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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)

Tuesday, November 5, 2019  
WELL WORK PERMIT  
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC  
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for GOUDY 1S-16HU  
47-051-02195-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin  
Chief

A blue ink signature of James A. Martin, written in a cursive style, is positioned to the right of his name and title.

Operator's Well Number: GOUDY 1S-16HU  
Farm Name: TH EXPLORATION III, LLC  
U.S. WELL NUMBER: 47-051-02195-00-00  
Horizontal 6A New Drill  
Date Issued: 11/5/2019

# PERMIT CONDITIONS

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

## CONDITIONS

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

## PERMIT CONDITIONS

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



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Oil and Gas Conservation Commission  
601 57<sup>th</sup> Street SE, Charleston, WV 25304  
304-926-0499 Ext 1274

Barry K. Lay, Chairman  
dep.wv.gov

October 2, 2019

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

RE: Application for Deep Well Permit – API #47-051-02195

COMPANY: Tug Hill Operating, LLC

FARM: TH Exploration III, LLC Goudy 1S-16HU

COUNTY: Marshall DISTRICT: Franklin QUAD: New Martinsville

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

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

1. Comments to Notice of Deviation filed? Yes, withdrawn prior to the hearing being scheduled.
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: \*\*yes; Docket 287-283 Exception Location Hearing
4. Provided a plat showing that the proposed location is a distance of 400 feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

A handwritten signature in blue ink that reads "Susan Rose".

Susan Rose  
Administrator



WW-6B  
(04/15)

API NO. 47-051 -  
OPERATOR WELL NO. Goudy 1S-16HU  
Well Pad Name: Goudy

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259FT^3(CTS)
Fresh Water	20"	NEW	J55	106.5#	950'	950'	1538ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2,800'	2,800'	1974ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	47#	10,096'	10,096'	3301ft^3(CTS)
Production	5 1/2"	NEW	P110	23#	16,661'	16,661'	3988ft^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		11,205'	
Liners							

*ju*  
2/7/19

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	20"	26"	.5	2,410	1,928	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.38	2,740	2,192	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.472	10,730	6,968	SEE#24	1.99
Production	5 1/2"	8 1/2"	.415	16,510	10,864	SEE#24	1.18
Tubing	2 3/8"			14,530	11,624		
Liners							

PACKERS

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

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Environmental Protection

WW-6B  
(10/14)

API NO. 47- 051 -  
OPERATOR WELL NO. Goudy 1S-16HU  
Well Pad Name: Goudy

*JW*  
*2/7/19*

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

Drill through the Point Pleasant and TD Pilot Hole 150' into the Trenton. Log vertical section and run a solid cement plug back to proposed KOP. 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 12,707,500 lb proppant and 196,467 bbl of water. Max rate = 80 bpm; max psi = 12,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 11.56

22) Area to be disturbed for well pad only, less access road (acres): 5.81

23) Describe centralizer placement for each casing string:

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

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

\*See Attachment

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.

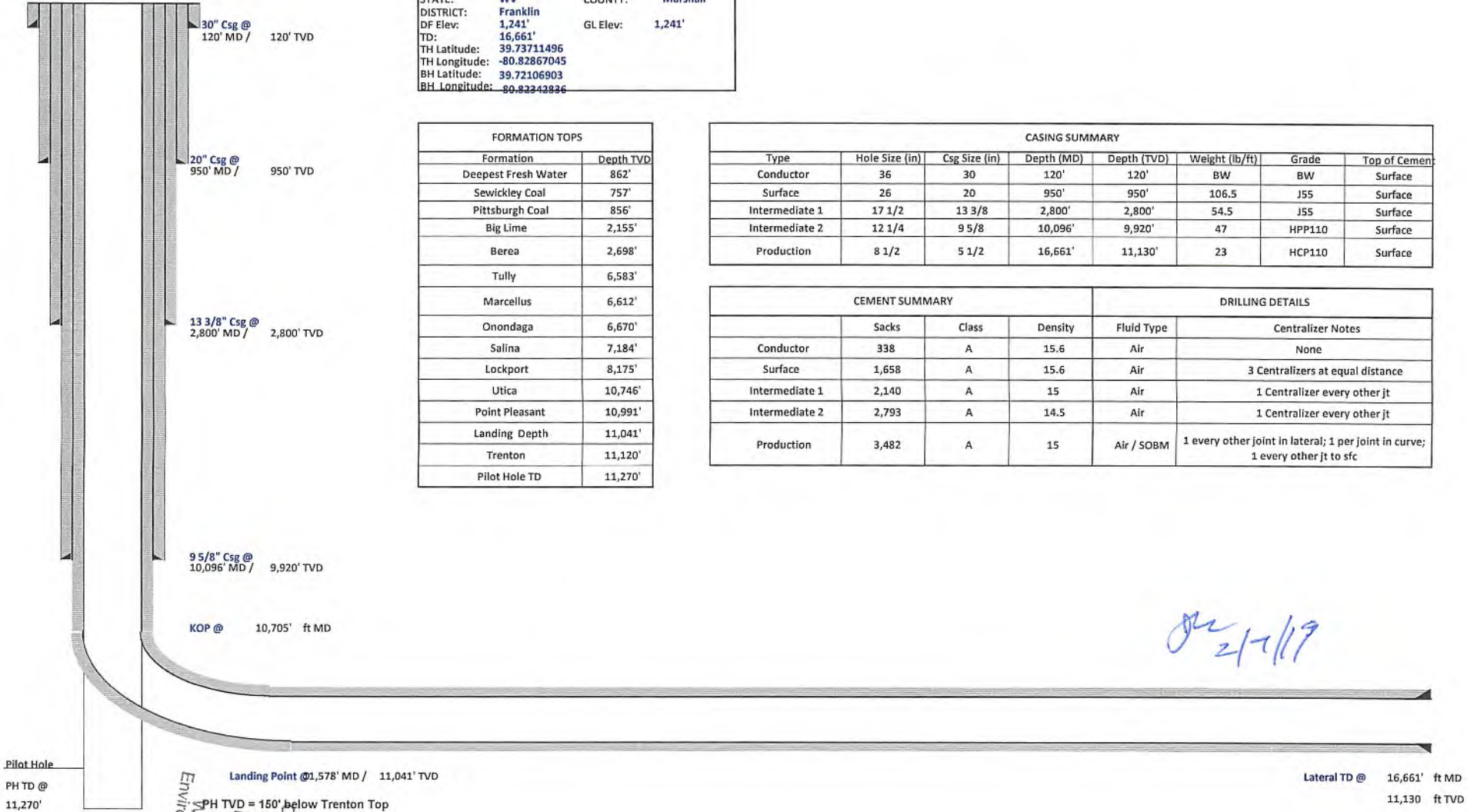


WELL NAME: Goudy 15-16HU  
 STATE: WV COUNTY: Marshall  
 DISTRICT: Franklin  
 DF Elev: 1,241' GL Elev: 1,241'  
 TD: 16,661'  
 TH Latitude: 39.73711496  
 TH Longitude: -80.82867045  
 BH Latitude: 39.72106903  
 BH Longitude: -80.82242826

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	862'
Sewickley Coal	757'
Pittsburgh Coal	856'
Big Lime	2,155'
Berea	2,698'
Tully	6,583'
Marcellus	6,612'
Onondaga	6,670'
Salina	7,184'
Lockport	8,175'
Utica	10,746'
Point Pleasant	10,991'
Landing Depth	11,041'
Trenton	11,120'
Pilot Hole TD	11,270'

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	26	20	950'	950'	106.5	J55	Surface
Intermediate 1	17 1/2	13 3/8	2,800'	2,800'	54.5	J55	Surface
Intermediate 2	12 1/4	9 5/8	10,096'	9,920'	47	HPP110	Surface
Production	8 1/2	5 1/2	16,661'	11,130'	23	HCP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.6	Air	None
Surface	1,658	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,140	A	15	Air	1 Centralizer every other jt
Intermediate 2	2,793	A	14.5	Air	1 Centralizer every other jt
Production	3,482	A	15	Air / SOBMs	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



*2/7/19*

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4705102195





## Tug Hill Operating, LLC Casing and Cement Program

### Goudy 1S-16HU

#### Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	20"	J55	26"	950'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,800'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	10,096'	CTS
Production	5 1/2"	HCP110	8 1/2"	16,661'	CTS

#### Cement

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

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

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

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

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WW-9  
(4/16)

API Number 47 - 051 - \_\_\_\_\_  
Operator's Well No. Goudy 1S-16HU

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Tug Hill Operating, LLC OP Code 494510851

Watershed (HUC 10) French Creek - Ohio River Quadrangle New Martinsville 7.5'

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

Will a pit be used? Yes  No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

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

Additives to be used in drilling medium? Barite for weight

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

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

-Landfill or offsite name/permit number? Wetzel County Sanitary Landfill (SWF-1021 / WV0109185) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1386426)

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

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

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

Company Official Signature Jim Pancake

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President Geoscience

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Subscribed and sworn before me this 29 day of JANUARY, 2019

Maureen A Stead

Notary Public

My commission expires 1/28/23

WV Department of Environmental Protection

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

Form WW-9

Operator's Well No. Goudy 1S-16HU

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 11.56 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

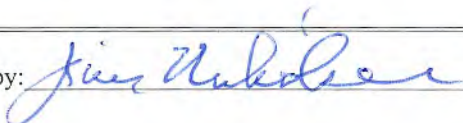
Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Orchard Grass	12
Spring Oats	96	Ladino	3
		White Clover	2

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:



Comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Title: Oil and Gas Inspector

Date: 2/7/19

Field Reviewed? (  ) Yes (  ) No

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WW-9

# PROPOSED GOUDY 1S-16HU

SUPPLEMENT PG 1

DRAWING NOT TO SCALE

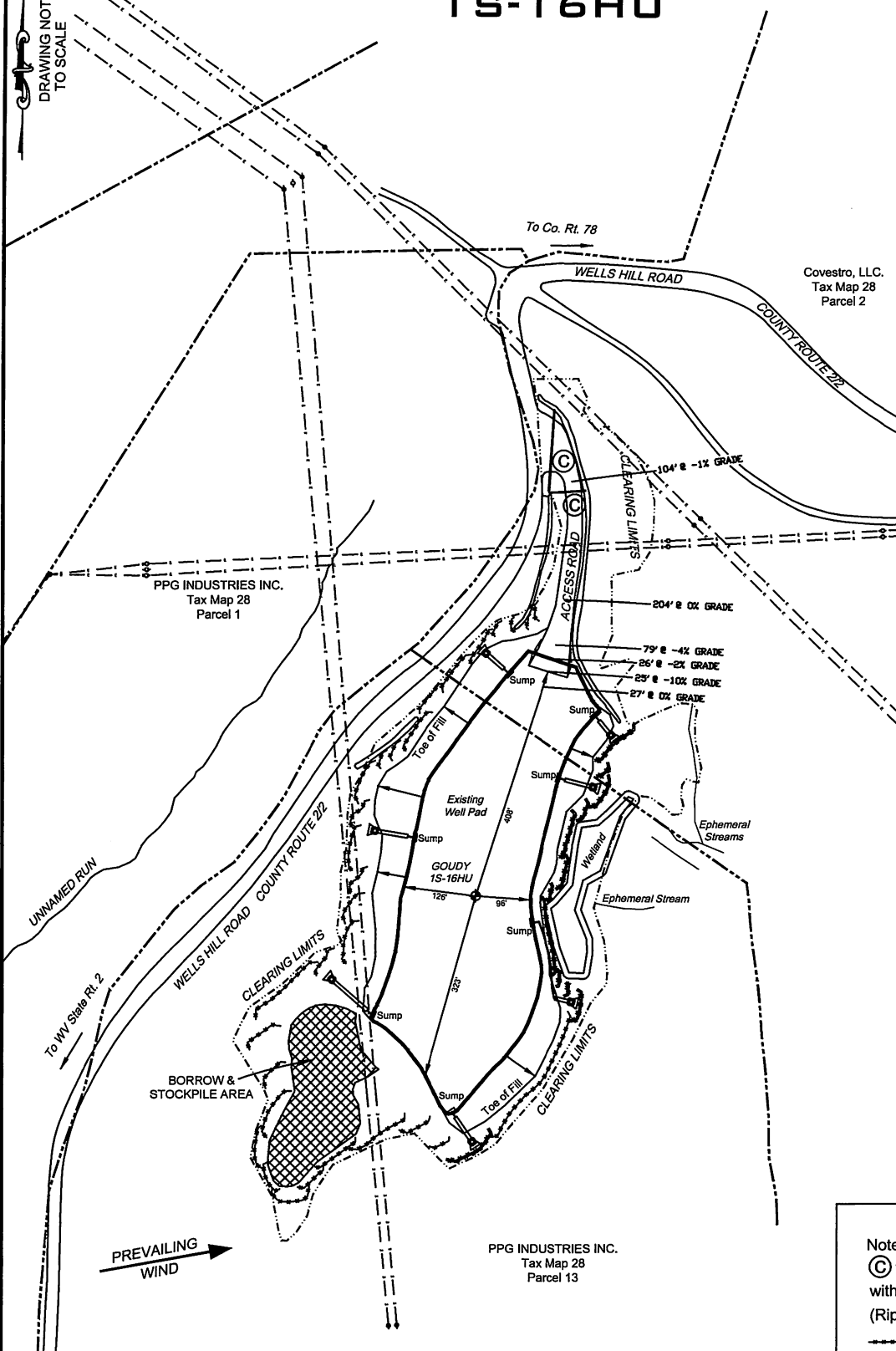
REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES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

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

ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED. TEMPORARILY SEED AND MULCH ALL SLOPES UPON CONSTRUCTION OF LOCATION.

