



west virginia department of environmental protection

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

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

Monday, April 09, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

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

FORT WORTH , TX 76107

Re: Permit approval for CORLEY N-10HU
47-051-01998-00-00

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: CORLEY N-10HU
Farm Name: JAMES A. & JILL C. CORLEY
U.S. WELL NUMBER: 47-051-01998-00-00
Horizontal 6A New Drill
Date Issued: 4/9/2018

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.



west virginia department of environmental protection

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

Barry K. Lay, Chairman
dep.wv.gov

March 6, 2018

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

RE: Application for Deep Well Permit – API #47-051-01998

COMPANY: Tug Hill Operating, LLC

FARM: Tug Hill Operating, LLC Corley N-10HU

COUNTY: Marshall DISTRICT: Franklin QUAD: Powhatan Point 7 ½'

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? No.
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: 47-051-01731
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



April 5, 2018

Mr. James Martin
Chief – Office of Oil and Gas
West Virginia Department of Environmental Protection
601 57th Street SE
Charleston, WV 25304-2345

RE: Corley Well Pad

Mr. Martin:

Please accept this letter as explanation and furtherance of today’s discussions between Tug Hill Operating, LLC (“Tug Hill”) and the West Virginia Department of Environmental Protection (“DEP”). Tug Hill is submitting this letter upon your request to explain the wetlands on Tug Hill’s Corley pad.

Gastar Exploration constructed the Corley Pad in 2011 prior to the H6A legislation. Tug Hill acquired the Corley Pad and Gastar’s other Appalachia assets in 2016. The wetlands in question developed and exist as a direct result of oil and gas operations. The wetlands did not exist prior to oil and gas operations.

In September of 2017, Tug Hill began submitting permit applications to add more wells to the existing Corley pad. The Corley pad was not expanded from Gastar’s permitted construction and is not proposed to be expanded pursuant to the new permit applications submitted by Tug Hill. The proposed wells for the Corley Pad are as follows:

Well Name	API#
Corley N-5HM	47-051-01970
Corley N-6HM	47-051-01971
Corley N-7HM	47-051-01972
Corley N-8HM	47-051-02005
Corley N-9HU	47-051-01983
Corley N-10HU	47-051-01988

At this time, there are no other wells planned on the Corley Pad. If more wells are proposed in the future, then this letter will be updated and submitted to the DEP to reflect those additions. If you have any questions, please let me know.

Thank you for your consideration.

Sincerely,

Jonathan White
Regulatory Analyst



April 5, 2018

Mr. James Martin
 Chief – Office of Oil and Gas
 West Virginia Department of Environmental Protection
 601 57th Street SE
 Charleston, WV 25304-2345

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Thank you for your consideration.

Sincerely,

Jonathan White
 Regulatory Analyst

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 Powhatan Point
Operator ID County District Quadrangle

2) Operator's Well Number: Corley N-10HU Well Pad Name: Corley

3) Farm Name/Surface Owner: Corley, James A. & Jill C. Public Road Access: Rines Ridge Road (CR 76)

4) Elevation, current ground: 1254' Elevation, proposed post-construction: 1254'

5) Well Type (a) Gas Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow _____ Deep

Horizontal

6) Existing Pad: Yes or No Yes

JM
12/13/17

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Point Pleasant is the target formation at a depth of 11,304' - 11,389' thickness of 85' and anticipated pressure of approx. 9000 psi

8) Proposed Total Vertical Depth: 11,584'

9) Formation at Total Vertical Depth: Trenton

10) Proposed Total Measured Depth: 22,206'

11) Proposed Horizontal Leg Length: 9,974'

12) Approximate Fresh Water Strata Depths: 865'

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

14) Approximate Saltwater Depths: 2,049'

15) Approximate Coal Seam Depths: Sewickly Coal - 764' and Pittsburgh Coal - 859'

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: _____

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18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	125'	120'	216FT^3(CTS)
Fresh Water	20"	NEW	J55	106.5#	975'	965'	1,543ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	2,815'	2,805'	1,973ft^3(CTS)
Intermediate	9 5/8"	NEW	HPP110	47#	10,668'	10,658'	3,477ft^3(CTS)
Production	5 1/2"	NEW	HCP110	23#	22,206'	22,196'	5,266ft^3(CTS)
Tubing	2 7/8"	NEW	P110	6.5#		12,312'	
Liners							

Jan
12/13/17

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	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	13,580	10,864	SEE#24	1.18
Tubing	2 7/8"			14,530	11,624		
Liners							

PACKERS

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

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WW-6B
(10/14)

API NO. 47-051 - 01998
OPERATOR WELL NO. Corley N-10HU
Well Pad Name: Corley

Handwritten signature
12/13/17

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 14,691,558 lb proppant and 349,799 bbl of water. Max rate = 80 bpm; max psi = 9,000#.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 11.7

22) Area to be disturbed for well pad only, less access road (acres): 5.94

23) Describe centralizer placement for each casing string:

Will run 3 centralizers on surface casing at equal distance. Intermediate 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.



Tug Hill Operating, LLC Casing and Cement Program

Corley N-10HU

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	103'	CTS
Surface	20"	J55	26"	965'	CTS
Intermediate 1	13 3/8"	J55	17 1/2"	2,805'	CTS
Intermediate 2	9 5/8"	HPP110	12 1/4"	10,658'	CTS
Production	5 1/2"	HCP110	8 1/2"	22,196'	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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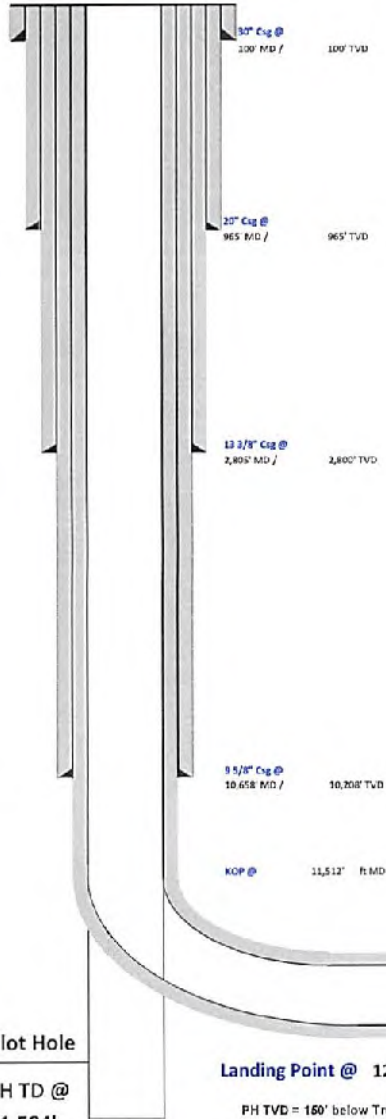


WELL NAME: **Corley N-10HU**
 STATE: **West Virginia** COUNTY: **Marshall**
 DISTRICT: **Meade**
 DF Elev: **1,254'** GI Elev: **1,254'**
 TD: **22,196'**
 TH Latitude: **39.75294182**
 TH Longitude: **-80.76313833**
 BH Latitude: **39.77337**
 BH Longitude: **-80.775084**

FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	855
Sewickley Coal	764
Pittsburgh Coal	859
Big Lime	2,007
Berea	2,545
Tully	6,415
Marcelus	6,909
Onondaga	6,962
Selina	7,270
Lockport	8,329
Utica	11,156
Point Pleasant	11,304
Landing Depth	11,392
Trenton	11,434
Pilot Hole TD	11,584

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	100'	100'	8W	3W	Surface
Surface	26	20	965'	965'	106.5	155	Surface
Intermediate 1	17 1/2	13 3/8	2,805'	2,800'	54.5	155	Surface
Intermediate 2	12 1/4	9 5/8	10,658'	10,208'	47	HPP110	Surface
Production	8 1/2	5 1/2	22,196'	11,218'	23	HEP110	Surface

CEMENT SUMMARY			DRILLING DETAILS		
	Sacks	Class	Density	Fluid Type	Centralizer Notes
Conductor	291	A	15.6	Air	None
Surface	1,675	A	15.6	Air	3 Centralizers at equal distance
Intermediate 1	2,148	A	15	Air	1 Centralizer every other ()
Intermediate 2	2,825	A	14.5	Air	1 Centralizer every other ()
Production	4,540	A	15	Air / SOEM	1 every other joint (in lateral); 1 per joint in curve; 1 every other () to stc



Joe
12/13/17

Pilot Hole
PH TD @
11,584'

Landing Point @ 12,222' MD / 11,392' TVD
PH TVD = 160' below Trenton Top

Lateral TD @ 22,206 ft MD
11,218 ft TVD

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51-01998

Area of Review**Sources of information to Support 35CSR8 - 5.11: 9.3 et seq.**

Description of process to identify potential pathways for well communication during hydraulic fracturing activities.

