



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
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Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
1320 SOUTH UNIVERSITY DRIVE, SUITE 500

FORT WORTH , TX 76107

Re: Permit Modification Approval for HEAVEN HILL UNIT 2-1HM
47-051-01918-00-00

Revised Directional Drilling Plan

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.

James A. Martin
Chief

Operator's Well Number: HEAVEN HILL UNIT 2-1HM
Farm Name: CHARLES R. HAGEDORN, JR., ET UX
U.S. WELL NUMBER: 47-051-01918-00-00
Horizontal 6A / New Drill
Date Issued: 5/10/2017

Promoting a healthy environment.

05/12/2017

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 Unit 2-1HM Well Pad Name: Heaven Hill Unit 2

3) Farm Name/Surface Owner: Charles R. Hagedorn, Jr., et ux Public Road Access: Blake Ridge Rd (Co. Rt. 21/3)

4) Elevation, current ground: 1350' Elevation, proposed post-construction: 1331'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

Handwritten signature and date: 4/28/17

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 6727 - 6779' thickness of 52' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,879'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 16,510'

11) Proposed Horizontal Leg Length: 9,045'

12) Approximate Fresh Water Strata Depths: 70', 1066'

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 - 969' and Pittsburgh Coal - 1059'

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 No

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

Handwritten stamp: "Gas" and "MAY 01 2017"

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	125'	120'	259FT^3(CTS)
Fresh Water	13 3/8"	NEW	H40	48#	1,130'	1,120'	1128ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	1,130'	1,120'	1128ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,815'	2,805'	919ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	15,520'	16,510'	4215ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#	16,520' <i>3.4.17</i>	6,662'	
Liners					16,570' <i>OTW</i>		

ju 4/28/17

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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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 22,612,500 lb proppant and 619,152 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 32.98

22) Area to be disturbed for well pad only, less access road (acres): 4.57

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

25) Proposed borehole conditioning procedures:

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

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*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 CaCl₂ + 46.5% Fresh Water

- Premium NE-1 – Class A Portland API spec
- CaCl₂ – 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
- CaCl₂ – 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



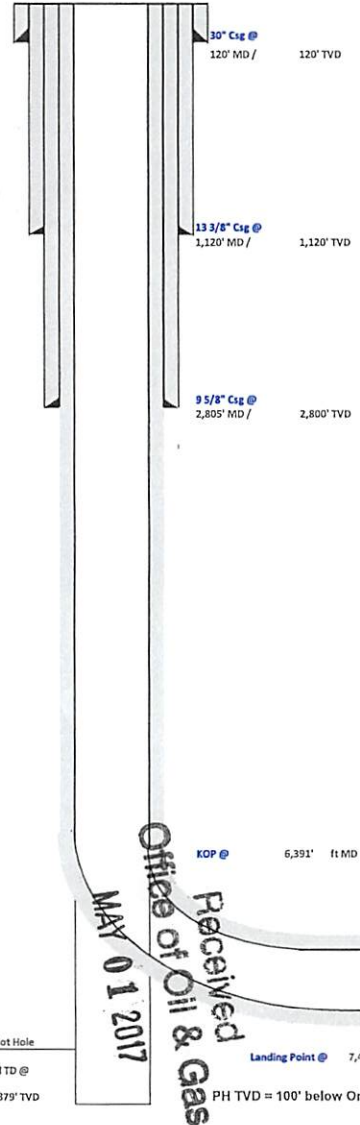
WELL NAME: Heaven Hill 2-1HM
STATE: West Virginia **COUNTY:** Marshall
DISTRICT: Meade
DF Elev: 1,359' **GL Elev:** 1,331'
TD: 16,510'
TH Latitude: 39.8101215
TH Longitude: -80.7128414
BH Latitude: 39.79172
BH Longitude: -80.693316

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	1068
Sewickley Coal	969
Pittsburgh Coal	1059
Big Lime	2063
Weir	2489
Berea	2687
Gordon	2949
Rhinesstreet	6071
Geneseo/Burkett	6615
Tully	6620
Hamilton	6653
Marcellus	6727
Landing Depth	6750
Onondaga	6779
Pilot Hole Depth	6879

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	1,120'	1,120'	48	H40	Surface
Intermediate 1	12 1/4	9 5/8	2,805'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	16,510'	6,908'	20	P110	Surface

CEMENT SUMMARY			DRILLING DETAILS		
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,142	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	897	A	15	Air	1 Centralizer every other jt
Production	3,718	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc

