89.00	150.24	6,800.08	-3,718.27	2,943.33	14,453,479.51	1,729,526.30	39.79839325	-80.68274056	
10,200.00	89.00	150.24	6,801.83	-3,805.07	2,992.96	14,453,392.71	1,729,575.93	39.79815441	-80.68256494	
10,300.00	89.00	150.24	6,803.58	-3,891.86	3,042.60	14,453,305.92	1,729,625.57	39.79791556	-80.68238933	
10,400.00	89.00	150.24	6,805.32	-3,978.66	3,092.23	14,453,219.12	1,729,675.20	39.79767671	-80.68221372	
10,500.00	89.00	150.24	6,807.07	-4,065.45	3,141.86	14,453,132.33	1,729,724.83	39.79743787	-80.68203811	
10,600.00	89.00	150.24	6,808.82	-4,152.25	3,191.50	14,453,045.53	1,729,774.47	39.79719902	-80.68186251	
10,700.00	89.00	150.24	6,810.57	-4,239.05	3,241.13	14,452,958.74	1,729,824.10	39.79696017	-80.68168690	
10,800.00	89.00	150.24	6,812.32	-4,325.84	3,290.76	14,452,871.94	1,729,873.73	39.79672133	-80.68151130	
10,900.00	89.00	150.24	6,814.07	-4,412.64	3,340.40	14,452,785.15	1,729,923.37	39.79648248	-80.68133569	
11,000.00	89.00	150.24	6,815.82	-4,499.43	3,390.03	14,452,698.35	1,729,973.00	39.79624363	-80.68116009	
11,100.00	89.00	150.24	6,817.56	-4,586.23	3,439.66	14,452,611.55	1,730,022.63	39.79600478	-80.68098449	
11,200.00	89.00	150.24	6,819.31	-4,673.02	3,489.30	14,452,524.76	1,730,072.27	39.79576594	-80.68080889	
11,300.00	89.00	150.24	6,821.06	-4,759.82	3,538.93	14,452,437.96	1,730,121.90	39.79552709	-80.68063329	
11,400.00	89.00	150.24	6,822.81	-4,846.62	3,588.56	14,452,351.17	1,730,171.53	39.79528824	-80.68045769	
11,500.00	89.00	150.24	6,824.56	-4,933.41	3,638.20	14,452,264.37	1,730,221.16	39.79504939	-80.68028210	
11,600.00	89.00	150.24	6,826.31	-5,020.21	3,687.83	14,452,177.58	1,730,270.80	39.79481054	-80.68010650	
11,700.00	89.00	150.24	6,828.06	-5,107.00	3,737.46	14,452,090.78	1,730,320.43	39.79457169	-80.67993091	
11,800.00	89.00	150.24	6,829.80	-5,193.80	3,787.10	14,452,003.98	1,730,370.06	39.79433284	-80.67975532	
11,900.00	89.00	150.24	6,831.55	-5,280.59	3,836.73	14,451,917.19	1,730,419.70	39.79409399	-80.67957972	
12,000.00	89.00	150.24	6,833.30	-5,367.39	3,886.36	14,451,830.39	1,730,469.33	39.79385514	-80.67940413	
12,100.00	89.00	150.24	6,835.05	-5,454.19	3,936.00	14,451,743.60	1,730,518.96	39.79361629	-80.67922855	
12,200.00	89.00	150.24	6,836.80	-5,540.98	3,985.63	14,451,656.80	1,730,568.60	39.79337744	-80.67905296	
12,300.00	89.00	150.24	6,838.55	-5,627.78	4,035.26	14,451,570.01	1,730,618.23	39.79313859	-80.67887737	
12,400.00	89.00	150.24	6,840.30	-5,714.57	4,084.89	14,451,483.21	1,730,667.86	39.79289973	-80.67870179	
12,500.00	89.00	150.24	6,842.04	-5,801.37	4,134.53	14,451,396.41	1,730,717.50	39.79266088	-80.67852620	
12,600.00	89.00	150.24	6,843.79	-5,888.16	4,184.16	14,451,309.62	1,730,767.13	39.79242203	-80.67835062	
12,700.00	89.00	150.24	6,845.54	-5,974.96	4,233.79	14,451,222.82	1,730,816.76	39.79218318	-80.67817504	
12,800.00	89.00	150.24	6,847.29	-6,061.75	4,283.43	14,451,136.03	1,730,866.40	39.79194433	-80.67799946	
12,900.00	89.00	150.24	6,849.04	-6,148.55	4,333.06	14,451,049.23	1,730,916.03	39.79170547	-80.67782388	
13,000.00	89.00	150.24	6,850.79	-6,235.35	4,382.69	14,450,962.44	1,730,965.66	39.79146662	-80.67764830	
13,100.00	89.00	150.24	6,852.54	-6,322.14	4,432.33	14,450,875.64	1,731,015.30	39.79122777	-80.67747272	
13,200.00	89.00	150.24	6,854.29	-6,408.94	4,481.96	14,450,788.84	1,731,064.93	39.79098891	-80.67729715	
13,300.00	89.00	150.24	6,856.03	-6,495.73	4,531.59	14,450,702.05	1,731,114.56	39.79075006	-80.67712157	
13,400.00	89.00	150.24	6,857.78	-6,582.53	4,581.23	14,450,615.25	1,731,164.20	39.79051120	-80.67694600	
13,500.00	89.00	150.24	6,859.53	-6,669.32	4,630.86	14,450,528.46	1,731,213.83	39.79027235	-80.67677043	
13,600.00	89.00	150.24	6,861.28	-6,756.12	4,680.49	14,450,441.66	1,731,263.46	39.79003350	-80.67659486	
13,700.00	89.00	150.24	6,863.03	-6,842.92	4,730.13	14,450,354.87	1,731,313.10	39.78979464	-80.67641929	
13,800.00	89.00	150.24	6,864.78	-6,929.71	4,779.76	14,450,268.07	1,731,362.73	39.78955578	-80.67624372	
13,900.00	89.00	150.24	6,866.53	-7,016.51	4,829.39	14,450,181.28	1,731,412.38	39.78931693	-80.67606815	
14,000.00	89.00	150.24	6,868.27	-7,103.30	4,879.03	14,450,094.48	1,731,461.99	39.78907807	-80.67589258	
14,100.00	89.00	150.24	6,870.02	-7,190.10	4,928.66	14,450,007.68	1,731,511.63	39.78883922	-80.67571702	
14,200.00	89.00	150.24	6,871.77	-7,276.89	4,978.29	14,449,920.89	1,731,561.26	39.78860035	-80.67554146	
14,300.00	89.00	150.24	6,873.52	-7,363.69	5,027.93	14,449,834.09	1,731,610.89	39.78836150	-80.67536589	
14,400.00	89.00	150.24	6,875.27	-7,450.49	5,077.56	14,449,747.30	1,731,660.53	39.78812265	-80.67519033	
14,500.00	89.00	150.24	6,877.02	-7,537.28	5,127.19	14,449,660.50	1,731,710.16	39.78788379	-80.67501477	
14,600.00	89.00	150.24	6,878.77	-7,624.08	5,176.83	14,449,573.71	1,731,759.79	39.78764493	-80.67483921	
14,700.00	89.00	150.24	6,880.51	-7,710.87	5,226.46	14,449,486.91	1,731,809.43	39.78740607	-80.67466366	
14,800.00	89.00	150.24	6,882.26	-7,797.67	5,276.09	14,449,400.11	1,731,859.06	39.78716722	-80.67448810	
14,900.00	89.00	150.24	6,884.01	-7,884.46	5,325.72	14,449,313.32	1,731,908.69	39.78692836	-80.67431254	
15,000.00	89.00	150.24	6,885.76	-7,971.26	5,375.35	14,449,226.52	1,731,958.33	39.78668950	-80.67413699	
15,100.00	89.00	150.24	6,887.51	-8,058.06	5,424.99	14,449,139.73	1,732,007.96	39.78645064	-80.67396144	

51-01948  
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Planning Report - Geographic

Database:	DB_Jul2218dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 3-5 HM (H)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1326 @ 1326.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1326 @ 1326.00usft
Site:	Heaven Hill 3	North Reference:	Grid
Well:	Heaven Hill 3-5 HM (H)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev5		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
15,200.00	89.00	150.24	6,889.26	-8,144.85	5,474.62	14,449,052.93	1,732,057.59	39.78621176	-80.67378589	
15,300.00	89.00	150.24	6,891.01	-8,231.65	5,524.26	14,448,966.14	1,732,107.23	39.78597292	-80.67361034	
15,400.00	89.00	150.24	6,892.75	-8,318.44	5,573.89	14,448,879.34	1,732,156.86	39.78573406	-80.67343479	
15,500.00	89.00	150.24	6,894.50	-8,405.24	5,623.52	14,448,792.54	1,732,206.49	39.78549520	-80.67325924	
15,600.00	89.00	150.24	6,896.25	-8,492.03	5,673.16	14,448,705.75	1,732,256.13	39.78525634	-80.67308369	
15,700.00	89.00	150.24	6,898.00	-8,578.83	5,722.79	14,448,618.95	1,732,305.76	39.78501746	-80.67290815	
15,800.00	89.00	150.24	6,899.75	-8,665.62	5,772.42	14,448,532.16	1,732,355.39	39.78477862	-80.67273280	
15,900.00	89.00	150.24	6,901.50	-8,752.42	5,822.06	14,448,445.36	1,732,405.03	39.78453976	-80.67255706	
16,000.00	89.00	150.24	6,903.25	-8,839.22	5,871.69	14,448,358.57	1,732,454.66	39.78430090	-80.67238152	
16,100.00	89.00	150.24	6,905.00	-8,926.01	5,921.32	14,448,271.77	1,732,504.29	39.78406204	-80.67220598	
16,200.00	89.00	150.24	6,906.74	-9,012.81	5,970.96	14,448,184.97	1,732,553.93	39.78382318	-80.67203044	
16,300.00	89.00	150.24	6,908.49	-9,099.60	6,020.59	14,448,098.18	1,732,603.56	39.78358431	-80.67185490	
16,400.00	89.00	150.24	6,910.24	-9,186.40	6,070.22	14,448,011.38	1,732,653.19	39.78334545	-80.67167936	
16,500.00	89.00	150.24	6,911.99	-9,273.19	6,119.86	14,447,924.59	1,732,702.83	39.78310659	-80.67150383	
16,600.00	89.00	150.24	6,913.74	-9,359.99	6,169.49	14,447,837.79	1,732,752.46	39.78286773	-80.67132829	
16,700.00	89.00	150.24	6,915.49	-9,446.79	6,219.12	14,447,751.00	1,732,802.09	39.78262886	-80.67115276	
16,800.00	89.00	150.24	6,917.24	-9,533.58	6,268.76	14,447,664.20	1,732,851.72	39.78239000	-80.67097723	
16,900.00	89.00	150.24	6,918.99	-9,620.38	6,318.39	14,447,577.41	1,732,901.36	39.78215114	-80.67080170	
17,000.00	89.00	150.24	6,920.73	-9,707.17	6,368.02	14,447,490.61	1,732,950.99	39.78191227	-80.67062617	
17,100.00	89.00	150.24	6,922.48	-9,793.97	6,417.66	14,447,403.81	1,733,000.62	39.78167341	-80.67045064	
17,200.00	89.00	150.24	6,924.23	-9,880.76	6,467.29	14,447,317.02	1,733,050.26	39.78143454	-80.67027511	
17,300.00	89.00	150.24	6,925.98	-9,967.56	6,516.92	14,447,230.22	1,733,099.89	39.78119568	-80.67009958	
17,400.00	89.00	150.24	6,927.73	-10,054.36	6,566.55	14,447,143.43	1,733,149.52	39.78095681	-80.66992406	
17,500.00	89.00	150.24	6,929.48	-10,141.15	6,616.19	14,447,056.63	1,733,199.16	39.78071795	-80.66974854	
17,600.00	89.00	150.24	6,931.22	-10,227.95	6,665.82	14,446,969.84	1,733,248.79	39.78047908	-80.66957301	
17,700.00	89.00	150.24	6,932.97	-10,314.74	6,715.45	14,446,883.04	1,733,298.42	39.78024022	-80.66939749	
17,800.00	89.00	150.24	6,934.72	-10,401.54	6,765.09	14,446,796.24	1,733,348.06	39.78000135	-80.66922197	
17,873.10	89.00	150.24	6,936.00	-10,464.98	6,801.37	14,446,732.80	1,733,384.34	39.77982674	-80.66909367	

PBHL/TD 17873.10 MD/6936.00 TVD

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Heaven Hill 3-5 HM LP ε - hit/miss target - Shape - Point	0.00	0.00	6,753.00	-1,381.50	1,607.07	14,455,816.29	1,728,190.04	39.80482352	-80.68746866	
Heaven Hill 3-5 HM LP r - plan misses target center by 43.31usft at 7362.19usft MD (6751.99 TVD, -1359.40 N, 1594.31 E) - Point	0.00	0.00	6,753.00	-1,381.50	1,557.07	14,455,816.29	1,728,140.04	39.80482400	-80.68764700	
Heaven Hill 3-5 HM BHL - plan hits target center - Point	0.00	0.00	6,936.00	-10,464.98	6,801.37	14,446,732.80	1,733,384.34	39.77982674	-80.66909367	

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Planning Report - Geographic

<b>Database:</b>	DB_Jul2216dt_v14	<b>Local Co-ordinate Reference:</b>	Well Heaven Hill 3-5 HM (H)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL=1326 @ 1326.00usft
<b>Project:</b>	Marshall County, West Virginia	<b>MD Reference:</b>	GL=1326 @ 1326.00usft
<b>Site:</b>	Heaven Hill 3	<b>North Reference:</b>	Grid
<b>Well:</b>	Heaven Hill 3-5 HM (H)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev5		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
120.00	120.00	30" Casing @ 120 TVD	30	36	
1,090.00	1,090.00	13 3/8" Casing @ 1090 TVD	13-3/8	17	
2,802.06	2,800.00	9 5/8" Casing @ 2800 TVD	9-5/8	12-1/4	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,200.00	1,200.00	0.00	0.00	KOP Begin 2°/100' build	
1,350.00	1,349.93	-2.40	3.11	Begin 3.00° tangent	
2,902.20	2,900.00	-52.08	67.38	Begin 2°/100' build	
3,660.77	3,629.99	-164.04	217.32	Begin 25.76° tangent	
6,752.22	6,414.30	-965.65	1,295.34	Begin 10°/100' build/turn	
7,407.73	6,753.00	-1,381.50	1,607.07	Begin 89.00° lateral section	
17,873.10	6,936.00	-10,464.98	6,801.37	PBHL/TD 17873.10 MD/6936.00 TVD	

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(5/13)

Operator's Well No. Heaven Hill 3-5HM

**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

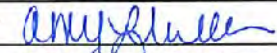
**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

