



west virginia department of environmental protection

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

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

Thursday, August 2, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

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

Re: Permit approval for GOUDY 1S-4HM
47-051-02050-00-00

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

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

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

James A. Martin
Chief

Operator's Well Number: GOUDY 1S-4HM
Farm Name: PPG INDUSTRIES, INC.
U.S. WELL NUMBER: 47-051-02050-00-00
Horizontal 6A New Drill
Date Issued: 8/2/2018

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.

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

1) Well Operator: Tug Hill Operating, LLC 494510851 Marshall Franklin New Martinsville
Operator ID County District Quadrangle

2) Operator's Well Number: Goudy 1S-4HM Well Pad Name: Goudy

3) Farm Name/Surface Owner: PPG Industries, Inc. Public Road Access: Wells Hill Road (County Route 2/2)

4) Elevation, current ground: 1242' Elevation, proposed post-construction: 1242'

5) Well Type (a) Gas Oil Underground Storage

Other _____

(b) If Gas Shallow Deep

Horizontal _____

6) Existing Pad: Yes or No Yes

JW
5/25/18

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6382 - 6433' thickness of 51' and anticipated pressure of approx. 3800 psi

8) Proposed Total Vertical Depth: 6,503'

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 12,136' ✓

11) Proposed Horizontal Leg Length: 4,945' ✓

12) Approximate Fresh Water Strata Depths: 70', 862' ✓

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

14) Approximate Saltwater Depths: 2,167'

15) Approximate Coal Seam Depths: Sewickly Coal - 761' and Pittsburgh Coal - 856' ✓

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

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

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120' ✓	259FT^3(CTS)
Fresh Water	13 3/8"	NEW	H40	48#	975'	975' ✓	1028ft^3(CTS)
Coal	13 3/8"	NEW	H40	48#	975'	975'	1028ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2,800'	2,800'	926ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	15,635'	12,136' ✓	3113ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#		7,415'	
Liners							

JW
5/25/18

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17 1/2"	.33	1,730	1,384	SEE #24	1.2
Coal	13 3/8"	17 1/2"	.33	1,730	1,384	SEE#24	1.2
Intermediate	9 5/8"	12 1/4"	.352	3,520	2,816	SEE#24	1.19
Production	5 1/2"	8 7/8_8 3/4	.361	12,640	9,000	SEE#24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

PACKERS

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

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WW-6B
(10/14)

API NO. 47-051 -

OPERATOR WELL NO. Goudy 1S-4HM

Well Pad Name: Goudy

ju
5/25/18

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

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

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

Well to be completed with approximately 20,620,000 lb. proppant and 318,800 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

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

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

23) Describe centralizer placement for each casing string:

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

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

*See Attachment

25) Proposed borehole conditioning procedures:

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

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*Note: Attach additional sheets as needed.

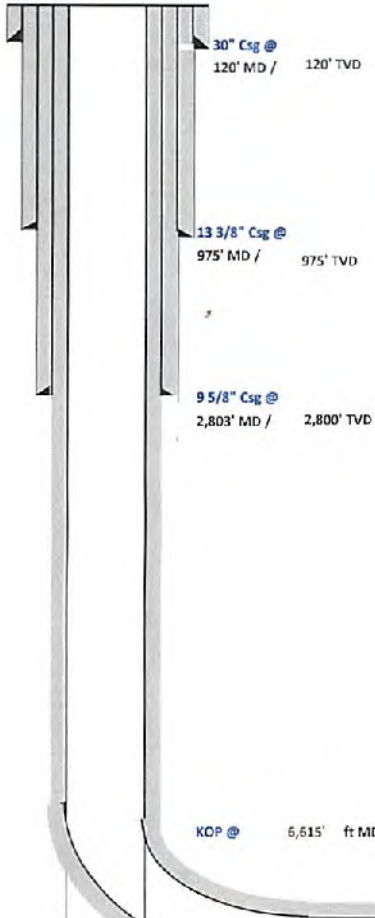


WELL NAME: Goudy 15-4HM
STATE: WV **COUNTY:** Marshall
DISTRICT: Franklin
DF Elev: 1,241' **GL Elev:** 1,241'
TD: 12,136'
TH Latitude: 39.73705024
TH Longitude: -80.82868648 39.72002427
BH Latitude: -80.81535704

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	862
Sewickley Coal	761
Pittsburgh Coal	856
Big Lime	1919
Weir	2307
Berea	2462
Gordon	2808
Rhinestreet	5815
Genesee/Burkett	6260
Tully	6347
Hamilton	6367
Marcellus	6382
Landing Depth	6417
Onondaga	6433
Pilot Hole Depth	6533

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	975'	975'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,803'	2,800'	36	J55	Surface
Production	8 7/8 x 8 3/4	5 1/2	12,136'	6,503'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	338	A	15.5	Air	None
Surface	1,034	A	15.5	Air	3 Centralizers at equal distance
Intermediate 1	913	A	15	Air	1 Centralizer every other jt
Production	2,746	A	14.5	Air / SOBMM	1 every other joint in lateral; 1 per joint in curve; 1 every other jt to sfc



5/25/18

Pilot Hole PH TD @ 6,533' TVD
 Landing Point @ 7,190' MD / 6,417' TVD
 PH TD @ 100' below Onondaga Top

Lateral TD @ 12,136' ft MD
 6,503' ft TVD

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4705102050



Tug Hill Operating, LLC Casing and Cement Program

Joe
5/27/18

Goudy 1S-4HM

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	975'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,803'	CTS
Production	5 1/2"	CYHP110	8 7/8 x 8 3/4"	12,136'	CTS