JW 4/28/17



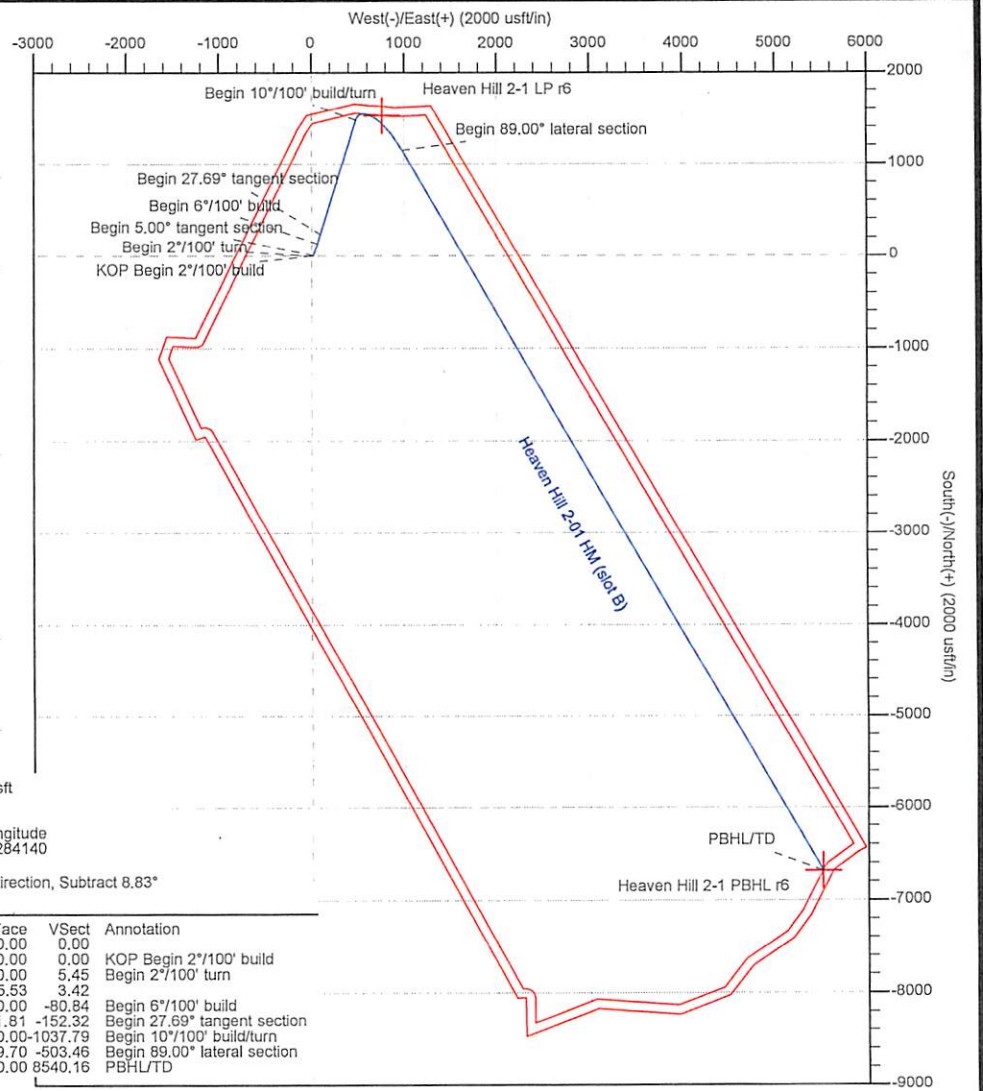
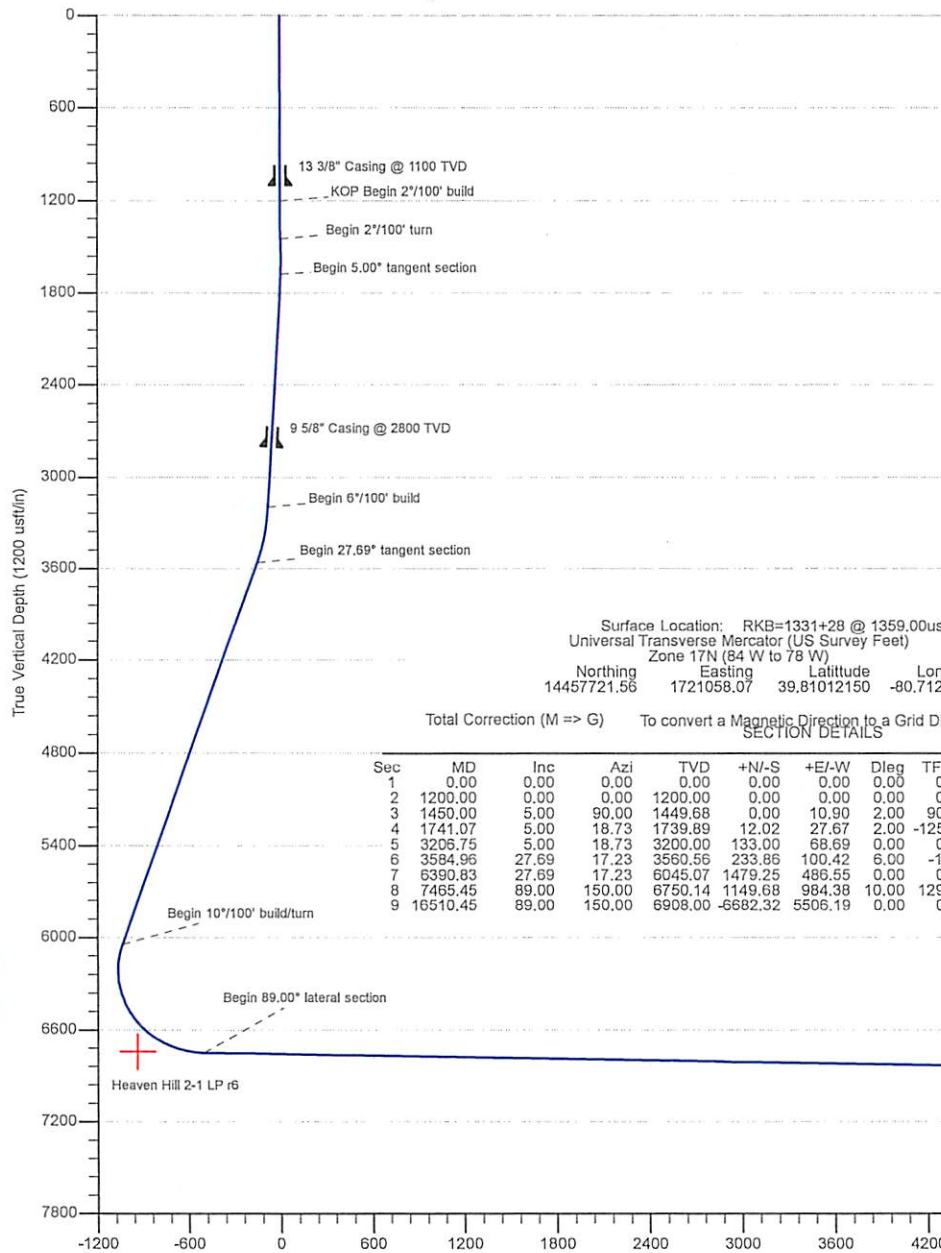
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Pilot Hole
 PH TD @ 6,879' TVD
 Landing Point @ 7,465' MD / 6,750' TVD
 PH TVD = 100' below Onondaga Top

Lateral TD @ 16,510' ft MD
 6,908' ft TVD



Tug Hill Operating LLC
Well: Heaven Hill 2-01 HM (slot B)
Site: Heaven Hill 2
Project: Marshall County, West Virginia
Design: rev8



MTG
 Azimuths to Grid North
 True North: -0.18°
 Magnetic North: -8.83°

Magnetic Field
 Strength: 52348.4snT
 Dip Angle: 67.09°
 Date: 1/18/2016
 Model: IGRF2015



Vertical Section at 150.00° (1200 usft/in)



Well Site Safety Plan

Tug Hill Operating, LLC

JW
4/28/17

Well Name: Heaven Hill Unit 2-1HM

Pad Name: Heaven Hill Unit 2

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:
Northing: 4,406,722.35
Easting: 524,579.55

April 2017

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 2-01 HM (slot B)
Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1331+28 @ 1359.00usft
Project:	Marshall County, West Virginia	MD Reference:	RKB=1331+28 @ 1359.00usft
Site:	Heaven Hill 2	North Reference:	Grid
Well:	Heaven Hill 2-01 HM (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev8		

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 2				
Site Position:		Northing:	14,457,660.30 usft	Latitude:	39.80995400
From:	Lat/Long	Easting:	1,720,974.97 usft	Longitude:	-80.71313800
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.18 °

Well	Heaven Hill 2-01 HM (slot B)					
Well Position	+N/-S	0.00 usft	Northing:	14,457,721.56 usft	Latitude:	39.81012150
	+E/-W	0.00 usft	Easting:	1,721,058.07 usft	Longitude:	-80.71284140
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	1,331.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/18/2016	-8.64	67.09	52,348.44161763