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

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

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

Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment
10*15557	A	9-7-30	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780 226	N/A	N/A
10*15557	B	9-7-21	RICKY L WHITLATCH ET AL	CHEVRON USA INC	1/8+	780 226	N/A	Chevron to Tug Hill: 36/148
10*15486	C	9-7-22	RICHARD NEAL NORRIS AND CAROL NORRIS	TH EXPLORATION LLC	1/8+	905 430	N/A	Chevron to Tug Hill: 36/148
10*15487	C	9-7-22	WILLIAM C RUTAN	TH EXPLORATION LLC	1/8+	905 475	N/A	N/A
10*15489	C	9-7-22	DONALD T SNODGRASS AND LILA F SNODGRASS	TH EXPLORATION LLC	1/8+	915 189	N/A	N/A
10*15492	C	9-7-22	HEATHER WHORTON STILLION AND CHRISTOPHER STILLION	TH EXPLORATION LLC	1/8+	905 473	N/A	N/A
10*15609	C	9-7-22	MICHELLE R WILHELM	CHEVRON USA INC	1/8+	834 456	N/A	Chevron to Tug Hill: 36/148
10*15610	C	9-7-22	SARAH STEVENS	CHEVRON U.S.A. INC.	1/8+	834 432	N/A	Chevron to Tug Hill: 36/148
10*15611	C	9-7-22	ROBERT S ZEHNDER	CHEVRON U.S.A. INC.	1/8+	834 437	N/A	Chevron to Tug Hill: 36/148
10*15612	C	9-7-22	VERA SHIRLENE & ARTHUR WORKMAN	CHEVRON U.S.A. INC.	1/8+	837 361	N/A	Chevron to Tug Hill: 36/148
10*15613	C	9-7-22	THOMAS L STEVENS	CHEVRON U.S.A. INC.	1/8+	836 290	N/A	Chevron to Tug Hill: 36/148
10*15614	C	9-7-22	DAVID F RINE	CHEVRON U.S.A. INC.	1/8+	837 130	N/A	Chevron to Tug Hill: 36/148
10*15615	C	9-7-22	PAUL WAYNE RINE	CHEVRON USA INC	1/8+	837 133	N/A	Chevron to Tug Hill: 36/148
10*15616	C	9-7-22	PHILLIP C RINE	CHEVRON U.S.A. INC.	1/8+	836 332	N/A	Chevron to Tug Hill: 36/148
10*15617	C	9-7-22	GLADYS M RINE	CHEVRON U.S.A. INC.	1/8+	836 329	N/A	Chevron to Tug Hill: 36/148
10*15618	C	9-7-22	CHARLES A RINE	CHEVRON U.S.A. INC.	1/8+	835 22	N/A	Chevron to Tug Hill: 36/148
10*15619	C	9-7-22	SHARON M REYNOLDS	CHEVRON U.S.A. INC.	1/8+	840 322	N/A	Chevron to Tug Hill: 36/148
10*15620	C	9-7-22	GLADYS RUCKMAN	CHEVRON U.S.A. INC.	1/8+	840 319	N/A	Chevron to Tug Hill: 36/148
10*15621	C	9-7-22	KATHERINE A STALMAKER	CHEVRON U.S.A. INC.	1/8+	840 325	N/A	Chevron to Tug Hill: 36/148
10*15622	C	9-7-22	JAY LEROY RINE	CHEVRON U.S.A. INC.	1/8+	840 351	N/A	Chevron to Tug Hill: 36/148
10*15623	C	9-7-22	SUSAN JANE WHEELER	CHEVRON U.S.A. INC.	1/8+	847 473	N/A	Chevron to Tug Hill: 36/148
10*15624	C	9-7-22	RONALD A ZEHNDER	CHEVRON U.S.A. INC.	1/8+	847 213	N/A	Chevron to Tug Hill: 36/148
10*15625	C	9-7-22	LAWRENCE W STRILING	CHEVRON U.S.A. INC.	1/8+	852 384	N/A	Chevron to Tug Hill: 36/148
10*15626	C	9-7-22	ROBERT J SEAVER	CHEVRON U.S.A. INC.	1/8+	854 77	N/A	Chevron to Tug Hill: 36/148
10*15627	C	9-7-22	PAULA R SEAVER	CHEVRON U.S.A. INC.	1/8+	853 483	N/A	Chevron to Tug Hill: 36/148
10*15628	C	9-7-22	JENNIFER SEAVER	CHEVRON U.S.A. INC.	1/8+	853 272	N/A	Chevron to Tug Hill: 36/148
10*15629	C	9-7-22	DANIEL L RINE	CHEVRON U.S.A. INC.	1/8+	860 86	N/A	Chevron to Tug Hill: 36/148
10*15630	C	9-7-22	JANE L HELFER	CHEVRON U.S.A. INC.	1/8+	836 342	N/A	Chevron to Tug Hill: 36/148
10*15631	C	9-7-22	DAVID HEINZEROTH	CHEVRON U.S.A. INC.	1/8+	836 219	N/A	Chevron to Tug Hill: 36/148
10*15632	C	9-7-22	MARIAN D JONES	CHEVRON U.S.A. INC.	1/8+	835 38	N/A	Chevron to Tug Hill: 36/148
10*15633	C	9-7-22	ROGER W GATTS	CHEVRON U.S.A. INC.	1/8+	835 35	N/A	Chevron to Tug Hill: 36/148
10*15634	C	9-7-22	JAMES W DAYTON	CHEVRON U.S.A. INC.	1/8+	847 567	N/A	Chevron to Tug Hill: 36/148
10*15635	C	9-7-22	ELEEN L BETTINAZZI	CHEVRON U.S.A. INC.	1/8+	847 496	N/A	Chevron to Tug Hill: 36/148
10*15636	C	9-7-22	JOSEPH ASTON JR BY HIS ATTORNEY-IN-FACT MELVIN J. ASTON	CHEVRON U.S.A. INC.	1/8+	848 280	N/A	Chevron to Tug Hill: 36/148
10*15637	C	9-7-22	DONALD ASTON	CHEVRON U.S.A. INC.	1/8+	848 274	N/A	Chevron to Tug Hill: 36/148
10*15638	C	9-7-22	PAUL J ASTON A/K/A JACK ASTON	CHEVRON U.S.A. INC.	1/8+	848 277	N/A	Chevron to Tug Hill: 36/148
10*15639	C	9-7-22	DELLA M BURKEY A/K/A MAXINE ASTON	CHEVRON U.S.A. INC.	1/8+	848 435	N/A	Chevron to Tug Hill: 36/148
10*15640	C	9-7-22	EMMA JANE DAVIS A/K/A EMA ASTON	CHEVRON U.S.A. INC.	1/8+	848 271	N/A	Chevron to Tug Hill: 36/148
10*15641	C	9-7-22	HENRY W ASTON	CHEVRON U.S.A. INC.	1/8+	847 138	N/A	Chevron to Tug Hill: 36/148
10*15642	C	9-7-22	KENNETH L DAYTON	CHEVRON U.S.A. INC.	1/8+	852 366	N/A	Chevron to Tug Hill: 36/148
10*15643	C	9-7-22	NORMAN G JOHNSON	CHEVRON U.S.A. INC.	1/8+	848 363	N/A	Chevron to Tug Hill: 36/148
10*15644	C	9-7-22	RONALD BEN LAUGHTON	CHEVRON U.S.A. INC.	1/8+	852 360	N/A	Chevron to Tug Hill: 36/148

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Operator's Well No. Heaven Hill 3 - SHM

Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*15645	C	9-7-22	KAREN K OLDFIELD	CHEVRON U.S.A. INC.	1/8+	854 111	N/A	N/A	Chevron to Tug Hill: 36/148
10*15646	C	9-7-22	JUDITH A CIRONE	CHEVRON USA INC	1/8+	848 428	N/A	N/A	Chevron to Tug Hill: 36/148
10*15647	C	9-7-22	KENNETH WENDELL OLDFIELD	CHEVRON U.S.A. INC.	1/8+	861 589	N/A	N/A	Chevron to Tug Hill: 36/148
10*15648	C	9-7-22	MARTHA CRAWFORD	CHEVRON U.S.A. INC.	1/8+	863 542	N/A	N/A	Chevron to Tug Hill: 36/148
10*15649	C	9-7-22	MARY JANE DANIEL	CHEVRON U.S.A. INC.	1/8+	858 28	N/A	N/A	Chevron to Tug Hill: 36/148
10*15650	C	9-7-22	MARY GLADYS KUHN BY ATTORNEY IN FACT CONNIE LYONS	CHEVRON USA INC	1/8+	860 89	N/A	N/A	Chevron to Tug Hill: 36/148
10*15651	C	9-7-22	THOMAS G ASTON	CHEVRON U.S.A. INC.	1/8+	860 83	N/A	N/A	Chevron to Tug Hill: 36/148
10*15652	C	9-7-22	ISAAC R ASTON A/K/A IKE ASTON	CHEVRON U.S.A. INC.	1/8+	886 136	N/A	N/A	Chevron to Tug Hill: 36/148
10*15653	C	9-7-22	EMILY M HENCEROTH	CHEVRON U.S.A. INC.	1/8+	862 574	N/A	N/A	Chevron to Tug Hill: 36/148
10*15654	C	9-7-22	GEORGE E HENNIGER	CHEVRON U.S.A. INC.	1/8+	863 612	N/A	N/A	Chevron to Tug Hill: 36/148
10*15655	C	9-7-22	ANNA EMERSON A/K/A ANNIE ASTON	CHEVRON U.S.A. INC.	1/8+	864 603	N/A	N/A	Chevron to Tug Hill: 36/148
10*15656	C	9-7-22	PATTY L MYERS	CHEVRON U.S.A. INC.	1/8+	867 100	N/A	N/A	Chevron to Tug Hill: 36/148
10*15657	C	9-7-22	MARY MARGARET ASTON	CHEVRON U.S.A. INC.	1/8+	868 283	N/A	N/A	Chevron to Tug Hill: 36/148
10*15658	C	9-7-22	GLEN MATTHEW LAUGHTON	CHEVRON USA INC	1/8+	873 324	N/A	N/A	Chevron to Tug Hill: 36/148
10*15659	C	9-7-22	WILLIAM E DAYTON BY HIS AIF	CHEVRON U.S.A. INC.	1/8+	871 190	N/A	N/A	Chevron to Tug Hill: 36/148
10*15660	C	9-7-22	DOUGLAS PAUL HENCEROTH BY HIS AIF	CHEVRON U.S.A. INC.	1/8+	871 193	N/A	N/A	Chevron to Tug Hill: 36/148
10*15662	C	9-7-22	LARRY LEE CONKLE	CHEVRON U.S.A. INC.	1/8+	863 354	N/A	N/A	Chevron to Tug Hill: 36/148
10*15663	C	9-7-22	ROY A CONKLE SR	CHEVRON USA INC	1/8+	863 311	N/A	N/A	Chevron to Tug Hill: 36/148
10*15664	C	9-7-22	THERESA ANNE HUGHES	CHEVRON USA INC	1/8+	863 343	N/A	N/A	Chevron to Tug Hill: 36/148
10*15666	C	9-7-22	BRENDA J WHETZEL	CHEVRON USA INC	1/8+	863 635	N/A	N/A	Chevron to Tug Hill: 36/148
10*15673	C	9-7-22	DIANE B ASTON	CHEVRON U.S.A. INC.	1/8+	864 595	N/A	N/A	Chevron to Tug Hill: 36/148
10*15679	C	9-7-22	CARA BONAR FREESE AND GEORGE H FREESE	TH EXPLORATION LLC	1/8+	905 481	N/A	N/A	N/A
10*15680	C	9-7-22	ROBERTA JANE CLAYTON	TH EXPLORATION LLC	1/8+	905 485	N/A	N/A	N/A
10*15688	C	9-7-22	JOSH GARY AND CHRISTINA M GARY	TH EXPLORATION LLC	1/8+	905 487	N/A	N/A	N/A
10*15689	C	9-7-22	JOHN LEROY BAKER AND CNTHIA A BAKER	TH EXPLORATION LLC	1/8+	905 491	N/A	N/A	N/A
10*15690	C	9-7-22	ROBERT WHORTON AND LINDSAY WHORTON	TH EXPLORATION LLC	1/8+	905 489	N/A	N/A	N/A
10*15728	C	9-7-22	MARY LOU KITTELBERGER AND FREDERICK W KITTELBERGER	TH EXPLORATION LLC	1/8+	905 483	N/A	N/A	N/A
10*15729	C	9-7-22	DONNA KAY ALLEN AND ROGER ALLEN	TH EXPLORATION LLC	1/8+	905 493	N/A	N/A	N/A
10*15747	C	9-7-22	WILLIAM H BAKER	TH EXPLORATION LLC	1/8+	905 499	N/A	N/A	N/A
10*15748	C	9-7-22	CAROLYN LEE FUREY AND MARTIN J FUREY	TH EXPLORATION LLC	1/8+	905 495	N/A	N/A	N/A
10*15749	C	9-7-22	DIANA SMITH KNIGHT	TH EXPLORATION LLC	1/8+	905 497	N/A	N/A	N/A
10*16019	C	9-7-22	ROGER E GALLAGHER AND CONIE M GALLAGHER	TH EXPLORATION LLC	1/8+	905 503	N/A	N/A	N/A
10*16029	C	9-7-22	MARTHA ASHWORTH KNIGHT	TH EXPLORATION LLC	1/8+	905 505	N/A	N/A	N/A
10*16049	C	9-7-22	DANNY SHAWN KERNS AND AMY LYNN KERNS	TH EXPLORATION LLC	1/8+	905 518	N/A	N/A	N/A
10*16050	C	9-7-22	WILLIAM L GALLAGHER	TH EXPLORATION LLC	1/8+	905 512	N/A	N/A	N/A
10*16114	C	9-7-22	ROBERT SANDFORD BLACK AND JOAN BLACK	TH EXPLORATION LLC	1/8+	905 510	N/A	N/A	N/A
10*16123	C	9-7-22	PHYLLIS R GATTO	TH EXPLORATION LLC	1/8+	905 520	N/A	N/A	N/A
10*16177	C	9-7-22	JOSEPHINE BROWN	TH EXPLORATION LLC	1/8+	905 530	N/A	N/A	N/A
10*16179	C	9-7-22	DANA BERRY COPELAND	TH EXPLORATION LLC	1/8+	905 532	N/A	N/A	N/A
10*16287	C	9-7-22	CHARLINE M ENGLE AND KEVIN E ENGLE	TH EXPLORATION LLC	1/8+	905 534	N/A	N/A	N/A
10*16295	C	9-7-22	DONALD H SNYDER JR AND KAREN S SNYDER	TH EXPLORATION LLC	1/8+	903 183	N/A	N/A	N/A
10*16384	C	9-7-22	DANIELLE BONAR OSTER AND LOUIS MICHAEL OSTER	TH EXPLORATION LLC	1/8+	905 501	N/A	N/A	N/A

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Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment
10*16389	C	9-7-22	CHARLES BERRY	TH EXPLORATION LLC	1/8+	905 508	N/A	N/A
10*16423	C	9-7-22	GAIL L. VAUGHN & LARRY L. VAUGHN	TH EXPLORATION LLC	1/8+	905 536	N/A	N/A
10*16426	C	9-7-22	RENE J RUTAN	TH EXPLORATION, LLC	1/8+	905 538	N/A	N/A
10*16440	C	9-7-22	MELANIE C WILKINS AND ROBERT WILKINS	TH EXPLORATION LLC	1/8+	927 462	N/A	N/A
10*16501	C	9-7-22	LLOYD DOYLE MOORE AND GWENDOLYN K MOORE	TH EXPLORATION LLC	1/8+	907 392	N/A	N/A
10*16513	C	9-7-22	LOWELL D AND JANICE L KNIGHT	TH EXPLORATION LLC	1/8+	927 458	N/A	N/A
10*16546	C	9-7-22	WALTER C AND CHERYL A RINE	TH EXPLORATION LLC	1/8+	927 456	N/A	N/A
10*16553	C	9-7-22	MARK EDWARD AND KARRIE A GOODMAN	TH EXPLORATION LLC	1/8+	909 81	N/A	N/A
10*16558	C	9-7-22	PAUL BONAR KNIGHT AND SUZANNE L HOPKINS-KNIGHT	TH EXPLORATION LLC	1/8+	927 460	N/A	N/A
10*16571	C	9-7-22	GRACE LAURA BONAR	TH EXPLORATION LLC	1/8+	907 411	N/A	N/A
10*16585	C	9-7-22	DALE BRIAN GOODMAN	TH EXPLORATION LLC	1/8+	909 506	N/A	N/A
10*16588	C	9-7-22	EDWIN M KNABENSHUE ADMINISTRATOR OF THE ESTATE OF SARAH J KNABENSHUE, DECEASED	TH EXPLORATION LLC	1/8+	907 408	N/A	N/A
10*16589	C	9-7-22	MARY L WHITTINGTON	TH EXPLORATION LLC	1/8+	907 400	N/A	N/A
10*16719	C	9-7-22	HOWARD T CONNER AND NANETTE CONNER	TH EXPLORATION LLC	1/8+	912 37	N/A	N/A
10*16844	C	9-7-22	HOLLY A LONGFELLOW	TH EXPLORATION LLC	1/8+	927 454	N/A	N/A
10*16845	C	9-7-22	TRACY L AND KEITH W BARNEY	TH EXPLORATION LLC	1/8+	927 452	N/A	N/A
10*16896	C	9-7-22	MARTHA J BLACK	TH EXPLORATION LLC	1/8+	927 450	N/A	N/A
10*17296	C	9-7-22	DANIEL W HEINZEROTH AND KATHLEEN E HEINZEROTH	TH EXPLORATION LLC	1/8+	914 528	N/A	N/A
10*17365	C	9-7-22	MYSTI JOANNE GOODMAN	TH EXPLORATION LLC	1/8+	927 468	N/A	N/A
10*17370	C	9-7-22	KELLY JUNE GOODMAN	TH EXPLORATION LLC	1/8+	927 470	N/A	N/A
10*17497	C	9-7-22	SUZANNA DOOLING AND MICHAEL DOOLING	TH EXPLORATION LLC	1/8+	927 464	N/A	N/A
10*17584	C	9-7-22	WILLIAM THOMAS BONAR AND MONICA BONAR	TH EXPLORATION LLC	1/8+	927 466	N/A	N/A
10*47051.295.10	C	9-7-22	DEENA J PALOMO	TH EXPLORATION LLC	1/8+	905 470	N/A	N/A
10*47051.295.11	C	9-7-22	REGINA D FIGUEROA AND DAVID FIGUEROA	TH EXPLORATION LLC	1/8+	905 435	N/A	N/A
10*47051.295.12	C	9-7-22	EARL D WELLMAN	TH EXPLORATION LLC	1/8+	905 432	N/A	N/A
10*47051.295.13	C	9-7-22	THE DOLLYE F WOOD REVOCABLE TRUST BY NICHOLAS CHARLES WOOD AS TRUSTEE	TH EXPLORATION LLC	1/8+	904 641	N/A	N/A
10*47051.295.3	C	9-7-22	HAZEL ARIZONA MOORE REYNOLDS	TH EXPLORATION LLC	1/8+	904 632	N/A	N/A
10*47051.295.4	C	9-7-22	LLOYD D MOORE	TH EXPLORATION LLC	1/8+	904 459	N/A	N/A
10*47051.295.5	C	9-7-22	DALE R MOORE	TH EXPLORATION LLC	1/8+	904 635	N/A	N/A
10*47051.295.6	C	9-7-22	MARY I BURKHART	TH EXPLORATION LLC	1/8+	904 638	N/A	N/A
10*47051.295.7	C	9-7-22	JEANNE V MELCHIORI	TH EXPLORATION LLC	1/8+	904 462	N/A	N/A
10*47051.295.9	C	9-7-22	JAMES E HIMELRICK JR AND KAREN HIMELRICK	TH EXPLORATION LLC	1/8+	904 465	N/A	N/A
10*15746	D	9-7-23	BRUCE D SCHURR	TH EXPLORATION LLC	1/8+	921 478	N/A	N/A
10*16021	D	9-7-23	TOMMY BONAR AND TANYA S BONAR	TH EXPLORATION LLC	1/8+	925 325	N/A	N/A
10*16115	D	9-7-23	EARL W HARRIS	TH EXPLORATION LLC	1/8+	925 329	N/A	N/A
10*16121	D	9-7-23	ISAAH BENNETT BY K SHERINGTON	TH EXPLORATION LLC	1/8+	933 105	N/A	N/A
10*16247	D	9-7-23	CAROL RIGGLE PARSLEY AND JAMES DENNIS PARSLEY	TH EXPLORATION LLC	1/8+	925 327	N/A	N/A
10*17415	D	9-7-23	DILLON PITSENBARGER	TH EXPLORATION LLC	1/8+	919 241	N/A	N/A
10*17506	D	9-7-23	CHASKIA F HARRIS AND JAMES M HARRIS	TH EXPLORATION LLC	1/8+	919 239	N/A	N/A
10*17507	D	9-7-23	DEZRAY METCALF	TH EXPLORATION LLC	1/8+	919 235	N/A	N/A