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

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



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**LEGEND**

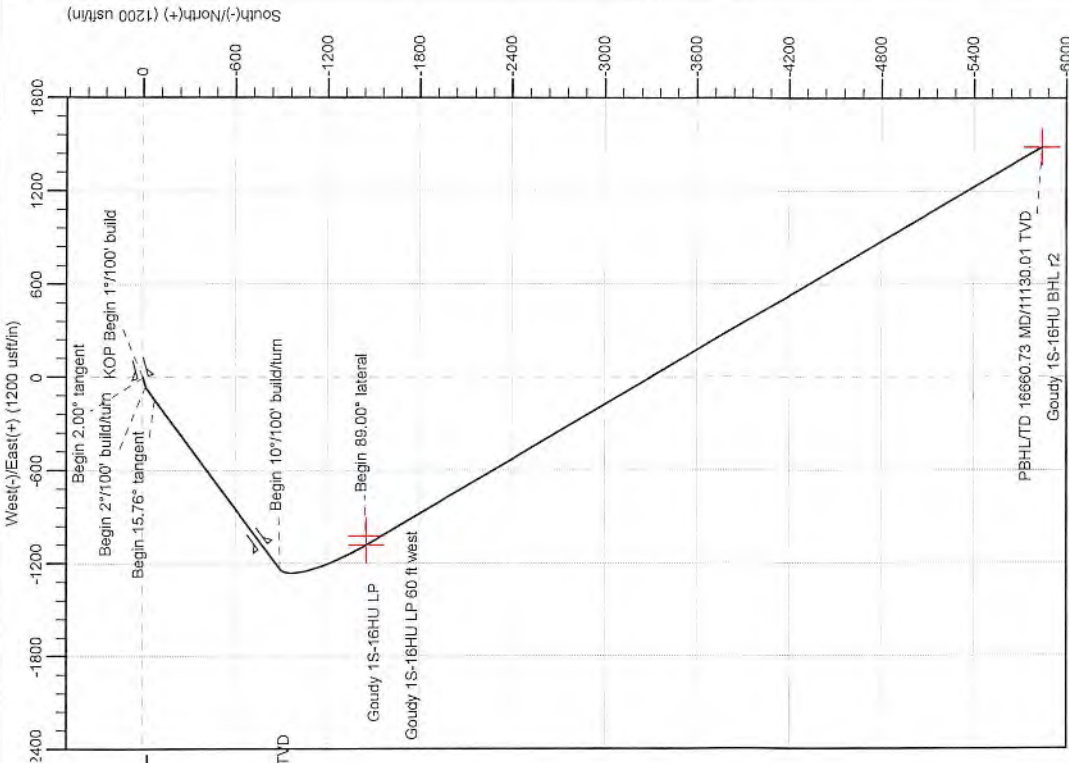
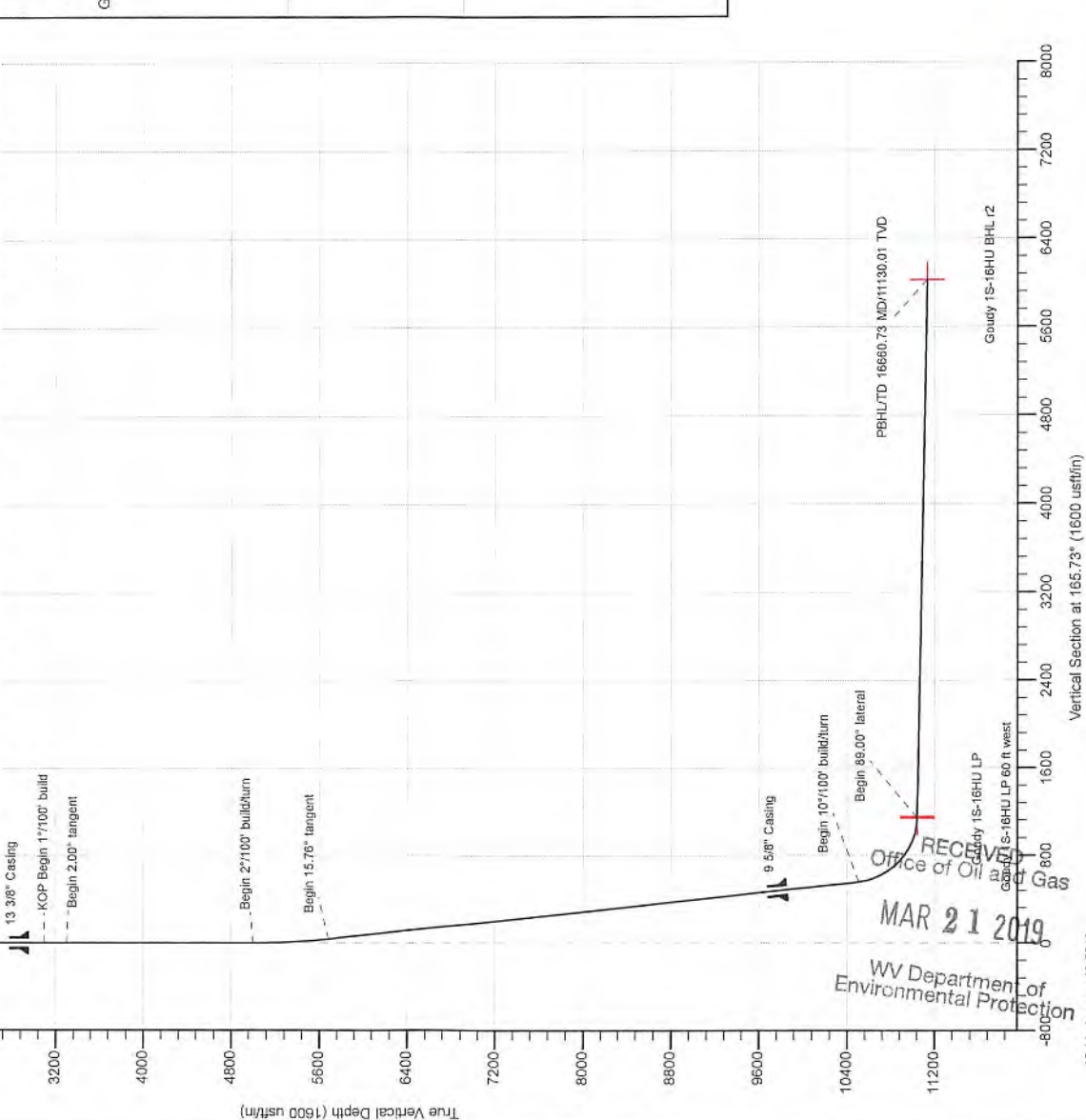
Note:  
 (C) — Denotes existing culvert with appropriate sediment outlet control (Rip Rap splash pad).  
 - - - - - Silt Fence and or Sediment and Erosion Control Measure.  
 - - - - - Surface Boundary  
 — E — Overhead Utility

**Well: Goudy 1S-16HU (M)**  
**Site: Goudy**  
**Project: Marshall County, West Virginia.**  
**Design: rev2**



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	3100.00	0.00	0.00	3100.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 1°/100' build
3	3300.00	2.00	265.00	3298.96	-0.90	-3.37	1.00	265.00	0.04	Begin 2.00° tangent
4	5001.08	12.00	265.00	5000.00	-16.27	-60.72	0.00	0.00	0.80	Begin 2°/100' build/turn
5	5687.16	15.76	233.16	5686.17	-97.39	-148.52	2.00	-24.83	37.42	Begin 15.76° tangent
6	10704.96	15.76	233.16	10505.73	891.90	-1236.94	0.00	0.00	559.51	Begin 10°/100' build/turn
7	15777.59	89.00	149.89	11041.00	-1452.33	-1080.01	10.00	-83.98	114.133	Begin 89.00° lateral
8	16660.73	89.00	149.89	11130.01	-1669.65	-1485.18	0.00	0.00	6025.74	PBHL/TD 16660.73 MD/11130.01 TVD



Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD83 West Virginia - HARN  
 Ellipsoid: GRS 1980 (84 W to 78 W)  
 Zone: 18N  
 System Datum: Mean Sea Level  
 Depth Reference: G1 @ 1241.00usft  
 Northing: 14431054.62  
 Easting: 1688561.17  
 Latitude: 39.73711496  
 Longitude: -80.82687045

Total Corr (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.73°



Azimuths to Grid North  
 True North: -0.11°  
 Magnetic North: -8.73°  
 Magnetic Field  
 Strength: 52058.5nT  
 Dip Angle: 66.86°  
 Date: 5/11/2018  
 Model: IGRF-2015



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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Goudy 1S-16HU (M)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1241.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1241.00usft
Site:	Goudy	North Reference:	Grid
Well:	Goudy 1S-16HU (M)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

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

Site	Goudy				
Site Position:		Northing:	14,430,942.40 usft	Latitude:	39.73680688
From:	Lat/Long	Easting:	1,688,559.77 usft	Longitude:	-80.82874732
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.11 °

Well	Goudy 1S-16HU (M)					
Well Position	+N/-S	0.00 usft	Northing:	14,431,054.62 usft	Latitude:	39.73711496
	+E/-W	0.00 usft	Easting:	1,688,581.17 usft	Longitude:	-80.82867045
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	1,241.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/11/2018	-8.62	66.86	52,058.45795546

Design	rev2				
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	165.73	

Plan Survey Tool Program	Date 1/18/2019				
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	16,680.73 rev2 (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 (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,300.00	2.00	255.00	3,299.96	-0.90	-3.37	1.00	1.00	0.00	255.00	
5,001.08	2.00	255.00	5,000.00	-16.27	-60.72	0.00	0.00	0.00	0.00	
5,697.16	15.76	233.16	5,686.17	-76.39	-148.52	2.00	1.98	-3.14	-24.83	
10,704.95	15.76	233.16	10,505.73	-891.90	-1,236.94	0.00	0.00	0.00	0.00	
11,577.59	89.00	149.69	11,041.00	-1,452.33	-1,080.01	10.00	8.39	-9.57	-83.98	Goudy 1S-16HU LP 6
16,680.73	89.00	149.69	11,130.01	-5,839.85	1,485.18	0.00	0.00	0.00	0.00	Goudy 1S-16HU BHL

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Planning Report - Geographic

Database: DB\_Jul2216dt\_v14  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia.  
 Site: Goudy  
 Well: Goudy 1S-16HU (M)  
 Wellbore: Original Hole  
 Design: rev2

Local Co-ordinate Reference: Well Goudy 1S-16HU (M)  
 TVD Reference: GL @ 1241.00usft  
 MD Reference: GL @ 1241.00usft  
 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	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
100.00	0.00	0.00	100.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
200.00	0.00	0.00	200.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
300.00	0.00	0.00	300.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
400.00	0.00	0.00	400.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
500.00	0.00	0.00	500.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
600.00	0.00	0.00	600.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
700.00	0.00	0.00	700.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
800.00	0.00	0.00	800.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
900.00	0.00	0.00	900.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,800.00	0.00	0.00	1,800.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
1,900.00	0.00	0.00	1,900.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,000.00	0.00	0.00	2,000.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,100.00	0.00	0.00	2,100.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,200.00	0.00	0.00	2,200.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,300.00	0.00	0.00	2,300.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,400.00	0.00	0.00	2,400.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,500.00	0.00	0.00	2,500.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,599.99	0.00	0.00	2,599.99	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,699.99	0.00	0.00	2,699.99	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,799.99	0.00	0.00	2,799.99	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,899.99	0.00	0.00	2,899.99	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
2,999.99	0.00	0.00	2,999.99	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
3,099.99	0.00	0.00	3,099.99	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
3,100.00	0.00	0.00	3,100.00	0.00	0.00	14,431,054.62	1,688,581.17	39.73711496	-80.82867045
<b>KOP Begin 1°/100' build</b>									
3,199.99	1.00	255.00	3,199.99	-0.23	-0.84	14,431,054.40	1,688,580.33	39.73711435	-80.82867345
3,299.99	2.00	255.00	3,299.95	-0.90	-3.37	14,431,053.72	1,688,577.80	39.73711250	-80.82868245
3,300.00	2.00	255.00	3,299.96	-0.90	-3.37	14,431,053.72	1,688,577.80	39.73711250	-80.82868245
<b>Begin 2.00° tangent</b>									
3,399.99	2.00	255.00	3,399.89	-1.81	-6.74	14,431,052.82	1,688,574.43	39.73711004	-80.82869445
3,499.99	2.00	255.00	3,499.83	-2.71	-10.11	14,431,051.91	1,688,571.06	39.73710757	-80.82870644
3,599.99	2.00	255.00	3,599.77	-3.61	-13.48	14,431,051.01	1,688,567.69	39.73710511	-80.82871844
3,699.99	2.00	255.00	3,699.71	-4.52	-16.86	14,431,050.11	1,688,564.31	39.73710265	-80.82873044
3,799.99	2.00	255.00	3,799.65	-5.42	-20.23	14,431,049.20	1,688,560.94	39.73710018	-80.82874244
3,899.99	2.00	255.00	3,899.59	-6.32	-23.60	14,431,048.30	1,688,557.57	39.73709772	-80.82875443
3,999.99	2.00	255.00	3,999.53	-7.23	-26.97	14,431,047.40	1,688,554.20	39.73709526	-80.82876643
4,099.99	2.00	255.00	4,099.46	-8.13	-30.34	14,431,046.49	1,688,550.83	39.73709279	-80.82877843
4,199.99	2.00	255.00	4,199.40	-9.03	-33.71	14,431,045.59	1,688,547.46	39.73709033	-80.82879043
4,299.99	2.00	255.00	4,299.34	-9.94	-37.08	14,431,044.69	1,688,544.09	39.73708787	-80.82880242
4,399.99	2.00	255.00	4,399.28	-10.84	-40.45	14,431,043.78	1,688,540.72	39.73708541	-80.82881442
4,499.99	2.00	255.00	4,499.22	-11.74	-43.82	14,431,042.88	1,688,537.35	39.73708294	-80.82882642
4,599.99	2.00	255.00	4,599.16	-12.65	-47.19	14,431,041.98	1,688,533.98	39.73708048	-80.82883842
4,699.99	2.00	255.00	4,699.10	-13.55	-50.57	14,431,041.07	1,688,530.60	39.73707802	-80.82885041
4,799.99	2.00	255.00	4,799.04	-14.45	-53.94	14,431,040.17	1,688,527.23	39.73707555	-80.82886241
4,899.99	2.00	255.00	4,898.98	-15.36	-57.31	14,431,039.27	1,688,523.86	39.73707309	-80.82887441