Design	rev8				
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	150.00	

Plan Survey Tool Program	Date	4/13/2017			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	16,510.45 rev8 (Original Hole)	MWD	MWD - Standard	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,450.00	5.00	90.00	1,449.68	0.00	10.90	2.00	2.00	0.00	90.00	
1,741.07	5.00	18.73	1,739.89	12.02	27.67	2.00	0.00	-24.49	-125.53	
3,206.75	5.00	18.73	3,200.00	133.00	68.69	0.00	0.00	0.00	0.00	
3,584.96	27.69	17.23	3,560.56	233.86	100.42	6.00	6.00	-0.40	-1.81	
6,390.83	27.69	17.23	6,045.07	1,479.25	486.55	0.00	0.00	0.00	0.00	
7,465.45	89.00	150.00	6,750.14	1,149.68	984.38	10.00	5.71	12.36	129.70	
16,510.45	89.00	150.00	6,908.00	-6,682.32	5,506.19	0.00	0.00	0.00	0.00	Heaven Hill 2-1 PBHL



Planning Report - Geographic

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Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1331+28 @ 1359.00usft
Project:	Marshall County, West Virginia	MD Reference:	RKB=1331+28 @ 1359.00usft
Site:	Heaven Hill 2	North Reference:	Grid
Well:	Heaven Hill 2-01 HM (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev8		

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	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
100.00	0.00	0.00	100.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
200.00	0.00	0.00	200.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
300.00	0.00	0.00	300.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
400.00	0.00	0.00	400.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
500.00	0.00	0.00	500.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
600.00	0.00	0.00	600.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
700.00	0.00	0.00	700.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
800.00	0.00	0.00	800.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
900.00	0.00	0.00	900.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,457,721.56	1,721,058.07	39.81012150	-80.71284140
KOP Begin 2°/100' build									
1,300.00	2.00	90.00	1,299.98	0.00	1.75	14,457,721.56	1,721,059.81	39.81012149	-80.71283519
1,400.00	4.00	90.00	1,399.84	0.00	6.98	14,457,721.56	1,721,065.05	39.81012144	-80.71281655
1,450.00	5.00	90.00	1,449.68	0.00	10.90	14,457,721.56	1,721,068.97	39.81012141	-80.71280258
Begin 2°/100' turn									
1,500.00	4.49	79.55	1,499.51	0.36	15.01	14,457,721.92	1,721,073.07	39.81012234	-80.71278796
1,600.00	4.07	53.11	1,599.24	3.20	21.70	14,457,724.76	1,721,079.76	39.81013009	-80.71276411
1,675.72	4.37	32.82	1,674.76	7.23	25.41	14,457,728.79	1,721,083.48	39.81014114	-80.71275084
Begin 5.00° tangent section									
1,700.00	4.57	27.15	1,698.97	8.87	26.35	14,457,730.43	1,721,084.42	39.81014563	-80.71274746
1,741.07	5.00	18.73	1,739.89	12.02	27.67	14,457,733.58	1,721,085.74	39.81015428	-80.71274272
1,800.00	5.00	18.73	1,798.60	16.89	29.32	14,457,738.45	1,721,087.39	39.81016762	-80.71273679
1,900.00	5.00	18.73	1,898.22	25.14	32.12	14,457,746.70	1,721,090.19	39.81019026	-80.71272673
2,000.00	5.00	18.73	1,997.84	33.40	34.92	14,457,754.96	1,721,092.99	39.81021291	-80.71271667
2,100.00	5.00	18.73	2,097.46	41.65	37.72	14,457,763.21	1,721,095.79	39.81023555	-80.71270661
2,200.00	5.00	18.73	2,197.08	49.90	40.52	14,457,771.46	1,721,098.58	39.81025819	-80.71269655
2,300.00	5.00	18.73	2,296.70	58.16	43.32	14,457,779.72	1,721,101.38	39.81028083	-80.71268649
2,400.00	5.00	18.73	2,396.32	66.41	46.11	14,457,787.97	1,721,104.18	39.81030348	-80.71267643
2,500.00	5.00	18.73	2,495.94	74.67	48.91	14,457,796.23	1,721,106.98	39.81032612	-80.71266637
2,600.00	5.00	18.73	2,595.56	82.92	51.71	14,457,804.48	1,721,109.78	39.81034876	-80.71265631
2,700.00	5.00	18.73	2,695.18	91.17	54.51	14,457,812.73	1,721,112.58	39.81037141	-80.71264625
2,800.00	5.00	18.73	2,794.80	99.43	57.31	14,457,820.99	1,721,115.38	39.81039405	-80.71263619
2,900.00	5.00	18.73	2,894.41	107.68	60.11	14,457,829.24	1,721,118.17	39.81041669	-80.71262613
3,000.00	5.00	18.73	2,994.03	115.94	62.91	14,457,837.50	1,721,120.97	39.81043933	-80.71261607
3,100.00	5.00	18.73	3,093.65	124.19	65.70	14,457,845.75	1,721,123.77	39.81046198	-80.71260601
3,200.00	5.00	18.73	3,193.27	132.44	68.50	14,457,854.00	1,721,126.57	39.81048462	-80.71259595
3,206.75	5.00	18.73	3,200.00	133.00	68.69	14,457,854.56	1,721,126.76	39.81048615	-80.71259527
Begin 6°/100' build									
3,300.00	10.59	17.77	3,292.35	145.02	72.62	14,457,866.58	1,721,130.68	39.81051913	-80.71258116
3,400.00	16.59	17.45	3,389.50	167.42	79.71	14,457,888.98	1,721,137.78	39.81058057	-80.71255564
3,500.00	22.59	17.30	3,483.67	199.41	89.72	14,457,920.97	1,721,147.78	39.81066833	-80.71251965
3,584.96	27.69	17.23	3,560.56	233.87	100.42	14,457,955.43	1,721,158.49	39.81076287	-80.71248113
Begin 27.69° tangent section									
3,600.00	27.69	17.23	3,573.87	240.54	102.49	14,457,962.10	1,721,160.56	39.81078118	-80.71247368
3,700.00	27.69	17.23	3,662.42	284.93	116.25	14,458,006.49	1,721,174.32	39.81090295	-80.71242417
3,800.00	27.69	17.23	3,750.97	329.31	130.02	14,458,050.87	1,721,188.08	39.81102472	-80.71237466
3,900.00	27.69	17.23	3,839.51	373.70	143.78	14,458,095.26	1,721,201.84	39.81114649	-80.71232515
4,000.00	27.69	17.23	3,928.06	418.08	157.54	14,458,139.64	1,721,215.60	39.81126826	-80.71227564
4,100.00	27.69	17.23	4,016.61	462.47	171.30	14,458,184.03	1,721,229.37	39.81139004	-80.71222613
4,200.00	27.69	17.23	4,105.16	506.85	185.06	14,458,228.41	1,721,243.13	39.81151181	-80.71217661
4,300.00	27.69	17.23	4,193.70	551.24	198.82	14,458,272.80	1,721,256.89	39.81163358	-80.71212710