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Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*17508	D	9-7-23	DILLION PITSENBARGER	TH EXPLORATION, LLC	1/8+	919 241	N/A	N/A	N/A
10*47051.256.1	D	9-7-23	BRENDA J WHEZEL	TH EXPLORATION LLC	1/8+	881 145	N/A	N/A	N/A
10*47051.256.10	D	9-7-23	GRACE LAURA BONAR	TH EXPLORATION LLC	1/8+	905 35	N/A	N/A	N/A
10*47051.256.11	D	9-7-23	JOHN L MASON	TH EXPLORATION LLC	1/8+	905 37	N/A	N/A	N/A
10*47051.256.12	D	9-7-23	STEVEN A BOHRER	TH EXPLORATION LLC	1/8+	905 39	N/A	N/A	N/A
10*47051.256.13	D	9-7-23	WILLIAM W CRAIG AND GLENDA L CRAIG	TH EXPLORATION LLC	1/8+	905 41	N/A	N/A	N/A
10*47051.256.14	D	9-7-23	HUGH R BUZZARD	TH EXPLORATION LLC	1/8+	905 43	N/A	N/A	N/A
10*47051.256.15	D	9-7-23	CHARLOTTE J BONAR YOHO	TH EXPLORATION LLC	1/8+	904 455	N/A	N/A	N/A
10*47051.256.16	D	9-7-23	CHARLOTTE B HUMMELL	TH EXPLORATION LLC	1/8+	905 45	N/A	N/A	N/A
10*47051.256.17	D	9-7-23	MAXINE G JOHNSON	TH EXPLORATION LLC	1/8+	904 457	N/A	N/A	N/A
10*47051.256.18	D	9-7-23	JOHN WILLIAM BONAR AND SHIRLEY BONAR	TH EXPLORATION LLC	1/8+	913 522	N/A	N/A	N/A
10*47051.256.19	D	9-7-23	MICHAEL DAVID PYLES AND CYNTHIA A PYLES	TH EXPLORATION LLC	1/8+	907 207	N/A	N/A	N/A
10*47051.256.20	D	9-7-23	JEFFREY THOMAS PYLES AND TERESA A PYLES	TH EXPLORATION LLC	1/8+	907 209	N/A	N/A	N/A
10*47051.256.21	D	9-7-23	JACK L MASON AND JEAN M MASON	TH EXPLORATION LLC	1/8+	904 626	N/A	N/A	N/A
10*47051.256.22	D	9-7-23	BEVERLY J HOPSON	TH EXPLORATION LLC	1/8+	913 581	N/A	N/A	N/A
10*47051.256.23	D	9-7-23	ROBERT L BONAR	TH EXPLORATION LLC	1/8+	913 556	N/A	N/A	N/A
10*47051.256.24	D	9-7-23	CATHERINE BONAR PETTIT BILLIE	TH EXPLORATION LLC	1/8+	904 628	N/A	N/A	N/A
10*47051.256.7	D	9-7-23	MARILYN SUE BUMER	TH EXPLORATION LLC	1/8+	905 29	N/A	N/A	N/A
10*47051.256.8	D	9-7-23	PAMELA ANN MASON	TH EXPLORATION LLC	1/8+	905 31	N/A	N/A	N/A
10*47051.256.9	D	9-7-23	WANDA MASON SUNSHINE	TH EXPLORATION LLC	1/8+	905 33	N/A	N/A	N/A
10*15662	E	9-7-24	LARRY LEE CONKLE	CHEVRON U.S.A. INC.	1/8+	863 354	N/A	N/A	Chevron to Tug Hill: 36/148
10*15663	E	9-7-24	ROY A CONKLE SR	CHEVRON USA INC	1/8+	863 311	N/A	N/A	Chevron to Tug Hill: 36/148
10*15664	E	9-7-24	THERESA ANNE HUGHES	CHEVRON USA INC	1/8+	863 343	N/A	N/A	Chevron to Tug Hill: 36/148
10*15666	E	9-7-24	BRENDA J WHEZEL	CHEVRON USA INC	1/8+	863 635	N/A	N/A	Chevron to Tug Hill: 36/148
10*16049	E	9-7-24	DANNY SHAWN KERNS AND AMY LYNN KERNS	TH EXPLORATION LLC	1/8+	905 518	N/A	N/A	N/A
10*16501	E	9-7-24	LOYD DOYLE MOORE AND GWENDOLYN K MOORE	TH EXPLORATION LLC	1/8+	907 392	N/A	N/A	N/A
10*16553	E	9-7-24	MARK EDWARD AND KARRIE A GOODMAN	TH EXPLORATION LLC	1/8+	909 81	N/A	N/A	N/A
10*16585	E	9-7-24	DALE BRIAN GOODMAN	TH EXPLORATION LLC	1/8+	909 506	N/A	N/A	N/A
10*17365	E	9-7-24	MYSTI JOANNE GOODMAN	TH EXPLORATION LLC	1/8+	927 468	N/A	N/A	N/A
10*17370	E	9-7-24	KELLY JUNE GOODMAN	TH EXPLORATION LLC	1/8+	927 470	N/A	N/A	N/A
10*47051.295.10	E	9-7-24	DEENA J PALOMO	TH EXPLORATION LLC	1/8+	905 470	N/A	N/A	N/A
10*47051.295.11	E	9-7-24	REGINA D FIGUEROA AND DAVID FIGUEROA	TH EXPLORATION LLC	1/8+	905 435	N/A	N/A	N/A
10*47051.295.12	E	9-7-24	EARL D WELLMAN	TH EXPLORATION LLC	1/8+	905 432	N/A	N/A	N/A
10*47051.295.13	E	9-7-24	THE DOLLYE F WOOD REVOCABLE TRUST BY NICHOLAS CHARLES WOOD	TH EXPLORATION LLC	1/8+	904 641	N/A	N/A	N/A
10*47051.295.3	E	9-7-24	AS TRUSTEE	TH EXPLORATION LLC	1/8+	904 632	N/A	N/A	N/A
10*47051.295.4	E	9-7-24	HAZEL ARIZONA MOORE REYNOLDS	TH EXPLORATION LLC	1/8+	904 459	N/A	N/A	N/A
10*47051.295.5	E	9-7-24	LOYD D MOORE	TH EXPLORATION LLC	1/8+	904 635	N/A	N/A	N/A
10*47051.295.6	E	9-7-24	DALE R MOORE	TH EXPLORATION LLC	1/8+	904 638	N/A	N/A	N/A
10*47051.295.7	E	9-7-24	MARY I BURKHART	TH EXPLORATION LLC	1/8+	904 462	N/A	N/A	N/A
10*47051.295.9	E	9-7-24	JEANNE V MELCHIORI	TH EXPLORATION LLC	1/8+	904 465	N/A	N/A	N/A
10*15746	F	9-11-7	JAMES E HIMELRICK JR AND KAREN HIMELRICK	TH EXPLORATION LLC	1/8+	921 478	N/A	N/A	N/A
			BRUCE D SCHURR	TH EXPLORATION LLC					N/A

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10*16021	F	9-11-7	TOMMY BONAR AND TANVA S BONAR	TH EXPLORATION LLC	1/8+	925 325	N/A	N/A	N/A
10*16115	F	9-11-7	EARL W HARRIS	TH EXPLORATION LLC	1/8+	925 329	N/A	N/A	N/A
10*16247	F	9-11-7	CAROL RIGGLE PARSLEY AND JAMES DENNIS PARSLEY	TH EXPLORATION LLC	1/8+	925 327	N/A	N/A	N/A
10*17415	F	9-11-7	DILLON PITSENBARGER	TH EXPLORATION LLC	1/8+	919 241	N/A	N/A	N/A
10*17506	F	9-11-7	CHASKIA F HARRIS AND JAMES M HARRIS	TH EXPLORATION LLC	1/8+	919 239	N/A	N/A	N/A
10*17507	F	9-11-7	DEZRAY METCALF	TH EXPLORATION LLC	1/8+	919 235	N/A	N/A	N/A
10*47051.256.1	F	9-11-7	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	881 145	N/A	N/A	N/A
10*47051.256.10	F	9-11-7	GRACE LAURA BONAR	TH EXPLORATION LLC	1/8+	905 35	N/A	N/A	N/A
10*47051.256.11	F	9-11-7	JOHN L MASON	TH EXPLORATION LLC	1/8+	905 37	N/A	N/A	N/A
10*47051.256.12	F	9-11-7	STEVEN A BOHRER	TH EXPLORATION LLC	1/8+	905 39	N/A	N/A	N/A
10*47051.256.13	F	9-11-7	WILLIAM W CRAIG AND GLENDA L CRAIG	TH EXPLORATION LLC	1/8+	905 41	N/A	N/A	N/A
10*47051.256.14	F	9-11-7	HUGH R BUZZARD	TH EXPLORATION LLC	1/8+	905 43	N/A	N/A	N/A
10*47051.256.15	F	9-11-7	CHARLOTTE J BONAR YOHO	TH EXPLORATION LLC	1/8+	904 455	N/A	N/A	N/A
10*47051.256.16	F	9-11-7	CHARLOTTE B HUMMELL	TH EXPLORATION LLC	1/8+	905 45	N/A	N/A	N/A
10*47051.256.17	F	9-11-7	MAXINE G JOHNSON	TH EXPLORATION LLC	1/8+	904 457	N/A	N/A	N/A
10*47051.256.18	F	9-11-7	JOHN WILLIAM BONAR AND SHIRLEY BONAR	TH EXPLORATION LLC	1/8+	913 522	N/A	N/A	N/A
10*47051.256.19	F	9-11-7	MICHAEL DAVID PYLES AND CYNTHIA A PYLES	TH EXPLORATION LLC	1/8+	907 207	N/A	N/A	N/A
10*47051.256.20	F	9-11-7	JEFFREY THOMAS PYLES AND TERESA A PYLES	TH EXPLORATION LLC	1/8+	907 209	N/A	N/A	N/A
10*47051.256.21	F	9-11-7	JACK L MASON AND JEAN M MASON	TH EXPLORATION LLC	1/8+	904 626	N/A	N/A	N/A
10*47051.256.22	F	9-11-7	BEVERLY J HOPSON	TH EXPLORATION LLC	1/8+	913 581	N/A	N/A	N/A
10*47051.256.23	F	9-11-7	ROBERT L BONAR	TH EXPLORATION LLC	1/8+	913 556	N/A	N/A	N/A
10*47051.256.24	F	9-11-7	CATHERINE BONAR PETTIT BILLIE	TH EXPLORATION LLC	1/8+	904 628	N/A	N/A	N/A
10*47051.256.7	F	9-11-7	MARILYN SUE BUMER	TH EXPLORATION LLC	1/8+	905 29	N/A	N/A	N/A
10*47051.256.8	F	9-11-7	PAMELA ANN MASON	TH EXPLORATION LLC	1/8+	905 31	N/A	N/A	N/A
10*47051.256.9	F	9-11-7	WANDA MASON SUNSHINE	TH EXPLORATION LLC	1/8+	905 33	N/A	N/A	N/A
10*15746	G	9-11-7.1	BRUCE D SCHURR	TH EXPLORATION LLC	1/8+	921 478	N/A	N/A	N/A
10*16021	G	9-11-7.1	TOMMY BONAR AND TANVA S BONAR	TH EXPLORATION LLC	1/8+	925 325	N/A	N/A	N/A
10*16115	G	9-11-7.1	EARL W HARRIS	TH EXPLORATION LLC	1/8+	925 329	N/A	N/A	N/A
10*16247	G	9-11-7.1	CAROL RIGGLE PARSLEY AND JAMES DENNIS PARSLEY	TH EXPLORATION LLC	1/8+	919 241	N/A	N/A	N/A
10*17415	G	9-11-7.1	DILLON PITSENBARGER	TH EXPLORATION LLC	1/8+	919 239	N/A	N/A	N/A
10*17506	G	9-11-7.1	CHASKIA F HARRIS AND JAMES M HARRIS	TH EXPLORATION LLC	1/8+	919 235	N/A	N/A	N/A
10*17507	G	9-11-7.1	DEZRAY METCALF	TH EXPLORATION LLC	1/8+	881 145	N/A	N/A	N/A
10*47051.256.1	G	9-11-7.1	BRENDA J WHETZEL	TH EXPLORATION LLC	1/8+	905 35	N/A	N/A	N/A
10*47051.256.10	G	9-11-7.1	GRACE LAURA BONAR	TH EXPLORATION LLC	1/8+	905 37	N/A	N/A	N/A
10*47051.256.11	G	9-11-7.1	JOHN L MASON	TH EXPLORATION LLC	1/8+	905 39	N/A	N/A	N/A
10*47051.256.12	G	9-11-7.1	STEVEN A BOHRER	TH EXPLORATION LLC	1/8+	905 41	N/A	N/A	N/A
10*47051.256.13	G	9-11-7.1	WILLIAM W CRAIG AND GLENDA L CRAIG	TH EXPLORATION LLC	1/8+	905 43	N/A	N/A	N/A
10*47051.256.14	G	9-11-7.1	HUGH R BUZZARD	TH EXPLORATION LLC	1/8+	904 455	N/A	N/A	N/A
10*47051.256.15	G	9-11-7.1	CHARLOTTE J BONAR YOHO	TH EXPLORATION LLC	1/8+	905 45	N/A	N/A	N/A
10*47051.256.16	G	9-11-7.1	CHARLOTTE B HUMMELL	TH EXPLORATION LLC	1/8+	904 457	N/A	N/A	N/A
10*47051.256.17	G	9-11-7.1	MAXINE G JOHNSON	TH EXPLORATION LLC	1/8+	913 522	N/A	N/A	N/A
10*47051.256.18	G	9-11-7.1	JOHN WILLIAM BONAR AND SHIRLEY BONAR	TH EXPLORATION LLC	1/8+	913 522	N/A	N/A	N/A