WV Department of Environmental Protection



Planning Report - Geographic

Database: DB\_Jul2216dt\_v14  
 Company: Tug Hill Operating LLC  
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 Site: Goudy  
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 Wellbore: Original Hole  
 Design: rev2

Local Co-ordinate Reference: Well Goudy 1S-16HU (M)  
 TVD Reference: GL @ 1241.00usft  
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 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
4,999.99	2.00	255.00	4,998.91	-16.26	-60.68	14,431,038.36	1,688,520.49	39.73707063	-80.82888641
5,001.08	2.00	255.00	5,000.00	-16.27	-60.72	14,431,038.35	1,688,520.45	39.73707060	-80.82888654
<b>Begin 2°/100' build/turn</b>									
5,099.99	3.89	242.64	5,098.78	-18.26	-65.36	14,431,036.37	1,688,515.81	39.73706517	-80.82890307
5,199.99	5.85	238.40	5,198.41	-22.48	-72.71	14,431,032.14	1,688,508.46	39.73705359	-80.82892925
5,299.99	7.84	236.29	5,297.70	-28.94	-82.73	14,431,025.68	1,688,498.44	39.73703591	-80.82896493
5,399.99	9.83	235.03	5,396.50	-37.62	-95.40	14,431,017.00	1,688,485.77	39.73701215	-80.82901005
5,499.99	11.82	234.20	5,494.72	-48.50	-110.70	14,431,006.12	1,688,470.47	39.73698233	-80.82906456
5,599.99	13.82	233.60	5,592.22	-61.59	-128.62	14,430,993.04	1,688,452.55	39.73694650	-80.82912840
5,697.15	15.76	233.16	5,686.16	-76.38	-148.52	14,430,978.24	1,688,432.65	39.73690596	-80.82919929
<b>Begin 15.76° tangent</b>									
5,697.16	15.76	233.16	5,686.17	-76.39	-148.52	14,430,978.24	1,688,432.65	39.73690596	-80.82919930
5,699.99	15.76	233.16	5,688.89	-76.85	-149.14	14,430,977.78	1,688,432.03	39.73690470	-80.82920149
5,799.99	15.76	233.16	5,785.13	-93.13	-170.87	14,430,961.49	1,688,410.30	39.73686009	-80.82927891
5,899.99	15.76	233.16	5,881.37	-109.42	-192.61	14,430,945.21	1,688,388.56	39.73681548	-80.82935633
5,999.99	15.76	233.16	5,977.62	-125.70	-214.34	14,430,928.92	1,688,366.83	39.73677087	-80.82943376
6,099.99	15.76	233.16	6,073.86	-141.99	-236.08	14,430,912.64	1,688,345.09	39.73672626	-80.82951118
6,199.99	15.76	233.16	6,170.10	-158.27	-257.81	14,430,896.35	1,688,323.36	39.73668165	-80.82958860
6,299.99	15.76	233.16	6,266.34	-174.56	-279.55	14,430,880.07	1,688,301.62	39.73663704	-80.82966602
6,399.99	15.76	233.16	6,362.58	-190.84	-301.28	14,430,863.78	1,688,279.89	39.73659243	-80.82974345
6,499.99	15.76	233.16	6,458.82	-207.13	-323.02	14,430,847.50	1,688,258.15	39.73654782	-80.82982087
6,599.99	15.76	233.16	6,555.06	-223.41	-344.75	14,430,831.21	1,688,236.42	39.73650321	-80.82989829
6,699.99	15.76	233.16	6,651.30	-239.70	-366.48	14,430,814.93	1,688,214.69	39.73645860	-80.82997571
6,799.99	15.76	233.16	6,747.55	-255.98	-388.22	14,430,798.64	1,688,192.95	39.73641399	-80.83005314
6,899.99	15.76	233.16	6,843.79	-272.27	-409.95	14,430,782.36	1,688,171.22	39.73636938	-80.83013056
6,999.99	15.76	233.16	6,940.03	-288.55	-431.69	14,430,766.07	1,688,149.48	39.73632477	-80.83020798
7,099.99	15.76	233.16	7,036.27	-304.84	-453.42	14,430,749.79	1,688,127.75	39.73628016	-80.83028540
7,199.99	15.76	233.16	7,132.51	-321.12	-475.16	14,430,733.50	1,688,106.01	39.73623555	-80.83036282
7,299.99	15.76	233.16	7,228.75	-337.41	-496.89	14,430,717.22	1,688,084.28	39.73619094	-80.83044024
7,399.99	15.76	233.16	7,324.99	-353.69	-518.63	14,430,700.93	1,688,062.54	39.73614633	-80.83051767
7,499.99	15.76	233.16	7,421.23	-369.97	-540.36	14,430,684.65	1,688,040.81	39.73610172	-80.83059509
7,599.98	15.76	233.16	7,517.48	-386.26	-562.09	14,430,668.36	1,688,019.08	39.73605711	-80.83067251
7,699.98	15.76	233.16	7,613.72	-402.54	-583.83	14,430,652.08	1,687,997.34	39.73601250	-80.83074993
7,799.98	15.76	233.16	7,709.96	-418.83	-605.56	14,430,635.79	1,687,975.61	39.73596789	-80.83082735
7,899.98	15.76	233.16	7,806.20	-435.11	-627.30	14,430,619.51	1,687,953.87	39.73592328	-80.83090477
7,999.98	15.76	233.16	7,902.44	-451.40	-649.03	14,430,603.22	1,687,932.14	39.73587867	-80.83098219
8,099.98	15.76	233.16	7,998.68	-467.68	-670.77	14,430,586.94	1,687,910.40	39.73583405	-80.83105961
8,199.98	15.76	233.16	8,094.92	-483.97	-692.50	14,430,570.65	1,687,888.67	39.73578944	-80.83113703
8,299.98	15.76	233.16	8,191.16	-500.25	-714.24	14,430,554.37	1,687,866.93	39.73574483	-80.83121445
8,399.98	15.76	233.16	8,287.41	-516.54	-735.97	14,430,538.08	1,687,845.20	39.73570022	-80.83129187
8,499.98	15.76	233.16	8,383.65	-532.82	-757.70	14,430,521.80	1,687,823.47	39.73565561	-80.83136929
8,599.98	15.76	233.16	8,479.89	-549.11	-779.44	14,430,505.51	1,687,801.73	39.73561100	-80.83144671
8,699.98	15.76	233.16	8,576.13	-565.39	-801.17	14,430,489.23	1,687,780.00	39.73556639	-80.83152413
8,799.98	15.76	233.16	8,672.37	-581.68	-822.91	14,430,472.94	1,687,758.26	39.73552178	-80.83160155
8,899.98	15.76	233.16	8,768.61	-597.96	-844.64	14,430,456.66	1,687,736.53	39.73547717	-80.83167897
8,999.98	15.76	233.16	8,864.85	-614.25	-866.38	14,430,440.38	1,687,714.79	39.73543256	-80.83175639
9,099.98	15.76	233.16	8,961.09	-630.53	-888.11	14,430,424.09	1,687,693.06	39.73538795	-80.83183381
9,199.98	15.76	233.16	9,057.33	-646.82	-909.85	14,430,407.81	1,687,671.32	39.73534333	-80.83191123
9,299.98	15.76	233.16	9,153.58	-663.10	-931.58	14,430,391.52	1,687,649.59	39.73529872	-80.83198865
9,399.98	15.76	233.16	9,249.82	-679.39	-953.31	14,430,375.24	1,687,627.86	39.73525411	-80.83206607
9,499.98	15.76	233.16	9,346.06	-695.67	-975.05	14,430,358.95	1,687,606.12	39.73520950	-80.83214349
9,599.98	15.76	233.16	9,442.30	-711.96	-996.78	14,430,342.67	1,687,584.39	39.73516489	-80.83222091
9,699.98	15.76	233.16	9,538.54	-728.24	-1,018.52	14,430,326.38	1,687,562.65	39.73512028	-80.83229833
9,799.98	15.76	233.16	9,634.78	-744.53	-1,040.25	14,430,310.10	1,687,540.92	39.73507567	-80.83237575





Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Goudy 1S-16HU (M)
Company:	Tug Hill Operating LLC	TVD Reference:	GL @ 1241.00usft
Project:	Marshall County, West Virginia.	MD Reference:	GL @ 1241.00usft
Site:	Goudy	North Reference:	Grid
Well:	Goudy 1S-16HU (M)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
9,899.98	15.76	233.16	9,731.02	-760.81	-1,061.99	14,430,293.81	1,687,519.18	39.73503105	-80.83245317	
9,999.98	15.76	233.16	9,827.26	-777.10	-1,083.72	14,430,277.53	1,687,497.45	39.73498644	-80.83253059	
10,099.98	15.76	233.16	9,923.51	-793.38	-1,105.46	14,430,261.24	1,687,475.71	39.73494183	-80.83260801	
10,199.98	15.76	233.16	10,019.75	-809.67	-1,127.19	14,430,244.96	1,687,453.98	39.73489722	-80.83268542	
10,299.98	15.76	233.16	10,115.99	-825.95	-1,148.92	14,430,228.67	1,687,432.25	39.73485261	-80.83276284	
10,399.98	15.76	233.16	10,212.23	-842.24	-1,170.66	14,430,212.39	1,687,410.51	39.73480799	-80.83284026	
10,499.98	15.76	233.16	10,308.47	-858.52	-1,192.39	14,430,196.10	1,687,388.78	39.73476338	-80.83291768	
10,599.98	15.76	233.16	10,404.71	-874.81	-1,214.13	14,430,179.82	1,687,367.04	39.73471877	-80.83299510	
10,699.98	15.76	233.16	10,500.95	-891.09	-1,235.86	14,430,163.53	1,687,345.31	39.73467416	-80.83307252	
10,704.94	15.76	233.16	10,505.73	-891.90	-1,236.94	14,430,162.72	1,687,344.23	39.73467195	-80.83307636	
<b>Begin 10°/100' build/turn</b>										
10,704.95	15.76	233.16	10,505.73	-891.90	-1,236.94	14,430,162.72	1,687,344.23	39.73467194	-80.83307636	
10,799.98	19.18	203.17	10,596.55	-914.04	-1,253.45	14,430,140.59	1,687,327.72	39.73461123	-80.83313522	
10,899.98	26.14	184.26	10,688.90	-951.20	-1,261.57	14,430,103.42	1,687,319.60	39.73450920	-80.83316435	
10,999.98	34.55	173.44	10,775.18	-1,001.47	-1,259.96	14,430,053.15	1,687,321.21	39.73437114	-80.83315897	
11,099.98	43.57	166.55	10,852.78	-1,063.32	-1,248.68	14,429,991.30	1,687,332.49	39.73420122	-80.83311925	
11,199.98	52.89	161.66	10,919.34	-1,134.87	-1,228.07	14,429,919.75	1,687,353.10	39.73400462	-80.83304640	
11,299.98	62.36	157.85	10,972.84	-1,213.95	-1,198.75	14,429,840.68	1,687,382.42	39.73378730	-80.83294263	
11,399.98	71.92	154.66	11,011.65	-1,298.15	-1,161.61	14,429,756.48	1,687,419.56	39.73355588	-80.83281110	
11,499.98	81.53	151.80	11,034.59	-1,384.91	-1,117.79	14,429,669.71	1,687,463.38	39.73331738	-80.83265579	
11,577.59	89.00	149.69	11,041.00	-1,452.33	-1,080.01	14,429,602.29	1,687,501.16	39.73313202	-80.83252187	
11,577.62	89.00	149.69	11,041.00	-1,452.36	-1,079.99	14,429,602.26	1,687,501.18	39.73313194	-80.83252181	
<b>Begin 89.00° lateral</b>										
11,599.98	89.00	149.69	11,041.39	-1,471.66	-1,068.71	14,429,582.97	1,687,512.46	39.73307889	-80.83248181	
11,699.98	89.00	149.69	11,043.14	-1,557.97	-1,018.25	14,429,496.65	1,687,562.92	39.73284158	-80.83230288	
11,799.98	89.00	149.69	11,044.89	-1,644.29	-967.78	14,429,410.34	1,687,613.39	39.73260427	-80.83212396	
11,899.98	89.00	149.69	11,046.65	-1,730.60	-917.32	14,429,324.02	1,687,663.85	39.73236697	-80.83194504	
11,999.98	89.00	149.69	11,048.40	-1,816.92	-866.85	14,429,237.71	1,687,714.32	39.73212966	-80.83176611	
12,099.98	89.00	149.69	11,050.15	-1,903.23	-816.39	14,429,151.39	1,687,764.78	39.73189235	-80.83158719	
12,199.98	89.00	149.69	11,051.90	-1,989.55	-765.92	14,429,065.08	1,687,815.25	39.73165505	-80.83140828	
12,299.98	89.00	149.69	11,053.65	-2,075.86	-715.46	14,428,978.76	1,687,865.71	39.73141774	-80.83122936	
12,399.98	89.00	149.69	11,055.40	-2,162.18	-664.99	14,428,892.45	1,687,916.18	39.73118043	-80.83105044	
12,499.98	89.00	149.69	11,057.15	-2,248.49	-614.53	14,428,806.13	1,687,966.64	39.73094312	-80.83087153	
12,599.98	89.00	149.69	11,058.90	-2,334.80	-564.07	14,428,719.82	1,688,017.10	39.73070581	-80.83069261	
12,699.97	89.00	149.69	11,060.65	-2,421.12	-513.60	14,428,633.50	1,688,067.57	39.73046850	-80.83051370	
12,799.97	89.00	149.69	11,062.41	-2,507.43	-463.14	14,428,547.19	1,688,118.03	39.73023119	-80.83033479	
12,899.97	89.00	149.69	11,064.16	-2,593.75	-412.67	14,428,460.87	1,688,168.50	39.72999389	-80.83015588	
12,999.97	89.00	149.69	11,065.91	-2,680.06	-362.21	14,428,374.56	1,688,218.96	39.72975658	-80.82997697	
13,099.97	89.00	149.69	11,067.66	-2,766.38	-311.74	14,428,288.24	1,688,269.43	39.72951927	-80.82979806	
13,199.97	89.00	149.69	11,069.41	-2,852.69	-261.28	14,428,201.93	1,688,319.89	39.72928196	-80.82961915	
13,299.97	89.00	149.69	11,071.16	-2,939.01	-210.81	14,428,115.61	1,688,370.36	39.72904464	-80.82944025	
13,399.97	89.00	149.69	11,072.91	-3,025.32	-160.35	14,428,029.30	1,688,420.82	39.72880733	-80.82926134	
13,499.97	89.00	149.69	11,074.66	-3,111.64	-109.89	14,427,942.99	1,688,471.28	39.72857002	-80.82908244	
13,599.97	89.00	149.69	11,076.41	-3,197.95	-59.42	14,427,856.67	1,688,521.75	39.72833271	-80.82890354	
13,699.97	89.00	149.69	11,078.16	-3,284.27	-8.96	14,427,770.36	1,688,572.21	39.72809540	-80.82872464	
13,799.97	89.00	149.69	11,079.92	-3,370.58	41.51	14,427,684.04	1,688,622.68	39.72785809	-80.82854574	
13,899.97	89.00	149.69	11,081.67	-3,456.90	91.97	14,427,597.73	1,688,673.14	39.72762078	-80.82836684	
13,999.97	89.00	149.69	11,083.42	-3,543.21	142.44	14,427,511.41	1,688,723.61	39.72738346	-80.82818794	
14,099.97	89.00	149.69	11,085.17	-3,629.53	192.90	14,427,425.10	1,688,774.07	39.72714615	-80.82800904	
14,199.97	89.00	149.69	11,086.92	-3,715.84	243.37	14,427,338.78	1,688,824.54	39.72690884	-80.82783015	
14,299.97	89.00	149.69	11,088.67	-3,802.16	293.83	14,427,252.47	1,688,875.00	39.72667152	-80.82765126	
14,399.97	89.00	149.69	11,090.42	-3,888.47	344.29	14,427,166.15	1,688,925.46	39.72643421	-80.82747236	
14,499.97	89.00	149.69	11,092.17	-3,974.78	394.76	14,427,079.84	1,688,975.93	39.72619690	-80.82729347	
14,599.97	89.00	149.69	11,093.92	-4,061.10	445.22	14,426,993.52	1,689,026.39	39.72595958	-80.82711458	



Planning Report - Geographic

Database: DB\_Jul2216dt\_v14  
 Company: Tug Hill Operating LLC  
 Project: Marshall County, West Virginia.  
 Site: Goudy  
 Well: Goudy 1S-16HU (M)  
 Wellbore: Original Hole  
 Design: rev2

Local Co-ordinate Reference: Well Goudy 1S-16HU (M)  
 TVD Reference: GL @ 1241.00usft  
 MD Reference: GL @ 1241.00usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature

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Planned Survey

WV Department of Environmental Protection

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,899.97	89.00	149.69	11,095.68	-4,147.41	495.69	14,426,907.21	1,689,076.86	39.72572227	-80.82693570
14,799.97	89.00	149.69	11,097.43	-4,233.73	546.15	14,426,820.89	1,689,127.32	39.72548495	-80.82675681
14,899.97	89.00	149.69	11,099.18	-4,320.04	596.62	14,426,734.58	1,689,177.79	39.72524764	-80.82657792
14,999.97	89.00	149.69	11,100.93	-4,406.36	647.08	14,426,648.26	1,689,228.25	39.72501032	-80.82639904
15,099.97	89.00	149.69	11,102.68	-4,492.67	697.55	14,426,561.95	1,689,278.72	39.72477301	-80.82622015
15,199.97	89.00	149.69	11,104.43	-4,578.99	748.01	14,426,475.63	1,689,329.18	39.72453569	-80.82604127
15,299.97	89.00	149.69	11,106.18	-4,665.30	798.47	14,426,389.32	1,689,379.64	39.72429837	-80.82586239
15,399.97	89.00	149.69	11,107.93	-4,751.62	848.94	14,426,303.01	1,689,430.11	39.72406106	-80.82568351
15,499.97	89.00	149.69	11,109.68	-4,837.93	899.40	14,426,216.69	1,689,480.57	39.72382374	-80.82550463
15,599.97	89.00	149.69	11,111.44	-4,924.25	949.87	14,426,130.38	1,689,531.04	39.72358642	-80.82532575
15,699.97	89.00	149.69	11,113.19	-5,010.56	1,000.33	14,426,044.06	1,689,581.50	39.72334911	-80.82514688
15,799.97	89.00	149.69	11,114.94	-5,096.88	1,050.80	14,425,957.75	1,689,631.97	39.72311179	-80.82496800
15,899.97	89.00	149.69	11,116.69	-5,183.19	1,101.26	14,425,871.43	1,689,682.43	39.72287447	-80.82478913
15,999.97	89.00	149.69	11,118.44	-5,269.51	1,151.73	14,425,785.12	1,689,732.90	39.72263715	-80.82461026
16,099.97	89.00	149.69	11,120.19	-5,355.82	1,202.19	14,425,698.80	1,689,783.36	39.72239983	-80.82443138
16,199.97	89.00	149.69	11,121.94	-5,442.14	1,252.65	14,425,612.49	1,689,833.82	39.72216252	-80.82425251
16,299.97	89.00	149.69	11,123.69	-5,528.45	1,303.12	14,425,526.17	1,689,884.29	39.72192520	-80.82407365
16,399.97	89.00	149.69	11,125.44	-5,614.76	1,353.58	14,425,439.86	1,689,934.75	39.72168788	-80.82389478
16,499.97	89.00	149.69	11,127.20	-5,701.08	1,404.05	14,425,353.54	1,689,985.22	39.72145056	-80.82371591
16,599.97	89.00	149.69	11,128.95	-5,787.39	1,454.51	14,425,267.23	1,690,035.68	39.72121324	-80.82353705
16,660.73	89.00	149.69	11,130.01	-5,839.84	1,485.18	14,425,214.78	1,690,066.35	39.72106903	-80.82342836

PBHL/TD 16660.73 MD/11130.01 TVD

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Goudy 1S-16HU LP - plan misses target center by 51.80usft at 11607.87usft MD (11041.53 TVD, -1478.47 N, -1064.73 E) - Point	0.00	0.00	11,041.00	-1,452.33	-1,020.01	14,429,602.29	1,687,561.16	39.73313171	-80.83230845
Goudy 1S-16HU LP 60 f - plan hits target center - Point	0.00	0.01	11,041.00	-1,452.33	-1,080.01	14,429,602.29	1,687,501.16	39.73313202	-80.83252187
Goudy 1S-16HU BHL r2 - plan misses target center by 0.26usft at 16660.73usft MD (11130.01 TVD, -5839.84 N, 1485.18 E) - Point	0.00	0.00	11,130.01	-5,840.07	1,485.31	14,425,214.55	1,690,066.48	39.72106841	-80.82342789

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,000.00	1,000.00	20" Casing	20	26
2,950.00	2,950.00	13 3/8" Casing	13-3/8	17
10,023.60	9,850.00	9 5/8" Casing	9-5/8	12-1/4



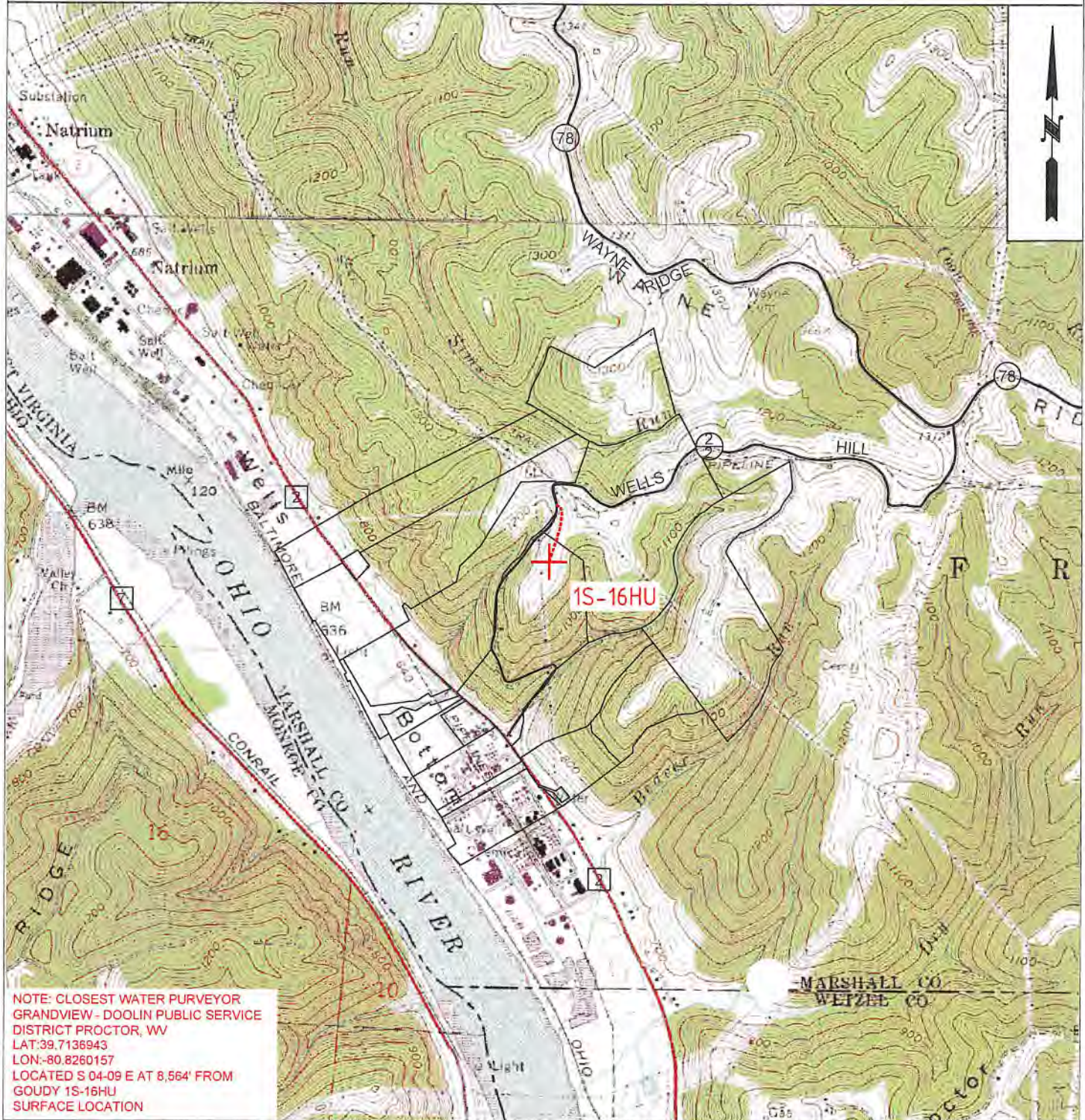
Planning Report - Geographic

<b>Database:</b>	DB_Jul2216dt_v14	<b>Local Co-ordinate Reference:</b>	Well Goudy 1S-16HU (M)
<b>Company:</b>	Tug Hill Operating LLC	<b>TVD Reference:</b>	GL @ 1241.00usft
<b>Project:</b>	Marshall County, West Virginia.	<b>MD Reference:</b>	GL @ 1241.00usft
<b>Site:</b>	Goudy	<b>North Reference:</b>	Grid
<b>Well:</b>	Goudy 1S-16HU (M)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	rev2		


Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,100.00	3,100.00	0.00	0.00	KOP Begin 1°/100' build
3,300.00	3,299.96	-0.90	-3.37	Begin 2.00° tangent
5,001.08	5,000.00	-16.27	-60.72	Begin 2°/100' build/turn
5,697.15	5,686.16	-76.38	-148.52	Begin 15.76° tangent
10,704.94	10,505.73	-891.90	-1,236.94	Begin 10°/100' build/turn
11,577.62	11,041.00	-1,452.36	-1,079.99	Begin 89.00° lateral
16,660.73	11,130.01	-5,839.84	1,485.18	PBHL/TD 16660.73 MD/11130.01 TVD

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# PROPOSED GOUDY 1S-16HU



NOTE: CLOSEST WATER PURVEYOR  
 GRANDVIEW - DOOLIN PUBLIC SERVICE  
 DISTRICT PROCTOR, WV  
 LAT: 39.7136943  
 LON: -80.8260157  
 LOCATED S 04-09 E AT 8,564' FROM  
 GOUDY 1S-16HU  
 SURFACE LOCATION

 <b>TUG HILL OPERATING</b>	<b>OPERATOR</b>	494510851	<b>TOPO SECTION</b>	<b>LEASE NAME</b>
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		NEW MARTINSVILLE 7.5'	GOUDY
			<b>SCALE:</b>	<b>DATE:</b>
			1" = 2000'	DATE: 01/25/2019



# Well Site Safety Plan

## Tug Hill Operating, LLC

*JW*  
*2/2/19*

Well Name: Goudy 1S-16HU

Pad Location: Goudy

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

NORTHING - 4,398,594.24

EASTING - 514,680.57

January 2019

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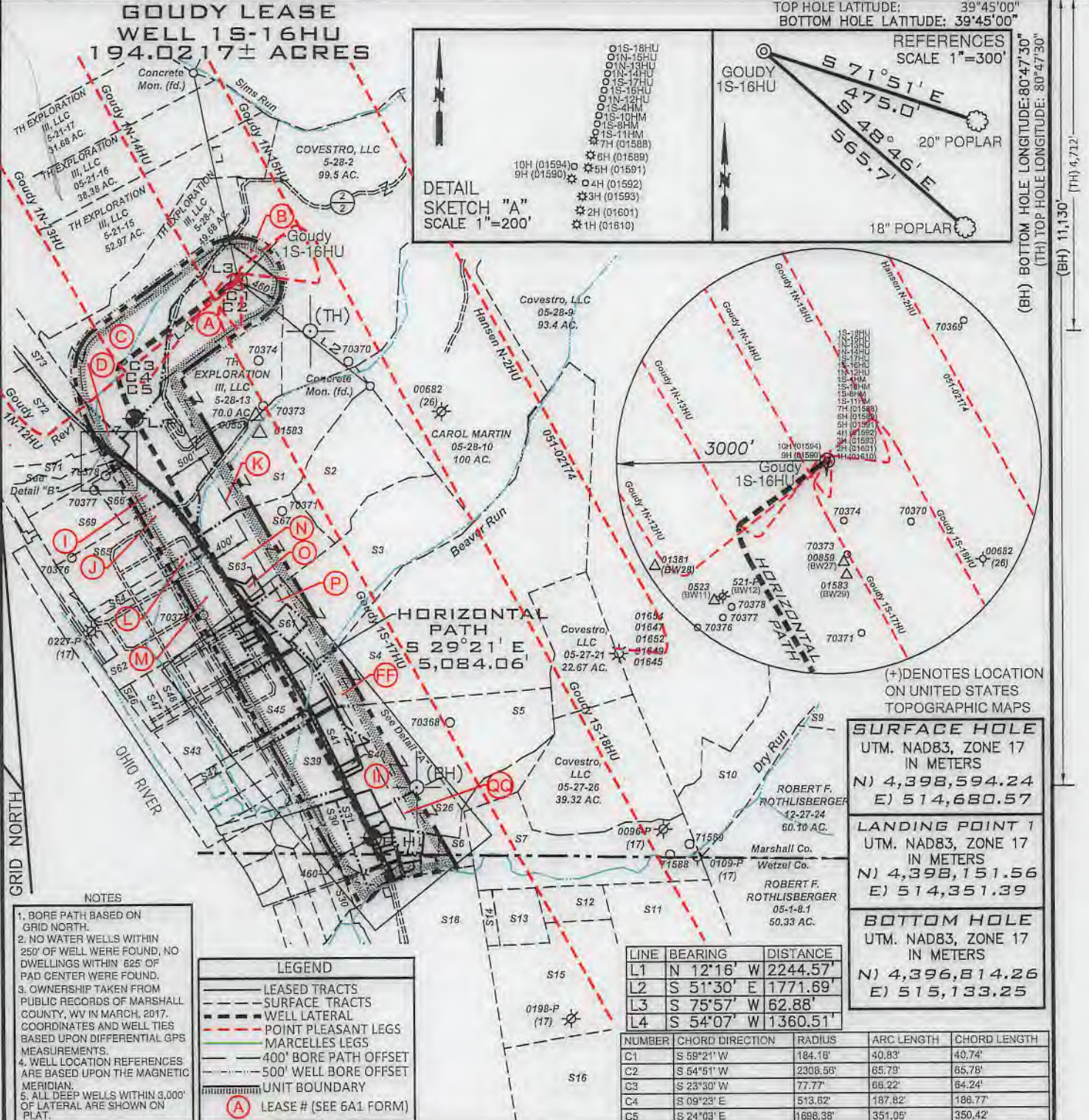
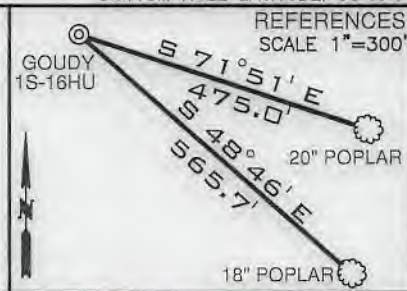
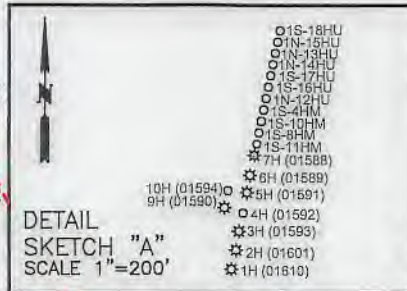
MAR 21 2019

WV Department of  
Environmental Protection

# GOUDY LEASE WELL 1S-16HU 194.0217± ACRES

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

REFERENCES  
SCALE 1"=300'



HORIZONTAL PATH  
S 29°21' E  
5,084.06'

LINE	BEARING	DISTANCE
L1	N 12°16' W	2244.57'
L2	S 51°30' E	1771.69'
L3	S 75°57' W	62.88'
L4	S 54°07' W	1360.51'

NUMBER	CHORD DIRECTION	RADIUS	ARC LENGTH	CHORD LENGTH
C1	S 59°21' W	184.18'	40.83'	40.74'
C2	S 54°51' W	2308.55'	65.79'	65.78'
C3	S 23°30' W	77.77'	66.22'	64.24'
C4	S 09°23' E	513.62'	187.82'	186.77'
C5	S 24°03' E	1698.38'	351.05'	350.42'

**SURFACE HOLE**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,398,594.24  
E) 514,680.57

**LANDING POINT 1**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,398,151.56  
E) 514,351.39

**BOTTOM HOLE**  
UTM. NAD83, ZONE 17  
IN METERS  
N) 4,396,814.26  
E) 515,133.25

- NOTES**
- BORE PATH BASED ON GRID NORTH.
  - NO WATER WELLS WITHIN 250' OF WELL WERE FOUND, NO DWELLINGS WITHIN 625' OF PAD CENTER WERE FOUND.
  - OWNERSHIP TAKEN FROM PUBLIC RECORDS OF MARSHALL COUNTY, WV IN MARCH, 2017. COORDINATES AND WELL TIES BASED UPON DIFFERENTIAL GPS MEASUREMENTS.
  - WELL LOCATION REFERENCES ARE BASED UPON THE MAGNETIC MERIDIAN.
  - ALL DEEP WELLS WITHIN 3,000' OF LATERAL ARE SHOWN ON PLAT.

**LEGEND**

- LEASED TRACTS
- SURFACE TRACTS
- WELL LATERAL
- POINT PLEASANT LEGS
- MARCELLES LEGS
- 400' BORE PATH OFFSET
- 500' WELL BORE OFFSET
- UNIT BOUNDARY
- LEASE # (SEE 6A1 FORM)

FILE NUMBER \_\_\_\_\_

DRAWING NUMBER GOUDY\_1S-16HU\_REV2

SCALE 1" = 1500'

MINIMUM DEGREE OF ACCURACY 1/200

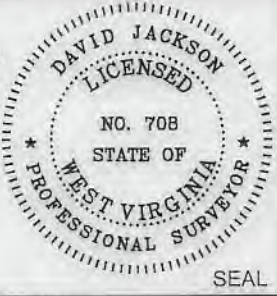
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING  
GRADE GPS

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

P.S. 708

*David L Jackson*

JACKSON SURVEYING INC.  
P.O. Box 1460  
Clarksburg, WV 26302  
304-623-8951



WVDEP  
OFFICE OF OIL & GAS  
801 57TH STREET, SE  
CHARLESTON, WV 25304

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

DATE: MARCH 15, 2019  
REVISED DATE: JUNE 14, 2019

OPERATORS WELL NO. GOUDY 1S-16HU  
API WELL NO. 47-051-02195  
STATE COUNTY PERMIT

LOCATION ELEVATION 1239.4' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER

DISTRICT FRANKLIN COUNTY MARSHALL

QUADRANGLE NEW MARTINSVILLE 7.5' LEASE NUMBER SEE WW-6A1 FORM

SURFACE OWNER TH EXPLORATION III, LLC ACREAGE 70.0

OIL & GAS ROYALTY OWNER TH EXPLORATION III, LLC LEASE ACREAGE 70.0

PROPOSED WORK: DRILL X CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_  
PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE (SPECIFY) \_\_\_\_\_

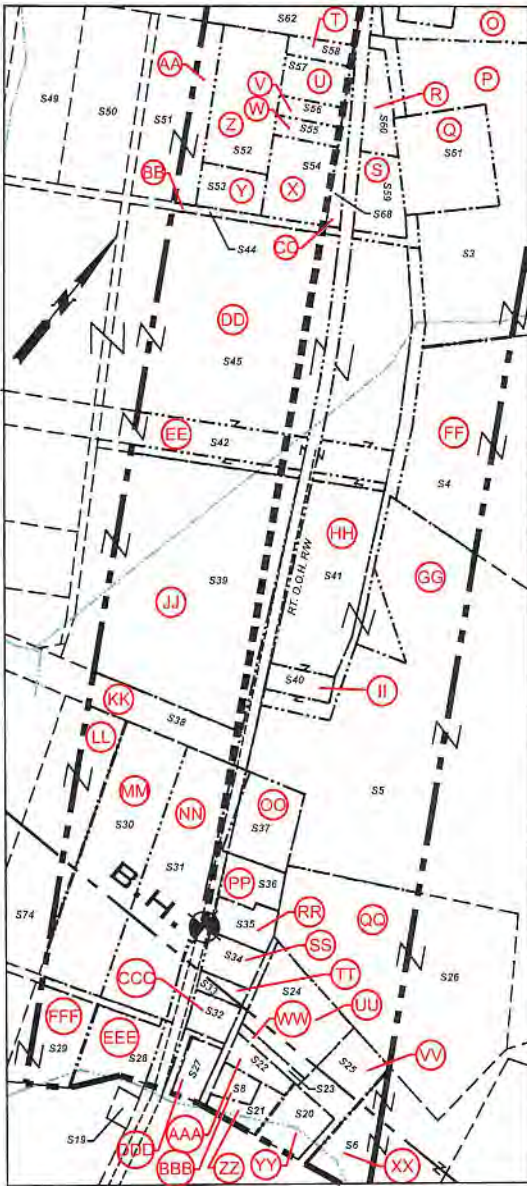
TARGET FORMATION POINT PLEASANT ESTIMATED DEPTH TVD: 11,270' TMD: 16,661'