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MAY 9 11 2017



Planning Report - Geographic

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Well:	Heaven Hill 2-01 HM (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev8		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,900.00	89.00	150.00	6,879.89	-5,287.85	4,701.09	14,452,433.71	1,725,759.16	39.79555713	-80.69616526
15,000.00	89.00	150.00	6,881.64	-5,374.44	4,751.09	14,452,347.13	1,725,809.15	39.79531886	-80.69598833
15,100.00	89.00	150.00	6,883.38	-5,461.03	4,801.08	14,452,260.54	1,725,859.14	39.79508060	-80.69581140
15,200.00	89.00	150.00	6,885.13	-5,547.61	4,851.07	14,452,173.95	1,725,909.14	39.79484234	-80.69563447
15,300.00	89.00	150.00	6,886.87	-5,634.20	4,901.06	14,452,087.36	1,725,959.13	39.79460408	-80.69545754
15,400.00	89.00	150.00	6,888.62	-5,720.79	4,951.05	14,452,000.77	1,726,009.12	39.79436581	-80.69528061
15,500.00	89.00	150.00	6,890.37	-5,807.38	5,001.05	14,451,914.18	1,726,059.11	39.79412755	-80.69510368
15,600.00	89.00	150.00	6,892.11	-5,893.97	5,051.04	14,451,827.59	1,726,109.11	39.79388929	-80.69492676
15,700.00	89.00	150.00	6,893.86	-5,980.56	5,101.03	14,451,741.00	1,726,159.10	39.79365102	-80.69474983
15,800.00	89.00	150.00	6,895.60	-6,067.15	5,151.02	14,451,654.41	1,726,209.09	39.79341276	-80.69457291
15,900.00	89.00	150.00	6,897.35	-6,153.74	5,201.02	14,451,567.82	1,726,259.08	39.79317449	-80.69439599
16,000.00	89.00	150.00	6,899.09	-6,240.33	5,251.01	14,451,481.23	1,726,309.08	39.79293623	-80.69421907
16,100.00	89.00	150.00	6,900.84	-6,326.92	5,301.00	14,451,394.64	1,726,359.07	39.79269796	-80.69404215
16,200.00	89.00	150.00	6,902.58	-6,413.51	5,350.99	14,451,308.05	1,726,409.06	39.79245970	-80.69386523
16,300.00	89.00	150.00	6,904.33	-6,500.10	5,400.99	14,451,221.46	1,726,459.05	39.79222143	-80.69368832
16,400.00	89.00	150.00	6,906.07	-6,586.69	5,450.98	14,451,134.87	1,726,509.05	39.79198316	-80.69351140
16,500.00	89.00	150.00	6,907.82	-6,673.28	5,500.97	14,451,048.29	1,726,559.04	39.79174490	-80.69333449
16,510.44	89.00	150.00	6,908.00	-6,682.32	5,506.19	14,451,039.25	1,726,564.26	39.79172002	-80.69331602
PBHL/TD									
16,510.45	89.00	150.00	6,908.00	-6,682.32	5,506.19	14,451,039.24	1,726,564.26	39.79172000	-80.69331600

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Heaven Hill 2-1 LP r6 - hit/miss target - Shape - Point	0.00	0.00	6,742.00	1,528.00	765.19	14,459,249.56	1,721,823.26	39.81431100	-80.71009900
- plan misses target center by 147.55usft at 7100.00usft MD (6639.00 TVD, 1423.37 N, 779.86 E)									
Heaven Hill 2-1 PBHL r6 - plan hits target center - Point	0.00	0.00	6,908.00	-6,682.32	5,506.19	14,451,039.24	1,726,564.26	39.79172000	-80.69331600

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
1,100.00	1,100.00	13 3/8" Casing @ 1100 TVD	13-3/8	17-1/2	
2,805.22	2,800.00	9 5/8" Casing @ 2800 TVD	9-5/8	12-1/4	



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Heaven Hill 2-01 HM (slot B)
Company:	Tug Hill Operating LLC	TVD Reference:	RKB=1331+28 @ 1359.00usft
Project:	Marshall County, West Virginia	MD Reference:	RKB=1331+28 @ 1359.00usft
Site:	Heaven Hill 2	North Reference:	Grid
Well:	Heaven Hill 2-01 HM (slot B)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev8		

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
1,450.00	1,449.68	0.00	10.90	Begin 2°/100' turn
1,675.72	1,674.76	7.23	25.41	Begin 5.00° tangent section
3,206.75	3,200.00	133.00	68.69	Begin 6°/100' build
3,584.96	3,560.56	233.87	100.42	Begin 27.69° tangent section
6,390.83	6,045.07	1,479.25	486.55	Begin 10°/100' build/turn
7,465.45	6,750.14	1,149.68	984.38	Begin 89.00° lateral section
16,510.44	6,906.00	-6,682.32	5,506.19	PBHL/TD

Received
Office of Oil & Gas
MAY 01 2017

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

WELL TYPE: OIL LIQUID INJECTION GAS (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW

WELL NO. 47-051-01918
API WELL NO. 47-051-01918

DATE: FEBRUARY 08, 2017
DATE REVISED: APRIL 27, 2017
OPERATORS WELL NO. Heaven Hill Unit 2-1HM

FILE NUMBER 163-697
DRAWING NUMBER HH2-WP-1HM-Rev1
SCALE 1" = 1500'
MINIMUM DEGREE 1/2500
OF ACCURACY
PROVEN SOURCE
OF ELEVATION
SUBMETER MAPPING
GRADE GPS

STATE OF WEST VIRGINIA
MOUNTAIN SEPER LINE

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

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

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

TARGET FORMATION MARCELLUS
ESTIMATED DEPTH TVD 6,879' TMD:16,510'