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10*47051.256.19	G	9-11-7.1	MICHAEL DAVID PYLES AND CYNTHIA A PYLES	TH EXPLORATION LLC	1/8+	907 207	N/A	N/A	N/A
10*47051.256.20	G	9-11-7.1	JEFFREY THOMAS PYLES AND TERESA A PYLES	TH EXPLORATION LLC	1/8+	907 209	N/A	N/A	N/A
10*47051.256.21	G	9-11-7.1	JACK L MASON AND JEAN M MASON	TH EXPLORATION LLC	1/8+	904 626	N/A	N/A	N/A
10*47051.256.22	G	9-11-7.1	BEVERLY J HOPSON	TH EXPLORATION LLC	1/8+	913 581	N/A	N/A	N/A
10*47051.256.23	G	9-11-7.1	ROBERT L BONAR	TH EXPLORATION LLC	1/8+	913 556	N/A	N/A	N/A
10*47051.256.24	G	9-11-7.1	CATHERINE BONAR PETTIT BILLIE	TH EXPLORATION LLC	1/8+	904 628	N/A	N/A	N/A
10*47051.256.7	G	9-11-7.1	MARILYN SUE BUMER	TH EXPLORATION LLC	1/8+	905 29	N/A	N/A	N/A
10*47051.256.8	G	9-11-7.1	PAMELA ANN MASON	TH EXPLORATION LLC	1/8+	905 31	N/A	N/A	N/A
10*47051.256.9	G	9-11-7.1	WANDA MASON SUNSHINE	TH EXPLORATION LLC	1/8+	905 33	N/A	N/A	N/A
10*15463	H	9-11-8	CHARLES A RINE	TH EXPLORATION LLC	1/8+	908 274	N/A	N/A	N/A
10*15481	H	9-11-8	DEAN P RIGBY AND SUSAN RIGBY	TH EXPLORATION LLC	1/8+	908 197	N/A	N/A	N/A
10*15482	H	9-11-8	SUSAN NELSON	TH EXPLORATION LLC	1/8+	908 203	N/A	N/A	N/A
10*15686	H	9-11-8	JOHN OMER BOLTZ	TH EXPLORATION LLC	1/8+	908 160	N/A	N/A	N/A
10*15750	H	9-11-8	SANDRA K TRULL	TH EXPLORATION LLC	1/8+	908 229	N/A	N/A	N/A
10*16058	H	9-11-8	MATTIE RUTH JACKSON PRESCOTT	TH EXPLORATION LLC	1/8+	908 231	N/A	N/A	N/A
10*16118	H	9-11-8	RUBY RIDDLER JACKSON	TH EXPLORATION LLC	1/8+	908 233	N/A	N/A	N/A
10*16297	H	9-11-8	ROBERT A LEADBETTER AND M REBECCA LEADBETTER	TH EXPLORATION LLC	1/8+	908 235	N/A	N/A	N/A
10*16298	H	9-11-8	GEOFFREY A SHIEFER AND STEPHANIE L SCHIEFER	TH EXPLORATION LLC	1/8+	908 238	N/A	N/A	N/A
10*16383	H	9-11-8	ROBERT STEPHEN DRIGGERS	TH EXPLORATION LLC	1/8+	908 224	N/A	N/A	N/A
10*16414	H	9-11-8	MARY ELIZABETH DRIGGERS	TH EXPLORATION, LCC	1/8+	908 208	N/A	N/A	N/A
10*16415	H	9-11-8	TERENCE J & NANCY J ANDERSON	TH EXPLORATION, LCC	1/8+	908 213	N/A	N/A	N/A
10*16416	H	9-11-8	CYNTHIA HUDSON	TH EXPLORATION, LCC	1/8+	908 219	N/A	N/A	N/A
10*16424	H	9-11-8	ROBERT J RIGBY	TH EXPLORATION, LLC	1/8+	908 241	N/A	N/A	N/A
10*16448	H	9-11-8	RALPH L AND JUANITA L CRIM	TH EXPLORATION LLC	1/8+	908 584	N/A	N/A	N/A
10*16478	H	9-11-8	MARION L AND EMILY CAMPBELL	TH EXPLORATION LLC	1/8+	908 245	N/A	N/A	N/A
10*16514	H	9-11-8	ALEX RUSSELL AND JOYCE A CAMPBELL	TH EXPLORATION LLC	1/8+	908 248	N/A	N/A	N/A
10*16515	H	9-11-8	ANNA MARIE JACKSON	TH EXPLORATION LLC	1/8+	908 251	N/A	N/A	N/A
10*16516	H	9-11-8	WILSON ANDREW JACKSON	TH EXPLORATION LLC	1/8+	908 253	N/A	N/A	N/A
10*16545	H	9-11-8	ROBERT G & ELLEN FOUNDS	TH EXPLORATION LLC	1/8+	908 260	N/A	N/A	N/A
10*16662	H	9-11-8	RICHARD THOMAS AND VICKI J MIMS	TH EXPLORATION LLC	1/8+	908 863	N/A	N/A	N/A
10*16666	H	9-11-8	MICHAEL P PYLE	TH EXPLORATION LLC	1/8+	908 255	N/A	N/A	N/A
10*16667	H	9-11-8	CHARLES F AND GAIL ANN PYLE	TH EXPLORATION LLC	1/8+	908 266	N/A	N/A	N/A
10*16668	H	9-11-8	JACK I AND MERRILEE PYLE	TH EXPLORATION LLC	1/8+	908 257	N/A	N/A	N/A
10*16669	H	9-11-8	JOHN S AND PATRICIA S DADO	TH EXPLORATION LLC	1/8+	908 269	N/A	N/A	N/A
10*16686	H	9-11-8	CHERYLE M TRACEY	TH EXPLORATION LLC	1/8+	927 475	N/A	N/A	N/A
10*16688	H	9-11-8	SHERYL PYLE BAIR	TH EXPLORATION LLC	1/8+	927 481	N/A	N/A	N/A
10*16689	H	9-11-8	JOHN C FOUNDS	TH EXPLORATION LLC	1/8+	927 490	N/A	N/A	N/A
10*16690	H	9-11-8	RICARDO ORTIZ	TH EXPLORATION LLC	1/8+	921 352	N/A	N/A	N/A
10*16720	H	9-11-8	DONNA ELAINE BRASKETT	TH EXPLORATION LLC	1/8+	921 152	N/A	N/A	N/A
10*16742	H	9-11-8	PAUL C WILSON	TH EXPLORATION LLC	1/8+	927 490	N/A	N/A	N/A
10*16747	H	9-11-8	WILLIAM DALE BRASKETT	TH EXPLORATION LLC	1/8+	921 96	N/A	N/A	N/A
10*16798	H	9-11-8	PATRICK A RANKIN AND ROBIN A RANKIN	TH EXPLORATION LLC	1/8+	921 364	N/A	N/A	N/A

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10*16800	H	9-11-8	JAMES KENNETH JACKSON AND JULIE JACKSON	TH EXPLORATION LLC	1/8+	921 93	N/A	N/A	N/A
10*16802	H	9-11-8	CHRISTOPHER AND TAMMY RICHARDSON	TH EXPLORATION LLC	1/8+	921 495	N/A	N/A	N/A
10*16804	H	9-11-8	WILLIAM N AND SHERRY D TAYLOR	TH EXPLORATION LLC	1/8+	921 510	N/A	N/A	N/A
10*16806	H	9-11-8	VIRGINIA I WHITMAN	TH EXPLORATION LLC	1/8+	921 528	N/A	N/A	N/A
10*16807	H	9-11-8	DAVID TULLER AND SUSAN STORTS TULLER	TH EXPLORATION LLC	1/8+	921 513	N/A	N/A	N/A
10*16808	H	9-11-8	MICHAEL L ORTIZ	TH EXPLORATION LLC	1/8+	921 349	N/A	N/A	N/A
10*16815	H	9-11-8	HAROLD W PYLE	TH EXPLORATION LLC	1/8+	921 357	N/A	N/A	N/A
10*16819	H	9-11-8	TERESA ORTIZ BIGGS	TH EXPLORATION LLC	1/8+	921 147	N/A	N/A	N/A
10*16821	H	9-11-8	SHEILA BRASKETT WEICHEY	TH EXPLORATION LLC	1/8+	921 516	N/A	N/A	N/A
10*16836	H	9-11-8	RICK A AND LENORE A STORTS	TH EXPLORATION LLC	1/8+	921 507	N/A	N/A	N/A
10*16837	H	9-11-8	TERRY L AND THELMA A POFF	TH EXPLORATION LLC	1/8+	927 472	N/A	N/A	N/A
10*16838	H	9-11-8	ROBERT G FUNARI	TH EXPLORATION LLC	1/8+	921 82	N/A	N/A	N/A
10*16839	H	9-11-8	JAMES B FOUNDS AND LYNN M MOWERY	TH EXPLORATION LLC	1/8+	921 73	N/A	N/A	N/A
10*16863	H	9-11-8	TINA MOORE	TH EXPLORATION LLC	1/8+	921 334	N/A	N/A	N/A
10*16868	H	9-11-8	MICHAEL W STORTS AND JESSICA M STORTS	TH EXPLORATION LLC	1/8+	921 504	N/A	N/A	N/A
10*16879	H	9-11-8	MARK E AND LESLEY A STORTS	TH EXPLORATION LLC	1/8+	921 501	N/A	N/A	N/A
10*16880	H	9-11-8	BEVERLY ANN STORTS	TH EXPLORATION LLC	1/8+	921 498	N/A	N/A	N/A
10*16902	H	9-11-8	MARY BARCAW DUKE	TH EXPLORATION LLC	1/8+	921 105	N/A	N/A	N/A
10*16962	H	9-11-8	DENNIS P AND BARBARA EZZELL FLORY	TH EXPLORATION LLC	1/8+	921 70	N/A	N/A	N/A
10*16976	H	9-11-8	LESTER G AND CONSTANCE B NICKOLSON	TH EXPLORATION LLC	1/8+	921 343	N/A	N/A	N/A
10*16977	H	9-11-8	JEREMY COCHENOUR	TH EXPLORATION LLC	1/8+	921 102	N/A	N/A	N/A
10*16987	H	9-11-8	LAURIE EZZELL PERRY	TH EXPLORATION LLC	1/8+	921 355	N/A	N/A	N/A
10*16989	H	9-11-8	BRITTANY RICHARDSON	TH EXPLORATION LLC	1/8+	921 376	N/A	N/A	N/A
10*16991	H	9-11-8	MARYELLEN FOUNDS AND LAUREN FOUNDS	TH EXPLORATION LLC	1/8+	921 79	N/A	N/A	N/A
10*16996	H	9-11-8	THOMAS RANKIN	TH EXPLORATION LLC	1/8+	917 75	N/A	N/A	N/A
10*17130	H	9-11-8	CINDY L BARGER	TH EXPLORATION LLC	1/8+	921 137	N/A	N/A	N/A
10*17155	H	9-11-8	JESSE LEON JR AND TERESA GAIL EZZELLE	TH EXPLORATION LLC	1/8+	921 118	N/A	N/A	N/A
10*17156	H	9-11-8	HENRI NELL JACKSON KENT BARNES	TH EXPLORATION LLC	1/8+	921 139	N/A	N/A	N/A
10*17157	H	9-11-8	JAMES N REEVES JR AND RITA M REEVES	TH EXPLORATION LLC	1/8+	921 367	N/A	N/A	N/A
10*17198	H	9-11-8	THOMAS G AND DIANE W BAYLESS	TH EXPLORATION LLC	1/8+	921 141	N/A	N/A	N/A
10*17205	H	9-11-8	SANDRA JEAN WILSON	TH EXPLORATION LLC	1/8+	921 524	N/A	N/A	N/A
10*17208	H	9-11-8	PATRICK S GALLAGHER AND JOYCE ANN FOUNDS	TH EXPLORATION LLC	1/8+	921 86	N/A	N/A	N/A
10*17274	H	9-11-8	DAVID H WILSON	TH EXPLORATION LLC	1/8+	921 474	N/A	N/A	N/A
10*17275	H	9-11-8	JOHN R REEVES AND MONA G REEVES	TH EXPLORATION LLC	1/8+	921 373	N/A	N/A	N/A
10*17276	H	9-11-8	BERTHA EZZELL WYATT	TH EXPLORATION LLC	1/8+	921 526	N/A	N/A	N/A
10*17278	H	9-11-8	MICHAEL L EZZELLE	TH EXPLORATION LLC	1/8+	921 121	N/A	N/A	N/A
10*17339	H	9-11-8	JOSEPH W FOUNDS	TH EXPLORATION LLC	1/8+	921 76	N/A	N/A	N/A
10*17377	H	9-11-8	MILTON HOWARD EZZELLE JR AND ELIZABETH A EZZELLE	TH EXPLORATION LLC	1/8+	921 123	N/A	N/A	N/A
10*17416	H	9-11-8	ANDREW M. ORTIZ	TH EXPLORATION, LLC	1/8+	921 346	N/A	N/A	N/A
10*17438	H	9-11-8	DENNIS M WILSON	TH EXPLORATION LLC	1/8+	921 476	N/A	N/A	N/A
10*17440	H	9-11-8	KENDRA WALISA	TH EXPLORATION LLC	1/8+	927 484	N/A	N/A	N/A
10*17441	H	9-11-8	RALPH J WILSON	TH EXPLORATION LLC	1/8+	921 522	N/A	N/A	N/A

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10*17442	H	9-11-8	SHANE ALLEN AND MENDY JEAN ALLEN	TH EXPLORATION LLC	1/8+	921 134	N/A	N/A	N/A
10*17443	H	9-11-8	MICHELLE MORROW-BACK	TH EXPLORATION LLC	1/8+	921 337	N/A	N/A	N/A
10*17444	H	9-11-8	KELLY FOUNDS CAMPBELL	TH EXPLORATION LLC	1/8+	921 99	N/A	N/A	N/A
10*17449	H	9-11-8	PHYLLIS J BLAKE	TH EXPLORATION LLC	1/8+	921 150	N/A	N/A	N/A
10*17482	H	9-11-8	TERESA EZELE RALYA AND DAVID L RALYA	TH EXPLORATION LLC	1/8+	927 487	N/A	N/A	N/A
10*17483	H	9-11-8	RICHARD I PYLE	TH EXPLORATION LLC	1/8+	921 359	N/A	N/A	N/A
10*17484	H	9-11-8	NELDA S JACKSON	TH EXPLORATION LLC	1/8+	921 330	N/A	N/A	N/A
10*17485	H	9-11-8	MARGIE ANN JACKSON ROBBINS GRAHAM	TH EXPLORATION LLC	1/8+	921 91	N/A	N/A	N/A
10*17526	H	9-11-8	JEFFREY L REEVES AND JODY I REEVES	TH EXPLORATION LLC	1/8+	921 370	N/A	N/A	N/A
10*17527	H	9-11-8	JAMES MICHAEL EZELE AND LUCILLE D EZELE	TH EXPLORATION LLC	1/8+	921 111	N/A	N/A	N/A
10*17538	H	9-11-8	CHERYL RANKIN-KING	TH EXPLORATION LLC	1/8+	952 160	N/A	N/A	N/A
10*17552	H	9-11-8	JOHN BEVACQUA AND PATRICIA A BEVACQUA	TH EXPLORATION LLC	1/8+	921 144	N/A	N/A	N/A
10*17554	H	9-11-8	MICHAEL T RANKIN	TH EXPLORATION LLC	1/8+	921 361	N/A	N/A	N/A
10*17561	H	9-11-8	KATHRYN L & ROGER L TYRELL	TH EXPLORATION, LLC	1/8+	921 519	N/A	N/A	N/A
10*17564	H	9-11-8	JAMES R & TRACEY E NICKOLSON	TH EXPLORATION, LLC	1/8+	921 340	N/A	N/A	N/A
10*17565	H	9-11-8	JESSE ALLEN JACKSON AND ELIZABETH D JACKSON	TH EXPLORATION LLC	1/8+	921 327	N/A	N/A	N/A
10*17566	H	9-11-8	NATHAN P & BARBARA T ERDOSSY	TH EXPLORATION, LLC	1/8+	921 108	N/A	N/A	N/A
10*17588	H	9-11-8	JAMES M JACKSON	TH EXPLORATION LLC	1/8+	921 325	N/A	N/A	N/A
10*17589	H	9-11-8	MARY CHRISTINE MCKENNA	TH EXPLORATION, LLC	1/8+	921 332	N/A	N/A	N/A
10*17677	H	9-11-8	GEORGE M GONTA JR	TH EXPLORATION, LLC	1/8+	921 89	N/A	N/A	N/A
10*17744	H	9-11-8	SAM PRESLEY EZELE	TH EXPLORATION LLC	1/8+	921 116	N/A	N/A	N/A
10*47051.223.1	H	9-11-8	JEAN ANNE GORBY STORCH	TH EXPLORATION LLC	1/8+	877 216	N/A	N/A	N/A
10*47051.223.10	H	9-11-8	ROBERT E GORBY	TH EXPLORATION LLC	1/8+	908 47	N/A	N/A	N/A
10*47051.223.11	H	9-11-8	ELIZABETH ESTEP	TH EXPLORATION LLC	1/8+	908 37	N/A	N/A	N/A
10*47051.223.12	H	9-11-8	Alice GORBY MARTIN	TH EXPLORATION LLC	1/8+	908 52	N/A	N/A	N/A
10*47051.223.13	H	9-11-8	JAMES A GORBY	TH EXPLORATION LLC	1/8+	908 42	N/A	N/A	N/A
10*47051.223.14	H	9-11-8	JUSTIN RINE AND BECKY RINE	TH EXPLORATION LLC	1/8+	907 639	N/A	N/A	N/A
10*47051.223.15	H	9-11-8	LARRY D TAUNT AND NANCY L TAUNT	TH EXPLORATION LLC	1/8+	908 14	N/A	N/A	N/A
10*47051.223.16	H	9-11-8	BETTY LOU STERN AND WILLIAM KEITH STERN	TH EXPLORATION LLC	1/8+	908 64	N/A	N/A	N/A
10*47051.223.17	H	9-11-8	RALPH E HUNTER JR AND CHARLOTTE HUNTER	TH EXPLORATION LLC	1/8+	908 9	N/A	N/A	N/A
10*47051.223.18	H	9-11-8	BRITNEY MENEAR	TH EXPLORATION LLC	1/8+	908 57	N/A	N/A	N/A
10*47051.223.19	H	9-11-8	JASON RINE AND HEATHER RINE	TH EXPLORATION LLC	1/8+	907 629	N/A	N/A	N/A
10*47051.223.20	H	9-11-8	BARBARA A BUZZARD	TH EXPLORATION LLC	1/8+	908 24	N/A	N/A	N/A
10*47051.223.21	H	9-11-8	GARY T WARD AND SHARON D WARD	TH EXPLORATION LLC	1/8+	908 19	N/A	N/A	N/A
10*47051.223.22	H	9-11-8	SALLY COLE	TH EXPLORATION LLC	1/8+	908 74	N/A	N/A	N/A
10*47051.223.23	H	9-11-8	RONALD S CRIM	TH EXPLORATION LLC	1/8+	908 79	N/A	N/A	N/A
10*47051.223.24	H	9-11-8	JO DEE K DAVIS	TH EXPLORATION LLC	1/8+	908 136	N/A	N/A	N/A
10*47051.223.25	H	9-11-8	JOANNE WELCH	TH EXPLORATION LLC	1/8+	908 141	N/A	N/A	N/A
10*47051.223.26	H	9-11-8	WENDY L SMARKEL	TH EXPLORATION LLC	1/8+	908 69	N/A	N/A	N/A
10*47051.223.27	H	9-11-8	TIM I J HOBBS	TH EXPLORATION LLC	1/8+	908 277	N/A	N/A	N/A
10*47051.223.28	H	9-11-8	KAREN S GAST	TH EXPLORATION LLC	1/8+	908 150	N/A	N/A	N/A
10*47051.223.29	H	9-11-8	PATSY JO RAIU	TH EXPLORATION LLC	1/8+	908 155	N/A	N/A	N/A