Cement

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

4705102050



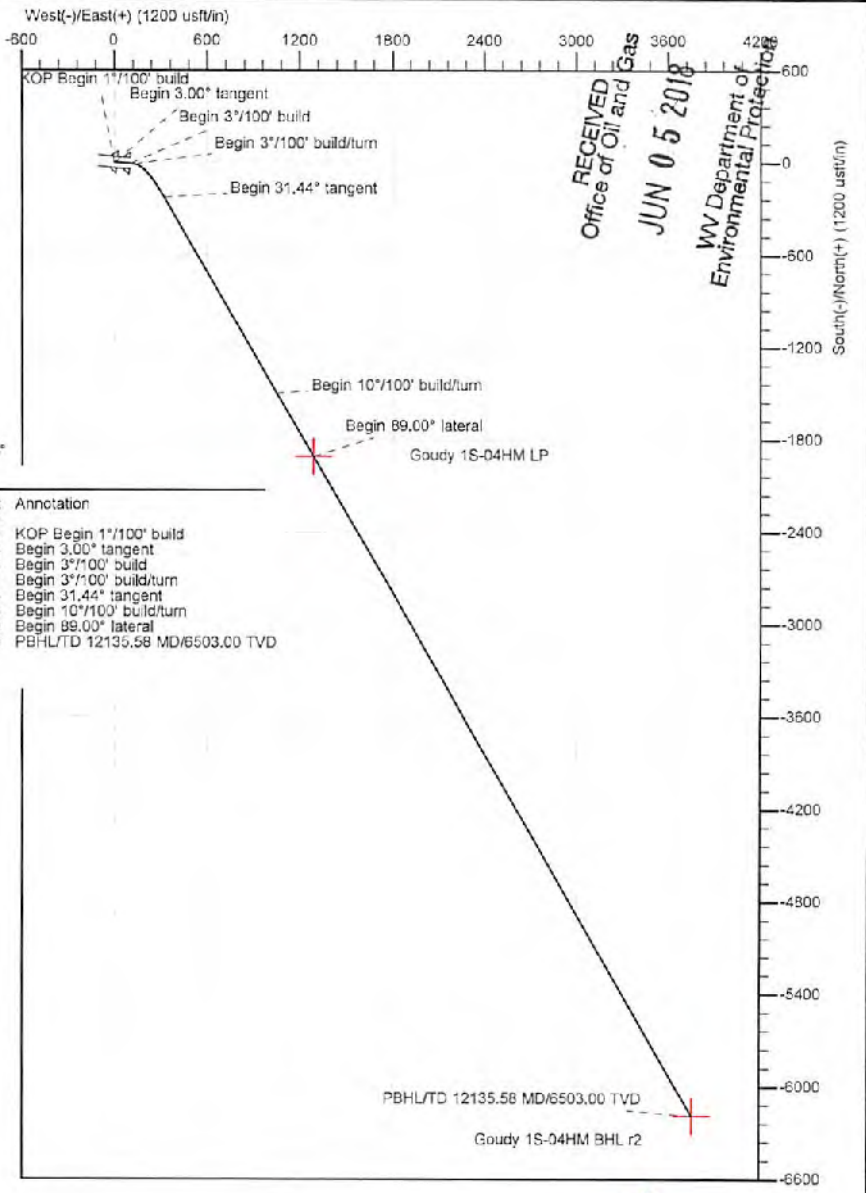
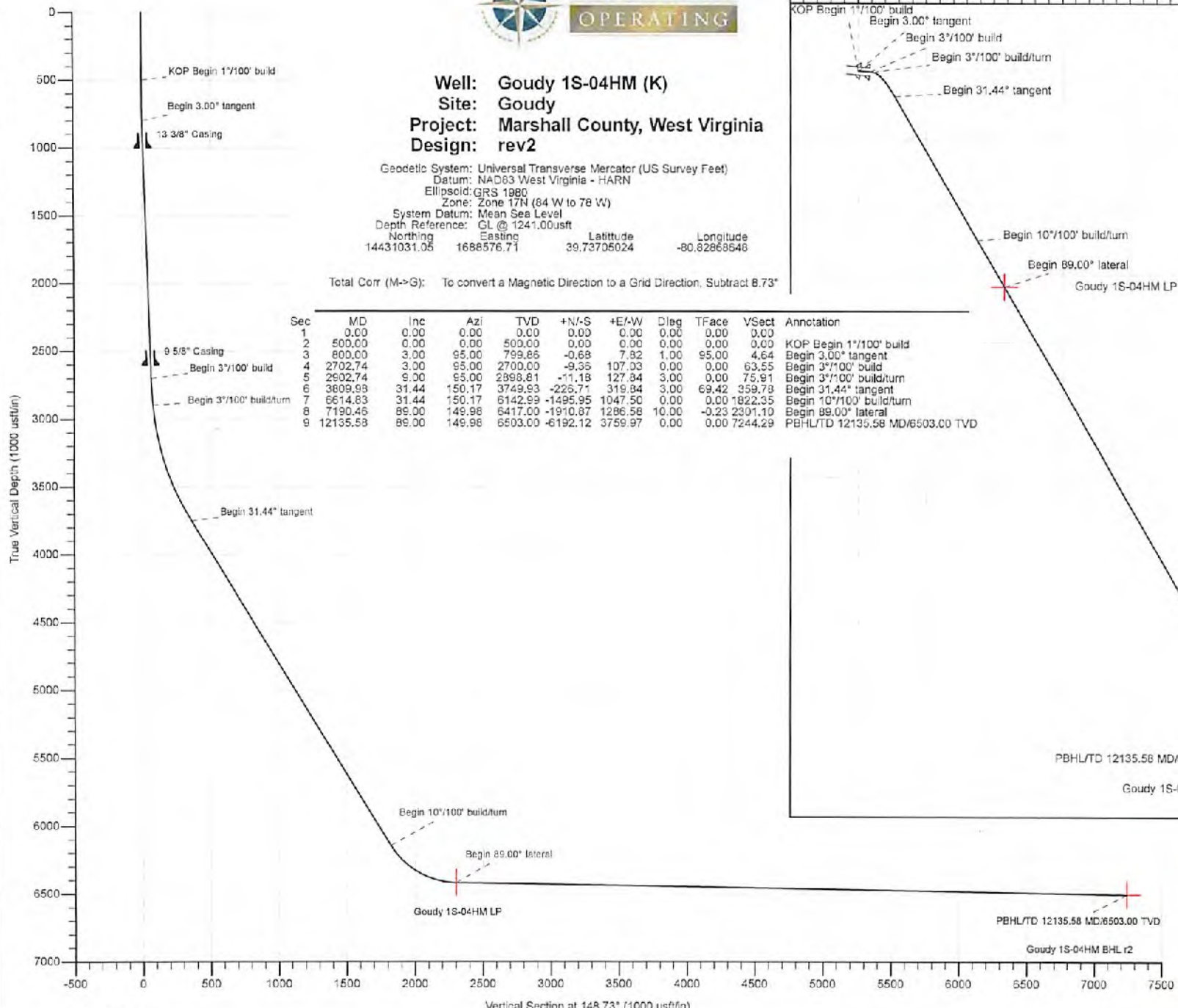
Well: Goudy 1S-04HM (K)
Site: Goudy
Project: Marshall County, West Virginia
Design: rev2

Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level
 Depth Reference: GL @ 1241.00usft

Northing	Easting	Latitude	Longitude
14431031.05	1688576.71	39.73705024	-80.82868648

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

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	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 1°/100' build
3	800.00	3.00	95.00	799.86	-0.68	7.82	1.00	95.00	4.64	Begin 3.00° tangent
4	2702.74	3.00	95.00	2700.00	-9.35	107.03	0.00	0.00	63.55	Begin 3°/100' build
5	2902.74	9.00	95.00	2898.81	-11.18	127.84	3.00	0.00	75.91	Begin 3°/100' build/turn
6	3809.98	31.44	150.17	3749.93	-226.71	319.84	3.00	69.42	359.78	Begin 31.44° tangent
7	6614.83	31.44	150.17	6142.99	-1495.95	1047.50	0.00	0.00	1822.35	Begin 10°/100' build/turn
8	7190.46	89.00	149.98	6417.00	-1910.87	1286.58	10.00	-0.23	2301.10	Begin 89.00° lateral
9	12135.58	89.00	149.98	6503.00	-6192.12	3759.97	0.00	0.00	7244.29	PBHL/TD 12135.58 MD/6503.00 TVD



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Azimuths to Grid North
 True North: -0.11°
 Magnetic North: -8.73°

Magnetic Field
 Strength: 52058.45nT
 Dip Angle: 66.88°
 Date: 5/11/2018
 Model: IGRF2015



WW-9
(4/16)

API Number 47 - 051 - _____
Operator's Well No. Goudy 1S-4HM

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 containment

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 / WV0109186) and Westmoreland Sanitary Landfill, LLC (SAN1405 / PA DEP EC#1356426)

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 25 day of May, 2018

My commission expires 10/12/2019

COMMONWEALTH OF PENNSYLVANIA
NOTARY SEAL
Sean Cotter, Notary Public
City of Pittsburgh, Allegheny County
My Commission Expires Oct 12, 2019

08/03/2018

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: *Jim Anderson*

Comments:

Title: Oil and Gas Inspector

Date: 5/25/18

Field Reviewed? Yes No

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WW-9

**PROPOSED GOUDY
1S-4HM**

SUPPLEMENT PG 1

DRAWING NOT
TO SCALE

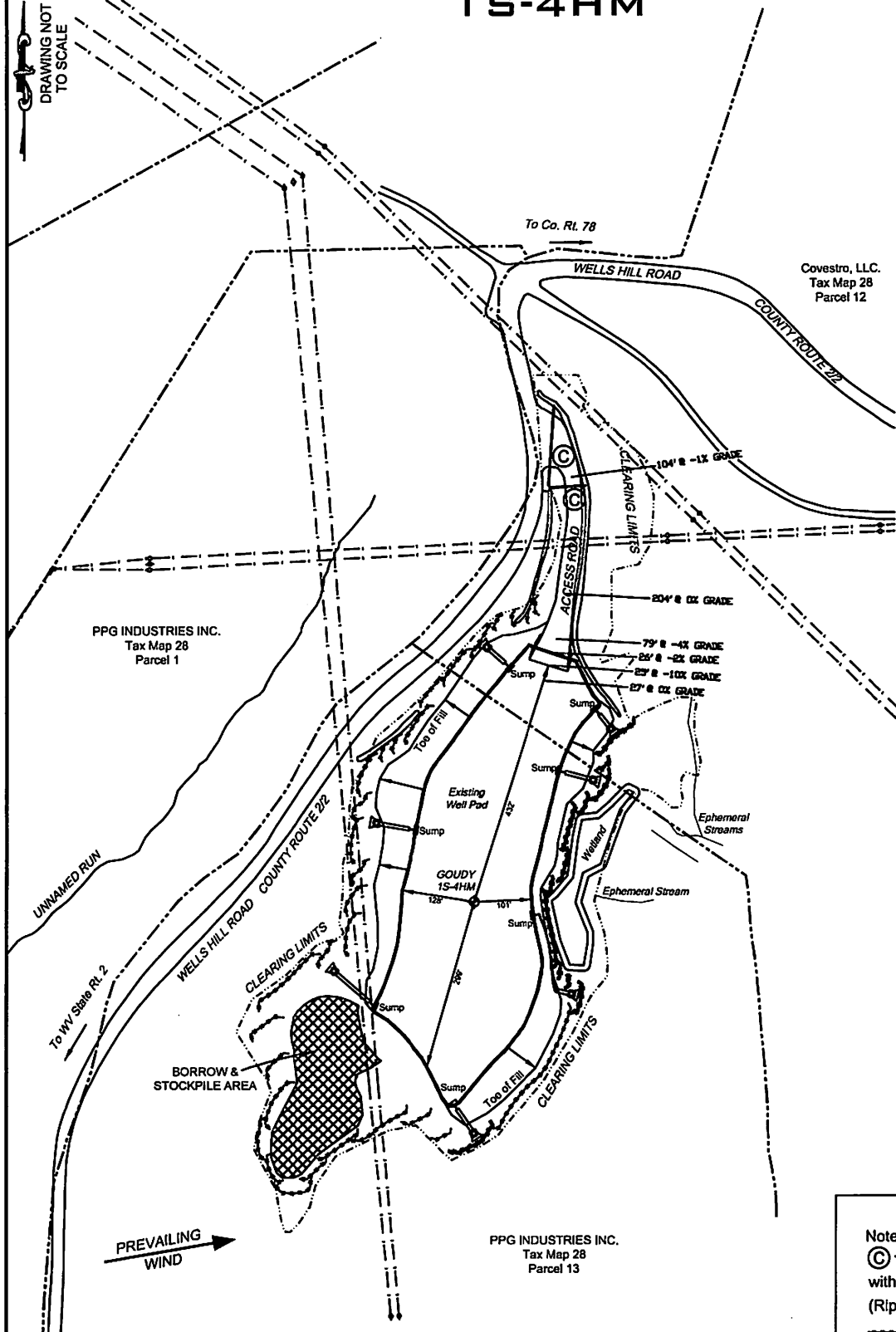
REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES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



Covestro, LLC.
Tax Map 28
Parcel 12

PPG INDUSTRIES INC.
Tax Map 28
Parcel 1

PPG INDUSTRIES INC.
Tax Map 28
Parcel 13

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LEGEND

Note:
© — Denotes existing well pad with appropriate sediment outlet control (Rip Rap splash pad).