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

COUNTY NAME  
PERMIT

PG 2 OF 4 **GOUDY LEASE**  
**WELL 1S-16HU**  
**194.0217± ACRES**

**Detail "A"**



**Detail "B"**



P.S. 708 *David L Jackson*

Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES
S1	K 05-28-12	TH Exploration III, LLC.	20.226
S2	05-28-11	Carol A. Martin	24.681
S3	P 05-27-19	Covestro, LLC	33.786
S4	FF 05-27-20	Covestro, LLC	93.027
S5	GG 05-27-20.1	Appalachian Power Co.	43.973
S6	XX 05-27-27	James Andrew & Karen Lynne Richmond	8.9353
S7	05-27-25	James Andrew & Karen Lynne Richmond	41.35
S8	BBB 12-23-14	Robert F. Rothlisberger	65.0
S9	05-26-19	Eric Jay & Karrel S. Booth	50.0
S10	05-27-23	Robert F. Rothlisberger	35.77
S11	12-01-07	Robert F. Rothlisberger	101
S12	12-01-04	Robert F. Rothlisberger	6.0
S13	12-01-03	Edith Feenerty Harrison & Charles D. Harrison	7.8
S14	12-01-02	James A. & Karen L. Richmond	2.7
S15	12-01-05	Irvin L. Hoyt, Jr. & David L. Hoyt	36.8
S16	12-01-06	Mona Parsons, et al	52.75
S17	12-01-16	Vivian A. Parsons, et al	5.125
S18	12-01-01	Covestro, LLC	135.0
S19	12-01-1.7	Colombia Gas Transmission, Corp.	0.15
S20	YY 12-23-15	Paul E. & Donna Jo Cain	0.7
S21	ZZ 12-23-15.1	Robert F. Rothlisberger	0.47
S22	AAA 12-23-13	Paul E. & Donna Jo Cain	0.38
S23	WW 05-27-27.2	Paul E. Cain, et ux	0.1767
S24	UU 05-27-27.1	Donald P. Cain	1.645
S25	VV 12-27-27.3	Paul E. Cain, et ux	1.018
S26	QQ 05-27-28	Covestro, LLC	8.0
S27	DDD 12-23-12	Paul E. & Donna Jo Cain	0.37
S28	EEE 12-23-11	Covestro, LLC	1.25
S29	FFF 12-23-10	Covestro, LLC	1.28
S30	MM 12-23-05	Covestro, LLC	3.69
S31	NN 05-27-40	Covestro, LLC	3.36
S32	CCC 12-23-06	Covestro, LLC	0.34
S33	TT 05-27-44	Covestro, LLC	0.21
S34	SS 05-27-43	Covestro, LLC	0.63
S35	RR 05-27-42	Covestro, LLC	0.52
S36	PP 05-27-42.1	Covestro, LLC	0.52
S37	OO 05-27-41	Martha Jean Arrick	0.99
S38	KK 05-27-31.2	Appalachian Power Co.	3.33
S39	JJ 05-27-31	Covestro, LLC	16.1
S40	II 05-27-30	Covestro, LLC	0.374
S41	HH 05-27-31.1	Covestro, LLC	3.0
S42	EE 05-27-32.2	Covestro, LLC	3.95
S43	05-27-29	Covestro, LLC	9.0
S44	BB 05-27-45	Covestro, LLC	0.3627
S45	DD 05-27-32	Covestro, LLC	33.53
S46	05-27-03	Covestro, LLC	1.27
S47	05-27-04	Covestro, LLC	2.52
S48	05-27-05	Covestro, LLC	2.52
S49	05-27-06	Covestro, LLC	2.52
S50	05-27-07	Covestro, LLC	2.52
S51	AA 05-27-08	Covestro, LLC	2.52
S52	Z 05-27-09	Covestro, LLC	1.87
S53	Y 05-27-10	Covestro, LLC	0.52
S54	X 05-27-12	Covestro, LLC	1.0
S55	W 05-27-13	Covestro, LLC	0.34
S56	V 05-27-14	Covestro, LLC	0.25
S57	U 05-27-15	Covestro, LLC	0.47
S58	T 05-27-16	Covestro, LLC	0.23
S59	S 05-27-18	Covestro, LLC	0.97
S60	R 05-27-17	Covestro, LLC	0.88
S61	Q 05-27-19.3	Cemetery	2.0
S62	M 05-27-02	Covestro, LLC	28.099
S63	O 05-27-19.2	Wheeling Electric Co.	0.75
S64	L 05-28-12.2	Covestro, LLC	3.1
S65	J 05-28-12.3	Covestro, LLC	18.784
S66	I 05-28-13.1	Air Products & Chemicals, Inc	5.522
S67	N 05-27-19.1	Covestro, LLC	21.267
S68	CC 05-27-11	Covestro, LLC	0.07
S69	H 05-28-13.2	Covestro, LLC	11.02
S70	G 05-28-1.1	Covestro, LLC	5.2217
S71	F 05-28-1.4	Covestro, LLC	11.69
S72	E 05-28-1.2	Covestro, LLC	21.62
S73	D 05-21-3.1	Eagle Natruim, LLC	98.61
S74	LL 05-27-39	Covestro, LLC	3.74



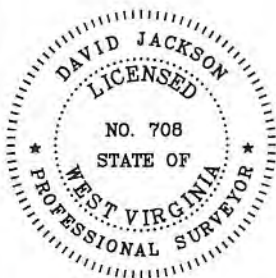
**TUG HILL**  
**OPERATING**

OPERATOR'S  
 WELL #: Goudy 1S-16HU  
 DISTRICT: Franklin  
 COUNTY: Marshall  
 STATE: WV  
 API: 047-051-

**WELL PLAT**  
**PAGE 2 OF 3**  
**DATE: 3/15/2019**  
**REVISED DATE: 6/14/2019**

PG 3 OF 4 **GOUDY LEASE**  
**WELL 1S-16HU**  
**194.0217± ACRES**

Lease ID	Tags	Parcel	Grantor, Lessor, Etc.	Deed Book/Page	
10*14418	A	5-28-13	PPG INDUSTRIES, INC.	878	610
10*27022	B	5-28-2	COVESTRO LLC	1046	431
10*14418	C	5-28-1	PPG INDUSTRIES, INC.	878	610
10*14418	D	5-21-3.1	PPG INDUSTRIES, INC.	878	610
10*14418	E	5-28-1.2	PPG INDUSTRIES, INC.	878	610
10*14418	F	5-28-1.4	PPG INDUSTRIES, INC.	878	610
10*14418	G	5-28-1.1	PPG INDUSTRIES, INC.	878	610
10*14418	H	5-28-13.2	PPG INDUSTRIES, INC.	878	610
10*14418	I	5-28-13.1	PPG INDUSTRIES, INC.	878	610
10*27022	J	5-28-12.3	COVESTRO LLC	1046	431
10*14658	K	5-28-12	THOMAS WILLIAM ABERSOLD	775	314
10*14659	K	5-28-12	JUDITH LEE ABERSOLD	781	609
10*14418	K	5-28-12	PPG INDUSTRIES, INC.	878	610
10*27022	L	5-28-12.2	COVESTRO LLC	1046	431
10*27022	M	5-27-2	COVESTRO LLC	1046	431
10*14495	N	5-27-19.1	PATRICIA HARTMAN	752	197
10*14493	N	5-27-19.1	BETTY JEAN NEELY	748	468
10*14494	N	5-27-19.1	MARY LOU WILSON	748	471
10*14496	N	5-27-19.1	STEPHANIE L HALL	752	215
10*14497	N	5-27-19.1	CAROL DEEN GARDNER	752	212
10*27022	N	5-27-19.1	COVESTRO LLC	1046	431
10*14703	O	5-27-19.2	WHEELING POWER COMPANY AKA WHE	786	383
10*14495	O	5-27-19.2	PATRICIA HARTMAN	752	197
10*14493	O	5-27-19.2	BETTY JEAN NEELY	748	468
10*14494	O	5-27-19.2	MARY LOU WILSON	748	471
10*14496	O	5-27-19.2	STEPHANIE L HALL	752	215
10*14497	O	5-27-19.2	CAROL DEEN GARDNER	752	212
10*14495	P	5-27-19	PATRICIA HARTMAN	752	197
10*14493	P	5-27-19	BETTY JEAN NEELY	748	468
10*14494	P	5-27-19	MARY LOU WILSON	748	471
10*14496	P	5-27-19	STEPHANIE L HALL	752	215
10*14497	P	5-27-19	CAROL DEEN GARDNER	752	212
10*27022	P	5-27-19	COVESTRO LLC	1046	431
10*14493	Q	5-27-19.3	BETTY JEAN NEELY	748	468
10*14494	Q	5-27-19.3	MARY LOU WILSON	748	471
10*14495	Q	5-27-19.3	PATRICIA HARTMAN	752	197
10*14496	Q	5-27-19.3	STEPHANIE L HALL	752	215
10*14497	Q	5-27-19.3	CAROL DEEN GARDNER	752	212
10*25655	Q	5-27-19.3	HILARY AND VIRGIE MONTGOMERY	1033	306
10*25715	Q	5-27-19.3	ANNA JONES	1035	163
10*25473	Q	5-27-19.3	ETHEL J EVANS	1033	115
10*25494	Q	5-27-19.3	MARIE ERLEWINE	1033	113
10*25558	Q	5-27-19.3	MARLENE AND EUGENE RECTOR	1033	304
10*26821	Q	5-27-19.3	WILLIAM R MOORE	1040	538
10*26458	Q	5-27-19.3	SHARON COLVIN FKA SHARON SUE ERLEWINE ET UX	1035	3
10*26820	Q	5-27-19.3	ROBERT C EVANS	1040	582
10*26597	Q	5-27-19.3	RICHARD LEE ERLEWINE AND DONNA L ERLEWINE	1038	526
10*26824	Q	5-27-19.3	REBECCA M COWARD AND EDWARD S COWARD	1040	532
10*26912	Q	5-27-19.3	RACHAEL I MOORE	1040	544
10*26823	Q	5-27-19.3	MICHAEL J MOORE	1040	550
10*26582	Q	5-27-19.3	LINDA E HILL FKA LINDA LOU ERLEWINE AND JOHN S HILL	1038	535
10*26595	Q	5-27-19.3	KELLY R ROOT FKA KELLY R EVANS	1038	530
10*26593	Q	5-27-19.3	CRAIG DOUGLAS ERLEWINE AND DOREEN E ERLEWINE	1038	540
10*26509	Q	5-27-19.3	CECELIA EDWARDS	1037	446
10*26822	Q	5-27-19.3	ALBERT L MOORE	1040	556
10*27022	R	5-27-17	COVESTRO LLC	1046	431
10*27022	S	5-27-18	COVESTRO LLC	1046	431
10*27022	T	5-27-16	COVESTRO LLC	1046	431
10*27022	U	5-27-15	COVESTRO LLC	1046	431



P.S. 708 *David L Jackson*



**TUG HILL**  
**OPERATING**

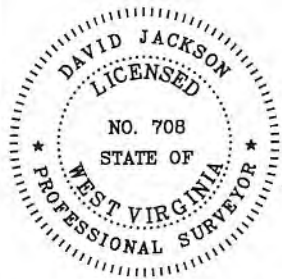
OPERATOR'S  
 WELL #: Goudy 1S-16HU  
 DISTRICT: Franklin  
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**WELL PLAT**  
**PAGE 3 OF 4**  
**DATE: 3/15/2019**  
**REVISED DATE:**  
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PG 4 OF 4 **GOUDY LEASE**  
**WELL 1S-16HU**  
**194.0217± ACRES**

Lease ID	Tags	Parcel	Grantor, Lessor, Etc.	Deed Book/Page	
10*27022	V	5-27-14	COVESTRO LLC	1046	431
10*27022	W	5-27-13	COVESTRO LLC	1046	431
10*27022	X	5-27-12	COVESTRO LLC	1046	431
10*27022	Y	5-27-10	COVESTRO LLC	1046	431
10*27022	Z	5-27-9	COVESTRO LLC	1046	431
10*27022	AA	5-27-8	COVESTRO LLC	1046	431
10*27022	BB	5-27-45	COVESTRO LLC	1046	431
10*27022	CC	5-27-11	COVESTRO LLC	1046	431
10*27022	DD	5-27-32	COVESTRO LLC	1046	431
10*27022	EE	5-27-32.2	COVESTRO LLC	1046	431
10*14493	FF	5-27-20	BETTY JEAN NEELY	748	468
10*14494	FF	5-27-20	MARY LOU WILSON	748	471
10*14495	FF	5-27-20	PATRICIA HARTMAN	752	197
10*14496	FF	5-27-20	STEPHANIE L HALL	752	215
10*14497	FF	5-27-20	CAROL DEEN GARDNER	752	212
10*27022	FF	5-27-20	COVESTRO LLC	1046	431
10*14495	GG	5-27-20.1	PATRICIA HARTMAN	752	197
10*14493	GG	5-27-20.1	BETTY JEAN NEELY	748	468
10*14494	GG	5-27-20.1	MARY LOU WILSON	748	471
10*14496	GG	5-27-20.1	STEPHANIE L HALL	752	215
10*14497	GG	5-27-20.1	CAROL DEEN GARDNER	752	212
10*14499	GG	5-27-20.1	UNION CARBIDE CORPORATION	815	221
10*27022	HH	5-27-31.1	COVESTRO LLC	1046	431
10*27022	II	5-27-30	COVESTRO LLC	1046	431
10*27022	JJ	5-27-31	COVESTRO LLC	1046	431
10*14499	KK	5-27-31.2	UNION CARBIDE CORPORATION	815	221
10*27022	LL	5-27-39	COVESTRO LLC	1046	431
10*27022	MM	12-23-5	COVESTRO LLC	1046	431
10*27022	NN	5-27-40	COVESTRO LLC	1046	431
10*17513	OO	5-27-41	DONALD FREDRICK ARRICK	942	4
10*27022	PP	5-27-42.1	COVESTRO LLC	1046	431
10*14493	QQ	5-27-28	BETTY JEAN NEELY	748	468
10*14494	QQ	5-27-28	MARY LOU WILSON	748	471
10*14495	QQ	5-27-28	PATRICIA HARTMAN	752	197
10*14496	QQ	5-27-28	STEPHANIE L HALL	752	215
10*14497	QQ	5-27-28	CAROL DEEN GARDNER	752	212
10*27022	QQ	5-27-28	COVESTRO LLC	1046	431
10*27022	RR	5-27-42	COVESTRO LLC	1046	431
10*27022	SS	5-27-43	COVESTRO LLC	1046	431
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10*18446	UU	5-27-27.1	DONALD P CAIN	933	96
10*18445	VV	5-27-27.3	PAUL E CAIN AND DONNA JO CAIN	933	93
10*18445	WW	5-27-27.2	PAUL E CAIN AND DONNA JO CAIN	933	93
10*14505	XX	5-27-27	JAMES ANDREW RICHMOND	752	447
10*18438	YY	12-23-15	PAUL E CAIN AND DONNA JO CAIN	190A	191
10*23506	ZZ	12-23-15.1	ROBERT F ROTHLSBERGER	210A	805
10*18438	AAA	12-23-13	PAUL E CAIN AND DONNA JO CAIN	190A	191
10*23506	BBB	12-23-14	ROBERT F ROTHLSBERGER	210A	805
10*27022	CCC	12-23-6	COVESTRO LLC	226A	362
10*18438	DDD	12-23-12	PAUL E CAIN AND DONNA JO CAIN	190A	191
10*27022	EEE	12-23-11	COVESTRO LLC	226A	362
10*27022	FFF	12-23-10	COVESTRO LLC	226A	362