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10*47051.223.30	H	9-11-8	LAURIE DRIGGERS MANDERSON	TH EXPLORATION LLC	1/8+	908 165	N/A	N/A	N/A
10*47051.223.31	H	9-11-8	JANICE M GONTA GAVALIK	TH EXPLORATION LLC	1/8+	908 180	N/A	N/A	N/A
10*47051.223.32	H	9-11-8	JOSEPH GORBY DAKAN	TH EXPLORATION LLC	1/8+	908 175	N/A	N/A	N/A
10*47051.223.33	H	9-11-8	NANCY CIAFFAGLIONE HOUSLEY	TH EXPLORATION LLC	1/8+	908 185	N/A	N/A	N/A
10*47051.223.34	H	9-11-8	JOHN CIAFFAGLIONE	TH EXPLORATION LLC	1/8+	908 170	N/A	N/A	N/A
10*47051.223.35	H	9-11-8	DEBRA L CIAFFAGLIONE	TH EXPLORATION LLC	1/8+	908 190	N/A	N/A	N/A
10*47051.223.5	H	9-11-8	HAROLD S BROWN II AND MARIA A BROWN	TH EXPLORATION LLC	1/8+	907 641	N/A	N/A	N/A
10*47051.223.6	H	9-11-8	JOSHUA RINE AND REBECCA RINE	TH EXPLORATION LLC	1/8+	907 634	N/A	N/A	N/A
10*47051.223.7	H	9-11-8	JACK R WILSON JR AND JANE A WILSON	TH EXPLORATION LLC	1/8+	908 4	N/A	N/A	N/A
10*47051.223.8	H	9-11-8	DAVID M WILSON	TH EXPLORATION LLC	1/8+	907 649	N/A	N/A	N/A
10*47051.223.9	H	9-11-8	LINDA DELBERT	TH EXPLORATION LLC	1/8+	908 32	N/A	N/A	N/A
10*15606	I	9-12-2	CHK-MAC LLC	CHESAPEAKE APPALACHIA LLC	1/8+	798 150	N/A	Chesapeake to Chevron: 30/461	Chevron to Tug Hill: 36/148
10*16238	I	9-12-2	SUSAN MARIE JOHNSON AKA SUSAN MARIE HUBER	TH EXPLORATION LLC	1/8+	924 614	N/A	N/A	N/A
10*16932	I	9-12-2	HAYMAKER PROPERTIES LP	CHEVRON U.S.A. INC.	1/8+	902 447	N/A	N/A	Chevron to Tug Hill: 37/437
10*47051.309.1	I	9-12-2	LESLIE E QUIGLEY	TH EXPLORATION LLC	1/8+	905 8	N/A	N/A	N/A
10*47051.309.2	I	9-12-2	LEWIS M QUIGLEY AND MAXINE V QUIGLEY	TH EXPLORATION LLC	1/8+	907 217	N/A	N/A	N/A
10*47051.309.3	I	9-12-2	GERALD W QUIGLEY AND VICKI L QUIGLEY	TH EXPLORATION LLC	1/8+	905 12	N/A	N/A	N/A
10*15461	J	9-12-30	SANDRA SUE HALL AND DAVID HALL	TH EXPLORATION LLC	1/8+	905 622	N/A	N/A	N/A
10*15462	J	9-12-30	JUDITH F TEMPLE AND LOUIS I TEMPLE	TH EXPLORATION LLC	1/8+	905 617	N/A	N/A	N/A
10*15468	J	9-12-30	KEITH W STORCH AND DEBORAH A STORCH	TH EXPLORATION LLC	1/8+	905 624	N/A	N/A	N/A
10*15496	J	9-12-30	FRANK A STORCH JR AND SUSAN STORCH	TH EXPLORATION LLC	1/8+	906 1	N/A	N/A	N/A
10*15497	J	9-12-30	TOM ALLEY	TH EXPLORATION LLC	1/8+	905 644	N/A	N/A	N/A
10*15498	J	9-12-30	DELBERT D RUSH AND BETTY RUTH RUSH	TH EXPLORATION LLC	1/8+	905 647	N/A	N/A	N/A
10*15682	J	9-12-30	THELMA W BIRDWELL	TH EXPLORATION LLC	1/8+	906 9	N/A	N/A	N/A
10*15684	J	9-12-30	CHARLES R WILLIAMSON JR	TH EXPLORATION LLC	1/8+	906 7	N/A	N/A	N/A
10*15685	J	9-12-30	TRACY RAND	TH EXPLORATION LLC	1/8+	906 4	N/A	N/A	N/A
10*15727	J	9-12-30	TIMOTHY LEE COLLEY	TH EXPLORATION LLC	1/8+	906 12	N/A	N/A	N/A
10*15740	J	9-12-30	LARRY W ALLEY	TH EXPLORATION LLC	1/8+	912 49	N/A	N/A	N/A
10*16032	J	9-12-30	MELINDA M GREENOUGH AND DOUGLAS CORWIN GREENOUGH	TH EXPLORATION LLC	1/8+	906 26	N/A	N/A	N/A
10*16035	J	9-12-30	CLARISSA MALONE	TH EXPLORATION LLC	1/8+	906 23	N/A	N/A	N/A
10*16047	J	9-12-30	PEGGY KOHRMANN AND DAVID KOHRMANN	TH EXPLORATION LLC	1/8+	906 32	N/A	N/A	N/A
10*16054	J	9-12-30	MEGAN R AUSTIN AND ANTHONY B POWERS	TH EXPLORATION LLC	1/8+	906 29	N/A	N/A	N/A
10*16071	J	9-12-30	VIRGINIA LESLIE BERTRAM	TH EXPLORATION LLC	1/8+	901 370	N/A	N/A	N/A
10*16110	J	9-12-30	KATHLEEN D AND STEVEN MONIGOLD	TH EXPLORATION LLC	1/8+	906 35	N/A	N/A	N/A
10*16137	J	9-12-30	RODNEY K. BANE & CATHIE J. BANE	TH EXPLORATION LLC	1/8+	906 41	N/A	N/A	N/A
10*16184	J	9-12-30	RAYMOND P RIEK AND GARDALEE RIECK	TH EXPLORATION LLC	1/8+	906 44	N/A	N/A	N/A
10*16189	J	9-12-30	MARLENE BAKER	TH EXPLORATION LLC	1/8+	906 50	N/A	N/A	N/A
10*16232	J	9-12-30	DANIEL L ALLEY AND TERESA ALLEY	TH EXPLORATION LLC	1/8+	906 53	N/A	N/A	N/A
10*16241	J	9-12-30	NANNETTE BERLETCHE AND MATTHEW S BERLETCHE JR	TH EXPLORATION LLC	1/8+	906 56	N/A	N/A	N/A
10*16243	J	9-12-30	CATHERINE I AND ERNEST M SILVERIO	TH EXPLORATION LLC	1/8+	906 47	N/A	N/A	N/A
10*16280	J	9-12-30	CHRISTOPHER SAUDERS	TH EXPLORATION LLC	1/8+	905 612	N/A	N/A	N/A
10*16290	J	9-12-30	JENNIFER ALLEY	TH EXPLORATION LLC	1/8+	906 59	N/A	N/A	N/A

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Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*16330	J	9-12-30	LISA R IMHOFF AND CHAD IMHOFF	TH EXPLORATION LLC	1/8+	905 626	N/A	N/A	N/A
10*16331	J	9-12-30	LOLA F BLEVINS	TH EXPLORATION LLC	1/8+	905 630	N/A	N/A	N/A
10*16366	J	9-12-30	STEVEN P ROBERTS	TH EXPLORATION LLC	1/8+	905 628	N/A	N/A	N/A
10*16374	J	9-12-30	KAREN L ZUCKER AND MICHAEL D ZUCKER	TH EXPLORATION LLC	1/8+	905 632	N/A	N/A	N/A
10*16375	J	9-12-30	GEORGE E HOLMES AND SUSAN HOLMES	TH EXPLORATION LLC	1/8+	905 635	N/A	N/A	N/A
10*16381	J	9-12-30	DONNA BURNS	TH EXPLORATION LLC	1/8+	906 20	N/A	N/A	N/A
10*16382	J	9-12-30	LINDA M HONE AND VAUGHN HONE SR	TH EXPLORATION LLC	1/8+	906 17	N/A	N/A	N/A
10*16410	J	9-12-30	SUSAN I BAKER	TH EXPLORATION LLC	1/8+	905 638	N/A	N/A	N/A
10*16418	J	9-12-30	DENZIL ALLEY JR	TH EXPLORATION, LLC	1/8+	905 641	N/A	N/A	N/A
10*16435	J	9-12-30	DENISE WILLIAMSON	TH EXPLORATION LLC	1/8+	926 622	N/A	N/A	N/A
10*16437	J	9-12-30	BECKY LANDRIS	TH EXPLORATION LLC	1/8+	926 625	N/A	N/A	N/A
10*16487	J	9-12-30	JOHN WILLIAMSON JR	TH EXPLORATION LLC	1/8+	927 27	N/A	N/A	N/A
10*16488	J	9-12-30	RACHEL AND FRED THORNE JR	TH EXPLORATION LLC	1/8+	926 628	N/A	N/A	N/A
10*16491	J	9-12-30	BELA N WELLENREITER	TH EXPLORATION LLC	1/8+	921 467	N/A	N/A	N/A
10*16508	J	9-12-30	JUDITH C LORADITCH	TH EXPLORATION LLC	1/8+	926 631	N/A	N/A	N/A
10*16528	J	9-12-30	ROSELLA M HORR AND WILLARD L HORR	TH EXPLORATION LLC	1/8+	927 1	N/A	N/A	N/A
10*16539	J	9-12-30	KATHRYN BROWN AND BRUCE G BROWN	TH EXPLORATION LLC	1/8+	926 641	N/A	N/A	N/A
10*16541	J	9-12-30	DEBORAH L TURLEY	TH EXPLORATION LLC	1/8+	926 644	N/A	N/A	N/A
10*16578	J	9-12-30	JESSE HOLMES	TH EXPLORATION LLC	1/8+	909 502	N/A	N/A	N/A
10*16606	J	9-12-30	WILLIAM T AND BARBARA W PAUL	TH EXPLORATION LLC	1/8+	919 252	N/A	N/A	N/A
10*16607	J	9-12-30	LOUISE M AND WILSON D MCELHINNY	TH EXPLORATION LLC	1/8+	909 72	N/A	N/A	N/A
10*16616	J	9-12-30	WILLIAM BRYAN COLLEY	TH EXPLORATION LLC	1/8+	913 628	N/A	N/A	N/A
10*16671	J	9-12-30	NATHAN AND KARI KOHRMANN	TH EXPLORATION LLC	1/8+	913 40	N/A	N/A	N/A
10*16672	J	9-12-30	ANNE R AND JOSEPH A MURPHY	TH EXPLORATION LLC	1/8+	910 215	N/A	N/A	N/A
10*16737	J	9-12-30	ARIC A HOLMES AND CARI M HOLMES	TH EXPLORATION LLC	1/8+	913 389	N/A	N/A	N/A
THE JENNIFER TEACHNOR GAFFEY LIVING TRUST DATED OCTOBER 30TH									
10*16744	J	9-12-30	2013	TH EXPLORATION LLC	1/8+	926 634	N/A	N/A	N/A
10*16769	J	9-12-30	CHARLES C SEAMON	TH EXPLORATION LLC	1/8+	910 219	N/A	N/A	N/A
10*16785	J	9-12-30	JOSHUA W SEAMON	TH EXPLORATION LLC	1/8+	910 223	N/A	N/A	N/A
10*16818	J	9-12-30	BRENDA REED	TH EXPLORATION LLC	1/8+	927 30	N/A	N/A	N/A
10*16823	J	9-12-30	PEGGY N AND JAMES E GLASER	TH EXPLORATION LLC	1/8+	913 373	N/A	N/A	N/A
10*16886	J	9-12-30	DALE R ALLEY	TH EXPLORATION LLC	1/8+	927 19	N/A	N/A	N/A
10*16898	J	9-12-30	VICTOR E ALLEY JR AND DEBRA A ALLEY	TH EXPLORATION LLC	1/8+	926 647	N/A	N/A	N/A
10*17172	J	9-12-30	LINDA K AND MICHAEL HUMES	TH EXPLORATION LLC	1/8+	927 33	N/A	N/A	N/A
10*17177	J	9-12-30	JAMES P MILLER	TH EXPLORATION LLC	1/8+	926 608	N/A	N/A	N/A
10*17294	J	9-12-30	JOHN P HOLMES AND DEBRA A HOLMES	TH EXPLORATION LLC	1/8+	927 6	N/A	N/A	N/A
10*17375	J	9-12-30	GEORGE R CORNELIUS JR AND JANNA JANOUSEK CORNELIUS	TH EXPLORATION LLC	1/8+	927 36	N/A	N/A	N/A
10*17388	J	9-12-30	LORI A FARMER AND DANIEL K FARMER	TH EXPLORATION LLC	1/8+	927 9	N/A	N/A	N/A
10*17475	J	9-12-30	LARRY R CRANE	TH EXPLORATION LLC	1/8+	927 13	N/A	N/A	N/A
10*17476	J	9-12-30	CHRISTINA NESTELL AND CHARLES E NESTELL III	TH EXPLORATION LLC	1/8+	927 207	N/A	N/A	N/A
10*17477	J	9-12-30	MICHAEL SAUDERS AND AMI SAUDERS	TH EXPLORATION LLC	1/8+	927 39	N/A	N/A	N/A
10*17496	J	9-12-30	STACY L BARNHART	TH EXPLORATION LLC	1/8+	927 16	N/A	N/A	N/A

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Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*17536	J	9-12-30	MABEL MCCARTHY	TH EXPLORATION LLC	1/8+	909 512	N/A	N/A	N/A
10*17619	J	9-12-30	BRENDA GILBERT	TH EXPLORATION LLC	1/8+	927 211	N/A	N/A	N/A
10*17620	J	9-12-30	DANIEL E WILLIAMSON AND HEATHER R WILLIAMSON	TH EXPLORATION LLC	1/8+	927 204	N/A	N/A	N/A
10*17665	J	9-12-30	ANN M & CURTIS STEVENS	TH EXPLORATION, LLC	1/8+	927 215	N/A	N/A	N/A
10*17678	J	9-12-30	KATHERINE & DANIEL DEGROOT	TH EXPLORATION, LLC	1/8+	927 218	N/A	N/A	N/A
10*17705	J	9-12-30	EARL & LYDIA ARMENTA FRAZIER	TH EXPLORATION, LLC	1/8+	927 200	N/A	N/A	N/A
10*17726	J	9-12-30	C FREEMAN MCCALL AND SUSAN M MCCALL	TH EXPLORATION LLC	1/8+	915 480	N/A	N/A	N/A
10*17809	J	9-12-30	MARY M MORRIS	TH EXPLORATION LLC	1/8+	921 66	N/A	N/A	N/A
10*17815	J	9-12-30	THE TESTAMENTARY TRUST OF CAREY B PAUL III	TH EXPLORATION LLC	1/8+	919 252	N/A	N/A	N/A
10*17818	J	9-12-30	KATHLEEN REILLY MANNIX AND J MICHAEL MANNIX	TH EXPLORATION LLC	1/8+	917 128	N/A	N/A	N/A
10*17882	J	9-12-30	MARY E HAMM	TH EXPLORATION, LLC	1/8+	924 552	N/A	N/A	N/A
10*17893	J	9-12-30	ERIC D & AMANDA N PETRUCCI	TH EXPLORATION, LLC	1/8+	924 545	N/A	N/A	N/A
10*47051.318.1	J	9-12-30	JOSEPH PAUL FOX AND MARGARET H FOX	TH EXPLORATION LLC	1/8+	905 569	N/A	N/A	N/A
10*47051.318.10	J	9-12-30	DONNA JUNE STRAIT	TH EXPLORATION LLC	1/8+	904 600	N/A	N/A	N/A
10*47051.318.11	J	9-12-30	RICHARD TAYLOR	TH EXPLORATION LLC	1/8+	904 604	N/A	N/A	N/A
10*47051.318.12	J	9-12-30	BARBARA J BEVERIDGE	TH EXPLORATION LLC	1/8+	904 606	N/A	N/A	N/A
10*47051.318.15	J	9-12-30	DONNA CHMELYSKI	TH EXPLORATION LLC	1/8+	904 610	N/A	N/A	N/A
10*47051.318.16	J	9-12-30	BULA F YOST	TH EXPLORATION LLC	1/8+	904 614	N/A	N/A	N/A
10*47051.318.17	J	9-12-30	CORA ALICE DAUBE	TH EXPLORATION LLC	1/8+	904 618	N/A	N/A	N/A
10*47051.318.18	J	9-12-30	MICHAEL WAYNE ALLEY AND LINDA ALLEY	TH EXPLORATION LLC	1/8+	904 622	N/A	N/A	N/A
10*47051.318.19	J	9-12-30	JUDY LYNN CHIPLINSKI	TH EXPLORATION LLC	1/8+	904 496	N/A	N/A	N/A
10*47051.318.2	J	9-12-30	CHRISTAL L SCHAFER	TH EXPLORATION LLC	1/8+	904 531	N/A	N/A	N/A
10*47051.318.20	J	9-12-30	CHARLES R BENNETT JR AND DONNA S BENNETT	TH EXPLORATION LLC	1/8+	904 500	N/A	N/A	N/A
10*47051.318.21	J	9-12-30	DORETTA RUSH	TH EXPLORATION LLC	1/8+	904 504	N/A	N/A	N/A
10*47051.318.22	J	9-12-30	ELIZABETH STARC	TH EXPLORATION LLC	1/8+	904 508	N/A	N/A	N/A
10*47051.318.23	J	9-12-30	EMMA CRISWELL	TH EXPLORATION LLC	1/8+	904 512	N/A	N/A	N/A
10*47051.318.24	J	9-12-30	CARLA MAE ALLEY	TH EXPLORATION LLC	1/8+	904 516	N/A	N/A	N/A
10*47051.318.25	J	9-12-30	MARIANN T DARGUSCH AND JONATHON DARGUSCH	TH EXPLORATION LLC	1/8+	905 549	N/A	N/A	N/A
10*47051.318.27	J	9-12-30	KAREN J BRUGGEMAN	TH EXPLORATION LLC	1/8+	904 520	N/A	N/A	N/A
10*47051.318.28	J	9-12-30	LORAINNE GAIL STARC HORNER AND CHARLES HORNER	TH EXPLORATION LLC	1/8+	904 524	N/A	N/A	N/A
10*47051.318.3	J	9-12-30	RANDY W MORRIS AND CHERYL MORRIS	TH EXPLORATION LLC	1/8+	904 535	N/A	N/A	N/A
10*47051.318.30	J	9-12-30	CYNTHIA TEACHNOR GRAHAM	TH EXPLORATION LLC	1/8+	905 553	N/A	N/A	N/A
10*47051.318.31	J	9-12-30	WILLIAM RICHARD FOX	TH EXPLORATION LLC	1/8+	905 561	N/A	N/A	N/A
10*47051.318.32	J	9-12-30	SHARON KELLER JOEY KELLER JR	TH EXPLORATION LLC	1/8+	904 539	N/A	N/A	N/A
10*47051.318.33	J	9-12-30	J RONALD FOX	TH EXPLORATION LLC	1/8+	905 565	N/A	N/A	N/A
10*47051.318.34	J	9-12-30	DONNA SMITH WEEKLEY	TH EXPLORATION LLC	1/8+	905 442	N/A	N/A	N/A
10*47051.318.35	J	9-12-30	ANNA MAE PATTERSON	TH EXPLORATION LLC	1/8+	905 573	N/A	N/A	N/A
10*47051.318.36	J	9-12-30	DANNY CARMICHAEL III	TH EXPLORATION LLC	1/8+	905 576	N/A	N/A	N/A
10*47051.318.37	J	9-12-30	GENELDA MASON	TH EXPLORATION LLC	1/8+	905 580	N/A	N/A	N/A
10*47051.318.38	J	9-12-30	SHERWOOD MASON NILA JUNE MASON	TH EXPLORATION LLC	1/8+	905 448	N/A	N/A	N/A
10*47051.318.39	J	9-12-30	DONNA K DUNN AND JAMES DUNN	TH EXPLORATION LLC	1/8+	905 444	N/A	N/A	N/A
10*47051.318.4	J	9-12-30	MARY ELISE CAMP	TH EXPLORATION LLC	1/8+	905 557	N/A	N/A	N/A