- Silt Fence and or Sediment and Erosion Control Measure.
- Surface Boundary
- e — Overhead Utility

DATE: 05/21/2018

PROJECT NO: 494510851

DRAWN BY: J.A.H.

08/03/2018



Well Site Safety Plan
Tug Hill Operating, LLC

ju
5/25/18

Well Name: Goudy 1S-4HM

Pad Location: Goudy Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,398,587.06

Easting: 514,679.21

May 2018

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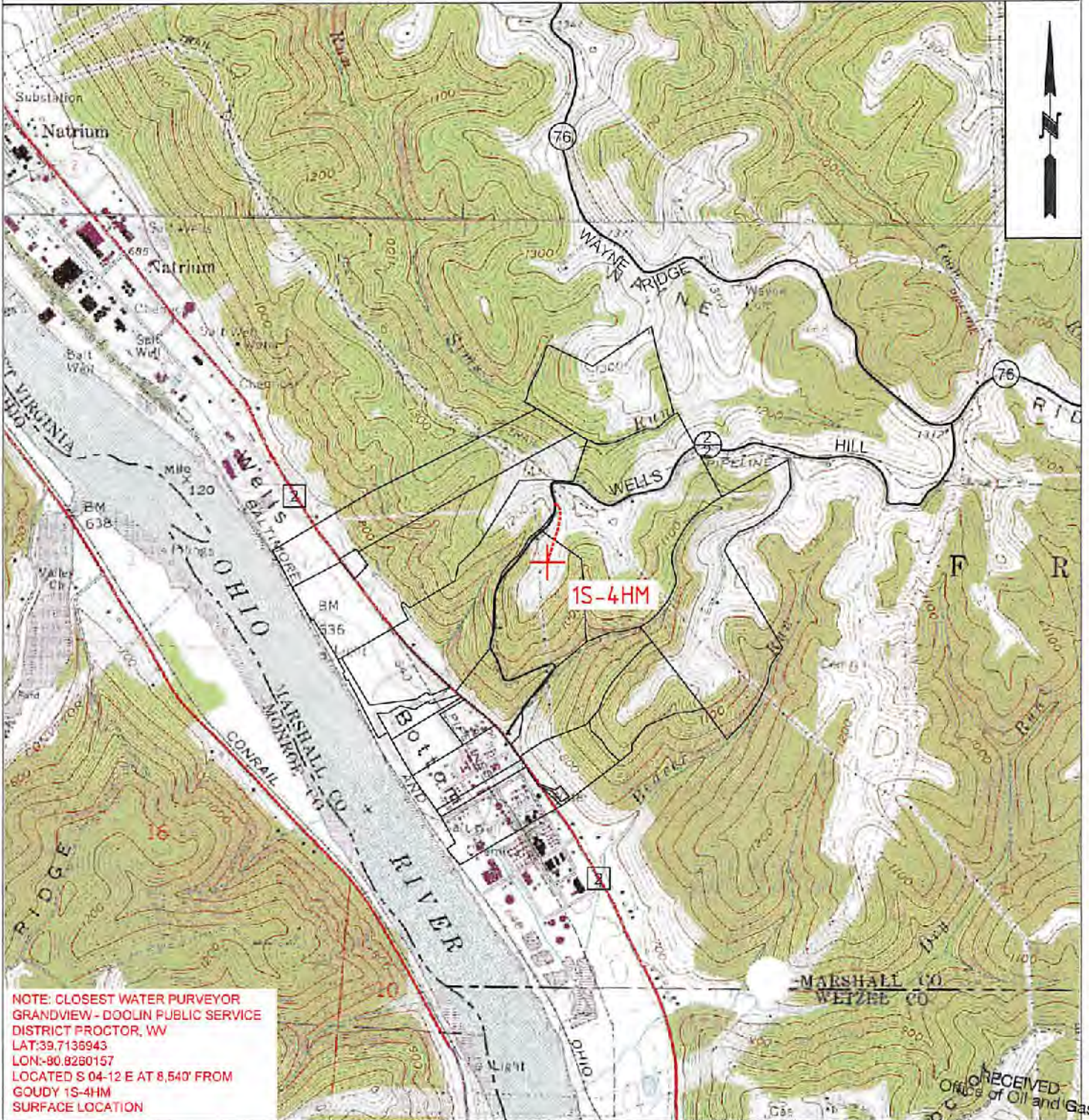
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WW-9


PROPOSED GOUDY 1S-4HM

SUPPLEMENT PG 2



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT:39.7136943
LON:-80.8260157
LOCATED S 04-12 E AT 8,540' FROM
GOUDY 1S-4HM
SURFACE LOCATION

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 TUG HILL OPERATING	OPERATOR	494510851	TOPO SECTION	LEASE NAME
	TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		NEW MARTINSVILLE 7.5'	GOUDY WV Department of Environmental Protection
			SCALE: 1" = 2000'	DATE: DATE: 05/21/2018

JUN 05 2018

08/03/2018

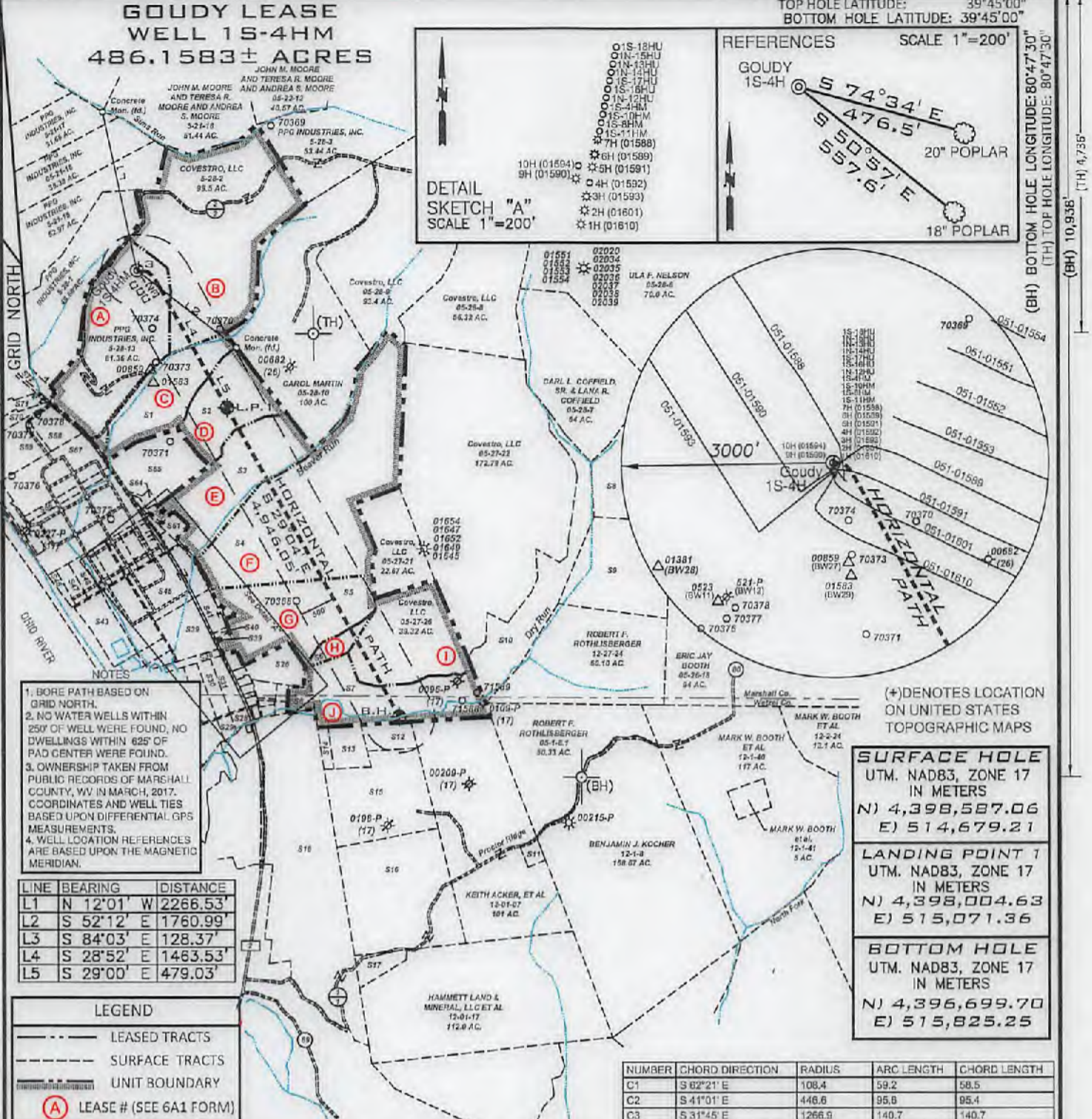
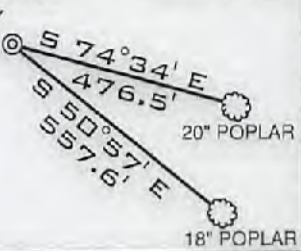
GOUDY LEASE WELL 1S-4HM 486.1583± ACRES

DETAIL SKETCH "A"
SCALE 1"=200'

REFERENCES

SCALE 1"=200'

GOUDY 1S-4H



- 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.