Data Sources Reviewed:

1. IHS Well Data service: Public nationwide data service that pulls directly from State agency Oil and Gas databases
2. Farm Maps
3. Topo Maps: Recent and older (contact WVGES)
4. Check with DPS

Contacted Devin Ducoeur 724-705-0444, dducoeur@dpslandservices.com DPS GIS (12/19/2016) to have him make maps of the wellbores with his information. DPS utilizes WVGES maps for their mapping seems it as the best publicly available. See attached map he provided.

Request maps for:

1. Wellbore with IHS All Wells Layer
2. Map with Farm lines overlain and any well spots identified on Farm Maps
3. More recent (1970s vintage) topos and older topos

Discussion with Phil Dinterman WVGES GIS Department (7/15/2016)

- WVGES has plotted every well spot they have access to and are aware of with that contains a coordinate. 30000, 70000, and 90000 series wells are available via the WVGES online map. Some locations aren't great due to vintage and manipulation of maps through time
- 30000 series – any well drilled prior to 1929 – APIs were not assigned to original wells
- 70000 series – Well spots pulled from old Farm line maps that the WVGES has access to
- 90000 series – Any sources that the WVGES has access that shows a well spot but has no additional supporting information. DEP does not have 90000 series on their maps.
- There can be duplication between wells in the 3 series
- Phil indicated that other Operators are providing a screenshot of the WVGES map with their planned well and using that for permits

Permit well - Corley N-10HU

Wells within 500' Buffer

Note: Well spots depicted on Area of Review map (page 3) are derived from State held coordinates. The spots may differ from those depicted on the Well Plat because the Plat locations represent actual field surveyed locations. Please refer to the Plat for surveyed well spots

API Number	Operator Name	Total Depth	Perforated Fms	Producing zones not perforated	Is this well "known or reasonably expected to penetrate a depth that could be within the range of Fracture propagation"? 1000' is max limit I would assign to wells that might be within in range of fracture propagation	Comments
4705101396	Tug Hill Operating	6625' TVD 12408' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101437	Tug Hill Operating	6632' TVD 12152' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101397	Tug Hill Operating	6633' TVD 12310' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705101438	Tug Hill Operating	6627' TVD 11388' MD	Marcellus	Unknown	Yes, existing Marcellus producer. Proper casing and cement should prevent migration of fluids from new wellbore to existing wellbore	Producing Marcellus horizontal well. A field survey was conducted to locate this well and it was found producing at the location shown on the well plat.
4705170350	Unknown	Unknown	Unknown	Unknown	Unknown but unlikely. Probably an old shallow well or abandoned permit location	State Well records are incomplete. A field survey was conducted to locate this well and no evidence of this well was found.

WV Geological & Economic Survey

Well: County = 51 Permit = 01396

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101396	Marshall	1396	Franklin	Peachtree Point	Chenango	39.732855	-80.130187	420287	4400285

Bottom Hole Location Information:

API	EF_FLAG	UTME	UTMN	LONG_DD	LAT_DD	
4705101396	1	As Proposed	821628.8	4386637.7	-85.748707	39.740274

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TROT_FM	TRM_EST_FR
4705101396	11/17/2011		As Proposed	James A & Jil G Corley et al	5H		Corley	WV16-0018-0011-288082-001	WV-0018-002	James A & Jil G Corley et al	Gas	Gas	2026

Completion Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TROT_FM	TRM_EST_FR
4705101396	11/17/2011		As Proposed	James A & Jil G Corley et al	5H		Corley	WV16-0018-0011-288082-001	WV-0018-002	James A & Jil G Corley et al	Gas	Gas	2026

Comment: 11/17/2011 Additional Lease: WV16-0018-002; Rock pressure listed as 2500 csg.

WV Geological & Economic Survey

Well: County = 51 Permit = 01437

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LONG_DD	UTME	UTMN
4705101437	Marshall	1437	Franklin	Peachtree Point	Chenango	39.732855	-80.130187	420287	4400285

Bottom Hole Location Information:

API	EF_FLAG	UTME	UTMN	LONG_DD	LAT_DD	
4705101437	1	As Proposed	821628.7	440014.0	-85.748	39.75063

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TROT_FM	TRM_EST_FR
4705101437	11/17/2011		As Proposed	James A & Jil G Corley et al	5H		Corley	WV16-0018-0011-288082-002	WV-0018-002	James A & Jil G Corley et al	Gas	Gas	2026

Completion Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VD	PROP_TROT_FM	TRM_EST_FR
4705101437	11/17/2011		As Proposed	James A & Jil G Corley et al	5H		Corley	WV16-0018-0011-288082-002	WV-0018-002	James A & Jil G Corley et al	Gas	Gas	2026

Comment: 11/17/2011 Additional Lease: WV16-0018-002; WV16-0065-0001-288082-001

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WVGES "Pipeline"

Select County: (051) Marshall | Select datatypes: (Check All)

Enter Permit #: 01397 | Location Production Plugging
 Owner/Completion Stratigraphy Sample
 Pay/Share/Water Logs Blm Hole Log

Well: County = 51 Permit = 01397

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101397	Marshall	1397	Franklin	Franklin	Franklin	39 78281	-80 78221	820208	4400218

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101397	1	As Proposed	821473	-80 78228	39 78223

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT_FM	TRM_EST_FR
4705101397	11/16/2011		Drill/Drill Log	Completed	James A & Jill C Conroy et al	49	Conroy	1208002-001	81	AWV16-0018-0001/WV16-0028-000	James A & Jill C Conroy et al	Other	8/28/2014

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTO	O_BEF	O_AFT	O_BEF	O_AFT	NGL_BER	NGL_AFT	P_BEF	P_AFT	
4705101397	11/16/2011	7/8/2011	1272	Ground Level	Campani-Gunter	Orlando	Ed	Marshall	Ed	Development	Wet	Oil and Gas	unknown	Production	8822	12110	5310	2787	2020	45	41		

Comment: 11/16/2011 Additional Lease #: WV16-0018-0002/WV16-0061-000/WV16-0015-000/WV16-0065-000

WVGES "Pipeline"

Select County: (051) Marshall | Select datatypes: (Check All)

Enter Permit #: 01438 | Location Production Plugging
 Owner/Completion Stratigraphy Sample
 Pay/Share/Water Logs Blm Hole Log

Well: County = 51 Permit = 01438

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705101438	Marshall	1438	Franklin	Franklin	Franklin	39 77283	-80 78104	820214	4400013

Bottom Hole Location Information:

API	EP_FLAG	UTME	UTMN	LON_DD	LAT_DD
4705101438	1	As Proposed	821545	-80 78123	39 78112

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT_FM	TRM_EST_FR
4705101438	11/16/2011		Drill/Drill Log	Completed	James A & Jill C Conroy et al	49	Conroy	1208002-001	81	AWV16-0018-0001/WV16-0028-000	James A & Jill C Conroy et al	Other	8/28/2014

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTO	O_BEF	O_AFT	O_BEF	O_AFT	NGL_BER	NGL_AFT	P_BEF	P_AFT	
4705101438	11/16/2011	7/8/2011	1272	Ground Level	Campani-Gunter	Orlando	Ed	Marshall	Ed	Development	Wet	Oil and Gas	unknown	Production	8822	12110	5310	2787	2020	45	41		

Comment: 11/16/2011 Other Lease numbers: 1-252200-001/1-288082-001

WVGES "Pipeline"

Select County: (051) Marshall | Select datatypes: (Check All)

Enter Permit #: 70350 | Location Production Plugging
 Owner/Completion Stratigraphy Sample
 Pay/Share/Water Logs Blm Hole Log

Well: County = 51 Permit = 70350

Location Information: [View Map](#)

API	COUNTY	PERMIT	TAX_DISTRICT	QUAD_75	QUAD_15	LAT_DD	LON_DD	UTME	UTMN
4705170350	Marshall	72850	Franklin	New Marshaville	New Marshaville	39 74928	-80 75807	820728	4400208

There is no Bottom Hole Location data for this well

Owner Information:

API	CMP_DT	SUFFIX	STATUS	SURFACE_OWNER	WELL_NUM	CO_NUM	LEASE	LEASE_NUM	MINERAL_OWN	OPERATOR_AT_COMPLETION	PROP_VO	PROP_TRGT_FM	TRM_EST_FR
4705170350			Unknown	Prop. Use	Jabu	Byrdman		124		unknown			

Completion Information:

API	CMP_DT	SPUD_DT	ELEV DATUM	FIELD	DEEPEST_FM	DEEPEST_FMT	INITIAL_CLASS	FINAL_CLASS	TYPE	RIG	CMP_MTHD	TVD	TMD	NEW_FTO	O_BEF	O_AFT	O_BEF	O_AFT	NGL_BER	NGL_AFT	P_BEF	P_AFT
4705170350					unknown		unclassified	unclassified	not available	unknown	unknown											

There is no Pay data for this well

There is no Production Gas data for this well

There is no Production Oil data for this well ** some operators may have reported NGL under Oil

There is no Production NGL data for this well ** some operators may have reported NGL under Oil