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Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*47051.318.40	J	9-12-30	NANCY MARIE DUNN AND GEORGE L DUNN	TH EXPLORATION LLC	1/8+	905 590	N/A	N/A	N/A
10*47051.318.41	J	9-12-30	JOHN T CRISWELL AND CATHERINE A CRISWELL	TH EXPLORATION LLC	1/8+	905 582	N/A	N/A	N/A
10*47051.318.42	J	9-12-30	TARA E CAUSEY	TH EXPLORATION LLC	1/8+	905 586	N/A	N/A	N/A
10*47051.318.43	J	9-12-30	CHAD ERIC BENNETT AND MARY A BENNETT	TH EXPLORATION LLC	1/8+	905 588	N/A	N/A	N/A
10*47051.318.44	J	9-12-30	STACY R BENNETT	TH EXPLORATION LLC	1/8+	905 596	N/A	N/A	N/A
10*47051.318.45	J	9-12-30	PATRICIA KIRCHNER	TH EXPLORATION LLC	1/8+	905 592	N/A	N/A	N/A
10*47051.318.46	J	9-12-30	CAROL L BOBBY AND DONALD J BOBBY	TH EXPLORATION LLC	1/8+	905 603	N/A	N/A	N/A
10*47051.318.47	J	9-12-30	FRIEDA A REINBEAU AND RONALD REINBEAU	TH EXPLORATION LLC	1/8+	905 598	N/A	N/A	N/A
10*47051.318.48	J	9-12-30	DEBORAH SUE KYLE 231 EAST 24TH AVENUE	TH EXPLORATION LLC	1/8+	905 600	N/A	N/A	N/A
10*47051.318.49	J	9-12-30	SHARLA ROLLINS AND GARY ROLLINS	TH EXPLORATION LLC	1/8+	905 594	N/A	N/A	N/A
10*47051.318.50	J	9-12-30	WILLIAM F EWART JR AND JOAN REED EWART	TH EXPLORATION LLC	1/8+	905 438	N/A	N/A	N/A
10*47051.318.51	J	9-12-30	SHEILA SIMMONS	TH EXPLORATION LLC	1/8+	905 606	N/A	N/A	N/A
10*47051.318.52	J	9-12-30	PETER G STORCH AND LAURIE L STORCH	TH EXPLORATION LLC	1/8+	905 608	N/A	N/A	N/A
10*47051.318.53	J	9-12-30	ROSEMARIE BERISFORD	TH EXPLORATION LLC	1/8+	905 610	N/A	N/A	N/A
10*47051.318.56	J	9-12-30	SALLY MERRICK	TH EXPLORATION LLC	1/8+	905 614	N/A	N/A	N/A
10*47051.318.57	J	9-12-30	RHONDA L PALASOTA AND SAM A PALASOTA	TH EXPLORATION LLC	1/8+	905 620	N/A	N/A	N/A
10*47051.318.6	J	9-12-30	JOSEPH F STARC JR AND DONNA STARC	TH EXPLORATION LLC	1/8+	904 596	N/A	N/A	N/A
10*47051.318.7	J	9-12-30	REED O MILLER AND EFFIE M MILLER	TH EXPLORATION LLC	1/8+	904 598	N/A	N/A	N/A
10*47051.318.8	J	9-12-30	JOHN M SHALLENBERGER AND JOANNE SHALLENBERGER	TH EXPLORATION LLC	1/8+	905 541	N/A	N/A	N/A
10*47051.318.9	J	9-12-30	JANICE M MIEDER	TH EXPLORATION LLC	1/8+	905 545	N/A	N/A	N/A
10*47051.312.0	K	9-12-37	JAN GRIMES SIMNACHER LEONARD A SIMNACHER	TH EXPLORATION LLC	1/8+	904 472	N/A	N/A	N/A
10*47051.140.1	L	9-12-32	DAVID P CHAPMAN & DEBORAH BORCK-CHAPMAN	TH EXPLORATION LLC	1/8+	866 318	N/A	N/A	N/A
10*47051.140.2	L	9-12-32	DOROTHY SULLIVAN POA JAMES REID SULLIVAN	TH EXPLORATION LLC	1/8+	873 501	N/A	N/A	N/A
10*15477	M	9-14-18	RONALD A WYGINSKI	TH EXPLORATION LLC	1/8+	906 241	N/A	N/A	N/A
10*15730	M	9-14-18	FRANCES V CARPENTER	TH EXPLORATION LLC	1/8+	906 256	N/A	N/A	N/A
10*15752	M	9-14-18	KIM O CHAMBERS AND DEBRA CHAMBERS	TH EXPLORATION LLC	1/8+	906 258	N/A	N/A	N/A
10*16017	M	9-14-18	FLOYD A MCFADDEN	TH EXPLORATION LLC	1/8+	906 260	N/A	N/A	N/A
10*16018	M	9-14-18	BARBARA MCFADDEN ALBRIGHT	TH EXPLORATION LLC	1/8+	906 262	N/A	N/A	N/A
10*16030	M	9-14-18	JOSEPH F CHMIELEWSKI AND SANDRA CHMIELEWSKI	TH EXPLORATION LLC	1/8+	906 264	N/A	N/A	N/A
10*16031	M	9-14-18	CARL J CHMIELEWSKI AND KATHLEEN A CHMIELEWSKI	TH EXPLORATION LLC	1/8+	906 266	N/A	N/A	N/A
10*16083	M	9-14-18	CECIL HARRY LILLY, III AND PAMELA KAY KNIGHT LILLY	TH EXPLORATION LLC	1/8+	912 47	N/A	N/A	N/A
10*16085	M	9-14-18	KATHARYN ANNETTE LILLY LAING AND FREDIE JOE LAING	TH EXPLORATION LLC	1/8+	912 43	N/A	N/A	N/A
10*16086	M	9-14-18	KATHARYN DAY LILLY	TH EXPLORATION LLC	1/8+	906 272	N/A	N/A	N/A
10*16087	M	9-14-18	MARY PENELOPE LILLY MURPHY	TH EXPLORATION LLC	1/8+	912 41	N/A	N/A	N/A
10*16131	M	9-14-18	ERIC S DOBBS	TH EXPLORATION LLC	1/8+	902 68	N/A	N/A	N/A
10*16144	M	9-14-18	PATTIE S MADRID	TH EXPLORATION LLC	1/8+	906 278	N/A	N/A	N/A
10*16180	M	9-14-18	LARRY L CHAMBERS	TH EXPLORATION LLC	1/8+	906 280	N/A	N/A	N/A
10*16181	M	9-14-18	NORMA CHRISTINE WHIPP AND GERALD WAYNE BLACK	TH EXPLORATION LLC	1/8+	906 281	N/A	N/A	N/A
10*16182	M	9-14-18	FIRST CHRISTIAN CHURCH OF MOUNDSVILLE BY ROGER FRANCIS AND ROBERT ALBERT TRUSTEES	TH EXPLORATION LLC	1/8+	906 283	N/A	N/A	N/A
10*16183	M	9-14-18	ALLEN R L DAVIS AND DIANA LEE PATTERSON	TH EXPLORATION LLC	1/8+	906 285	N/A	N/A	N/A
10*16239	M	9-14-18	ANGELA L OLDFIELD AND KENNETH W OLDFIELD	TH EXPLORATION LLC	1/8+	906 287	N/A	N/A	N/A

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Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*16240	M	9-14-18	BONNIE SUE PATTERSON SWISHER	TH EXPLORATION LLC	1/8+	906 289	N/A	N/A	N/A
10*16285	M	9-14-18	JOHN A SHUTZ AND CYNTHIA J SHUTZ	TH EXPLORATION LLC	1/8+	906 291	N/A	N/A	N/A
10*16441	M	9-14-18	GEORGE FRANKLIN AND NANCY ANN REED	TH EXPLORATION LLC	1/8+	924 619	N/A	N/A	N/A
10*16442	M	9-14-18	FRED T AND JERRY L CHAMBERS	TH EXPLORATION LLC	1/8+	924 174	N/A	N/A	N/A
10*16443	M	9-14-18	BARBARA BROWN CHAMBERS	TH EXPLORATION LLC	1/8+	924 621	N/A	N/A	N/A
10*16444	M	9-14-18	CATHERINE ELLEN CHAMBERS	TH EXPLORATION LLC	1/8+	924 623	N/A	N/A	N/A
10*16445	M	9-14-18	DOUGLAS C AND GWENDLYN D LEWTON	TH EXPLORATION LLC	1/8+	925 123	N/A	N/A	N/A
10*16483	M	9-14-18	JOHN C AND BARBARA H WINTER	TH EXPLORATION LLC	1/8+	924 178	N/A	N/A	N/A
10*16486	M	9-14-18	DAVID ALAN WILKINSON AND PATRICIA LYNN WILKINSON	TH EXPLORATION LLC	1/8+	924 180	N/A	N/A	N/A
10*16490	M	9-14-18	WILLIAM H AND MERRY C COTTON	TH EXPLORATION LLC	1/8+	924 176	N/A	N/A	N/A
10*16511	M	9-14-18	DOUGLAS R BOWEN	TH EXPLORATION LLC	1/8+	906 475	N/A	N/A	N/A
10*16531	M	9-14-18	KATHY DOBBS WELLS	TH EXPLORATION LLC	1/8+	906 472	N/A	N/A	N/A
10*16532	M	9-14-18	JEAN ANN MCFADDEN	TH EXPLORATION LLC	1/8+	906 459	N/A	N/A	N/A
10*16533	M	9-14-18	SHIRLEY ANN DOBBS	TH EXPLORATION LLC	1/8+	906 469	N/A	N/A	N/A
10*16534	M	9-14-18	TERRY LEE LASAVAGE	TH EXPLORATION LLC	1/8+	906 443	N/A	N/A	N/A
10*16535	M	9-14-18	CHARLES E CARSON AND MARY KAY CARSON	TH EXPLORATION LLC	1/8+	906 420	N/A	N/A	N/A
10*16537	M	9-14-18	KIM D BOWEN AND MADONNA M BOWEN	TH EXPLORATION LLC	1/8+	907 415	N/A	N/A	N/A
10*16540	M	9-14-18	JAMES A WINTER AND CONNIE G WINTER	TH EXPLORATION LLC	1/8+	924 184	N/A	N/A	N/A
10*16569	M	9-14-18	JANICE C BALE	TH EXPLORATION LLC	1/8+	907 425	N/A	N/A	N/A
10*16570	M	9-14-18	ROBERT D BOWEN AND MARCIA M R BOWEN	TH EXPLORATION LLC	1/8+	907 420	N/A	N/A	N/A
10*16576	M	9-14-18	LINDA A MINER AND MICHAEL W MINER	TH EXPLORATION LLC	1/8+	907 484	N/A	N/A	N/A
10*16580	M	9-14-18	HAROLD C MCFADDEN	TH EXPLORATION LLC	1/8+	907 480	N/A	N/A	N/A
10*16581	M	9-14-18	HELEN L SCHILLING	TH EXPLORATION LLC	1/8+	907 489	N/A	N/A	N/A
10*16582	M	9-14-18	DORA BROCK BRAMMER	TH EXPLORATION LLC	1/8+	907 429	N/A	N/A	N/A
10*16680	M	9-14-18	RONALD J AND JENNIFER CHAMBERS FICCA	TH EXPLORATION LLC	1/8+	924 186	N/A	N/A	N/A
10*16726	M	9-14-18	LESLY K WHITE	TH EXPLORATION LLC	1/8+	924 182	N/A	N/A	N/A
10*16733	M	9-14-18	SARAH L BISHOP	TH EXPLORATION LLC	1/8+	924 172	N/A	N/A	N/A
10*16835	M	9-14-18	ERNEST CARL AUGUSTINE JR	TH EXPLORATION LLC	1/8+	924 188	N/A	N/A	N/A
10*16882	M	9-14-18	JAMES LEROY AND DARLENE DOBBS OWENS	TH EXPLORATION LLC	1/8+	924 190	N/A	N/A	N/A
10*16948	M	9-14-18	FREDERICK M LEWTON	TH EXPLORATION LLC	1/8+	924 136	N/A	N/A	N/A
10*16949	M	9-14-18	STEVEN R AND BRIANNE L UTT	TH EXPLORATION LLC	1/8+	924 138	N/A	N/A	N/A
10*16950	M	9-14-18	JAY E AND CECILIA E LEWTON	TH EXPLORATION LLC	1/8+	924 134	N/A	N/A	N/A
10*16952	M	9-14-18	RUSSELL D HERVEY	TH EXPLORATION LLC	1/8+	924 132	N/A	N/A	N/A
10*16953	M	9-14-18	DONALD T AND JEAN K HOGAN	TH EXPLORATION LLC	1/8+	924 140	N/A	N/A	N/A
10*16965	M	9-14-18	WILLIAM L WRIGHT AND CAROLINA WRIGHT	TH EXPLORATION LLC	1/8+	914 524	N/A	N/A	N/A
10*16966	M	9-14-18	JOHN GILLETTE AND BARBARA GILLETTE	TH EXPLORATION LLC	1/8+	913 377	N/A	N/A	N/A
10*16967	M	9-14-18	TARA JEANNE MINOR AND JENNIFER A KNAPP	TH EXPLORATION LLC	1/8+	914 612	N/A	N/A	N/A
10*16990	M	9-14-18	ROSEMARY H BEAVERS	TH EXPLORATION LLC	1/8+	924 152	N/A	N/A	N/A
10*16992	M	9-14-18	LINDA C ABRAHAM	TH EXPLORATION LLC	1/8+	924 148	N/A	N/A	N/A
10*16993	M	9-14-18	JULIA HOOVER	TH EXPLORATION LLC	1/8+	924 150	N/A	N/A	N/A
10*16995	M	9-14-18	DIANE ELSIE RAMSEY	TH EXPLORATION LLC	1/8+	924 146	N/A	N/A	N/A
10*17129	M	9-14-18	ROBERTA JANE PARKINSON	TH EXPLORATION LLC	1/8+	924 142	N/A	N/A	N/A