LINE	BEARING	DISTANCE
L1	N 12°01' W	2266.53'
L2	S 52°12' E	1760.99'
L3	S 84°03' E	128.37'
L4	S 28°52' E	1463.53'
L5	S 29°00' E	479.03'

LEGEND

- LEASED TRACTS
- SURFACE TRACTS
- UNIT BOUNDARY
- (A) LEASE # (SEE 6A1 FORM)

(*) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

SURFACE HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,398,587.06 E) 514,679.21
LANDING POINT 1 UTM. NAD83, ZONE 17 IN METERS N) 4,398,004.63 E) 515,071.36
BOTTOM HOLE UTM. NAD83, ZONE 17 IN METERS N) 4,396,699.70 E) 515,825.25

NUMBER	CHORD DIRECTION	RADIUS	ARC LENGTH	CHORD LENGTH
C1	S 62°21' E	108.4	59.2	58.5
C2	S 41°01' E	446.6	95.8	95.4
C3	S 31°45' E	1266.9	140.7	140.7

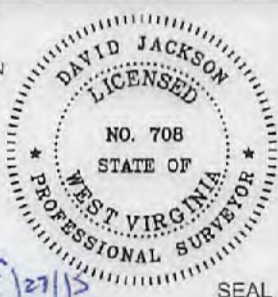
FILE NUMBER _____
DRAWING NUMBER GOUDY_WP_1S-4HM
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY 1/200
PROVEN SOURCE OF ELEVATION SUBMETER MAPPING
GRADE GPS

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 1480
Clarksburg, WV 26302
304-623-5851



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

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

DATE: MAY 24, 2018
OPERATORS WELL NO. GOUDY 1S-4HM
API WELL NO. 47-051-02050
STATE COUNTY PERMIT

LOCATION ELEVATION 1241.0' WATERSHED (HUC 10) FRENCH CREEK - OHIO RIVER
DISTRICT FRANKLIN COUNTY MARSHALL
QUADRANGLE NEW MARTINSVILLE 7.5' LEASE NUMBER SEE WW-6A1 FORM

SURFACE OWNER PPG INDUSTRIES, INC. ACREAGE 81.36
OIL & GAS ROYALTY OWNER SEE WW-6A1 FORM LEASE ACREAGE 81.36
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 MARCELLUS ESTIMATED DEPTH TVD 6,503' TMD: 12,136'
WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD
FORT WORTH, TX 76107 CHARLESTON, WV 25313

08/03/2018

COUNTY NAME PERMIT

PG 2 OF 2 **GOUDY LEASE**
WELL 1S-4HM
486.1583± ACRES



Detail "A"
SCALE 1"=1000'



Number	TAX MAP -PARCEL	ADJOINER OWNER	ACRES
S1	05-28-12	PPG Industries, Inc	20.226
S2	05-28-11	Carol A. Martin	24.681
S3	05-27-19	Covestro, LLC	33.786
S4	05-27-20	Covestro LLC	93.027
S5	05-27-20.1	Appalachian Power Co.	43.973
S6	05-27-27	James Andrew & Karen Lynne Richmond	8.9353
S7	05-27-25	James Andrew & Karen Lynne Richmond	41.35
S8	05-26-4.5	Eric Jay Booth	65.0
S9	05-26-19	Eric Jay & Karrel S. Booth	50.0
S10	05-27-23	Robert F. Rothlisberger	35.77
S11	12-01-7.1	K. Wayman, et al	2.0
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 Andrew & Karen Lynne 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 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	12-23-15	Virginia Ethel Henry, Estate	15.5
S21	12-23-14	Dominion Energy Transmission, Inc	59.5
S22	12-23-13	Linda D. Greathouse	14.24
S23	05-27-27.2	Paul E. Cain, et ux	0.17
S24	05-27-27.1	Donald P. Cain	1.645
S25	05-27-27.3	Paul E. Cain, et ux	1.018
S26	05-27-28	Covestro, LLC	8.0
S27	12-23-12	Mark Yoho	3.05
S28	12-23-11	Roy F. Yoho	11.31
S29	12-23-10	Terry E. Simms, et ux	37.95
S30	12-23-05	Daniel D. Rhyand	118.5
S31	05-27-40	Covestro, LLC	3.36
S32	05-23-06	James A. Channing, et al	48.0
S33	05-27-44	Covestro, LLC	0.206
S34	05-27-43	Covestro, LLC	0.22
S35	05-27-45	Covestro, LLC	0.3627
S36	05-27-42.1	Covestro, LLC	0.526
S37	05-27-41	Martha J. Arrick	0.99
S38	05-27-31.2	Appalachian Power Co.	3.33
S39	05-27-31	Covestro, LLC	16.1
S40	05-27-33	Covestro, LLC	1.95
S41	05-27-31.1	Covestro, LLC	3.0
S42	05-27-34	Covestro, LLC	1.91
S43	05-27-29	Covestro, LLC	9.0
S44	05-27-32.2	Covestro, LLC	3.95
S45	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	05-27-08	Covestro, LLC	2.52
S52	05-27-09	Covestro, LLC	1.88
S53	05-27-10	Covestro, LLC	0.52
S54	05-27-12	Covestro, LLC	1.0
S55	05-27-13	Covestro, LLC	0.293
S56	05-27-14	Covestro, LLC	0.243
S57	05-27-15	Covestro, LLC	0.488
S58	05-27-16	Covestro, LLC	0.22
S59	05-27-18	Covestro, LLC	0.967
S60	05-27-17	Covestro, LLC	0.892
S61	05-27-19.3	Cemetery	2.0
S62	05-27-02	Covestro, LLC	28.099
S63	05-27-19.2	Wheeling Electric Co.	0.922
S64	05-28-12.2	Covestro, LLC	3.1
S65	05-28-12.3	Covestro, LLC	18.784
S66	05-28-13.1	Air Products & Chemicals, Inc	5.522
S67	05-27-11	Covestro, LLC	8.07



P.S. 708 *David L Jackson*

08/03/2018



TUG HILL
OPERATING

OPERATOR'S
 WELL #: Goudy 1S-4HM
 DISTRICT: Franklin
 COUNTY: Marshall
 STATE: WV

WELL PLAT
PAGE 2 OF 2
DATE: 5/24/2018

WW-6A1
(5/13)

Operator's Well No. Goudy 1S-4HM

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

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

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

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

*See attached pages

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

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

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

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

Well Operator: Tug Hill Operating, LLC

By: Amy L. Miller *Amy Miller*

Its: Permitting Specialist

Lease ID	Tag	Parcel	Grantor, Lessor, Etc.	Grantee, Lessee, Etc.	Royalty	Deed Book/Page	Assignment	Assignment	Assignment	Assignment
10*14300	A	5-28-13	PPG INDUSTRIES, INC.	GASTAR EXPLORATION USA INC	1/8+	725 123	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14498	B	5-28-2	BAYER MATERIALSCIENCE LLC	GASTAR EXPLORATION USA INC	1/8+	757 340	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14658	C	5-28-12	THOMAS WILLIAM ABERSOLD	GASTAR EXPLORATION USA INC	1/8+	775 314	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14659	C	5-28-12	JUDITH LEE ABERSOLD	GASTAR EXPLORATION USA INC	1/8+	781 609	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14300	C	5-28-12	PPG INDUSTRIES, INC.	GASTAR EXPLORATION USA INC	1/8+	725 123	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14565	D	5-28-11	HARRY LEE GOUDY	CENTRAL MICHIGAN EXPLORATION LLC	1/8+	670 59	Central Michigan Exploration, LLC to Stone Energy Corporation: 21/288	Stone Energy Corp. to Gastar Exploration USA Inc. & Atinum Marcellus I, LLC: 27/160	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14495	E	5-27-19	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	752 197	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14493	E	5-27-19	BETTY JEAN NEELY	GASTAR EXPLORATION USA INC	1/8+	748 468	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14494	E	5-27-19	MARY LOU WILSON	GASTAR EXPLORATION USA INC	1/8+	748 471	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14496	E	5-27-19	STEPHANIE L HALL	GASTAR EXPLORATION USA INC	1/8+	752 215	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exporation USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9