There is no Production Water data for this well

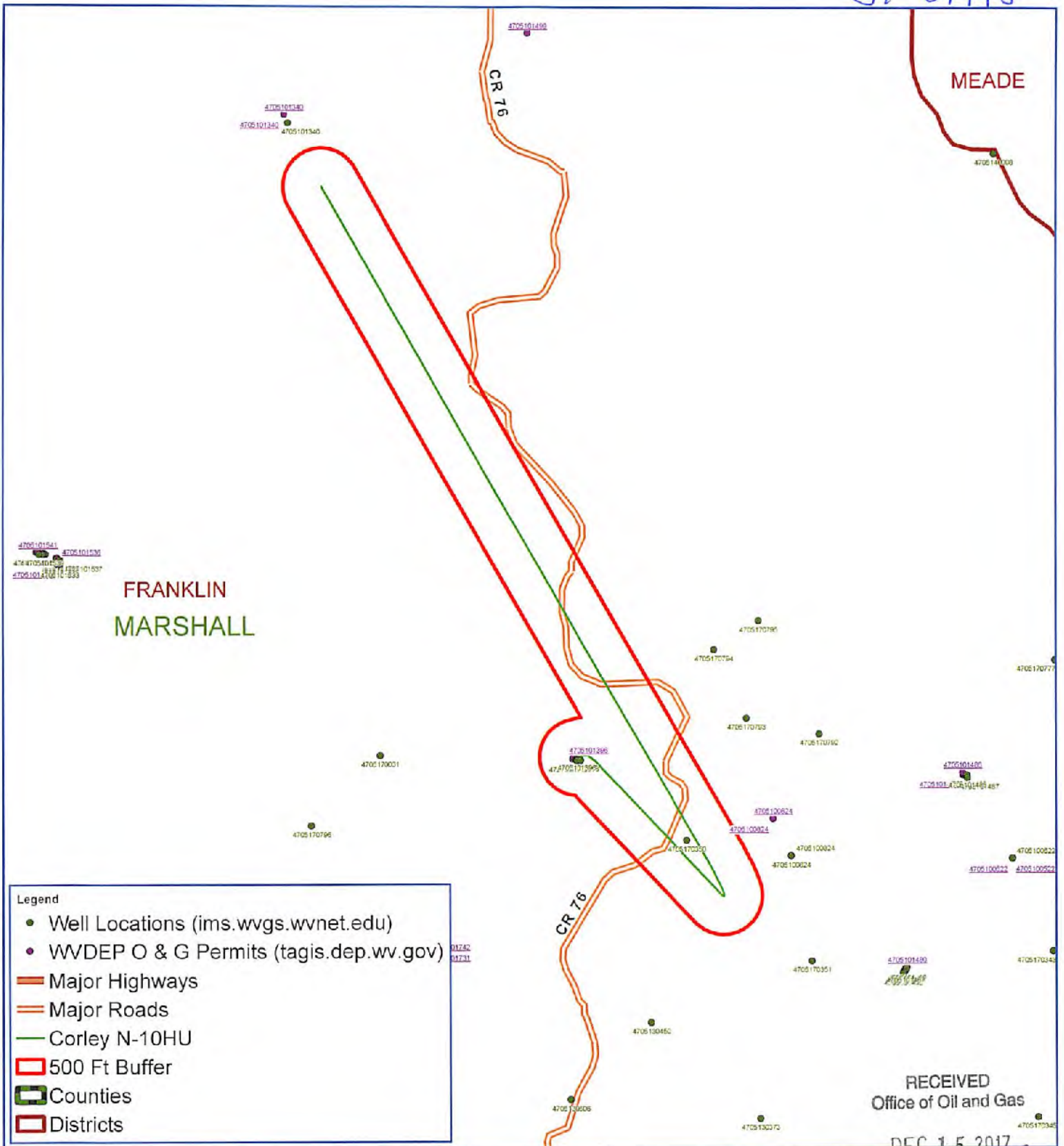
There is no Stratigraphy data for this well

There is no Wireline (E-Log) data for this well

There is no Plugging data for this well

There is no Sample data for this well

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Corley N-10HU Franklin District Marshall County, WV



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Environmental Protection
Map Prepared by:
DPS
LAND SERVICES

Map Created: September 15, 2017
Map Current As Of: September 15, 2017

Notes:
All locations are approximate and are for visualization purposes only.



Well: Corley N-10HU (slot J)
Site: Corley Pad
Project: Marshall County, WV
Design: rev2

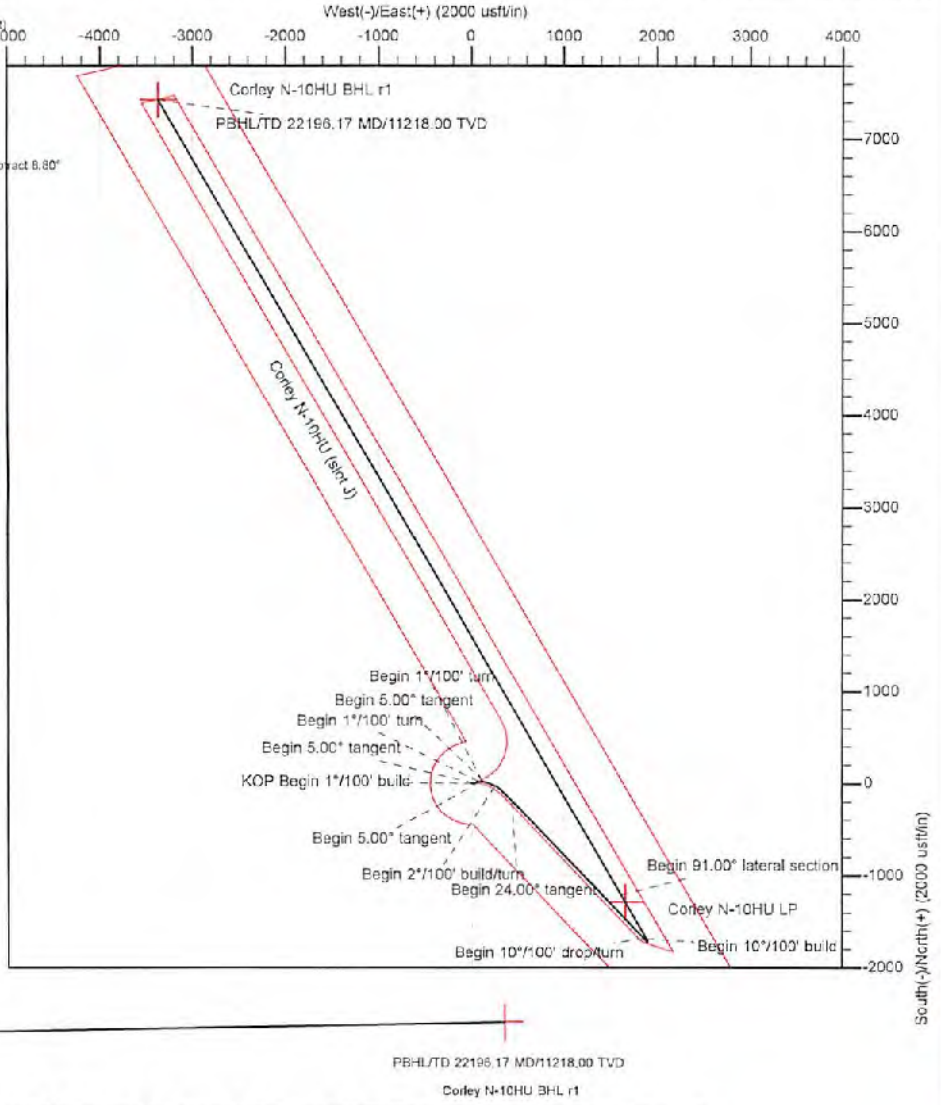
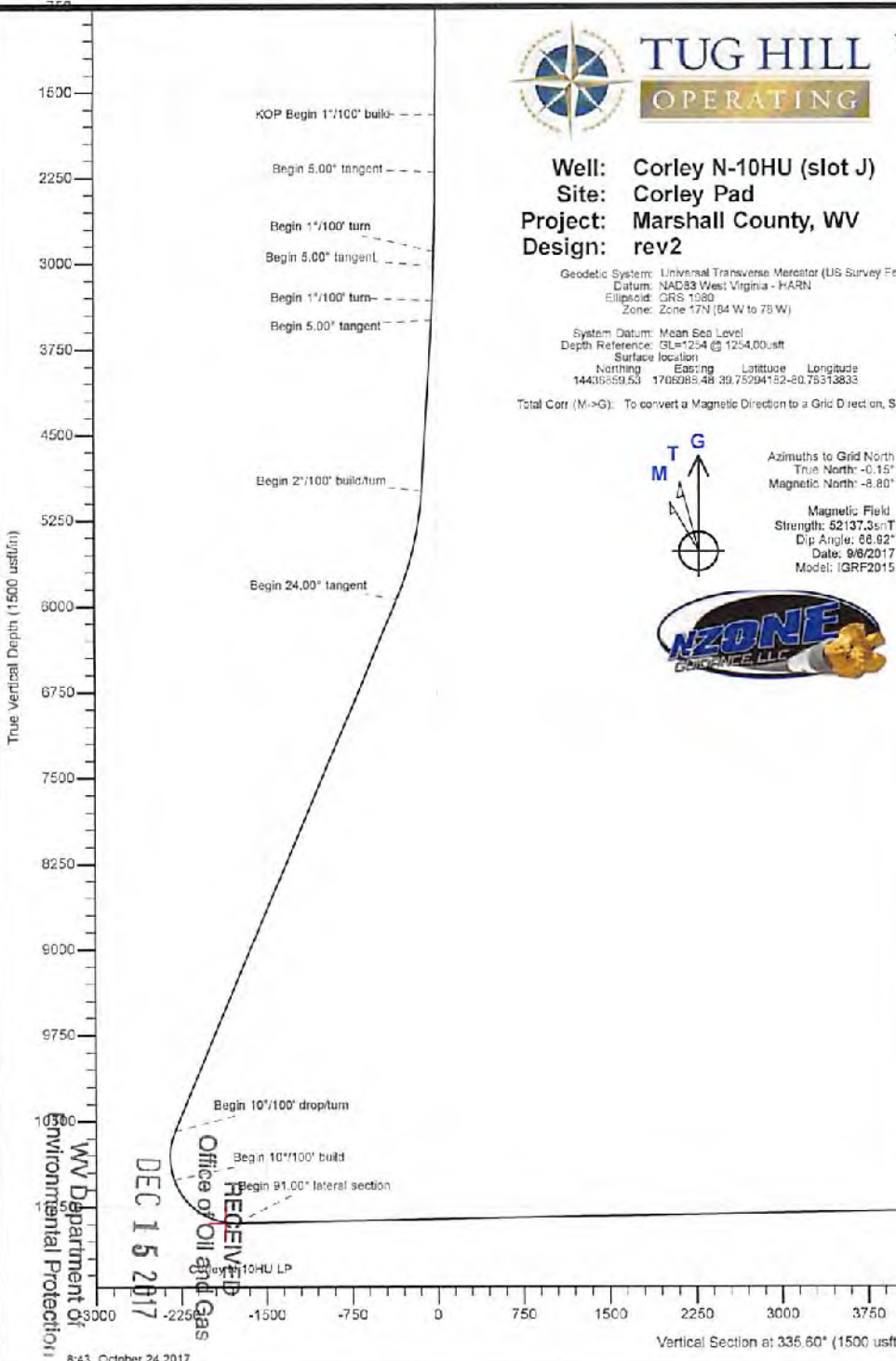
Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD83 West Virginia - HARN
 Ellipsoid: GRS 1980
 Zone: Zone 17N (84 W to 79 W)