PERMIT
PLUG & ABANDON
CLEAN OUT & REFLUG

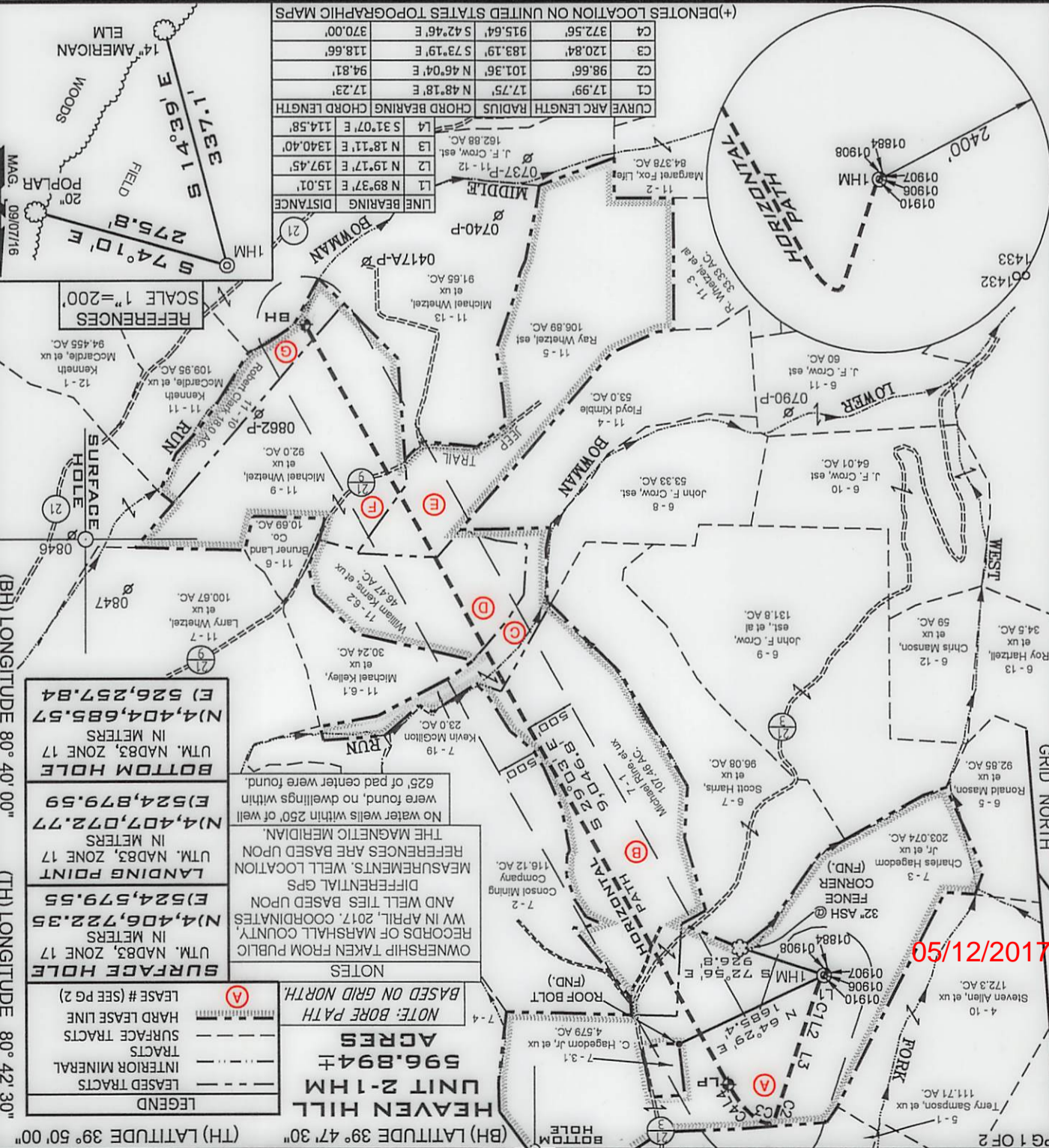
COUNTY NAME MARSHALL
COUNTY MARSHALL
DISTRICT MEADE
QUADRANGLE GLEN EASTON 7.5'
LEASE NUMBER SEE ATTACHED PG 2 OF 2

SURFACE OWNER CHARLES R. HAGEDORN, JR., ET UX
ACREAGE 203.074

OIL & GAS ROYALTY OWNER CHARLES R. HAGEDORN, JR., ET AL
LEASE ACREAGE 596.894

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION

PERFORM NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY) _____
PLUG & ABANDON CLEAN OUT & REFLUG



DATE: FEBRUARY 08, 2017
DATE REVISED: APRIL 27, 2017
OPERATORS WELL NO. Heaven Hill Unit 2-1HM

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

STATE OF WEST VIRGINIA
MOUNTAIN SEPER LINE

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

Address: FORT WORTH, TX 76107
 1320 SOUTH UNIVERSITY DRIVE, SUITE 500
 WELL OPERATOR: TUG HILL OPERATING, LLC
 DESIGNATED AGENT: CT CORPORATION SYSTEM
 DIANNA STAMPER
 ESTIMATED DEPTH: TVD 6,879, TMD: 16,510'
 PERMIT: PLUG & ABANDON ___ CLEAN OUT & REPLUG ___

TARGET FORMATION: MARCELLUS
 PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___
 SURFACE OWNER: CHARLES R. HAGEDORN, JR., ET UX
 OIL & GAS ROYALTY OWNER: CHARLES R. HAGEDORN, JR., ET AL
 LEASE ACREAGE: 596.894
 SURFACE ACREAGE: 203.074
 QUADRANGLE: GLEN EASTON 7.5', LEASE NUMBER: SEE ATTACHED PG 2 OF 2
 DISTRICT: MEADE COUNTY: MARSHALL
 LOCATION ELEVATION: 1331', WATERSHED (HUC 10): FISH CREEK
 (IF GAS) PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
 WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 API WELL NO.: 47-051-01918
 OPERATORS WELL NO.: Heaven Hill Unit 2-1HM
 DATE REVISED: APRIL 27, 2017
 DATE: FEBRUARY 08, 2017

CHARLESTON, WV 25304
 OFFICE OF OIL & GAS
 601 5TH STREET, SE
 WVDPE
 GRADE GPS
 OF ELEVATION SUBMETER MAPPING
 PROVEN SOURCE
 OF ACCURACY: 1/2500
 MINIMUM DEGREE
 SCALE: 1" = 1500'
 DRAWING NUMBER: HHUS_WP_1HM_Rev1
 FILE NUMBER: 163-697



Matthew N. White
 P.S. 2122

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



CURVE	ARC LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH
C1	17.99'	17.75'	N 48.18' E	17.23'
C2	98.66'	101.36'	N 46.04' E	94.81'
C3	120.84'	183.19'	S 23.19' E	118.66'
C4	372.26'	912.64'	S 42.46' E	370.00'

LINE	BEARING	DISTANCE
L1	N 89.37' E	12.01'
L2	N 79.17' E	197.45'
L3	N 18.11' E	1340.40'
L4	S 21.07' E	114.28'

SCALE 1"=200'