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Office of Oil and
Gas
JUN 05 2018
WV Department of
Environmental Protec

Application Number	Applicant	Date	Operator	Well Name	Depth	Volume	Volume	Volume	Notes
10*14497	E	5-27-19	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	N/A	Certificate of Merger of Gastar Exploration USA, Inc. to Atinum Marcellus I LLC:
10*22926	E	5-27-19	COVESTRO	TH EXPLORATION	1/8+	976	27	N/A	Gastar Exporation USA, Inc. to Gastar Exploration Inc:
10*22926	F	5-27-20	COVESTRO	TH EXPLORATION	1/8+	976	27	N/A	Gastar Exploration Inc to TH Exploration II, LLC:
									23/353 21/41 36/9
10*14493	F	5-27-20	BETTY JEAN NEELY	GASTAR EXPLORATION USA INC	1/8+	748	468	N/A	Certificate of Merger of Gastar Exploration USA, Inc. to Atinum Marcellus I LLC:
10*14494	F	5-27-20	MARY LOU WILSON	GASTAR EXPLORATION USA INC	1/8+	748	471	N/A	Gastar Exporation USA, Inc. to Gastar Exploration Inc:
10*14495	F	5-27-20	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	752	197	N/A	Gastar Exploration Inc to TH Exploration II, LLC:
10*14496	F	5-27-20	STEPHANIE L HALL	GASTAR EXPLORATION USA INC	1/8+	752	215	N/A	Certificate of Merger of Gastar Exploration USA, Inc. to Atinum Marcellus I LLC:
10*14497	F	5-27-20	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	N/A	Gastar Exporation USA, Inc. to Gastar Exploration Inc:
10*14493	G	5-27-20.1	BETTY JEAN NEELY	GASTAR EXPLORATION USA INC	1/8+	748	468	N/A	Gastar Exploration Inc to TH Exploration II, LLC:
10*14494	G	5-27-20.1	MARY LOU WILSON	GASTAR EXPLORATION USA INC	1/8+	748	471	N/A	Certificate of Merger of Gastar Exploration USA, Inc. to Atinum Marcellus I LLC:
10*14495	G	5-27-20.1	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	752	197	N/A	Gastar Exporation USA, Inc. to Gastar Exploration Inc:
10*14496	G	5-27-20.1	STEPHANIE L HALL	GASTAR EXPLORATION USA INC	1/8+	752	215	N/A	Gastar Exploration Inc to TH Exploration II, LLC:
									23/353 21/41 36/9

10*14497	G	5-27-20.1	CAROL DEEN GARDNER	GASTAR EXPLORATION USA INC	1/8+	752	212	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14495	G	5-27-20.1	PATRICIA HARTMAN	GASTAR EXPLORATION USA INC	1/8+	752	197	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14499	G	5-27-20.1	UNION CARBIDE CORPORATION	GASTAR EXPLORATION USA INC	1/8+	815	221	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*14505	H	5-27-27	JAMES ANDREW RICHMOND	GASTAR EXPLORATION USA INC	1/8+	752	447	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9
10*22926	I	5-27-26	COVESTRO	TH EXPLORATION	1/8+	976	27	N/A	N/A	N/A	N/A
10*14505	J	5-27-25	JAMES ANDREW RICHMOND	GASTAR EXPLORATION USA INC	1/8+	752	447	N/A	Gastar Exploration USA, Inc. to Atinum Marcellus I LLC: 23/353	Certificate of Merger of Gastar Exploration USA, Inc. to Gastar Exploration Inc: 21/41	Gastar Exploration Inc to TH Exploration II, LLC: 36/9



June 1, 2018

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

RE: Goudy 1S-4HM

Subject: Road Crossing Letter

Dear Laura:

Tug Hill Operating, LLC will not be drilling, extracting or producing any minerals under any WV County or State Routes in the area reflected on the Goudy 1S-4HM well plat.

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

Sincerely,

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

Amy L. Miller
Permitting Specialist – Appalachia Region

RECEIVED
Office of Oil and Gas
JUN 05 2018
WV Department of
Environmental Protection

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

Date of Notice Certification: 06/01/2018

API No. 47- 051 - _____

Operator's Well No. Goudy 1S-4HM

Well Pad Name: Goudy

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: West Virginia
County: Marshall
District: Franklin
Quadrangle: New Martinsville 7.5'
Watershed: French Creek - Ohio River (HUC 10)

UTM NAD 83 Easting: 514,679.21
Northing: 4,398,587.06
Public Road Access: Wells Hill Road (County Route 2/2)
Generally used farm name: PPG Industries, Inc.

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

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:

*PLEASE CHECK ALL THAT APPLY

- 1. NOTICE OF SEISMIC ACTIVITY or NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED
- 2. NOTICE OF ENTRY FOR PLAT SURVEY or NO PLAT SURVEY WAS CONDUCTED
- 3. NOTICE OF INTENT TO DRILL or NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or
 WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)
- 4. NOTICE OF PLANNED OPERATION
- 5. PUBLIC NOTICE
- 6. NOTICE OF APPLICATION

OOG OFFICE USE ONLY

- RECEIVED/ NOT REQUIRED
- RECEIVED
- RECEIVED/ NOT REQUIRED
- RECEIVED
- RECEIVED
- RECEIVED

RECEIVED
Office of Oil and Gas
JUN 05 2018
WV Department of Environmental Protection

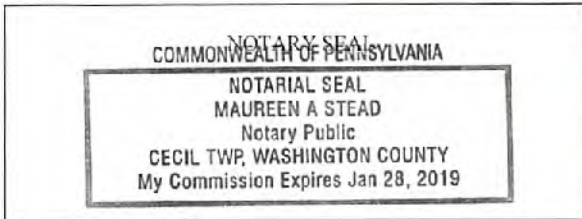
Required Attachments:

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

Certification of Notice is hereby given:

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

Well Operator:	<u>Tug Hill Operating, LLC</u>	Address:	<u>380 Southpointe Boulevard, Plaza II, Suite 200</u>
By:	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 1 day of JUNE, 2018.
Maureen A Stead Notary Public
 My Commission Expires 1/28/19

Oil and Gas Privacy Notice:

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

RECEIVED
Office of Oil and Gas
JUN 05 2018
WV Department of
Environmental Protection

**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: 6/1/2018 **Date Permit Application Filed:** 6/1/2018

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: Bayer Material Sciences, LLC (Access Road and Well Pad)
 Address: 100 Bayer Road
Pittsburgh, PA 15205

Name: PPG Industries, Inc. Attn: Supervisor Financial Accounting Chemicals
 Address: 1 PPG Place, 9th Floor West
Pittsburgh, PA 15272 (Access Road and Well Pad)

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: Appalachian Power Company
 Address: 1068 US-60
Milton, WV 25541

COAL OPERATOR

Name: _____
 Address: _____

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

Name: (None within 2000')
 Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
 Address: _____

*Please attach additional forms if necessary

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 WV Department of
 Environmental Protection

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

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Well Location Restrictions

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

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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

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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)

4705102050
API NO. 47-051
OPERATOR WELL NO. Goudy 1S-4HM
Well Pad Name: Goudy

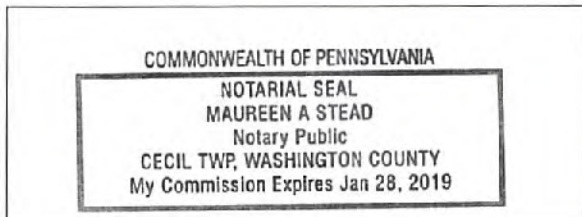
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 1 day of JUNE 2018.