System Datum: Mean Sea Level
 Depth Reference: GL=1254 @ 1254.00usft
 Surface location
 Northing: 14436459.53 Easting: 1706089.48 Latitude: 39.75294152 Longitude: -80.75313833

Total Corr. (M->G): To convert a Magnetic Direction to a Grid Direction, Subtract 8.80°



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	1700.00	0.00	0.00	1700.00	0.00	0.00	0.00	0.00	0.00	KOP Begin 1°/100' build
3	2200.00	5.00	75.00	2199.37	5.64	21.06	1.00	75.00	-3.56	Begin 5.00° tangent
4	2900.00	5.00	75.00	2396.70	21.43	79.99	0.00	0.00	-13.53	Begin 1°/100' turn
5	3030.36	5.00	90.00	3026.57	22.60	91.16	1.00	97.47	-15.60	Begin 5.00° tangent
6	3330.36	5.00	90.00	3326.43	22.60	117.31	0.00	0.00	-27.60	Begin 1°/100' turn
7	3503.80	5.00	110.00	3498.22	20.32	131.97	1.00	99.96	-36.01	Begin 5.00° tangent
8	5003.80	5.00	110.00	4992.51	-24.40	254.82	0.00	0.00	-127.49	Begin 2°/100' build/turn
9	5985.58	24.00	135.30	5930.27	-184.95	434.73	2.00	32.43	-348.03	Begin 24.00° tangent
10	11075.58	24.00	135.30	10589.22	-1681.70	1855.05	0.00	0.00	-2301.98	Begin 10°/100' drop/turn
11	11512.30	20.00	330.00	11014.70	-1681.21	1860.31	10.00	-173.26	-2311.97	Begin 10°/100' build
12	12222.28	91.00	330.00	11391.80	-1206.31	1616.10	10.00	0.00	-1766.21	Begin 91.00° lateral section
13	22196.17	91.00	330.00	11218.00	7429.79	-3370.48	0.00	0.00	8158.55	PBHL/TD 22196.17 MD/11218.00 TVD



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 Corley N-10HU LP

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51-01998



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Corley N-10HU (slot J)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1254 @ 1254.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1254 @ 1254.00usft
Site:	Corley Pad	North Reference:	Grid
Well:	Corley N-10HU (slot J)	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	Corley Pad				
Site Position:		Northing:	14,436,832.02 usft	Latitude:	39.75266638
From:	Lat/Long	Easting:	1,706,973.98 usft	Longitude:	-80.76319015
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 "

Well	Corley N-10HU (slot J)					
Well Position	+N/-S	0.00 usft	Northing:	14,436,859.53 usft	Latitude:	39.75294182
	+E/-W	0.00 usft	Easting:	1,706,988.48 usft	Longitude:	-80.76313833
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	1,254.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/6/2017	-8.65	66.92	52,137.27502339

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	335.60

Plan Survey Tool Program	Date	10/24/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	22,196.17 rev2 (Original Hole)	MWD MWD - Standard	

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Planning Report - Geographic

Database:	DB_Jul2216d_v14	Local Co-ordinate Reference:	Well Corley N-10HU (slot J)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1254 @ 1254.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1254 @ 1254.00usft
Site:	Corley Pad	North Reference:	Grid
Well:	Corley N-10HU (slot J)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Sections											
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00		
2,200.00	5.00	75.00	2,199.37	5.64	21.06	1.00	1.00	0.00	75.00		
2,900.00	5.00	75.00	2,896.70	21.43	79.99	0.00	0.00	0.00	0.00		
3,030.36	5.00	90.00	3,026.57	22.90	91.16	1.00	0.00	11.51	97.47		
3,330.36	5.00	90.00	3,325.43	22.90	117.31	0.00	0.00	0.00	0.00		
3,503.80	5.00	110.00	3,498.22	20.32	131.97	1.00	0.00	11.53	99.96		
5,003.80	5.00	110.00	4,992.51	-24.40	254.82	0.00	0.00	0.00	0.00		
5,965.58	24.00	136.30	5,939.27	-184.95	434.73	2.00	1.94	2.68	32.43		
11,075.58	24.00	136.30	10,589.21	-1,681.70	1,865.05	0.00	0.00	0.00	0.00		
11,512.30	20.00	330.00	11,014.70	-1,681.21	1,890.31	10.00	-0.92	-38.08	-173.26		
12,222.28	91.00	330.00	11,391.60	-1,208.31	1,616.10	10.00	10.00	0.00	0.00		
22,196.17	91.00	330.00	11,218.00	7,429.79	-3,370.48	0.00	0.00	0.00	0.00	Corley N-10HU BHL r	

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Planning Report - Geographic