P.S. 708 *David L Jackson*



**TUG HILL**  
**OPERATING**

OPERATOR'S  
 WELL #: Goudy 1S-16HU  
 DISTRICT: Franklin  
 COUNTY: Marshall  
 STATE: WV  
 API: 047-051-

**WELL PLAT**  
**PAGE 4 OF 4**  
**DATE: 3/15/2019**  
**REVISED DATE: 6/14/2019**

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

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

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

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

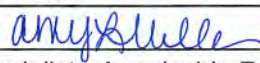
**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

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

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

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

Well Operator: Tug Hill Operating, LLC

By: Amy L. Miller 

Its: Permitting Specialist - Appalachia Region

**WW-6A1 Supplement**

**Operator's Well No. Goudy 1S - 16HU**

Lease ID	Parcel	Tags	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment
10*14418	5-28-13	A	PPG INDUSTRIES, INC.	GASTAR EXPLORATION INC	1/8+	878	610	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*27022	5-28-2	B	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*14418	5-28-1	C	PPG INDUSTRIES, INC.	GASTAR EXPLORATION INC	1/8+	878	610	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14418	5-21-3.1	D	PPG INDUSTRIES, INC.	GASTAR EXPLORATION INC	1/8+	878	610	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14418	5-28-1.2	E	PPG INDUSTRIES, INC.	GASTAR EXPLORATION INC	1/8+	878	610	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14418	5-28-1.4	F	PPG INDUSTRIES, INC.	GASTAR EXPLORATION INC	1/8+	878	610	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14418	5-28-1.1	G	PPG INDUSTRIES, INC.	GASTAR EXPLORATION INC	1/8+	878	610	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14418	5-28-13.2	H	PPG INDUSTRIES, INC.	GASTAR EXPLORATION INC	1/8+	878	610	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14418	5-28-13.1	I	PPG INDUSTRIES, INC.	GASTAR EXPLORATION INC	1/8+	878	610	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*27022	5-28-12.3	J	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*14658	5-28-12	K	THOMAS WILLIAM ABERSOLD	GASTAR EXPLORATION USA, INC.	1/8+	775	314	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 28/499	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14659	5-28-12	K	JUDITH LEE ABERSOLD	GASTAR EXPLORATION USA INC	1/8+	781	609	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 28/499	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14418	5-28-12	K	PPG INDUSTRIES, INC.	GASTAR EXPLORATION INC	1/8+	878	610	N/A	Gastar Exploration Inc to Atinum Marcellus I LLC: 35/144	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*27022	5-28-12.2	L	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-2	M	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A

**WW-6A1 Supplement**

**Operator's Well No. Goudy 1S - 16HU**

Lease ID	Parcel	Tags	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment
10*14495	5-27-19.1	N	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	752	197	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14493	5-27-19.1	N	BETTY JEAN NEELY	GASTAR EXPLORATION USA, INC	1/8+	748	468	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14494	5-27-19.1	N	MARY LOU WILSON	GASTAR EXPLORATION USA, INC	1/8+	748	471	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14496	5-27-19.1	N	STEPHANIE L HALL	GASTAR EXPLORATION USA	1/8+	752	215	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14497	5-27-19.1	N	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*27022	5-27-19.1	N	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*14703	5-27-19.2	O	WHEELING POWER COMPANY AKA WHE	GASTAR EXPLORATION USA INC	1/8+	786	383	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14495	5-27-19.2	O	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	752	197	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14493	5-27-19.2	O	BETTY JEAN NEELY	GASTAR EXPLORATION USA, INC	1/8+	748	468	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14494	5-27-19.2	O	MARY LOU WILSON	GASTAR EXPLORATION USA, INC	1/8+	748	471	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14496	5-27-19.2	O	STEPHANIE L HALL	GASTAR EXPLORATION USA	1/8+	752	215	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14497	5-27-19.2	O	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14495	5-27-19	P	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	752	197	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9

WW-6A1 Supplement

Operator's Well No. Goudy 1S - 16HU

Lease ID	Parcel	Tags	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment
10*14493	5-27-19	P	BETTY JEAN NEELY	GASTAR EXPLORATION USA, INC	1/8+	748	468	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14494	5-27-19	P	MARY LOU WILSON	GASTAR EXPLORATION USA, INC	1/8+	748	471	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14496	5-27-19	P	STEPHANIE L HALL	GASTAR EXPLORATION USA	1/8+	752	215	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14497	5-27-19	P	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*27022	5-27-19	P	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*14493	5-27-19.3	Q	BETTY JEAN NEELY	GASTAR EXPLORATION USA, INC	1/8+	748	468	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14494	5-27-19.3	Q	MARY LOU WILSON	GASTAR EXPLORATION USA, INC	1/8+	748	471	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14495	5-27-19.3	Q	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	752	197	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14496	5-27-19.3	Q	STEPHANIE L HALL	GASTAR EXPLORATION USA	1/8+	752	215	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14497	5-27-19.3	Q	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*25655	5-27-19.3	Q	HILARY AND VIRGIE MONTGOMERY	TH EXPLORATION LLC	1/8+	1033	306	N/A	N/A	N/A
10*25715	5-27-19.3	Q	ANNA JONES	TH EXPLORATION LLC	1/8+	1035	163	N/A	N/A	N/A
10*25473	5-27-19.3	Q	ETHEL J EVANS	TH EXPLORATION LLC	1/8+	1033	115	N/A	N/A	N/A
10*25494	5-27-19.3	Q	MARIE ERLEWINE	TH EXPLORATION LLC	1/8+	1033	113	N/A	N/A	N/A
10*25558	5-27-19.3	Q	MARLENE AND EUGENE RECTOR	TH EXPLORATION LLC	1/8+	1033	304	N/A	N/A	N/A
10*26821	5-27-19.3	Q	WILLIAM R MOORE	TH EXPLORATION LLC	1/8+	1040	538	N/A	N/A	N/A
10*26458	5-27-19.3	Q	SHARON COLVIN FKA SHARON SUE ERLEWINE ET UX	TH EXPLORATION LLC	1/8+	1035	3	N/A	N/A	N/A
10*26820	5-27-19.3	Q	ROBERT C EVANS	TH EXPLORATION LLC	1/8+	1040	582	N/A	N/A	N/A

**WW-6A1 Supplement**

**Operator's Well No. Goudy 1S - 16HU**

Lease ID	Parcel	Tags	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page		Assignment	Assignment	Assignment
10*26597	5-27-19.3	Q	RICHARD LEE ERLEWINE AND DONNA L ERLEWINE	TH EXPLORATION LLC	1/8+	1038	526	N/A	N/A	N/A
10*26824	5-27-19.3	Q	REBECCA M COWARD AND EDWARD S COWARD	TH EXPLORATION LLC	1/8+	1040	532	N/A	N/A	N/A
10*26912	5-27-19.3	Q	RACHAEL I MOORE	TH EXPLORATION LLC	1/8+	1040	544	N/A	N/A	N/A
10*26823	5-27-19.3	Q	MICHAEL J MOORE	TH EXPLORATION LLC	1/8+	1040	550	N/A	N/A	N/A
10*26582	5-27-19.3	Q	LINDA E HILL FKA LINDA LOU ERLEWINE AND JOHN S HILL	TH EXPLORATION LLC	1/8+	1038	535	N/A	N/A	N/A
10*26595	5-27-19.3	Q	KELLY R ROOT FKA KELLY R EVANS	TH EXPLORATION LLC	1/8+	1038	530	N/A	N/A	N/A
10*26593	5-27-19.3	Q	CRAIG DOUGLAS ERLEWINE AND DOREEN E ERLEWINE	TH EXPLORATION LLC	1/8+	1038	540	N/A	N/A	N/A
10*26509	5-27-19.3	Q	CECELIA EDWARDS	TH EXPLORATION LLC	1/8+	1037	446	N/A	N/A	N/A
10*26822	5-27-19.3	Q	ALBERT L MOORE	TH EXPLORATION LLC	1/8+	1040	556	N/A	N/A	N/A
10*27022	5-27-17	R	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-18	S	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-16	T	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-15	U	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-14	V	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-13	W	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-12	X	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-10	Y	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-9	Z	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-8	AA	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-45	BB	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-11	CC	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-32	DD	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-32.2	EE	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*14493	5-27-20	FF	BETTY JEAN NEELY	GASTAR EXPLORATION USA, INC	1/8+	748	468	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14494	5-27-20	FF	MARY LOU WILSON	GASTAR EXPLORATION USA, INC	1/8+	748	471	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14495	5-27-20	FF	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	752	197	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9

**WW-6A1 Supplement**

**Operator's Well No. Goudy 1S - 16HU**

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10*14496	5-27-20	FF	STEPHANIE L HALL	GASTAR EXPLORATION USA	1/8+	752	215	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14497	5-27-20	FF	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*27022	5-27-20	FF	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*14495	5-27-20.1	GG	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	752	197	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14493	5-27-20.1	GG	BETTY JEAN NEELY	GASTAR EXPLORATION USA, INC	1/8+	748	468	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14494	5-27-20.1	GG	MARY LOU WILSON	GASTAR EXPLORATION USA, INC	1/8+	748	471	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14496	5-27-20.1	GG	STEPHANIE L HALL	GASTAR EXPLORATION USA	1/8+	752	215	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14497	5-27-20.1	GG	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14499	5-27-20.1	GG	UNION CARBIDE CORPORATION	GASTAR EXPLORATION USA INC	1/8+	815	221	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 31/184	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*27022	5-27-31.1	HH	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-30	II	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-31	JJ	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*14499	5-27-31.2	KK	UNION CARBIDE CORPORATION	GASTAR EXPLORATION USA INC	1/8+	815	221	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 31/184	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*27022	5-27-39	LL	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	12-23-5	MM	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-40	NN	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*17513	5-27-41	OO	DONALD FREDRICK ARRICK	TH EXPLORATION LLC	1/8+	942	4	N/A	N/A	N/A
10*27022	5-27-42.1	PP	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A

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**Operator's Well No. Goudy 1S - 16HU**