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Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*17131	M	9-14-18	LAURA E TOTTEN AND LONNIE R TOTTEN	TH EXPLORATION LLC	1/8+	924 154	N/A	N/A	N/A
10*17134	M	9-14-18	UNITED CHRISTIAN MISSIONARY SOCIETY	TH EXPLORATION LLC	1/8+	924 144	N/A	N/A	N/A
10*17139	M	9-14-18	Alice G WEINER AND GERALD S WEINER	TH EXPLORATION LLC	1/8+	915 131	N/A	N/A	N/A
10*17209	M	9-14-18	GAYLE S SHANNON	TH EXPLORATION LLC	1/8+	924 168	N/A	N/A	N/A
10*17289	M	9-14-18	HAROLD R HUNT JR AND ELIZABETH A HUNT	TH EXPLORATION LLC	1/8+	924 170	N/A	N/A	N/A
10*17396	M	9-14-18	CHRISTINE L KIDD	TH EXPLORATION LLC	1/8+	924 158	N/A	N/A	N/A
10*17413	M	9-14-18	ROBERT M CHAMBERS AND CHARLOTTE A CHAMBERS	TH EXPLORATION LLC	1/8+	924 160	N/A	N/A	N/A
10*17436	M	9-14-18	ANDREW M HOOVER AND DINAH R HOOVER	TH EXPLORATION LLC	1/8+	924 156	N/A	N/A	N/A
10*17448	M	9-14-18	FREDERICK L HERVEY AND CATHY J HERVEY	TH EXPLORATION LLC	1/8+	924 162	N/A	N/A	N/A
10*17452	M	9-14-18	ALAN H & MARY K DEGARMO	TH EXPLORATION, LLC	1/8+	924 164	N/A	N/A	N/A
10*17487	M	9-14-18	DEBORAH R MOKOSH	TH EXPLORATION LLC	1/8+	924 166	N/A	N/A	N/A
10*17503	M	9-14-18	JANICE L KUHN	TH EXPLORATION LLC	1/8+	924 122	N/A	N/A	N/A
10*17504	M	9-14-18	GREGG ALAN MILLER AND BETH ANN MILLER	TH EXPLORATION LLC	1/8+	924 118	N/A	N/A	N/A
10*17505	M	9-14-18	MICHAEL R & LEANNE DOBBS	TH EXPLORATION, LLC	1/8+	924 116	N/A	N/A	N/A
10*17515	M	9-14-18	GLADYS E DOBBS	TH EXPLORATION LLC	1/8+	923 541	N/A	N/A	N/A
10*17516	M	9-14-18	MARY V DOBBS	TH EXPLORATION LLC	1/8+	923 539	N/A	N/A	N/A
10*17517	M	9-14-18	JULIO ENRIQUE & DEBRA K TORRES	TH EXPLORATION, LLC	1/8+	923 537	N/A	N/A	N/A
10*17520	M	9-14-18	LUCY P SULLIVAN	TH EXPLORATION LLC	1/8+	923 533	N/A	N/A	N/A
10*17528	M	9-14-18	DEAN E GARRISON	TH EXPLORATION LLC	1/8+	923 535	N/A	N/A	N/A
10*17555	M	9-14-18	AARON AND JANA K PARRY	TH EXPLORATION LLC	1/8+	924 113	N/A	N/A	N/A
10*17559	M	9-14-18	MARVIN JERRY BLAKE AND LINDA D BLAKE	TH EXPLORATION LLC	1/8+	923 528	N/A	N/A	N/A
10*17560	M	9-14-18	TREVOR HOOKS	TH EXPLORATION LLC	1/8+	924 110	N/A	N/A	N/A
10*17563	M	9-14-18	DONALD L WOOD	TH EXPLORATION LLC	1/8+	923 523	N/A	N/A	N/A
10*17579	M	9-14-18	DON COFFIELD & GLENDA DOBBS	TH EXPLORATION, LLC	1/8+	923 525	N/A	N/A	N/A
10*17580	M	9-14-18	PAUL CRAIG CUNNINGHAM	TH EXPLORATION LLC	1/8+	923 530	N/A	N/A	N/A
10*17581	M	9-14-18	PAULA WEIRES	TH EXPLORATION LLC	1/8+	923 486	N/A	N/A	N/A
10*17582	M	9-14-18	JOHN THOMAS ERAZMUS AND JEAN R ERAZMUS	TH EXPLORATION LLC	1/8+	924 124	N/A	N/A	N/A
10*17612	M	9-14-18	BEVERLY A LEDBETTER	TH EXPLORATION, LLC	1/8+	923 480	N/A	N/A	N/A
10*17613	M	9-14-18	CARLTON DOBBS JR AND MIKHAIL PROKOPENKO	TH EXPLORATION LLC	1/8+	924 120	N/A	N/A	N/A
10*17614	M	9-14-18	DAVID DOBBS	TH EXPLORATION, LLC	1/8+	923 489	N/A	N/A	N/A
10*17615	M	9-14-18	PAULA JO WRIGHT	TH EXPLORATION, LLC	1/8+	923 482	N/A	N/A	N/A
10*17616	M	9-14-18	RONALD & ELIZABETH DOBBS	TH EXPLORATION, LLC	1/8+	924 107	N/A	N/A	N/A
10*17617	M	9-14-18	UNITED DISCIPLES OF CHRIST CHURCH	TH EXPLORATION LLC	1/8+	924 129	N/A	N/A	N/A
10*17664	M	9-14-18	RUDOLPH H PARSONS	TH EXPLORATION, LLC	1/8+	923 511	N/A	N/A	N/A
10*17667	M	9-14-18	THOMAS BRIAN WARRICK	TH EXPLORATION, LLC	1/8+	923 509	N/A	N/A	N/A
10*17668	M	9-14-18	KENNETH R DOBBS	TH EXPLORATION, LLC	1/8+	923 503	N/A	N/A	N/A
10*17671	M	9-14-18	JAMES L STOUT	TH EXPLORATION LLC	1/8+	923 484	N/A	N/A	N/A
10*17674	M	9-14-18	HOWARD L & BETH E WOOD	TH EXPLORATION, LLC	1/8+	923 505	N/A	N/A	N/A
10*17675	M	9-14-18	GREGORY D & CAROLYN J WIBLE	TH EXPLORATION, LLC	1/8+	923 507	N/A	N/A	N/A
10*17676	M	9-14-18	JAMES C & DEIDRE G DORIA	TH EXPLORATION, LLC	1/8+	923 513	N/A	N/A	N/A
10*17700	M	9-14-18	ROGER L & MARILYN L GARRISON	TH EXPLORATION, LLC	1/8+	923 472	N/A	N/A	N/A
10*17701	M	9-14-18	SUE ANN WORD	TH EXPLORATION, LLC	1/8+	923 470	N/A	N/A	N/A

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Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*17702	M	9-14-18	TAMMY BETH RAMSEY	TH EXPLORATION, LLC	1/8+	925 500	N/A	N/A	N/A
10*17703	M	9-14-18	SHIRLEY N COX	TH EXPLORATION, LLC	1/8+	923 498	N/A	N/A	N/A
10*17708	M	9-14-18	BETTY LOU NOBLE	TH EXPLORATION LLC	1/8+	923 127	N/A	N/A	N/A
10*17711	M	9-14-18	DEBRA A WENNEMAN AND KURT J WENNEMAN	TH EXPLORATION LLC	1/8+	923 520	N/A	N/A	N/A
10*17731	M	9-14-18	JAMES J MCGHEE AND JEANNINE CHAMBERS MCGHEE	TH EXPLORATION, LLC	1/8+	914 519	N/A	N/A	N/A
10*17766	M	9-14-18	EDWARD S & NANCY A ROSENTHAL	TH EXPLORATION, LLC	1/8+	923 495	N/A	N/A	N/A
10*17767	M	9-14-18	WILLIAM K & LINDA J MERRITT	TH EXPLORATION, LLC	1/8+	923 474	N/A	N/A	N/A
10*17769	M	9-14-18	GLADYS FRAZIER KING	TH EXPLORATION, LLC	1/8+	923 492	N/A	N/A	N/A
10*17771	M	9-14-18	CHARLES AND LISA WARRICK	TH EXPLORATION, LLC	1/8+	923 477	N/A	N/A	N/A
10*17830	M	9-14-18	BRIAN AND MELINDA MASTERS	TH EXPLORATION LLC	1/8+	925 319	N/A	N/A	N/A
10*17878	M	9-14-18	ROBERT E & SARAH M ROUSH	TH EXPLORATION, LLC	1/8+	924 590	N/A	N/A	N/A
10*17879	M	9-14-18	HARRY R WRIGHT JR	TH EXPLORATION, LLC	1/8+	924 588	N/A	N/A	N/A
10*17880	M	9-14-18	ANNA M WRIGHT	TH EXPLORATION, LLC	1/8+	924 586	N/A	N/A	N/A
10*17881	M	9-14-18	WAYLON L & ANGELA J MURPHEE	TH EXPLORATION, LLC	1/8+	924 555	N/A	N/A	N/A
10*17885	M	9-14-18	JOHN RUSSELL BECKER	TH EXPLORATION, LLC	1/8+	924 540	N/A	N/A	N/A
10*47051.325.1	M	9-14-18	JUDITH A LEWANDOSKY AND ALAN E LEWANDOSKY	TH EXPLORATION LLC	1/8+	906 225	N/A	N/A	N/A
10*47051.325.2	M	9-14-18	TIMMY LEE STOUT AND DOROTHY MARIE STOUT	TH EXPLORATION LLC	1/8+	906 222	N/A	N/A	N/A
10*47051.325.3	M	9-14-18	NICHOLAS D PAVLIK AND GLORIA K PAVLIK	TH EXPLORATION LLC	1/8+	906 228	N/A	N/A	N/A
10*47051.325.4	M	9-14-18	JAMES H WHITE AND RITA FRANKS WHITE	TH EXPLORATION LLC	1/8+	906 230	N/A	N/A	N/A
10*47051.325.5	M	9-14-18	SAMUEL ALAN MCCORD AND WINIFRED A MCKEE	TH EXPLORATION LLC	1/8+	906 232	N/A	N/A	N/A
10*47051.325.6	M	9-14-18	THOMAS O MCCORD	TH EXPLORATION LLC	1/8+	906 235	N/A	N/A	N/A
10*47051.325.7	M	9-14-18	SHERON JONES	TH EXPLORATION LLC	1/8+	906 237	N/A	N/A	N/A
10*47051.325.8	M	9-14-18	RICK PAVLIK	TH EXPLORATION LLC	1/8+	906 239	N/A	N/A	N/A
10*15752	N	9-15-3	KIM O CHAMBERS AND DEBRA CHAMBERS	TH EXPLORATION LLC	1/8+	906 258	N/A	N/A	N/A
10*16017	N	9-15-3	FLOYD A MCFADDEN	TH EXPLORATION LLC	1/8+	906 260	N/A	N/A	N/A
10*16018	N	9-15-3	BARBARA MCFADDEN ALBRIGHT	TH EXPLORATION LLC	1/8+	906 262	N/A	N/A	N/A
10*16144	N	9-15-3	PATTIE S MADRID	TH EXPLORATION LLC	1/8+	906 278	N/A	N/A	N/A
10*16180	N	9-15-3	LARRY L CHAMBERS	TH EXPLORATION LLC	1/8+	906 280	N/A	N/A	N/A
10*16181	N	9-15-3	NORMA CHRISTINE WHIPP AND GERALD WAYNE BLACK	TH EXPLORATION LLC	1/8+	906 281	N/A	N/A	N/A
10*16182	N	9-15-3	FIRST CHRISTIAN CHURCH OF MOUNDSVILLE BY ROGER FRANCIS AND ROBERT ALBERT TRUSTEES	TH EXPLORATION LLC	1/8+	906 283	N/A	N/A	N/A
10*16239	N	9-15-3	ANGELA L OLDFIELD AND KENNETH W OLDFIELD	TH EXPLORATION LLC	1/8+	906 287	N/A	N/A	N/A
10*16285	N	9-15-3	JOHN A SHUTZ AND CYNTHIA J SHUTZ	TH EXPLORATION LLC	1/8+	906 291	N/A	N/A	N/A
10*16441	N	9-15-3	GEORGE FRANKLIN AND NANCY ANN REED	TH EXPLORATION LLC	1/8+	924 619	N/A	N/A	N/A
10*16442	N	9-15-3	FRED T AND JERRY L CHAMBERS	TH EXPLORATION LLC	1/8+	924 174	N/A	N/A	N/A
10*16443	N	9-15-3	BARBARA BROWN CHAMBERS	TH EXPLORATION LLC	1/8+	924 621	N/A	N/A	N/A
10*16444	N	9-15-3	CATHERINE ELLEN CHAMBERS	TH EXPLORATION LLC	1/8+	924 623	N/A	N/A	N/A
10*16445	N	9-15-3	DOUGLAS C AND GWENDLYN D LEWTON	TH EXPLORATION LLC	1/8+	925 123	N/A	N/A	N/A
10*16483	N	9-15-3	JOHN C AND BARBARA H WINTER	TH EXPLORATION LLC	1/8+	924 178	N/A	N/A	N/A
10*16486	N	9-15-3	DAVID ALAN WILKINSON AND PATRICIA LYNN WILKINSON	TH EXPLORATION LLC	1/8+	924 180	N/A	N/A	N/A
10*16490	N	9-15-3	WILLIAM H AND MERRY C COTTON	TH EXPLORATION LLC	1/8+	924 176	N/A	N/A	N/A
10*16498	N	9-15-3	SHELLY YEATER	TH EXPLORATION LLC	1/8+	925 283	N/A	N/A	N/A

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Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*16511	N	9-15-3	DOUGLAS R BOWEN	TH EXPLORATION LLC	1/8+	906 475	N/A	N/A	N/A
10*16532	N	9-15-3	JEAN ANN MCFADDEN	TH EXPLORATION LLC	1/8+	906 459	N/A	N/A	N/A
10*16534	N	9-15-3	TERRY LEE LASAVAGE	TH EXPLORATION LLC	1/8+	906 443	N/A	N/A	N/A
10*16535	N	9-15-3	CHARLES E CARSON AND MARY KAY CARSON	TH EXPLORATION LLC	1/8+	906 420	N/A	N/A	N/A
10*16537	N	9-15-3	KIM D BOWEN AND MADONNA M BOWEN	TH EXPLORATION LLC	1/8+	907 415	N/A	N/A	N/A
10*16540	N	9-15-3	JAMES A WINTER AND CONNIE G WINTER	TH EXPLORATION LLC	1/8+	924 184	N/A	N/A	N/A
10*16569	N	9-15-3	JANICE C BALE	TH EXPLORATION LLC	1/8+	907 425	N/A	N/A	N/A
10*16570	N	9-15-3	ROBERT D BOWEN AND MARCIA M R BOWEN	TH EXPLORATION LLC	1/8+	907 420	N/A	N/A	N/A
10*16576	N	9-15-3	LINDA A MINER AND MICHAEL W MINER	TH EXPLORATION LLC	1/8+	907 484	N/A	N/A	N/A
10*16580	N	9-15-3	HAROLD C MCFADDEN	TH EXPLORATION LLC	1/8+	907 480	N/A	N/A	N/A
10*16581	N	9-15-3	HELEN L SCHILLING	TH EXPLORATION LLC	1/8+	907 489	N/A	N/A	N/A
10*16582	N	9-15-3	DORA BROCK BRAMMER	TH EXPLORATION LLC	1/8+	907 429	N/A	N/A	N/A
10*16680	N	9-15-3	RONALD J AND JENNIFER CHAMBERS FICCA	TH EXPLORATION LLC	1/8+	924 186	N/A	N/A	N/A
10*16726	N	9-15-3	LESLY K WHITE	TH EXPLORATION LLC	1/8+	924 182	N/A	N/A	N/A
10*16733	N	9-15-3	SARAH L BISHOP	TH EXPLORATION LLC	1/8+	924 172	N/A	N/A	N/A
10*16835	N	9-15-3	ERNEST CARL AUGUSTINE JR	TH EXPLORATION LLC	1/8+	924 188	N/A	N/A	N/A
10*16948	N	9-15-3	FREDERICK M LEWTON	TH EXPLORATION LLC	1/8+	924 136	N/A	N/A	N/A
10*16949	N	9-15-3	STEVEN R AND BRIANNE L UTT	TH EXPLORATION LLC	1/8+	924 138	N/A	N/A	N/A
10*16950	N	9-15-3	JAY E AND CECILIA E LEWTON	TH EXPLORATION LLC	1/8+	924 134	N/A	N/A	N/A
10*16952	N	9-15-3	RUSSELL D HERVEY	TH EXPLORATION LLC	1/8+	924 132	N/A	N/A	N/A
10*16953	N	9-15-3	DONALD T AND JEAN K HOGAN	TH EXPLORATION LLC	1/8+	924 140	N/A	N/A	N/A
10*16990	N	9-15-3	ROSEMARY H BEAVERS	TH EXPLORATION LLC	1/8+	924 152	N/A	N/A	N/A
10*16992	N	9-15-3	LINDA C ABRAHAM	TH EXPLORATION LLC	1/8+	924 148	N/A	N/A	N/A
10*16993	N	9-15-3	JULIA HOOVER	TH EXPLORATION LLC	1/8+	924 150	N/A	N/A	N/A
10*16995	N	9-15-3	DIANE ELISE RAMSEY	TH EXPLORATION LLC	1/8+	924 146	N/A	N/A	N/A
10*17129	N	9-15-3	ROBERTA JANE PARKINSON	TH EXPLORATION LLC	1/8+	924 142	N/A	N/A	N/A
10*17131	N	9-15-3	LAURA E TOTTEN AND LONNIE R TOTTEN	TH EXPLORATION LLC	1/8+	924 154	N/A	N/A	N/A
10*17134	N	9-15-3	UNITED CHRISTIAN MISSIONARY SOCIETY	TH EXPLORATION LLC	1/8+	924 144	N/A	N/A	N/A
10*17209	N	9-15-3	GAYLE S SHANNON	TH EXPLORATION LLC	1/8+	924 168	N/A	N/A	N/A
10*17289	N	9-15-3	HAROLD R HUNT JR AND ELIZABETH A HUNT	TH EXPLORATION LLC	1/8+	924 170	N/A	N/A	N/A
10*17396	N	9-15-3	CHRISTINE L KIDD	TH EXPLORATION LLC	1/8+	924 158	N/A	N/A	N/A
10*17413	N	9-15-3	ROBERT M CHAMBERS AND CHARLOTTE A CHAMBERS	TH EXPLORATION LLC	1/8+	924 160	N/A	N/A	N/A
10*17436	N	9-15-3	ANDREW M HOOVER AND DINAH R HOOVER	TH EXPLORATION LLC	1/8+	924 156	N/A	N/A	N/A
10*17448	N	9-15-3	FREDERICK L HERVEY AND CATHY J HERVEY	TH EXPLORATION LLC	1/8+	924 162	N/A	N/A	N/A
10*17452	N	9-15-3	ALAN H & MARY K DEGARMO	TH EXPLORATION, LLC	1/8+	924 164	N/A	N/A	N/A
10*17486	N	9-15-3	JOSELYN M KEELY	TH EXPLORATION LLC	1/8+	929 364	N/A	N/A	N/A
10*17487	N	9-15-3	DEBORAH R MOKOSH	TH EXPLORATION LLC	1/8+	924 166	N/A	N/A	N/A
10*17563	N	9-15-3	DONALD L WOOD	TH EXPLORATION LLC	1/8+	923 523	N/A	N/A	N/A
10*17617	N	9-15-3	UNITED DISCIPLES OF CHRIST CHURCH	TH EXPLORATION LLC	1/8+	924 129	N/A	N/A	N/A
10*17674	N	9-15-3	HOWARD L & BETH E WOOD	TH EXPLORATION, LLC	1/8+	923 505	N/A	N/A	N/A
10*17675	N	9-15-3	GREGORY D & CAROLYN J WIBLE	TH EXPLORATION, LLC	1/8+	923 507	N/A	N/A	N/A
10*17701	N	9-15-3	SUE ANN WORD	TH EXPLORATION, LLC	1/8+	923 470	N/A	N/A	N/A