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Corley Pad
 Well: Corley N-10HU (slot J)
 Wallbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Corley N-10HU (slot J)
 TVD Reference: GL=1254 @ 1254.00usft
 MD Reference: GL=1254 @ 1254.00usft
 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	
0.00	0.00	0.00	0.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
100.00	0.00	0.00	100.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
200.00	0.00	0.00	200.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
300.00	0.00	0.00	300.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
400.00	0.00	0.00	400.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
500.00	0.00	0.00	500.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
600.00	0.00	0.00	600.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
700.00	0.00	0.00	700.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
800.00	0.00	0.00	800.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
900.00	0.00	0.00	900.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
1,200.00	0.00	0.00	1,200.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
1,300.00	0.00	0.00	1,300.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
1,400.00	0.00	0.00	1,400.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
1,600.00	0.00	0.00	1,600.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	14,436,859.53	1,706,988.48	39.75294182	-80.76313833	
KOP Begin 1°/100' build										
1,800.00	1.00	75.00	1,799.99	0.23	0.84	14,436,859.75	1,706,989.32	39.75294244	-80.76313533	
1,900.00	2.00	75.00	1,899.96	0.90	3.37	14,436,860.43	1,706,991.85	39.75294428	-80.76312633	
2,000.00	3.00	75.00	1,999.86	2.03	7.58	14,436,861.56	1,706,996.06	39.75294735	-80.76311133	
2,100.00	4.00	75.00	2,099.68	3.61	13.48	14,436,863.14	1,707,001.96	39.75295184	-80.76309033	
2,200.00	5.00	75.00	2,199.37	5.64	21.06	14,436,865.17	1,707,009.54	39.75295717	-80.76306335	
Begin 5.00° tangent										
2,300.00	5.00	75.00	2,298.99	7.90	28.48	14,436,867.43	1,707,017.95	39.75296330	-80.76303337	
2,400.00	5.00	75.00	2,398.60	10.15	37.90	14,436,869.88	1,707,026.37	39.75296943	-80.76300340	
2,500.00	5.00	75.00	2,498.22	12.41	48.32	14,436,871.94	1,707,034.79	39.75297557	-80.76297342	
2,600.00	5.00	75.00	2,597.84	14.67	54.73	14,436,874.19	1,707,043.21	39.75298170	-80.76294345	
2,700.00	5.00	75.00	2,697.46	16.92	63.15	14,436,876.45	1,707,051.63	39.75298783	-80.76291348	
2,800.00	5.00	75.00	2,797.08	19.18	71.57	14,436,878.71	1,707,060.05	39.75299397	-80.76288350	
2,900.00	5.00	75.00	2,896.70	21.43	79.99	14,436,880.96	1,707,068.47	39.75300010	-80.76285353	
Begin 1°/100' turn										
3,000.00	4.97	86.52	2,996.33	22.82	88.52	14,436,882.35	1,707,077.00	39.75300386	-80.76282315	
3,030.36	5.00	90.00	3,026.57	22.90	91.16	14,436,882.43	1,707,079.63	39.75300408	-80.76281378	
Begin 5.00° tangent										
3,100.00	5.00	90.00	3,095.95	22.90	97.23	14,436,882.43	1,707,085.70	39.75300402	-80.76279218	
3,200.00	5.00	90.00	3,195.57	22.90	105.84	14,436,882.43	1,707,094.42	39.75300395	-80.76276117	
3,300.00	5.00	90.00	3,295.19	22.90	114.66	14,436,882.43	1,707,103.13	39.75300389	-80.76273016	
3,330.36	5.00	90.00	3,325.43	22.90	117.31	14,436,882.43	1,707,105.78	39.75300387	-80.76272075	
Begin 1°/100' turn										
3,400.00	4.93	98.01	3,394.81	22.49	123.30	14,436,882.02	1,707,111.78	39.75300268	-80.76269942	
3,500.00	4.99	109.57	3,494.44	20.43	131.66	14,436,879.96	1,707,120.13	39.75299697	-80.76266971	
3,503.80	5.00	110.00	3,498.22	20.32	131.97	14,436,879.85	1,707,120.44	39.75299666	-80.76266861	
Begin 5.00° tangent										
3,600.00	5.00	110.00	3,594.06	17.45	139.85	14,436,876.98	1,707,128.32	39.75298873	-80.76264060	
3,700.00	5.00	110.00	3,693.68	14.47	148.04	14,436,874.00	1,707,136.51	39.75298048	-80.76261149	
3,800.00	5.00	110.00	3,793.30	11.49	156.23	14,436,871.02	1,707,144.70	39.75297224	-80.76258238	
3,900.00	5.00	110.00	3,892.92	8.51	164.42	14,436,868.04	1,707,152.89	39.75296399	-80.76255327	
4,000.00	5.00	110.00	3,992.53	5.53	172.61	14,436,865.06	1,707,161.08	39.75295575	-80.76252416	
4,100.00	5.00	110.00	4,092.15	2.55	180.80	14,436,862.07	1,707,169.27	39.75294750	-80.76249504	
4,200.00	5.00	110.00	4,191.77	-0.43	188.99	14,436,859.09	1,707,177.46	39.75293925	-80.76246593	
4,300.00	5.00	110.00	4,291.39	-3.42	197.18	14,436,856.11	1,707,185.65	39.75293101	-80.76243682	
4,400.00	5.00	110.00	4,391.01	-6.40	205.37	14,436,853.13	1,707,193.84	39.75292276	-80.76240771	

51-01998



Planning Report - Geographic

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Corley Pad
 Well: Corley N-10HU (slot J)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Wall Corley N-10HU (slot J)
 TVD Reference: GL=1254 @ 1254.00usft
 MD Reference: GL=1254 @ 1254.00usft
 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	
4,500.00	5.00	110.00	4,490.63	-9.38	213.56	14,436,850.15	1,707,202.03	39.75291452	-80.76237860	
4,600.00	5.00	110.00	4,590.25	-12.36	221.75	14,436,847.17	1,707,210.22	39.75290627	-80.76234949	
4,700.00	5.00	110.00	4,689.87	-15.34	229.94	14,436,844.19	1,707,218.41	39.75289802	-80.76232038	
4,800.00	5.00	110.00	4,789.49	-18.32	238.13	14,436,841.21	1,707,226.60	39.75288978	-80.76229126	
4,900.00	5.00	110.00	4,889.11	-21.30	246.32	14,436,838.23	1,707,234.79	39.75288153	-80.76226215	
5,000.00	5.00	110.00	4,988.73	-24.28	254.51	14,436,835.25	1,707,242.98	39.75287329	-80.76223304	
5,003.80	5.00	110.00	4,992.51	-24.40	254.82	14,436,835.13	1,707,243.29	39.75287297	-80.76223194	
Begin 2°/100' build/turm										
5,100.00	6.70	118.87	5,088.21	-28.54	263.67	14,436,830.99	1,707,252.15	39.75286152	-80.76220046	
5,200.00	8.57	124.25	5,187.32	-35.55	274.95	14,436,823.97	1,707,263.42	39.75284216	-80.76216042	
5,300.00	10.49	127.70	5,285.94	-45.32	288.31	14,436,814.21	1,707,278.79	39.75281527	-80.76211295	
5,400.00	12.43	130.08	5,383.94	-57.82	303.76	14,436,801.71	1,707,292.23	39.75278082	-80.76205812	
5,500.00	14.39	131.83	5,481.21	-73.04	321.26	14,436,786.49	1,707,309.73	39.75273889	-80.76199600	
5,600.00	16.36	133.16	5,577.62	-90.97	340.80	14,436,768.56	1,707,329.27	39.75268952	-80.76192665	
5,700.00	18.34	134.22	5,673.07	-111.58	362.35	14,436,747.95	1,707,350.82	39.75263277	-80.76185017	
5,800.00	20.32	135.07	5,767.43	-134.84	385.88	14,436,724.69	1,707,374.36	39.75256870	-80.76176665	
5,900.00	22.30	135.78	5,860.59	-160.73	411.38	14,436,698.80	1,707,399.85	39.75249741	-80.76167618	
5,985.58	24.00	136.30	5,939.27	-184.95	434.73	14,436,674.58	1,707,423.20	39.75243072	-80.76159334	
Begin 24.00° tangent										
6,000.00	24.00	136.30	5,952.44	-189.19	438.78	14,436,670.34	1,707,427.26	39.75241905	-80.76157896	
6,100.00	24.00	136.30	6,043.80	-218.60	466.88	14,436,640.93	1,707,455.36	39.75233808	-80.76147926	
6,200.00	24.00	136.30	6,135.15	-248.00	494.98	14,436,611.52	1,707,483.46	39.75225712	-80.76137956	
6,300.00	24.00	136.30	6,226.51	-277.41	523.08	14,436,582.12	1,707,511.56	39.75217616	-80.76127985	
6,400.00	24.00	136.30	6,317.86	-306.82	551.18	14,436,552.71	1,707,539.66	39.75209520	-80.76118015	
6,500.00	24.00	136.30	6,409.22	-336.22	579.28	14,436,523.31	1,707,567.76	39.75201424	-80.76108045	
6,600.00	24.00	136.30	6,500.57	-365.63	607.38	14,436,493.90	1,707,595.86	39.75193327	-80.76098075	
6,700.00	24.00	136.30	6,591.93	-395.03	635.49	14,436,464.49	1,707,623.96	39.75185231	-80.76088105	
6,800.00	24.00	136.30	6,683.28	-424.44	663.59	14,436,435.09	1,707,652.06	39.75177135	-80.76078135	
6,900.00	24.00	136.30	6,774.64	-453.84	691.69	14,436,405.68	1,707,680.16	39.75169039	-80.76068165	
7,000.00	24.00	136.30	6,865.99	-483.25	719.79	14,436,376.28	1,707,708.26	39.75160942	-80.76058195	
7,100.00	24.00	136.30	6,957.34	-512.66	747.89	14,436,346.87	1,707,736.36	39.75152846	-80.76048225	
7,200.00	24.00	136.30	7,048.70	-542.06	775.99	14,436,317.47	1,707,764.46	39.75144750	-80.76038255	
7,300.00	24.00	136.30	7,140.05	-571.47	804.09	14,436,288.06	1,707,792.57	39.75136653	-80.76028285	
7,400.00	24.00	136.30	7,231.41	-600.87	832.19	14,436,258.65	1,707,820.67	39.75128557	-80.76018315	
7,500.00	24.00	136.30	7,322.76	-630.28	860.29	14,436,229.25	1,707,848.77	39.75120461	-80.76008345	
7,600.00	24.00	136.30	7,414.12	-659.68	888.39	14,436,199.84	1,707,876.87	39.75112364	-80.75998376	
7,700.00	24.00	136.30	7,505.47	-689.09	916.49	14,436,170.44	1,707,904.97	39.75104268	-80.75988406	
7,800.00	24.00	136.30	7,596.83	-718.50	944.59	14,436,141.03	1,707,933.07	39.75096172	-80.75978436	
7,900.00	24.00	136.30	7,688.18	-747.90	972.69	14,436,111.63	1,707,961.17	39.75088075	-80.75968466	
8,000.00	24.00	136.30	7,779.54	-777.31	1,000.80	14,436,082.22	1,707,989.27	39.75079979	-80.75958496	
8,100.00	24.00	136.30	7,870.89	-806.71	1,028.90	14,436,052.81	1,708,017.37	39.75071883	-80.75948527	
8,200.00	24.00	136.30	7,962.25	-836.12	1,057.00	14,436,023.41	1,708,045.47	39.75063788	-80.75938557	
8,300.00	24.00	136.30	8,053.60	-865.53	1,085.10	14,435,994.00	1,708,073.57	39.75055690	-80.75928587	
8,400.00	24.00	136.30	8,144.95	-894.93	1,113.20	14,435,964.60	1,708,101.67	39.75047594	-80.75918618	
8,500.00	24.00	136.30	8,236.31	-924.34	1,141.30	14,435,935.19	1,708,129.77	39.75039497	-80.75908648	
8,600.00	24.00	136.30	8,327.66	-953.74	1,169.40	14,435,905.79	1,708,157.87	39.75031401	-80.75898678	
8,700.00	24.00	136.30	8,419.02	-983.15	1,197.50	14,435,876.38	1,708,185.98	39.75023304	-80.75888709	
8,800.00	24.00	136.30	8,510.37	-1,012.55	1,225.60	14,435,846.97	1,708,214.08	39.75015208	-80.75878739	
8,900.00	24.00	136.30	8,601.73	-1,041.96	1,253.70	14,435,817.57	1,708,242.18	39.75007111	-80.75868770	
9,000.00	24.00	136.30	8,693.08	-1,071.37	1,281.80	14,435,788.16	1,708,270.28	39.74999015	-80.75858800	
9,100.00	24.00	136.30	8,784.44	-1,100.77	1,309.90	14,435,758.76	1,708,298.38	39.74990919	-80.75848831	
9,200.00	24.00	136.30	8,875.79	-1,130.18	1,338.00	14,435,729.35	1,708,326.48	39.74982822	-80.75838861	
9,300.00	24.00	136.30	8,967.15	-1,159.58	1,366.10	14,435,699.95	1,708,354.58	39.74974726	-80.75828892	
9,400.00	24.00	136.30	9,058.50	-1,188.99	1,394.21	14,435,670.54	1,708,382.68	39.74966629	-80.75818922	