REFERENCES

BOTTOM HOLE
 UTM. NAD83, ZONE 17
 IN METERS
 (E) 226,227.84
 N14,404,882.57

LANDING POINT
 UTM. NAD83, ZONE 17
 IN METERS
 (E) 224,879.22
 N14,407,072.77

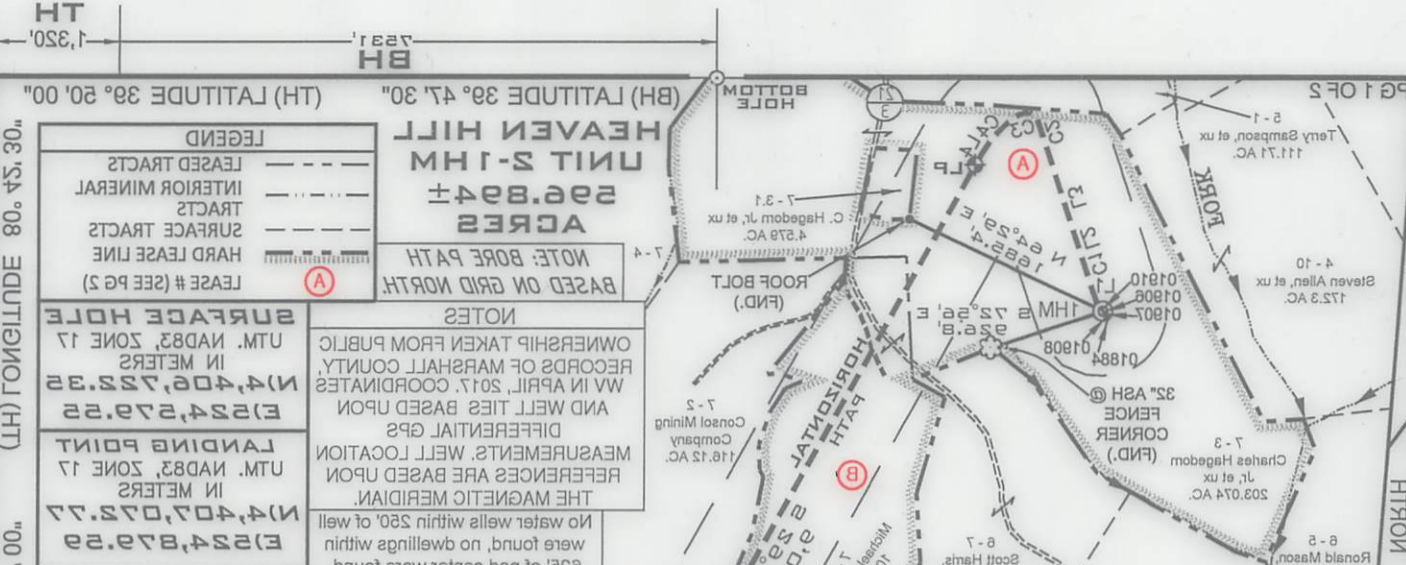
SURFACE HOLE
 UTM. NAD83, ZONE 17
 IN METERS
 (E) 224,279.22
 N14,406,722.22

NOTES
 NO WATER WELLS WITHIN 250' OF WELL
 REFERENCES ARE BASED UPON
 MEASUREMENTS, WELL LOCATION
 DIFFERENTIAL GPS
 AND WELL TIES BASED UPON
 RECORDS OF MARSHALL COUNTY,
 OWNERSHIP TAKEN FROM PUBLIC
 RECORDS ON GRID NORTH.

NOTE: BORE PATH
 BASED ON GRID NORTH.

HEAVEN HILL
 UNIT 2-1HM
 596.894±
 ACRES

LEGEND
 LEASED TRACTS
 INTERIOR MINERAL TRACTS
 SURFACE TRACTS
 HARD LEASE LINE
 LEASE # (SEE PG 2)



(BH) LONGITUDE 80° 40.00"
 (HT) LONGITUDE 38° 50.00"
 (BH) LATITUDE 39° 47.30"
 (HT) LATITUDE 39° 50.00"

**HEAVEN HILL UNIT 2-1HM
WELL PLAT LEASE INFORMATION**

Lease No.	Tag	Parcel	Oil & Gas Royalty Owner	Deed	
				Book	Pg
10*15505	A	9-7-3	RALPH E. WELLMAN	686	412
10*15521	A	9-7-3	VENANGO 21ST CENTURY ENERGY INC	722	281
10*15608	A	9-7-3	CHARLES R HAGEDORN JR	816	423
10*47051.073.1	A	9-7-3	VENANGO 21ST CENTURY ENERGY INC	888	618
10*47051.073.2	A	9-7-3	PATRIOT RESTORATIONS LLC	908	541
10*47051.073.3	A	9-7-3	TRIENERGY HOLDINGS, LLC	878	330
10*15665	B	9-7-1	MICHAEL J RINE ET UX	668	147
10*15667	C	9-7-19	KEVIN E MCGILTON ET UX	850	351
10*15560	D	9-11-6.2	WILLIAM F KERNS ET UX	677	561
10*15669	D	9-11-6.2	EMMA ANDERSON	861	586
10*15670	D	9-11-6.2	GARY M BONAR	861	577
10*15671	D	9-11-6.2	JUDALENE K COLLUMS	861	571
10*15672	D	9-11-6.2	NAOMI HUPP	861	604
10*47051.256.2	D	9-11-6.2	CAROL JEAN ANDERSON	879	299
10*47051.256.3	D	9-11-6.2	BRENDA S DYKHOUSE	881	148
10*47051.256.4	D	9-11-6.2	GLEN A BONAR	881	151
10*47051.256.5	D	9-11-6.2	JERRY W ZIEN AND KATHLEEN E ZIEN	882	530
10*15560	D	9-11-6.2	WILLIAM F KERNS ET UX	677	561
10*15669	D	9-11-6.2	EMMA ANDERSON	861	586
10*15670	D	9-11-6.2	GARY M BONAR	861	577
10*15671	D	9-11-6.2	JUDALENE K COLLUMS	861	571
10*15672	D	9-11-6.2	NAOMI HUPP	861	604
10*47051.256.2	D	9-11-6.2	CAROL JEAN ANDERSON	879	299
10*47051.256.3	D	9-11-6.2	BRENDA S DYKHOUSE	881	148
10*47051.256.4	D	9-11-6.2	GLEN A BONAR	881	151
10*47051.256.5	D	9-11-6.2	JERRY W ZIEN AND KATHLEEN E ZIEN	882	530
10*15584	E	9-11-5	VICKIE MASON	686	239
10*15585	E	9-11-5	SHARON L WHETZEL	687	147
10*15586	E	9-11-5	MARY A SOUTH	690	615
10*15587	E	9-11-5	ROBERT L WHETZEL	690	559
10*15588	E	9-11-5	RAY A WHETZEL JR	693	571
10*15589	E	9-11-5	MARK L WHETZEL	693	576
10*47051.108.1	E	9-11-5	MICHAEL A WHETZEL	885	51
10*47051.108.5	E	9-11-5	BRENDA J WHETZEL	885	55
10*47051.108.1	F	9-11-9	MICHAEL A WHETZEL	885	51
10*15582	G	9-11-10	ROBERT L CLARK	685	239