Maureen A Stead Notary Public

My Commission Expires 1/28/19

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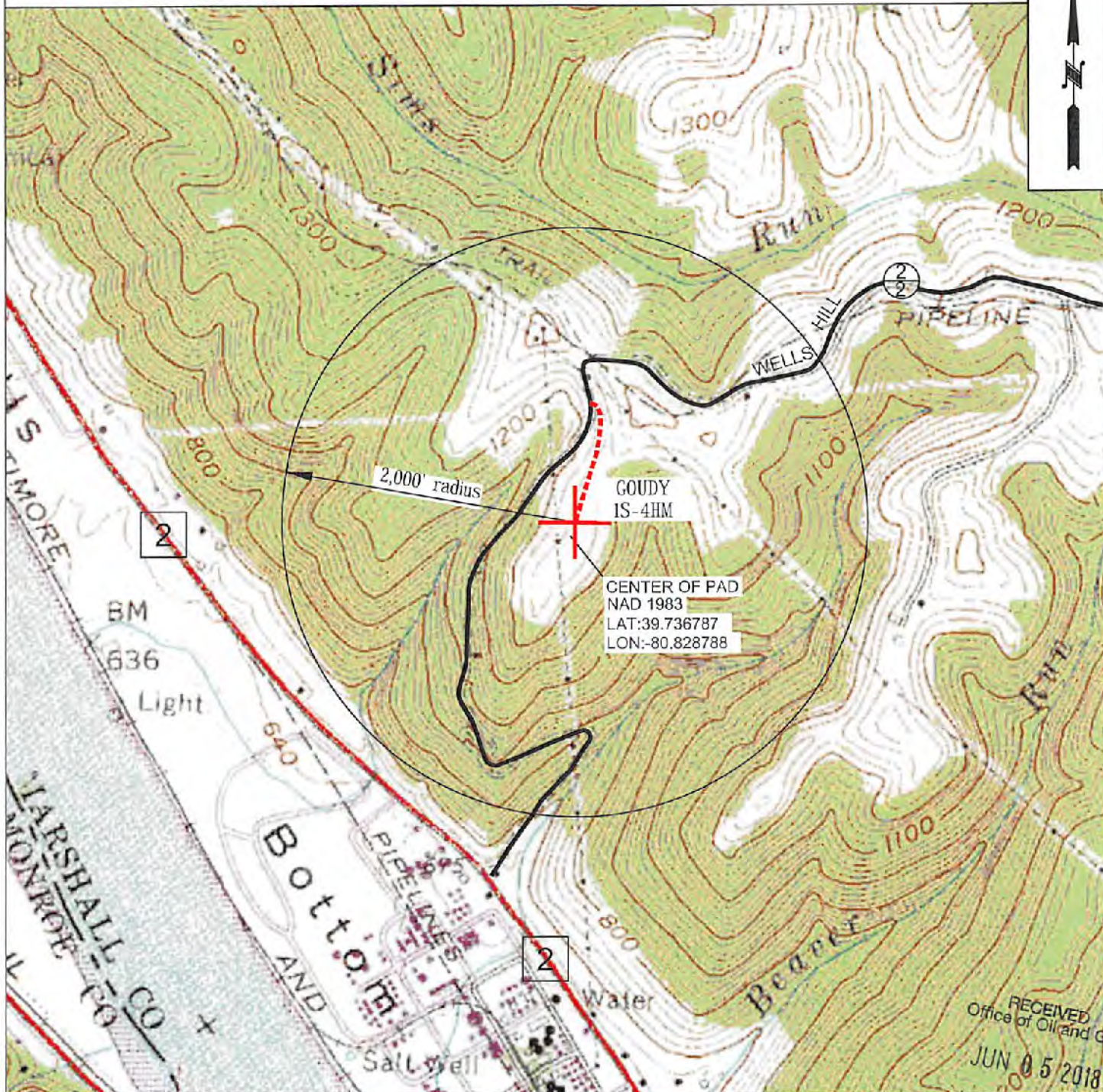
08/03/2018

WW-6A

PROPOSED GOUDY 1S-4HM

SUPPLEMENT PG 1

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



OPERATOR 494510851
 TUG HILL OPERATING, LLC
 380 SOUTHPOINTE BLVD
 SUITE 200
 CANONSBURG, PA 15317

TOPO SECTION
 NEW MARTINSVILLE 7.5'
SCALE:
 1" = 1000'

LEASE NAME Goudy
DATE:
 DATE: 05/21/2018

08/03/2018

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: 5/4/2018 **Date of Planned Entry:** 5/11/2018

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: Bayer Material Sciences, LLC (Access Road and Well Pad)
 Address: 100 Bayer Road
Pittsburgh, PA 15205

Name: PPG Industries, Inc. Attn: Supervisor Financial Accounting Chemicals
 Address: 1 PPG Place, 9th Floor West
Pittsburgh, PA 15272 (Access Road and Well Pad)

Name: _____
 Address: _____

COAL OWNER OR LESSEE

Name: Appalachian Power Company
 Address: 1068 US-60
Milton, WV 25541

MINERAL OWNER(S)

Name: PPG Industries, Inc. Attn: Supervisor Financial Accounting Chemicals
 Address: 1 PPG Place, 9th Floor West
Pittsburgh, PA 15272

*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>39.7368182; -80.6288154</u>
County:	<u>Marshall</u>	Public Road Access:	<u>Wells Hill Road (County Route 2/2)</u>
District:	<u>Franklin</u>	Watershed:	<u>French Creek - Ohio River (HUC 10)</u>
Quadrangle:	<u>New Martinsville 7.5'</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 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

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

Address: 380 Southpointe Boulevard, 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 its 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.

WV Department of Environmental Protection

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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: 06/01/2018 **Date Permit Application Filed:** 06/01/2018

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

- CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

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

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

Name: Bayer Material Sciences, LLC (Access Road and Well Pad)
Address: 100 Bayer Road
Pittsburgh, PA 15205

Name: PPG Industries, Inc. Attn: Supervisor Financial Accounting Chemicals
Address: 1 PPG Place, 9th Floor West
Pittsburgh, PA 15272 (Access Road and Well Pad)

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	Eastings:	<u>514,679.21</u>
County:	<u>Marshall</u>		Northings:	<u>4,398,587.06</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Wells Hill Road (County Route 2f2)</u>	
Quadrangle:	<u>New Martinsville 7.5'</u>	Generally used farm name:	<u>PPG Industries, Inc.</u>	
Watershed:	<u>French Creek - Ohio River (HUC 10)</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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

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

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

Oil and Gas Privacy Notice:

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

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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

May 7, 2018

Jill M. Newman
 Deputy Commissioner

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

Subject: DOH Permit for the Goudy Well Pad, Marshall County
 Goudy 1S-4HM

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 January 3, 2012.

Very Truly Yours,

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

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

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PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Goudy 1S-4HM

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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WEST VIRGINIA COUNTY MAP



WVDEP OOG
ACCEPTED AS-BUILT

WJ 6 / 19 / 2018

Goudy Well Site

Site Design, Construction Plan, &
Erosion and Sediment Control Plans

Tug Hill Operating
Marshall County
Franklin District
Latitude 39.73678670°
Longitude -80.82878798°
French Creek - Ohio River Watershed

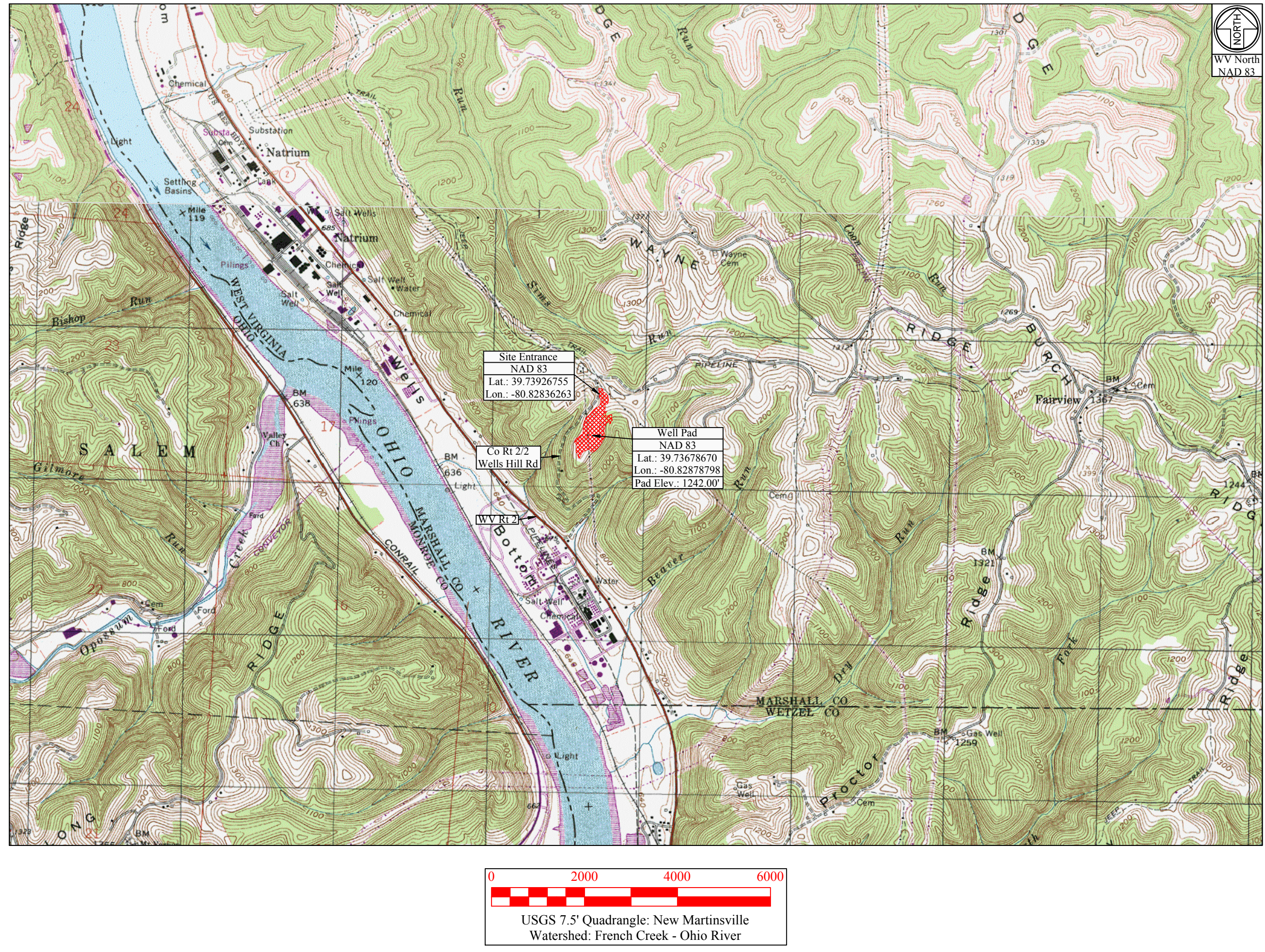
Pertinent Site Information
Goudy Well Site
Emergency Number: 304-845-1920
Franklin District, Marshall County, WV
Watershed: French Creek - Ohio River Watershed
Tug Hill Contact Number: 1-817-632-3400