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**WW-6A1 Supplement**

**Operator's Well No. Heaven Hill 3 - SHM**

Lease Name or No	Tag	Parcel	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment
10*17702	N	9-15-3	TAMMY BETH RAMSEY	TH EXPLORATION, LLC	1/8+	925	N/A	N/A	N/A
10*47051.325.1	N	9-15-3	JUDITH A LEWANDOSKY AND ALAN E LEWANDOSKY	TH EXPLORATION LLC	1/8+	906	N/A	N/A	N/A
10*47051.325.3	N	9-15-3	NICHOLAS D PAVLIK AND GLORIA K PAVLIK	TH EXPLORATION LLC	1/8+	906	N/A	N/A	N/A
10*47051.325.4	N	9-15-3	JAMES H WHITE AND RITA FRANKS WHITE	TH EXPLORATION LLC	1/8+	906	N/A	N/A	N/A
10*47051.325.5	N	9-15-3	SAMUEL ALAN MCCORD AND WINIFRED A MCKEE	TH EXPLORATION LLC	1/8+	906	N/A	N/A	N/A
10*47051.325.6	N	9-15-3	THOMAS O MCCORD	TH EXPLORATION LLC	1/8+	906	N/A	N/A	N/A
10*47051.325.7	N	9-15-3	SHERON JONES	TH EXPLORATION LLC	1/8+	906	N/A	N/A	N/A
10*47051.325.8	N	9-15-3	RICK PAVLIK	TH EXPLORATION LLC	1/8+	906	N/A	N/A	N/A

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51-0194840D



51-01948 MOD

DPS LAND SERVICE  
6000 TOWN CENTER BLVD STE 145  
CANNONBURG, PA 15317-5841

BOOK 0036 PAGE 0148

STATE OF WEST VIRGINIA §  
  §  
COUNTY OF MARSHALL §

Jan Post  
MARSHALL County 12:43:01 PM  
Instrument No 1404876  
Date Recorded 05/20/2018  
Document Type ABN  
Pages Recorded 20  
Book-Page 36-148  
Recording Fee \$20.00  
Additional \$9.00

ASSIGNMENT AND CONVEYANCE

THIS ASSIGNMENT AND CONVEYANCE (the "Assignment") is made and entered into this 17th day of May, 2016 (the "Effective Date"), by and between CHEVRON U.S.A. INC. (hereinafter "Assignor") and TH EXPLORATION, LLC (hereinafter "Assignee") pursuant to the terms of that certain Acreage Trade Agreement between the Assignor and the Assignee dated May 2, 2016 (the "Acreage Trade Agreement"). Capitalized terms used but not defined herein and defined in the Acreage Trade Agreement shall have the meanings given to such terms in the Acreage Trade Agreement.

WITNESSETH:

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to those certain Oil and Gas Leases situated in Marshall County, West Virginia, as described in Exhibit "A", and as depicted in Exhibits "A-1" and "A-2", attached hereto and made a part hereof (hereinafter the "Leases"); and

WHEREAS, Assignor desires to assign, set over, and transfer to Assignee all of Assignor's right, title, and interest in and to the Leases as described below.

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

1. Assignment. Assignor does hereby grant, bargain, sell, convey, deliver, assign, set over and transfer, as of the Effective Date, to Assignee, its respective successors and assigns, forever, all of Assignor's right, title and interest in and to the Leases, and the lands covered thereby, together with all rights incident thereto and appurtenances thereon, except that Assignor accepts and reserves from this Assignment the Chevron ORRI previously conveyed to Assignor and as described in that certain Memorandum of Assignment of Oil and Gas Lease Interests dated November 6, 2012 by and between Cornell Holdings Incorporated and Chevron U.S.A. Inc., which is recorded at Book 0028, Page 0239 in the Office of the County Clerk of Marshall County, West Virginia.

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

2. Special Warranty. Assignor represents and warrants that Assignor has not conveyed or otherwise encumbered (other than Permitted Encumbrances) its interest in the Conveyed Interests since the time that Assignor obtained its interests in the Leases. Assignor does covenant, promise and agree, to and with the Assignee, its respective successors and assigns, to forever specially warrant and defend the title to the Leases or portions thereof included under this Assignment, unto the Assignee and its respective successors and assigns, against the lawful claims of Assignor, and all persons claiming, or to claim, the same or any part thereof, by, through or under Assignor.

# 217  
for now

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*Joe*  
*3/28/18*

# **Well Site Safety Plan**

## **Tug Hill Operating, LLC**

Well Name: Heaven Hill 3-5HM

Pad Location: Heaven Hill 3

Marshall County, West Virginia

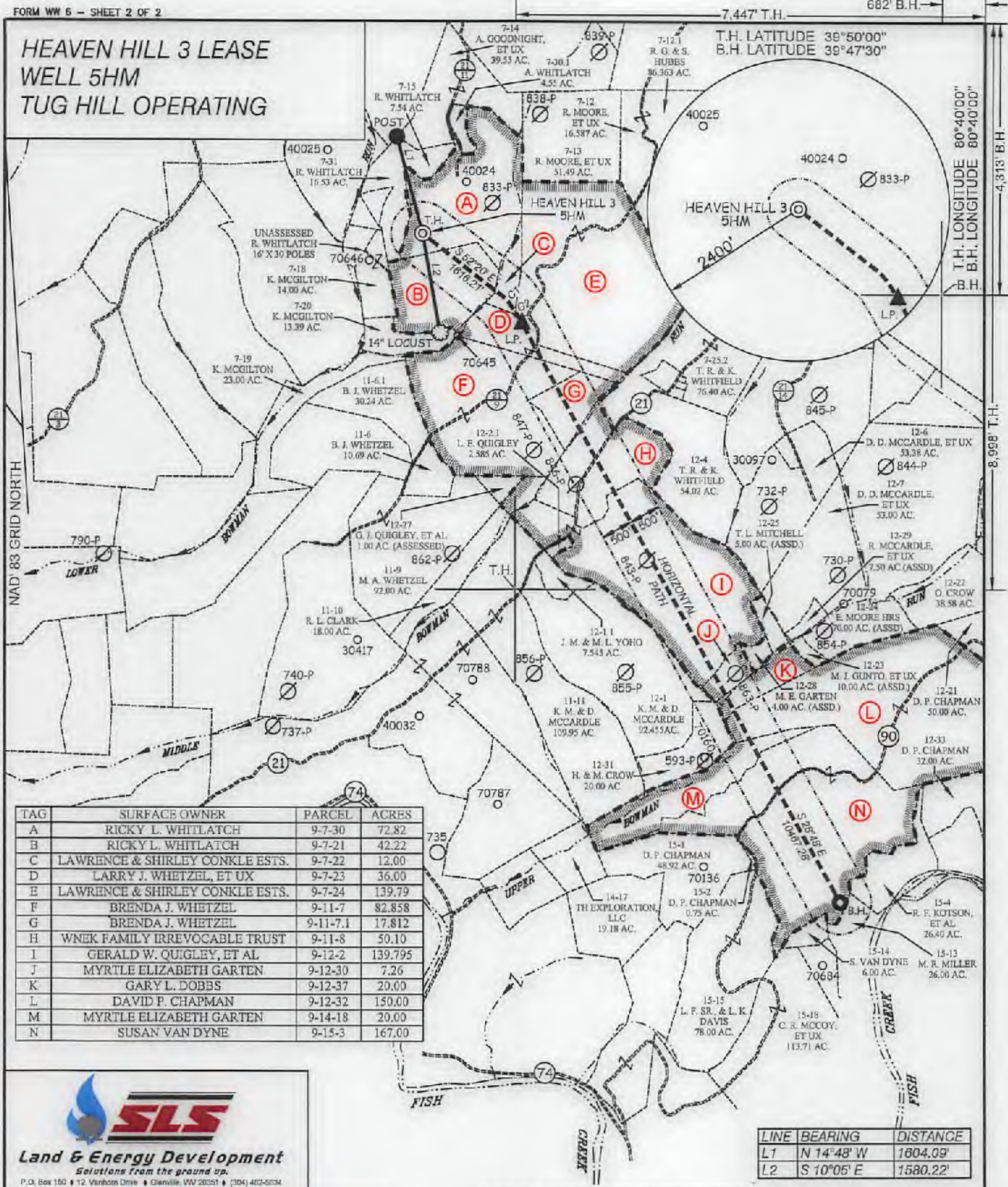
UTM (meters), NAD83, Zone 17:

Northing-4,406,562.70

Easting -526,263.54

March 2017

**HEAVEN HILL 3 LEASE  
WELL 5HM  
TUG HILL OPERATING**



TAG	SURFACE OWNER	PARCEL	ACRES
A	RICKY L. WHITLATCH	9-7-30	72.82
B	RICKY L. WHITLATCH	9-7-21	42.22
C	LAWRENCE & SHIRLEY CONKLE ESTS.	9-7-22	12.00
D	LARRY J. WHETZEL, ET UX	9-7-23	36.00
E	LAWRENCE & SHIRLEY CONKLE ESTS.	9-7-24	139.79
F	BRENDA J. WHETZEL	9-11-7	82.858
G	BRENDA J. WHETZEL	9-11-7.1	17.812
H	WNEK FAMILY IRREVOCABLE TRUST	9-11-8	50.10
I	GERALD W. QUIGLEY, ET AL	9-12-2	139.795
J	MYRTLE ELIZABETH GARTEN	9-12-30	7.26
K	GARY L. DOBBS	9-12-37	20.00
L	DAVID P. CHAPMAN	9-12-32	150.00
M	MYRTLE ELIZABETH GARTEN	9-14-18	20.00
N	SUSAN VAN DYNE	9-15-3	167.00

**SLS**  
Land & Energy Development  
Solutions from the ground up.  
P.O. Box 150 • 12 Vinton Drive • Glenville, WV 26031 • (304) 462-5034  
www.slsurveys.com

P.S. 677  
*Gregory A. Smith*

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)			
NAD83 S.P.C.(FT)	N. 478,871.18	E. 1,833,313.44	
NAD83 GEO.	LAT-(N) 39.808633	LONG-(W) 80.893174	
NAD83 UTM (M)	N. 4,406,582.70	E. 526,263.54	
LANDING POINT			
NAD83 S.P.C.(FT)	N. 477,462.6	E. 1,634,897.7	
NAD83 GEO.	LAT-(N) 38.804824	LONG-(W) 80.887489	
NAD83 UTM (M)	N. 4,406,141.6	E. 526,753.4	
BOTTOM HOLE			
NAD83 S.P.C.(FT)	N. 468,280.5	E. 1,639,941.2	
NAD83 GEO.	LAT-(N) 38.778827	LONG-(W) 80.889084	
NAD83 UTM (M)	N. 4,403,373.0	E. 526,336.6	

SCALE 1" = 2000' FILE NO. 8654P5HMR2.dwg  
 DATE JUNE 30, 20 17  
 REVISED FEBRUARY 2, 2018 & MARCH 22, 2018  
 OPERATORS WELL NO. HEAVEN HILL 3-5HM  
 API WELL NO. 47 — 051 — 01948  
 NO. STATE COUNTY PERMIT



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



LINE	BEARING	DISTANCE
L1	N 14°48' W	1604.09'
L2	S 10°05' E	1580.22'

CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	149.18'	686.80'	S 43°26' E	148.88'
C2	373.18'	2411.64'	S 32°54' E	372.81'

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

**LEGEND**

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- TAX MAP-PARCEL
- LEASE # (SEE WW-8A1)
- SURFACE OWNER (SEE TABLE)

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

05/04/2018

COUNTY NAME PERMIT

HEAVEN HILL 3 LEASE  
WELL 5HM  
TUG HILL OPERATING

7,447' T.H. 682' B.H.

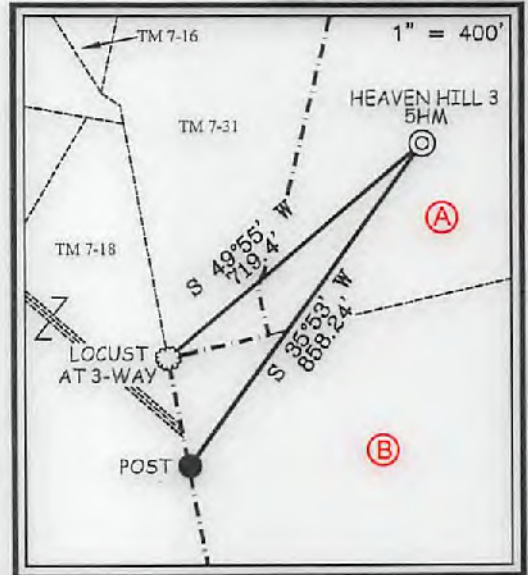
T.H. LATITUDE 39°50'00"  
B.H. LATITUDE 39°47'30"

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)		
NAD'83 S.P.C.(FT)	N. 478,871.18	E. 1,633,313.44
NAD'83 GEO.	LAT-(N) 39.808633	LONG-(W) 80.693174
NAD'83 UTM (M)	N. 4,406,562.70	E. 526,263.54
LANDING POINT		
NAD'83 S.P.C.(FT)	N. 477,462.6	E. 1,634,897.7
NAD'83 GEO.	LAT-(N) 39.804824	LONG-(W) 80.697469
NAD'83 UTM (M)	N. 4,406,141.6	E. 526,759.4
BOTTOM HOLE		
NAD'83 S.P.C.(FT)	N. 468,290.5	E. 1,639,941.2
NAD'83 GEO.	LAT-(N) 39.779827	LONG-(W) 80.669094
NAD'83 UTM (M)	N. 4,403,373.0	E. 526,336.6

T.H. LONGITUDE 80°40'00"  
B.H. LONGITUDE 80°40'00"  
4,313' B.H.  
8,998' T.H.

T.H.

REFERENCES



NOTES ON SURVEY

1. 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.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'



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 JUNE 30, 20 17

REVISED FEBRUARY 2, 2018 & MARCH 22, 2018

OPERATORS WELL NO. HEAVEN HILL 3-5HM

API WELL NO. 47 - 051 - 01948  
STATE COUNTY PERMIT

MOD H6A

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8654P5HMR2.dwg  
HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 2000'

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



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

LOCATION: ELEVATION GROUND = 1,342.20' PROPOSED = 1,326.35' WATERSHED LOWER BOWMAN RUN OF FISH CREEK (HUC 10)

DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER RICKY L. WHITLATCH ACREAGE 72.82±

ROYALTY OWNER RICKY L. WHITLATCH, ET AL - SEE WW-6A1 ACREAGE 72.82±

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  PLUG AND ABANDON  CLEAN OUT AND REPLUG  OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_ TARGET FORMATION MARCELLUS  
ESTIMATED DEPTH TVD: 6,876' / TMD: 17,873'

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

COUNTY NAME PERMIT

05/04/2018



April 2, 2018

WVDEP Office of Oil & Gas  
Attn: Laura Adkins  
601 5<sup>th</sup> Street, SE  
Charleston, WV 25304-2345

VIA: US MAIL

RE: Permit Application Modification Request for Heaven Hill 3-5HM (API # 47-051-01948)  
Revised Directional Drilling Plan

Dear Laura:

Tug Hill Operating, LLC would like to submit the enclosed permit application modification request to our approved permit for the Heaven Hill 3-5HM.

Please find the following enclosed revisions for extending the bottom hole location of the well:

- Revised WW-6B with inspector signature
- Revised WW-6A1
- Revised Mylar Well Plat
- Revised Site Safety Plan

If you have any questions or concerns, please feel free to call me at 304-376-0111. Thank you for your consideration in this matter.

Sincerely,

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

Amy L. Miller  
Permitting Specialist – Appalachia

alm  
Enclosures