51-01998



Planning Report - Geographic

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Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
 Project: Marshall County, West Virginia
 Site: Corley Pad
 Well: Corley N-10HU (slot J)
 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Corley N-10HU (slot J)
 TVD Reference: GL=1254 @ 1254.00usft
 MD Reference: GL=1254 @ 1254.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Office of Oil and Gas

DEC 15 2017

WV Department of Environmental Protection

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
9,500.00	24.00	136.30	9,149.85	-1,218.39	1,422.31	14,435,641.13	1,708,410.78	39.74958533	-80.75808953
9,600.00	24.00	136.30	9,241.21	-1,247.80	1,450.41	14,435,611.73	1,708,438.88	39.74950436	-80.75798984
9,700.00	24.00	136.30	9,332.56	-1,277.21	1,478.51	14,435,582.32	1,708,466.98	39.74942340	-80.75789014
9,800.00	24.00	136.30	9,423.92	-1,306.61	1,506.61	14,435,552.92	1,708,495.08	39.74934243	-80.75779045
9,900.00	24.00	136.30	9,515.27	-1,336.02	1,534.71	14,435,523.51	1,708,523.18	39.74926147	-80.75769076
10,000.00	24.00	136.30	9,606.63	-1,365.42	1,562.81	14,435,494.11	1,708,551.28	39.74918050	-80.75759106
10,100.00	24.00	136.30	9,697.98	-1,394.83	1,590.91	14,435,464.70	1,708,579.39	39.74909954	-80.75749137
10,200.00	24.00	136.30	9,789.34	-1,424.23	1,619.01	14,435,435.29	1,708,607.49	39.74901857	-80.75739168
10,300.00	24.00	136.30	9,880.69	-1,453.64	1,647.11	14,435,405.89	1,708,635.59	39.74893760	-80.75729199
10,400.00	24.00	136.30	9,972.05	-1,483.05	1,675.21	14,435,376.48	1,708,663.69	39.74885664	-80.75719230
10,500.00	24.00	136.30	10,063.40	-1,512.45	1,703.31	14,435,347.08	1,708,691.79	39.74877567	-80.75709260
10,600.00	24.00	136.30	10,154.75	-1,541.86	1,731.41	14,435,317.67	1,708,719.89	39.74869471	-80.75699291
10,700.00	24.00	136.30	10,246.11	-1,571.26	1,759.51	14,435,288.27	1,708,747.99	39.74861374	-80.75689322
10,800.00	24.00	136.30	10,337.46	-1,600.67	1,787.62	14,435,258.86	1,708,776.09	39.74853277	-80.75679353
10,900.00	24.00	136.30	10,428.82	-1,630.07	1,815.72	14,435,229.45	1,708,804.19	39.74845181	-80.75669384
11,000.00	24.00	136.30	10,520.17	-1,659.48	1,843.82	14,435,200.05	1,708,832.29	39.74837084	-80.75659415
11,075.58	24.00	136.30	10,589.21	-1,681.70	1,865.05	14,435,177.83	1,708,853.53	39.74830965	-80.75651891
Begin 10°/100' drop/turn									
11,100.00	21.58	135.52	10,611.73	-1,688.50	1,871.63	14,435,171.03	1,708,860.11	39.74829094	-80.75649547
11,200.00	11.73	129.16	10,707.43	-1,708.09	1,892.45	14,435,151.44	1,708,880.93	39.74823699	-80.75642159
11,300.00	3.08	79.75	10,808.56	-1,714.04	1,903.00	14,435,145.49	1,708,891.47	39.74822055	-80.75638412
11,400.00	9.01	339.99	10,906.13	-1,706.19	1,902.96	14,435,153.34	1,708,891.44	39.74824213	-80.75638418
11,500.00	18.78	330.53	11,003.09	-1,684.76	1,892.33	14,435,174.77	1,708,880.81	39.74830106	-80.75642178
11,512.30	20.00	330.00	11,014.70	-1,681.21	1,890.31	14,435,178.32	1,708,878.78	39.74831081	-80.75642896
Begin 10°/100' build									
11,600.00	28.77	330.00	11,094.49	-1,649.89	1,872.22	14,435,209.64	1,708,860.70	39.74839698	-80.75649300
11,700.00	38.77	330.00	11,177.51	-1,601.81	1,844.46	14,435,257.72	1,708,832.94	39.74852922	-80.75659129
11,800.00	48.77	330.00	11,249.64	-1,541.98	1,809.92	14,435,317.55	1,708,798.39	39.74866379	-80.75671362
11,900.00	58.77	330.00	11,308.66	-1,472.21	1,769.63	14,435,387.32	1,708,758.11	39.74888569	-80.75685626
12,000.00	68.77	330.00	11,352.81	-1,394.62	1,724.84	14,435,464.90	1,708,713.31	39.74909910	-80.75701489
12,100.00	78.77	330.00	11,380.72	-1,311.58	1,676.89	14,435,547.95	1,708,665.36	39.74932752	-80.75718469
12,200.00	88.77	330.00	11,391.56	-1,225.60	1,627.24	14,435,633.93	1,708,615.72	39.74956401	-80.75736048
12,222.28	91.00	330.00	11,391.60	-1,208.31	1,616.10	14,435,653.22	1,708,604.58	39.74961707	-80.75739992
Begin 91.00° lateral section									
12,300.00	91.00	330.00	11,390.25	-1,139.01	1,577.24	14,435,720.52	1,708,565.72	39.74980218	-80.75753753
12,400.00	91.00	330.00	11,388.51	-1,052.43	1,527.25	14,435,807.10	1,708,515.72	39.75004034	-80.75771457
12,500.00	91.00	330.00	11,386.77	-965.84	1,477.25	14,435,893.69	1,708,465.73	39.75027851	-80.75789162
12,600.00	91.00	330.00	11,385.03	-879.25	1,427.25	14,435,980.28	1,708,415.73	39.75051667	-80.75806867
12,700.00	91.00	330.00	11,383.29	-792.66	1,377.26	14,436,066.88	1,708,365.73	39.75075484	-80.75824571
12,800.00	91.00	330.00	11,381.55	-706.08	1,327.26	14,436,153.45	1,708,315.74	39.75099300	-80.75842276
12,900.00	91.00	330.00	11,379.81	-619.49	1,277.27	14,436,240.04	1,708,265.74	39.75123116	-80.75859991
13,000.00	91.00	330.00	11,378.07	-532.90	1,227.27	14,436,326.63	1,708,215.74	39.75146933	-80.75877686
13,100.00	91.00	330.00	11,376.33	-446.32	1,177.27	14,436,413.21	1,708,165.75	39.75170749	-80.75895392
13,200.00	91.00	330.00	11,374.59	-359.73	1,127.28	14,436,499.80	1,708,115.75	39.75194565	-80.75913097
13,300.00	91.00	330.00	11,372.84	-273.14	1,077.28	14,436,586.39	1,708,065.75	39.75218381	-80.75930803
13,400.00	91.00	330.00	11,371.10	-186.55	1,027.28	14,436,672.97	1,708,015.76	39.75242197	-80.75948508
13,500.00	91.00	330.00	11,369.36	-99.97	977.29	14,436,759.56	1,707,965.76	39.75266014	-80.75966214
13,600.00	91.00	330.00	11,367.62	-13.38	927.29	14,436,846.15	1,707,915.77	39.75289830	-80.75983920
13,700.00	91.00	330.00	11,365.88	73.21	877.29	14,436,932.74	1,707,865.77	39.75313646	-80.76001626
13,800.00	91.00	330.00	11,364.14	159.79	827.30	14,437,019.32	1,707,815.77	39.75337462	-80.76019332
13,900.00	91.00	330.00	11,362.40	248.38	777.30	14,437,105.91	1,707,765.78	39.75361278	-80.76037038
14,000.00	91.00	330.00	11,360.66	332.97	727.30	14,437,192.50	1,707,715.78	39.75385094	-80.76054744
14,100.00	91.00	330.00	11,358.92	419.56	677.31	14,437,279.08	1,707,665.78	39.75408910	-80.76072451
14,200.00	91.00	330.00	11,357.18	506.14	627.31	14,437,365.67	1,707,615.79	39.75432726	-80.76090158