Property Owner Information - Goudy Well Site

Franklin District - Marshall County						
Owner	TM - Parcel	Well Pad	Access Road	Topsoil/Excess	Add. Clearing	Total Disturbed
Bayer Material Sciences LLC	28-2	0.74	1.01	0.00	1.44	3.19
PPG Industries Inc	28-13	5.07	0.00	1.64	1.66	8.37
Site Totals (Ac)	5.81	1.01	1.64	3.10	11.56	

Exhibit A: Final Design: Issue for Permitting

Site Entrance	Center of Well Pad
WV-N NAD 83 N: 454140.54 WV-N NAD 83 E: 1594965.35 WV-N NAD 27 N: 454104.72 WV-N NAD 27 E: 1626403.41 Lat. NAD 83: 39.73926755 Lon. NAD 83: -80.82836263 Lat. NAD 27: 39.73919098 Lon. NAD 27: -80.82854678 UTM 17 NAD 83 N: 4398833.20 UTM 17 NAD 83 E: 514706.49	WV-N NAD 83 N: 453238.77 WV-N NAD 83 E: 1594832.39 WV-N NAD 27 N: 453202.95 WV-N NAD 27 E: 1626270.48 Lat. NAD 83: 39.73678670 Lon. NAD 83: -80.82878798 Lat. NAD 27: 39.73671011 Lon. NAD 27: -80.82891199 UTM 17 NAD 83 N: 4398557.79 UTM 17 NAD 83 E: 514670.57 Pad Elev.: 1242.00'



Access Road

Owner	TM - Parcel	Road Length	Type
Bayer Material Sciences LLC	28-2	465.07'	Existing Access Road

Disturbed Area

Well Pad Construction	5.81 Ac
Access Road Construction	1.01 Ac
Topsoil / Excess Material	1.64 Ac
Additional Clearing	3.10 Ac
Total Disturbed Area	11.56 Ac
Additional Information	
Total Wooded Acres Disturbed	0.00 Ac
Total Linear Feet of Access Road	465.07'

Goudy Well Site Quantities

Description	Cut (CY)	Fill (CY)	Spoil (CY)	Borrow (CY)	Max. Slope	Length of Slope
Well Pad Berm Grading	25.60	640.51	614.91	N/A	N/A	N/A
Access Road Mountable Berm	1.83	88.07	86.24	N/A	N/A	N/A
Borrow Area Topsoil Stockpile	2,500.00	0.00	2,500.00	N/A	N/A	N/A
Totals	2,527.43	728.58	2,500.00	701.15	N/A	N/A
Total Spoil (CY) =	1,798.85 (Additional Borrow Material Available)					

Project Contacts

Tug Hill Operating
Jonathan White - Regulatory Analyst
724-485-2000 Off. 304-689-7676 Cell

Geoff Radler - V.P. Production
817-632-5200 Off.

Survey and Engineer
Kenneth Kelly
304-338-6985 Off.

John P. See
304-442-0220 Off.

Zachary Summerfield
304-338-6987 Off.

Geotechnical Engineer
American Geotech. Inc.
Kanti Patel
304-340-4277 Off.

Environmental:
Wetland Delineations as provided by Allstar Ecology dated March 30, 2017

Topographic Information:
The topographic information shown herein is based on aerial photography by Blue Mountain Aerial Mapping, Burton, WV

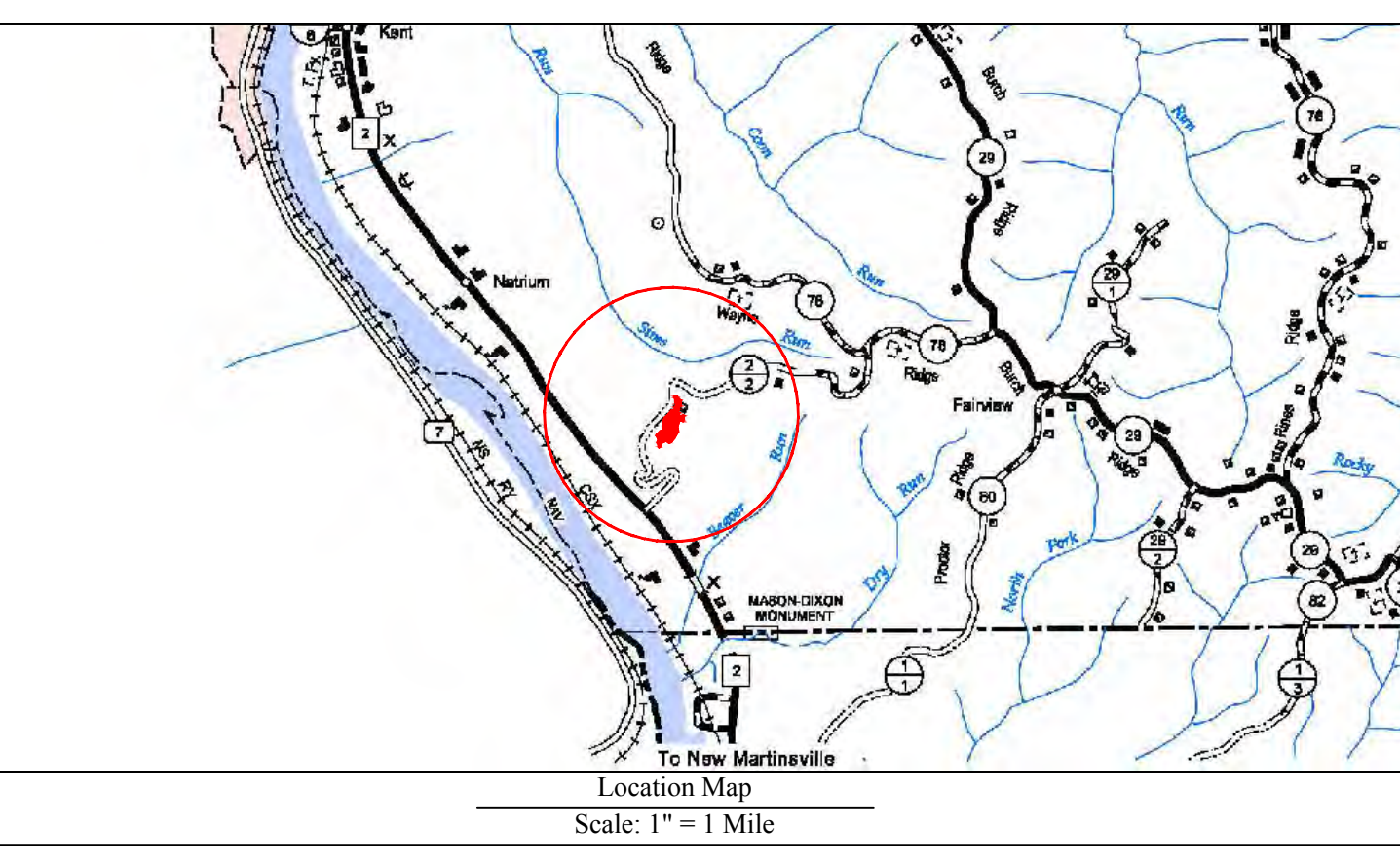
Well Table

Well ID	Structure	Latitude (DD)	Longitude (DD)
Goudy 1H	Well	39.73926755	-80.82836263
Goudy 1I	Well	39.73678670	-80.82878798
Goudy 1J	Well	39.73671011	-80.82891199
Goudy 1K	Well	39.73678670	-80.82878798
Goudy 1L	Well	39.73671011	-80.82891199
Goudy 1M	Well	39.73678670	-80.82878798
Goudy 1N	Well	39.73671011	-80.82891199
Goudy 1O	Well	39.73678670	-80.82878798
Goudy 1P	Well	39.73671011	-80.82891199
Goudy 1Q	Well	39.73678670	-80.82878798
Goudy 1R	Well	39.73671011	-80.82891199
Goudy 1S	Well	39.73678670	-80.82878798
Goudy 1T	Well	39.73671011	-80.82891199
Goudy 1U	Well	39.73678670	-80.82878798
Goudy 1V	Well	39.73671011	-80.82891199
Goudy 1W	Well	39.73678670	-80.82878798
Goudy 1X	Well	39.73671011	-80.82891199
Goudy 1Y	Well	39.73678670	-80.82878798
Goudy 1Z	Well	39.73671011	-80.82891199

Approach Routes:

From the intersection of OH Rt 7 and WV Rt 2 near New Martinsville, WV. Travel North on WV Rt 2 for 6.1 mi. Turn Right onto Co Rt 2/2 (Wells Hill Rd). Follow Co Rt 2/2 for 0.9 mi. The site entrance will be on the Right (East) side of the road.