05/12/2017

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

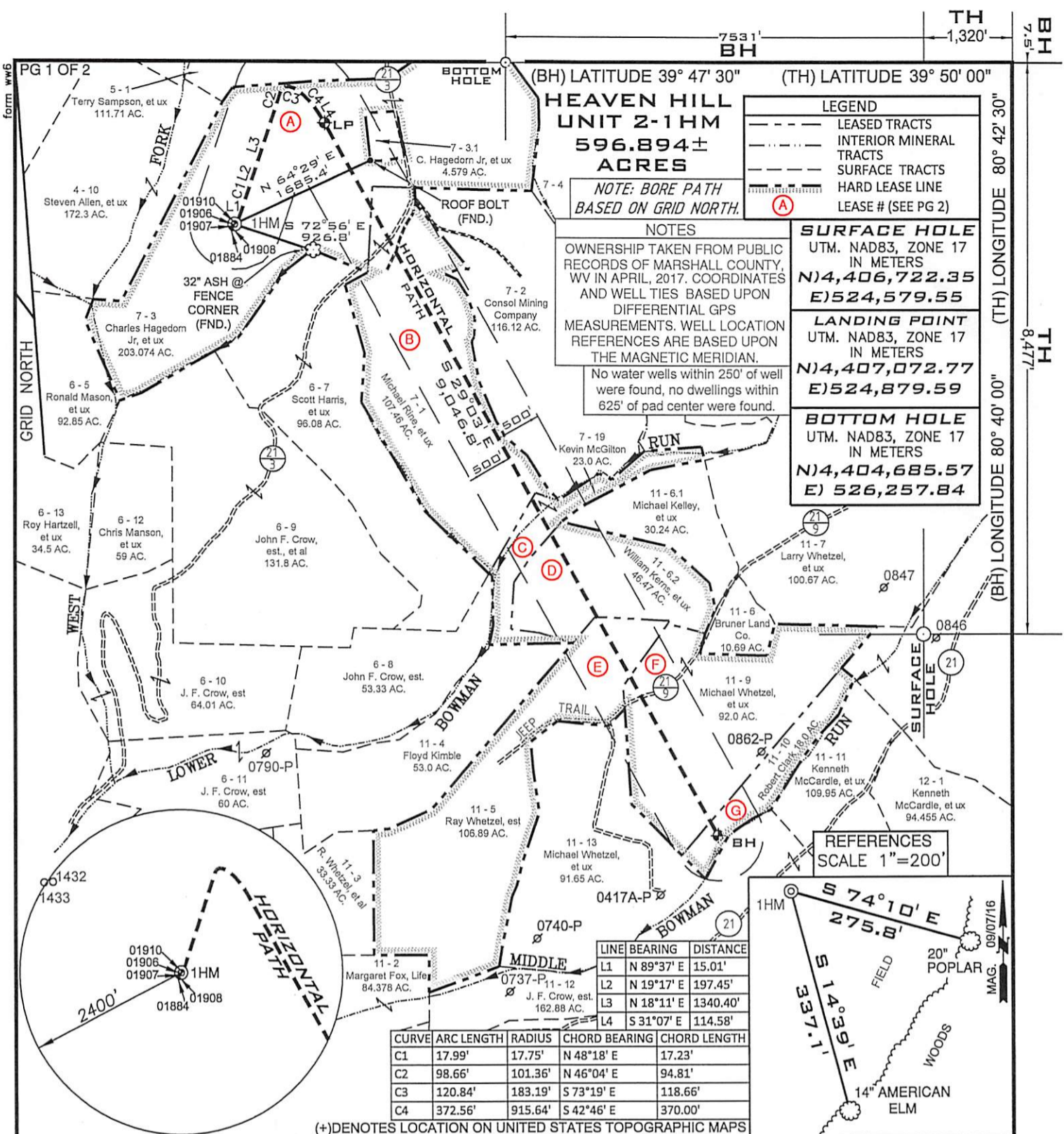
DESIGNATED AGENT DIANNA STAMPER
 CT CORPORATION SYSTEM
 ADDRESS 5400 D BIG TYLER ROAD
 CHARLESTON, WV 25313

ADDRESS 1081 MORTON TX 75101
 1250 SOUTH UNIVERSITY DRIVE, SUITE 200
 MESS OPERATOR INC HIGH OPERATING, LLC

ADDRESS CHATELAIN MA 02133
 2400 D BIG LAGER ROAD
 DESIGNATED AGENT CI CORPORATION SYSTEM
 DIANNA STAMBER

JO*J2285	C	0-JJ-10	ROBERT G STARK	082	530
JO*4102J.J08.J	E	0-JJ-0	MICHAEL A WHEITZEL	882	2J
JO*4102J.J08.2	E	0-JJ-2	BREINDA J WHEITZEL	882	22
JO*4102J.J08.J	E	0-JJ-2	MICHAEL A WHEITZEL	882	2J
JO*J2280	E	0-JJ-2	MARK G WHEITZEL	003	210
JO*J2288	E	0-JJ-2	RAY A WHEITZEL JR	003	21J
JO*J2281	E	0-JJ-2	ROBERT G WHEITZEL	000	220
JO*J2280	E	0-JJ-2	MARY A SOUTH	000	0J2
JO*J2282	E	0-JJ-2	ZHARON G WHEITZEL	081	J41
JO*J2284	E	0-JJ-2	LICKIE MAZON	080	530
JO*4102J.520.2	D	0-JJ-0.5	LEBBY W ZIEN AND KATHLEEN E ZIEN	885	230
JO*4102J.520.4	D	0-JJ-0.5	CELE A BOIAR	88J	J2J
JO*4102J.520.3	D	0-JJ-0.5	BREINDA Z DYKHONZE	88J	J48
JO*4102J.520.5	D	0-JJ-0.5	SAROG LEVI ANDEKSON	810	500
JO*J2015	D	0-JJ-0.5	NAOMI HUBB	80J	004
JO*J201J	D	0-JJ-0.5	JUDAGENE K COGNOME	80J	21J
JO*J2010	D	0-JJ-0.5	SARV M BOIAR	80J	211
JO*J2000	D	0-JJ-0.5	EMMA ANDEKSON	80J	280
JO*J2200	D	0-JJ-0.5	MIGGIAN E KEVIN ET UX	011	20J
JO*4102J.520.2	D	0-JJ-0.5	LEBBY W ZIEN AND KATHLEEN E ZIEN	885	230
JO*4102J.520.4	D	0-JJ-0.5	CELE A BOIAR	88J	J2J
JO*4102J.520.3	D	0-JJ-0.5	BREINDA Z DYKHONZE	88J	J48
JO*4102J.520.5	D	0-JJ-0.5	SAROG LEVI ANDEKSON	810	500
JO*J2015	D	0-JJ-0.5	NAOMI HUBB	80J	004
JO*J201J	D	0-JJ-0.5	JUDAGENE K COGNOME	80J	21J
JO*J2010	D	0-JJ-0.5	SARV M BOIAR	80J	211
JO*J2000	D	0-JJ-0.5	EMMA ANDEKSON	80J	280
JO*J2200	D	0-JJ-0.5	MIGGIAN E KEVIN ET UX	011	20J
JO*J2001	C	0-1-J0	KEVIN E MCCIGTON ET UX	820	32J
JO*J2002	B	0-1-J	MICHAEL J BINE ET UX	008	J41
JO*4102J.013.3	A	0-1-3	TRIEBERLY HODDINGS, LLC	818	330
JO*4102J.013.5	A	0-1-3	PATRIOT RESTORATIONS LLC	008	24J
JO*4102J.013.J	A	0-1-3	LEIANCO ST21 SENTURY EMBEL INC	888	0J8
JO*J2008	A	0-1-3	CHARLES B HAGEDORN JR	8J0	453
JO*J225J	A	0-1-3	LEIANCO ST21 SENTURY EMBEL INC	155	58J
JO*J2202	A	0-1-3	RAGH E. WELLMAN	080	4J5
LEASE NO.	TAG	PARTIC	Oil & Gas Property Owner	BOOK	Pg
				D660	