Planning Report - Geographic

Database: DB_Jul2216dt_v14
 Company: Tug Hill Operating LLC
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 Wellbore: Original Hole
 Design: rev2

Local Co-ordinate Reference: Well Corley N-10HU (slot J)
 TVD Reference: GL=1254 @ 1254.00usft
 MD Reference: GL=1254 @ 1254.00usft
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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WV Department of
 Environmental Protection

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
14,300.00	91.00	330.00	11,355.44	592.73	577.32	14,437,452.28	1,707,565.79	39.75456542	-80.76107864
14,400.00	91.00	330.00	11,353.70	679.32	527.32	14,437,538.85	1,707,515.79	39.75480358	-80.76125571
14,500.00	91.00	330.00	11,351.96	765.90	477.32	14,437,625.43	1,707,465.80	39.75504174	-80.76143278
14,600.00	91.00	330.00	11,350.22	852.49	427.33	14,437,712.02	1,707,415.80	39.75527989	-80.76160985
14,700.00	91.00	330.00	11,348.48	939.08	377.33	14,437,798.61	1,707,365.81	39.75551805	-80.76178692
14,800.00	91.00	330.00	11,346.74	1,025.67	327.33	14,437,885.19	1,707,315.81	39.75575621	-80.76196400
14,900.00	91.00	330.00	11,345.00	1,112.25	277.34	14,437,971.78	1,707,265.81	39.75599437	-80.76214107
15,000.00	91.00	330.00	11,343.25	1,198.84	227.34	14,438,058.37	1,707,215.82	39.75623252	-80.76231815
15,100.00	91.00	330.00	11,341.51	1,285.43	177.34	14,438,144.96	1,707,165.82	39.75647068	-80.76249522
15,200.00	91.00	330.00	11,339.77	1,372.01	127.35	14,438,231.54	1,707,115.82	39.75670884	-80.76267230
15,300.00	91.00	330.00	11,338.03	1,458.60	77.35	14,438,318.13	1,707,065.83	39.75694700	-80.76284938
15,400.00	91.00	330.00	11,336.29	1,545.19	27.36	14,438,404.72	1,707,015.83	39.75718515	-80.76302646
15,500.00	91.00	330.00	11,334.55	1,631.78	-22.64	14,438,491.30	1,706,965.83	39.75742331	-80.76320354
15,600.00	91.00	330.00	11,332.81	1,718.36	-72.64	14,438,577.89	1,706,915.84	39.75766146	-80.76338063
15,700.00	91.00	330.00	11,331.07	1,804.95	-122.63	14,438,664.48	1,706,865.84	39.75789962	-80.76355771
15,800.00	91.00	330.00	11,329.33	1,891.54	-172.63	14,438,751.07	1,706,815.84	39.75813777	-80.76373480
15,900.00	91.00	330.00	11,327.59	1,978.12	-222.63	14,438,837.65	1,706,765.85	39.75837593	-80.76391188
16,000.00	91.00	330.00	11,325.85	2,064.71	-272.62	14,438,924.24	1,706,715.85	39.75861408	-80.76408897
16,100.00	91.00	330.00	11,324.11	2,151.30	-322.62	14,439,010.83	1,706,665.86	39.75885224	-80.76426605
16,200.00	91.00	330.00	11,322.37	2,237.89	-372.62	14,439,097.41	1,706,615.86	39.75909039	-80.76444315
16,300.00	91.00	330.00	11,320.63	2,324.47	-422.61	14,439,184.00	1,706,565.86	39.75932855	-80.76462024
16,400.00	91.00	330.00	11,318.89	2,411.06	-472.61	14,439,270.59	1,706,515.87	39.75956670	-80.76479733
16,500.00	91.00	330.00	11,317.15	2,497.65	-522.61	14,439,357.17	1,706,465.87	39.75980485	-80.76497443
16,600.00	91.00	330.00	11,315.41	2,584.23	-572.60	14,439,443.76	1,706,415.87	39.76004301	-80.76515152
16,700.00	91.00	330.00	11,313.67	2,670.82	-622.60	14,439,530.35	1,706,365.88	39.76028116	-80.76532862
16,800.00	91.00	330.00	11,311.92	2,757.41	-672.59	14,439,616.94	1,706,315.88	39.76051931	-80.76550572
16,900.00	91.00	330.00	11,310.18	2,844.00	-722.59	14,439,703.52	1,706,265.88	39.76075746	-80.76568281
17,000.00	91.00	330.00	11,308.44	2,930.58	-772.59	14,439,790.11	1,706,215.89	39.76099561	-80.76585991
17,100.00	91.00	330.00	11,306.70	3,017.17	-822.58	14,439,876.70	1,706,165.89	39.76123377	-80.76603702
17,200.00	91.00	330.00	11,304.96	3,103.76	-872.58	14,439,963.28	1,706,115.90	39.76147192	-80.76621412
17,300.00	91.00	330.00	11,303.22	3,190.34	-922.58	14,440,049.87	1,706,065.90	39.76171007	-80.76639122
17,400.00	91.00	330.00	11,301.48	3,276.93	-972.57	14,440,136.46	1,706,015.90	39.76194822	-80.76656833
17,500.00	91.00	330.00	11,299.74	3,363.52	-1,022.57	14,440,223.05	1,705,965.91	39.76218637	-80.76674543
17,600.00	91.00	330.00	11,298.00	3,450.10	-1,072.57	14,440,309.63	1,705,915.91	39.76242452	-80.76692254
17,700.00	91.00	330.00	11,296.26	3,536.69	-1,122.56	14,440,396.22	1,705,865.91	39.76266267	-80.76709965
17,800.00	91.00	330.00	11,294.52	3,623.28	-1,172.56	14,440,482.81	1,705,815.92	39.76290082	-80.76727676
17,900.00	91.00	330.00	11,292.78	3,709.87	-1,222.55	14,440,569.39	1,705,765.92	39.76313897	-80.76745387
18,000.00	91.00	330.00	11,291.04	3,796.45	-1,272.55	14,440,655.98	1,705,715.92	39.76337712	-80.76763098
18,100.00	91.00	330.00	11,289.30	3,883.04	-1,322.55	14,440,742.57	1,705,665.93	39.76361527	-80.76780809
18,200.00	91.00	330.00	11,287.56	3,969.63	-1,372.54	14,440,829.16	1,705,615.93	39.76385342	-80.76798521
18,300.00	91.00	330.00	11,285.82	4,056.21	-1,422.54	14,440,915.74	1,705,565.93	39.76409156	-80.76816232
18,400.00	91.00	330.00	11,284.08	4,142.80	-1,472.54	14,441,002.33	1,705,515.94	39.76432971	-80.76833944
18,500.00	91.00	330.00	11,282.33	4,229.39	-1,522.53	14,441,088.92	1,705,465.94	39.76456786	-80.76851656
18,600.00	91.00	330.00	11,280.59	4,315.98	-1,572.53	14,441,175.50	1,705,415.95	39.76480601	-80.76869368
18,700.00	91.00	330.00	11,278.85	4,402.56	-1,622.53	14,441,262.09	1,705,365.95	39.76504415	-80.76887080
18,800.00	91.00	330.00	11,277.11	4,489.15	-1,672.52	14,441,348.68	1,705,315.95	39.76528230	-80.76904792
18,900.00	91.00	330.00	11,275.37	4,575.74	-1,722.52	14,441,435.27	1,705,265.96	39.76552045	-80.76922505
19,000.00	91.00	330.00	11,273.63	4,662.32	-1,772.52	14,441,521.85	1,705,215.96	39.76575859	-80.76940217
19,100.00	91.00	330.00	11,271.89	4,748.91	-1,822.51	14,441,608.44	1,705,165.96	39.76599674	-80.76957930
19,200.00	91.00	330.00	11,270.15	4,835.50	-1,872.51	14,441,695.03	1,705,115.97	39.76623489	-80.76975642
19,300.00	91.00	330.00	11,268.41	4,922.09	-1,922.50	14,441,781.61	1,705,065.97	39.76647303	-80.76993355
19,400.00	91.00	330.00	11,266.67	5,008.67	-1,972.50	14,441,868.20	1,705,015.97	39.76671118	-80.77011068
19,500.00	91.00	330.00	11,264.93	5,095.26	-2,022.50	14,441,954.79	1,704,965.98	39.76694932	-80.77028781
19,600.00	91.00	330.00	11,263.19	5,181.85	-2,072.49	14,442,041.38	1,704,915.98	39.76718747	-80.77046494
19,700.00	91.00	330.00	11,261.45	5,268.43	-2,122.49	14,442,127.96	1,704,865.99	39.76742561	-80.77064207