Site Locations (NAD 27)				Site Locations (NAD 83)			
Structure	Latitude (DD)	Longitude (DD)	Center of Well Pad	Structure	Latitude (DD)	Longitude (DD)	Center of Well Pad
Site Entrance	39.73926755	-80.82836263	39.73671011	Well Pad	39.73678670	-80.82878798	39.73678670
Center of Well Pad	39.73678670	-80.82878798	39.73671011	Well Pad	39.73678670	-80.82878798	39.73678670



Well Location Restrictions

All Pad construction complies with the following restrictions.

- *250' from an existing well or developed spring used for human or domestic animals.
- *625' from an occupied dwelling or barn greater than 2,500 SF used for poultry or dairy measured from the center of the pad.
- *300' from the edge of disturbance to a naturally reproducing trout stream.
- *1,000' of a surface or ground water intake to a public water supply.

(Well Location Restrictions of WV Code 22-6A-12)

Design Certification

The drawings, construction notes and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas 350308.

All Plans, Sheets, and/or Reference Diagrams included in this design constitute a complete set of plans. A complete set of plans is necessary to construct the site in accordance with the design.

Zachary C. Summerfield
RPE 22214
Kelly Surveying P.L.L.C.
COA: 00423-00

Date: 05-16-2018

Sheet	Description
V1	Cover Sheet
N1-N4	Schedule of Quantities
1	Site Notes
2	Pre-Construction Site Conditions
3	Site Soil Map
4	Clearing Exhibit
5	Overall Plan View
6-7	E&S Plan View
8	Toe Key Exhibit
9-10	Plan View
11	Cross Sections - Well Pad
12	Cross Sections - Access Road
G1-G2	Geotechnical Exhibit
L1	Landowner Disturbed Area Exhibit
S1	Site Reclamation
M1-M3	Production Exhibit
D1-D2	Erosion and Sediment Control Details
R1	Access Road Details
P1	Pad Details

MISS UTILITY OF WEST VIRGINIA
1-800-245-4848
West Virginia State Law
Section XIV, Chapter 24-C requires that you call two business days before you dig in the state of West Virginia.
IT'S THE LAW
Know what's below.
Call before you dig.

Tug Hill Operating will obtain an Encroachment Permit (Form MM-109) from the WV Department of Transportation, Division of Highways, prior to the commencement of any construction activities

The WV Mines Website was consulted. Previous (Current) mining activities are not within the AOI.

WVDEP Website files show that there are active and/or abandoned gas wells within the AOI

Floodplain Conditions

Do site construction activities take place in a floodplain:	NO
Permit needed from county floodplain coordinator:	NO
Flood Hazard Zone:	X
HEC-RAS Study completed:	N/A
Floodplain shown on drawings:	N/A
FIRM Map Number(s) for site:	5405C 0205E
Acres of construction in floodplain:	N/A

Revision: Design

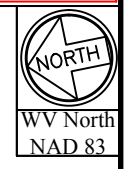
Date: 05-16-2018

Cover Sheet

Goudy Well Site

Franklin District
Marshall County, WV

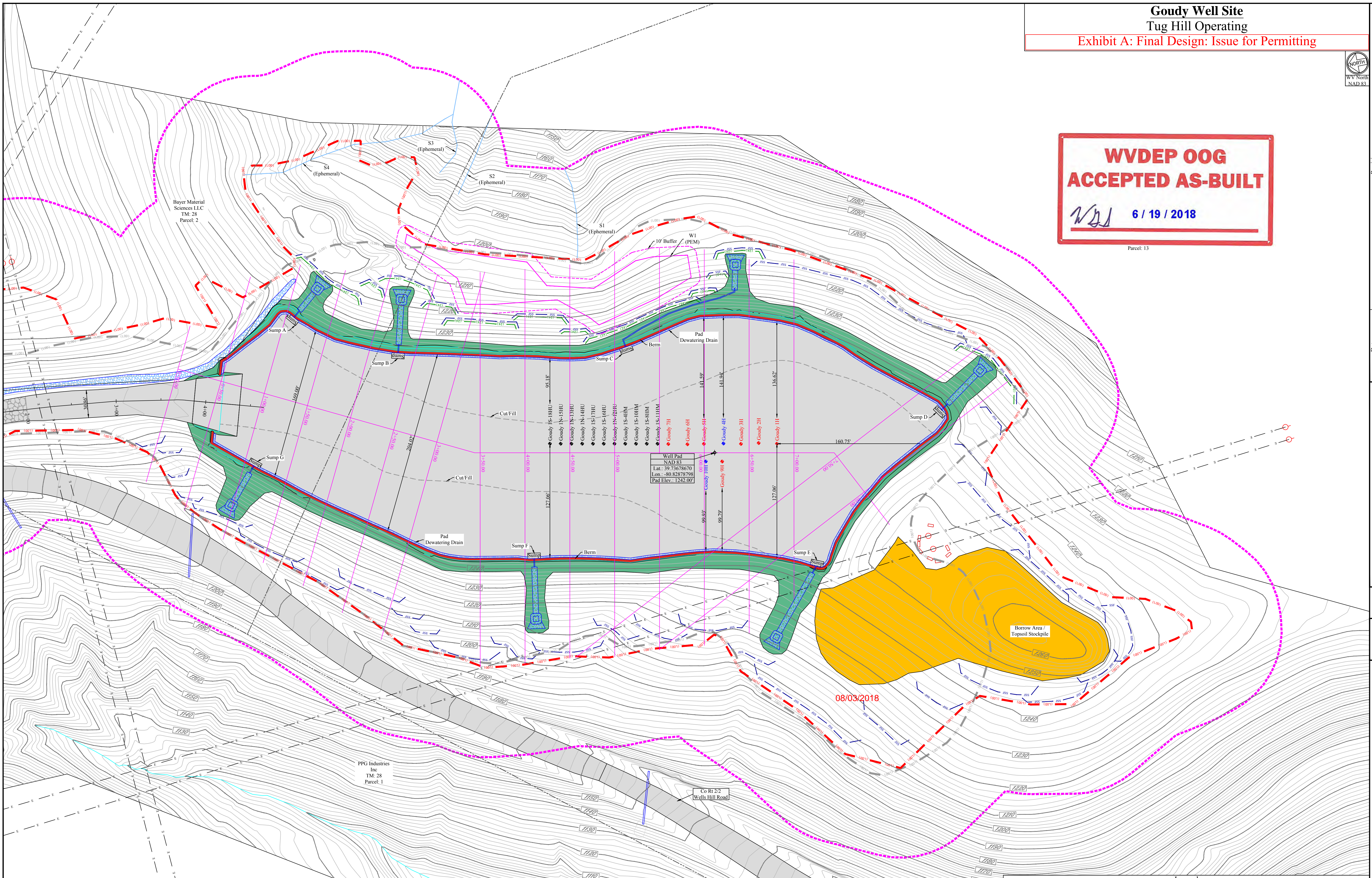
Date: 05/16/2018
Scale: As Shown
Designed By: ZS
File No.
Sheet 1 of 12



**WVDEP OOG
ACCEPTED AS-BUILT**

WJ 6/19/2018

Parcel: 13



Well Pad
NAD 83
Lat.: 39 73678670
Lon.: -80 82878798
Elev.: 1342.00'

08/03/2018

Disturbed Area

Well Pad Construction	5.81 Ac
Access Road Construction	1.01 Ac
Topsoil / Excess Material	1.64 Ac
Additional Clearing	3.10 Ac
Total Disturbed Area	11.56 Ac

Additional Information

Total Wooded Acres Disturbed	0.00 Ac
Total Linear Feet of Access Road	465.07'

Access Road

Owner	TM - Parcel	Road Length	Type
Bayer Material Sciences LLC	28-2	465.07'	Existing Access Road

NOTE: All surface boundary lines shown hereon are based on boundary evidence collected with mapping grade GPS receivers.



Legend

Original Ground 2' Contour	Original Ground 10' Contour	Pad Design 2' Contour	Pad Design 10' Contour	Center of Structure	Existing Well	Existing Cellar	Proposed Well
24" Composite Filter Sock	Super Silt Fence	Limits of Disturbance (Original)	Limits of Disturbance	Area of Interest	Existing Gas Line	Existing Utility Pole/Line	Rock Lined Ditch
PEM Wetland	POW Wetland	PSS Wetland	Perennial Stream	Intermittent Stream	Ephemeral Stream	Toe Key	Erosion Control Blanket Slope Area
Stone Check Dam							

Revision

Design	
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Date

05-16-2018



THIS DOCUMENT
PREPARED FOR
TUG HILL
OPERATING



Site Plan
Goudy Well Site
Franklin District
Marshall County, WV