05/12/2017



FILE NUMBER 163-697

DRAWING NUMBER HHU2_WP_1HM_Rev1

SCALE 1" = 1500'

MINIMUM DEGREE OF ACCURACY 1/2500

PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

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

P.S. 2122 *Jonathan N. White*



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



DATE: FEBRUARY 08, 2017
 DATE REVISED: APRIL 27, 2017
 OPERATORS WELL NO. Heaven Hill Unit 2-1HM

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

API WELL NO. 47-051-01918
 STATE COUNTY PERMIT

LOCATION ELEVATION 1331' WATERSHED (HUC 10) FISH CREEK
 DISTRICT MEADE COUNTY MARSHALL
 QUADRANGLE GLEN EASTON 7.5' LEASE NUMBER SEE ATTACHED PG 2 OF 2

SURFACE OWNER CHARLES R. HAGEDORN, JR., ET UX ACREAGE 203.074
 OIL & GAS ROYALTY OWNER CHARLES R. HAGEDORN, JR., ET AL LEASE ACREAGE 596.894
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE (SPECIFY)

TARGET FORMATION MARCELLUS ESTIMATED DEPTH TVD 6,879' TMD:16,510'
 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

Office of Oil & Gas
 MAY 01 2017
 05/12/2017

COUNTY NAME
 PERMIT

**HEAVEN HILL UNIT 2-1HM
WELL PLAT LEASE INFORMATION**

Lease No.	Tag	Parcel	Oil & Gas Royalty Owner	Deed	
				Book	Pg
10*15505	A	9-7-3	RALPH E. WELLMAN	686	412
10*15521	A	9-7-3	VENANGO 21ST CENTURY ENERGY INC	722	281
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10*15667	C	9-7-19	KEVIN E MCGILTON ET UX	850	351
10*15560	D	9-11-6.2	WILLIAM F KERNS ET UX	677	561
10*15669	D	9-11-6.2	EMMA ANDERSON	861	586
10*15670	D	9-11-6.2	GARY M BONAR	861	577
10*15671	D	9-11-6.2	JUDALENE K COLLUMS	861	571
10*15672	D	9-11-6.2	NAOMI HUPP	861	604
10*47051.256.2	D	9-11-6.2	CAROL JEAN ANDERSON	879	299
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10*15669	D	9-11-6.2	EMMA ANDERSON	861	586
10*15670	D	9-11-6.2	GARY M BONAR	861	577
10*15671	D	9-11-6.2	JUDALENE K COLLUMS	861	571
10*15672	D	9-11-6.2	NAOMI HUPP	861	604
10*47051.256.2	D	9-11-6.2	CAROL JEAN ANDERSON	879	299
10*47051.256.3	D	9-11-6.2	BRENDA S DYKHOUSE	881	148
10*47051.256.4	D	9-11-6.2	GLEN A BONAR	881	151
10*47051.256.5	D	9-11-6.2	JERRY W ZIEN AND KATHLEEN E ZIEN	882	530
10*15584	E	9-11-5	VICKIE MASON	686	239
10*15585	E	9-11-5	SHARON L WHETZEL	687	147
10*15586	E	9-11-5	MARY A SOUTH	690	615
10*15587	E	9-11-5	ROBERT L WHETZEL	690	559
10*15588	E	9-11-5	RAY A WHETZEL JR	693	571
10*15589	E	9-11-5	MARK L WHETZEL	693	576
10*47051.108.1	E	9-11-5	MICHAEL A WHETZEL	885	51
10*47051.108.5	E	9-11-5	BRENDA J WHETZEL	885	55
10*47051.108.1	F	9-11-9	MICHAEL A WHETZEL	885	51
10*15582	G	9-11-10	ROBERT L CLARK	685	239

05/12/2017

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

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



April 29, 2017

WVDEP Office of Oil & Gas
Attn: Laura Adkins
601 57th Street, SE
Charleston, WV 25304-2345

VIA: USPS

Subject: Permit Application Modification Request for Heaven Hill Unit 2-1HM API 47-051-01918 (Revised Directional Drilling Plan) located in Meade District; Marshall County, WV

Dear Laura:

Tug Hill Operating, LLC would like to submit the enclosed permit application modification request to our pending permit for the Heaven Hill Unit 2-1HM API 47-051-01918 application for a new well work permit to explore for Marcellus potential. This proposed well is located in Marshall County, WV.

Please find the following enclosed revisions for revising the directional drilling plan between the surface location and the landing point note no changes have been made to the surface hole, landing point or bottom hole location as previously submitted:

- Revised Site Safety Plans (on CD) with the following changes:
 - Updated date of plans
 - 2.1 – Updated Driving directions
 - 2.3.7 – Well Plat Exhibit 4A+4B
 - 9.2 – WW-6B Exhibit 1A, 1B, 1C + 1D
 - 9.2 – Casing and Cementing Program Exhibit 2
 - 9.2 – Well Bore Diagram Exhibit 3
 - Appendix A – Updated Emergency Notification List
- Revised WW-6B form with the following changes
 - 17) (A) revised subsea level depth
 - 18) Revised Cement Fill-Up on all strings and on Production casing revised footages for drilling and intervals left in well
 - 24) Revised cement additives and attachment
 - Revised Well Bore Diagram for cement volumes and production casing length / TMD
 - Revised directional drilling plan
- Revised Mylar Well Plat
 - Revised well path from surface hole to landing point

Received
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MAY 01 2017



- New well permits in spot circle
- Revised date
- TVD and TMD

If you have any question or need any additional information please feel free to call me at 304-689-7676. Thank you for reviewing this application. I greatly appreciate it.

Sincerely,

A handwritten signature in blue ink that reads "Jonathan White".

Jonathan White
Regulatory Analyst – Appalachia Region
Cell 304-689-7676
Email: jwhite@tug-hillop.com

Received
Office of Oil & Gas
MAY 01 2017