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10*14493	5-27-28	QQ	BETTY JEAN NEELY	GASTAR EXPLORATION USA, INC	1/8+	748	468	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14494	5-27-28	QQ	MARY LOU WILSON	GASTAR EXPLORATION USA, INC	1/8+	748	471	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14495	5-27-28	QQ	PATRICIA HARTMAN	GASTAR EXPLORATION USA, INC	1/8+	752	197	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14496	5-27-28	QQ	STEPHANIE L HALL	GASTAR EXPLORATION USA	1/8+	752	215	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*14497	5-27-28	QQ	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*27022	5-27-28	QQ	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-42	RR	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-43	SS	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*27022	5-27-44	TT	COVESTRO LLC	TH EXPLORATION LLC	1/8+	1046	431	N/A	N/A	N/A
10*18446	5-27-27.1	UU	DONALD P CAIN	TH EXPLORATION LLC	1/8+	933	96	N/A	N/A	N/A
10*18445	5-27-27.3	VV	PAUL E CAIN AND DONNA JO CAIN	TH EXPLORATION LLC	1/8+	933	93	N/A	N/A	N/A
10*18445	5-27-27.2	WW	PAUL E CAIN AND DONNA JO CAIN	TH EXPLORATION LLC	1/8+	933	93	N/A	N/A	N/A
10*14505	5-27-27	XX	JAMES ANDREW RICHMOND	GASTAR EXPLORATION USA INC	1/8+	752	447	Gastar Exploration USA Inc to Atinum Marcellus I LLC: 26/639	Gastar Exploration USA Inc merged into Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II LLC: 36/9
10*18438	12-23-15	YY	PAUL E CAIN AND DONNA JO CAIN	TH EXPLORATION LLC	1/8+	190A	191	N/A	N/A	N/A
10*23506	12-23-15.1	ZZ	ROBERT F ROTHLSBERGER	TH EXPLORATION LLC	1/8+	210A	805	N/A	N/A	N/A
10*18438	12-23-13	AAA	PAUL E CAIN AND DONNA JO CAIN	TH EXPLORATION LLC	1/8+	190A	191	N/A	N/A	N/A
10*23506	12-23-14	BBB	ROBERT F ROTHLSBERGER	TH EXPLORATION LLC	1/8+	210A	805	N/A	N/A	N/A
10*27022	12-23-6	CCC	COVESTRO LLC	TH EXPLORATION LLC	1/8+	226A	362	N/A	N/A	N/A
10*18438	12-23-12	DDD	PAUL E CAIN AND DONNA JO CAIN	TH EXPLORATION LLC	1/8+	190A	191	N/A	N/A	N/A
10*27022	12-23-11	EEE	COVESTRO LLC	TH EXPLORATION LLC	1/8+	226A	362	N/A	N/A	N/A
10*27022	12-23-10	FFF	COVESTRO LLC	TH EXPLORATION LLC	1/8+	226A	362	N/A	N/A	N/A

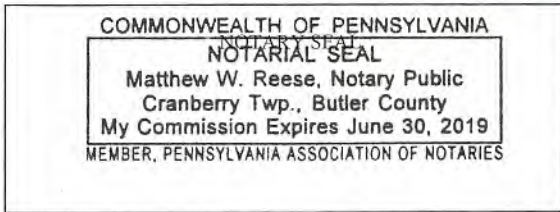




**Certification of Notice is hereby given:**

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

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



Subscribed and sworn before me this 15 day of MAR. 2009.  
*Matthew W. Reese* Notary Public  
 My Commission Expires 6-30-2019

**Oil and Gas Privacy Notice:**

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

RECEIVED  
 Office of Oil and Gas  
 MAR 21 2019  
 WV Department of  
 Environmental Protection

WW-6A  
(9-13)

API NO. 47- 051 -  
OPERATOR WELL NO. Goudy 1S-16HU  
Well Pad Name: Goudy

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

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

**Date of Notice:** 3/13/2019 **Date Permit Application Filed:** 3/15/2019

**Notice of:**

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

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

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

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

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

SURFACE OWNER(s)

Name: TH Exploration III, LLC  
Address: 1320 S. University Drive, Suite 500  
Ft. Worth, TX 76107

Name: COVESTRO, LLC (formerly Bayer Material Science, LLC)  
Address: 1 COVESTRO CIRCLE  
PITTSBURGH PA 15272

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: TH Exploration III, LLC  
Address: 1320 S. University Drive, Suite 500  
Ft. Worth, TX 76107 \*\*See attachment

COAL OPERATOR

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary

RECEIVED  
Office of Oil and Gas  
**MAR 21 2019**  
WV Department of  
Environmental Protection

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

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**Well Location Restrictions**

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

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

**Water Well Testing:**

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

**Water Testing Laboratories:**

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

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

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

**Written Comment:**

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

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

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

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WW-6A  
(8-13)

API NO. 47- 051 - \_\_\_\_\_  
OPERATOR WELL NO. Goudy 1S-16HU  
Well Pad Name: Goudy

### **Time Limits and Methods for Filing Comments.**

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

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

### **Comment Requirements**

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

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

### **Permit Denial or Condition**

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

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

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

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

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WW-6A  
(8-13)

API NO. 47- 051 - \_\_\_\_\_  
OPERATOR WELL NO. Goudy 1S-16HU  
Well Pad Name: Goudy

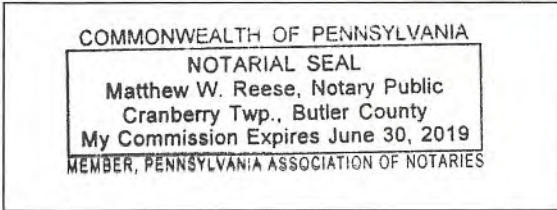
**Notice is hereby given by:**

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

Address: 380 Southpointe Boulevard, Plaza II, Suite 200  
Canonsburg, PA 15317  
Facsimile: 724-838-2030

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 15 day of MAR, 2019.

*[Signature]* \_\_\_\_\_ Notary Public

My Commission Expires 6/30/2019

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WV Department of  
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**WW-6A Notice of Application  
Supplement Page**

**COAL OWNER(S):**

**NAME:** APPALACHIAN POWER CO.  
**ADDRESS:** 1 RIVERSIDE PLACE  
COLUMBUS, OH 43215

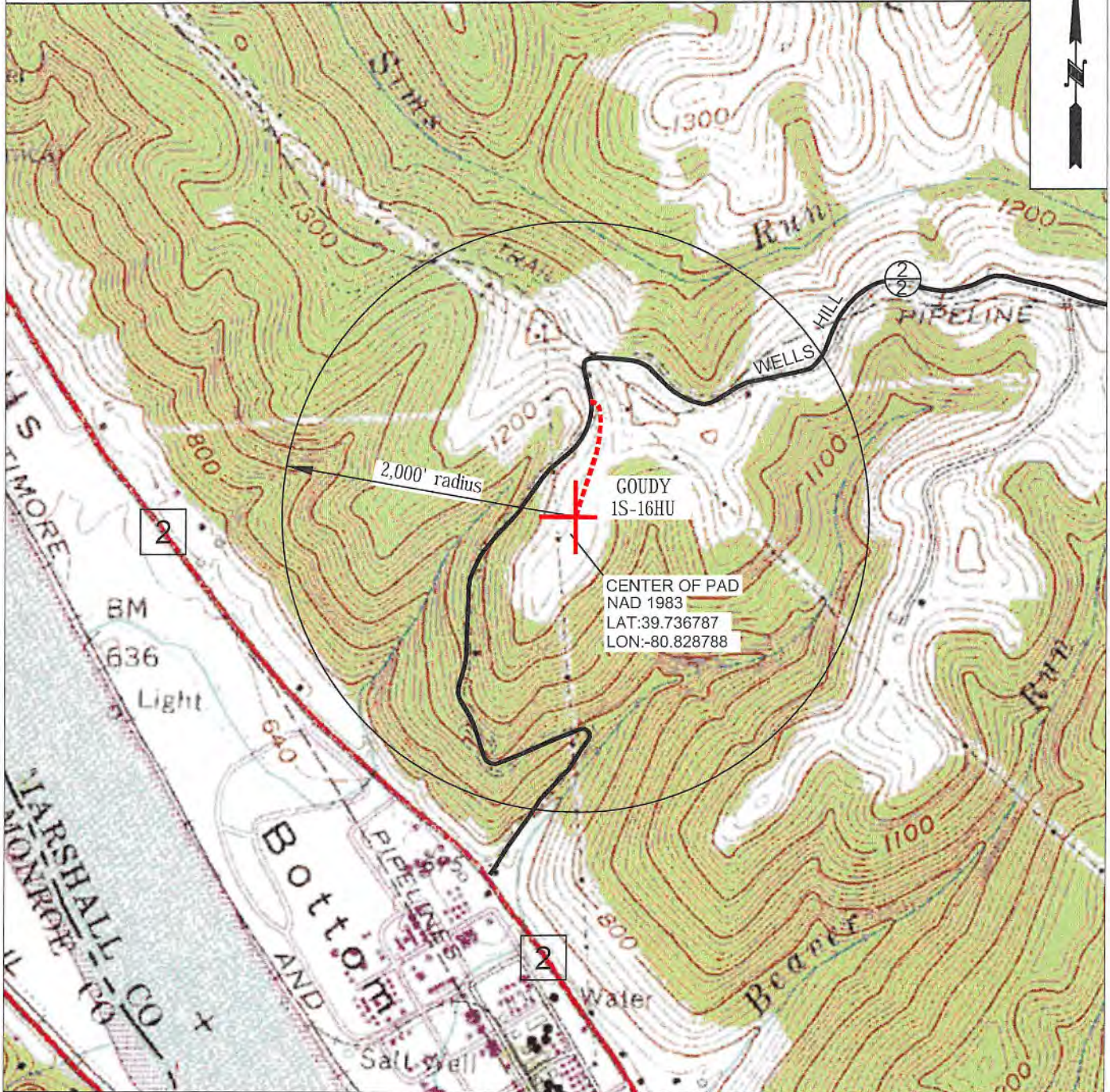
**NAME:** COVESTRO, LLC (FORMERLY BAYER MATERIAL SCIENCE, LLC)  
**ADDRESS:** 1 CONVESTRO CIRCLE  
PITTSBURGH, PA 15205

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# PROPOSED GOUDY 1S-16HU

*There appears to be no (0) possible water source within 2,000'.*



<b>OPERATOR</b>	494510851	<b>TOPO SECTION</b>	<b>LEASE NAME</b>
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		NEW MARTINSVILLE 7.5'	GOUDY
<b>SCALE:</b>		<b>DATE:</b>	
1" = 1000'		DATE: 01/25/2019	

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

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

**Date of Notice:** 1/8/2019      **Date of Planned Entry:** 1/15/2018

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

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

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

**Notice is hereby provided to:**

SURFACE OWNER(S)

Name: TH Exploration III, LLC  
Address: 1320 S. University Drive, Suite 500  
Ft. Worth, TX 76107

Name: COVESTRO, LLC (formerly Bayer Material Science, LLC)  
Address: 1 COVESTRO CIRCLE  
PITTSBURGH PA 15272

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: TH Exploration III, LLC  
Address: 1320 S. University Drive, Suite 500  
Ft. Worth, TX 76107      **\*\*SEE ATTACHED**

MINERAL OWNER(S)

Name: TH Exploration III, LLC  
Address: 1320 S. University Drive, Suite 500  
Ft. Worth, TX 76107      **\*\*SEE ATTACHED**

\*please attach additional forms if necessary

**Notice is hereby given:**

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

State: <u>WEST VIRGINIA</u>	Approx. Latitude & Longitude: <u>39.73678670; -80.82878798</u>
County: <u>MARSHALL</u>	Public Road Access: <u>WELLS HEAD ROAD (ROUTE 22)</u>
District: <u>FRANKLIN</u>	Watershed: <u>(HUC 10) FRENCH CREEK- OHIO RIVER</u>
Quadrangle: <u>NEW MARTINSVILLE</u>	Generally used farm name: <u>PPG INDUSTRIES, INC.</u>

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

**Notice is hereby given by:**

Well Operator: TUG HILL OPERATING, LLC  
Telephone: 724-338-2026  
Email: amiller@tug-hillop.com

Address: 380 SOUTHPOINTE BLVD, SOUTHPOINTE PLAZA II, SUITE 200  
CANONSBURG, PA 15317  
Facsimile: 724-338-2030

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**Oil and Gas Privacy Notice:**

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

**WW-6A Notice of Application  
Supplement Page**

**COAL OWNER(S):**

**NAME:** APPALACHIAN POWER CO.  
**ADDRESS:** 1 RIVERSIDE PLACE  
COLUMBUS, OH 43215 )

**NAME:** COVESTRO, LLC (FORMERLY BAYER MATERIAL SCIENCE, LLC)  
**ADDRESS:** 1 COVESTRO CIRCLE )  
PITTSBURGH, PA 15205

**MINERAL OWNER(S):**

**NAME:** COVESTRO, LLC (FORMERLY BAYER MATERIAL SCIENCE, LLC)  
**ADDRESS:** 1 COVESTRO CIRCLE )  
PITTSBURGH, PA 15205

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

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

**Date of Notice:** 03/15/2019      **Date Permit Application Filed:** 03/15/2019

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

- CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      DELIVERY

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

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

Name: TH Exploration III, LLC  
Address: 1320 S. University Drive, suite 500  
Fort Worth, TX 76107

Name: COVESTRO, LLC (formerly Bayer Material Science, LLC)  
Address: 1 Covestro Circle  
Pittsburgh, PA 15272

**Notice is hereby given:**

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>514,680.57</u>
County:	<u>Marshall</u>		Northing:	<u>4,398,594.24</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Wells Hill Road</u>	
Quadrangle:	<u>New Martinsville 7.5'</u>	Generally used farm name:	<u>TH Exploration III, LLC</u>	
Watershed:	<u>French Creek - Ohio River</u>			

**This Notice Shall Include:**

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

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

Address: 380 Southpointe Boulevard, Plaza II, Suite 300  
Canonsburg, PA 15317  
Facsimile: 724-338-2030

**Oil and Gas Privacy Notice:**

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

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
**Division of Highways**

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

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

March 15, 2019

Jill M. Newman  
Deputy Commissioner

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

Subject: DOH Permit for the Goudy Well Pad, Marshall County  
Goudy 1S-16HU

Dear Mr. Martin,

This well site will be accessed from Permit #06-2012-0518 transferred to Tug Hill Operating for access to the State Road for a well site located off of Marshall County Route 2/2 SLS.

The operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated October 1, 2018.

Very Truly Yours,

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

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

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



**PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION**

Well No. Goudy 1S-16HU

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

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