51-01988



Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Corley N-10HU (slot J)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1254 @ 1254.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1254 @ 1254.00usft
Site:	Corley Pad	North Reference:	Grid
Well:	Corley N-10HU (slot J)	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	
19,800.00	91.00	330.00	11,259.71	5,355.02	-2,172.49	14,442,214.55	1,704,815.99	39.76766375	-80.77081921	
19,900.00	91.00	330.00	11,257.97	5,441.61	-2,222.48	14,442,301.14	1,704,765.99	39.76790190	-80.77099634	
20,000.00	91.00	330.00	11,256.23	5,528.20	-2,272.48	14,442,387.72	1,704,716.00	39.76814004	-80.77117348	
20,100.00	91.00	330.00	11,254.49	5,614.78	-2,322.48	14,442,474.31	1,704,666.00	39.76837816	-80.77135062	
20,200.00	91.00	330.00	11,252.75	5,701.37	-2,372.47	14,442,560.90	1,704,616.00	39.76861633	-80.77152776	
20,300.00	91.00	330.00	11,251.00	5,787.96	-2,422.47	14,442,647.49	1,704,566.01	39.76885447	-80.77170490	
20,400.00	91.00	330.00	11,249.26	5,874.54	-2,472.46	14,442,734.07	1,704,516.01	39.76909261	-80.77188204	
20,500.00	91.00	330.00	11,247.52	5,961.13	-2,522.46	14,442,820.66	1,704,466.01	39.76933075	-80.77205918	
20,600.00	91.00	330.00	11,245.78	6,047.72	-2,572.46	14,442,907.25	1,704,416.02	39.76956890	-80.77223632	
20,700.00	91.00	330.00	11,244.04	6,134.31	-2,622.45	14,442,993.83	1,704,366.02	39.76980704	-80.77241347	
20,800.00	91.00	330.00	11,242.30	6,220.89	-2,672.45	14,443,080.42	1,704,316.02	39.77004518	-80.77259062	
20,900.00	91.00	330.00	11,240.56	6,307.48	-2,722.45	14,443,167.01	1,704,266.03	39.77028332	-80.77276776	
21,000.00	91.00	330.00	11,238.82	6,394.07	-2,772.44	14,443,253.60	1,704,216.03	39.77052146	-80.77294491	
21,100.00	91.00	330.00	11,237.08	6,480.65	-2,822.44	14,443,340.18	1,704,166.04	39.77075960	-80.77312206	
21,200.00	91.00	330.00	11,235.34	6,567.24	-2,872.44	14,443,426.77	1,704,116.04	39.77099774	-80.77329921	
21,300.00	91.00	330.00	11,233.60	6,653.83	-2,922.43	14,443,513.36	1,704,066.04	39.77123588	-80.77347637	
21,400.00	91.00	330.00	11,231.86	6,740.42	-2,972.43	14,443,599.94	1,704,016.05	39.77147402	-80.77365352	
21,500.00	91.00	330.00	11,230.12	6,827.00	-3,022.43	14,443,686.53	1,703,966.05	39.77171216	-80.77383067	
21,600.00	91.00	330.00	11,228.38	6,913.59	-3,072.42	14,443,773.12	1,703,916.05	39.77195030	-80.77400783	
21,700.00	91.00	330.00	11,226.64	7,000.18	-3,122.42	14,443,859.71	1,703,866.06	39.77218844	-80.77418499	
21,800.00	91.00	330.00	11,224.90	7,086.76	-3,172.41	14,443,946.29	1,703,816.06	39.77242658	-80.77436215	
21,900.00	91.00	330.00	11,223.16	7,173.35	-3,222.41	14,444,032.88	1,703,766.06	39.77266472	-80.77453931	
22,000.00	91.00	330.00	11,221.41	7,259.94	-3,272.41	14,444,119.47	1,703,716.07	39.77290285	-80.77471647	
22,100.00	91.00	330.00	11,219.67	7,346.53	-3,322.40	14,444,206.05	1,703,666.07	39.77314099	-80.77489363	
22,195.17	91.00	330.00	11,218.00	7,429.79	-3,370.48	14,444,289.32	1,703,617.99	39.77337000	-80.77506400	
PBHL/TD 22196.17 MD/11218.00 TVD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Corley N-10HU BHL r1 - plan hits target center - Point	0.00	0.00	11,218.00	7,429.79	-3,370.48	14,444,269.32	1,703,617.99	39.77337000	-80.77506400	
Corley N-10HU LP - plan misses target center by 8.28usft at 12129.90usft MD (11385.77 TVD, -1286.06 N, 1662.15 E) - Point	0.00	0.00	11,394.00	-1,287.04	1,662.21	14,435,572.49	1,708,650.69	39.74939503	-80.75723665	

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Planning Report - Geographic

Database:	DB_Jul2216dt_v14	Local Co-ordinate Reference:	Well Corley N-10HU (slot J)
Company:	Tug Hill Operating LLC	TVD Reference:	GL=1254 @ 1254.00usft
Project:	Marshall County, West Virginia	MD Reference:	GL=1254 @ 1254.00usft
Site:	Corley Pad	North Reference:	Grid
Well:	Corley N-10HU (slot J)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	rev2		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,700.00	1,700.00	0.00	0.00	KOP Begin 1°/100' build
2,200.00	2,199.37	5.64	21.06	Begin 5.00° tangent
2,900.00	2,896.70	21.43	79.99	Begin 1°/100' turn
3,030.36	3,026.57	22.90	91.16	Begin 5.00° tangent
3,330.36	3,325.43	22.90	117.31	Begin 1°/100' turn
3,503.80	3,498.22	20.32	131.97	Begin 5.00° tangent
5,003.80	4,992.51	-24.40	254.82	Begin 2°/100' build/turn
5,985.58	5,939.27	-184.95	434.73	Begin 24.00° tangent
11,075.58	10,589.21	-1,681.70	1,865.05	Begin 10°/100' drop/turn
11,512.30	11,014.70	-1,681.21	1,890.31	Begin 10°/100' build
12,222.28	11,391.60	-1,208.31	1,618.10	Begin 91.00° lateral section
22,196.17	11,218.00	7,429.79	-3,370.48	PBHL/TD 22196.17 MD/11218.00 TVD

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Conductor and Fresh Water Casing Cement:

Premium NE-1 + 2% CaCl

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

Coal Casing Cement:

Premium NE-1 + 1.5% CaCl + Flake

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

Intermediate Casing Cement:

Lead: *Premium NE-1 + 5% BA-90 + .85% R-3 + 3% KCl + .75 gals/100sk FP-13L + 1% MPA-170*

Tail: *Premium NE-1 +.1% R-3 + 5% KCl + 1% CD-32 + .4% FL-52 +.2% ASA-301 + .6% Sodium Metasilicate*

- Premium NE-1 – Class A Portland API spec
- BA-90 – Gas Migration Mitigator
- R-3 – Cement Retarder
- KCl – Potassium Chloride
- FP-13L – Anti-Foaming Agent
- MPA-170 – Gelling Agent
- CD-32 – Dispersant
- FL-52 – Fluid Loss Agent
- ASA-301 – Free Water Control Agent
- Sodium Metasilicate – Extending Agent

Kick Off Plug:

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

- CD-32 – Dispersant
- Sodium Metasilicate – Extending Agent
- R-3 – Cement Retarder
- FP-13L – Anti-Foaming Agent

Production Casing Cement:

Lead: *50:50 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .75 gal/100sk FP-13L*

Tail: *25:75 (Poz:Class H) + .3% R-3 + .3% MPA-250 + .375 gal/100sk FP-13L*

- R-3 – Cement Retarder
- MPA-250 – Gelling Agent
- FP-13L – Anti-Foaming Agent

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Well Site Safety Plan
Tug Hill Operating, LLC

12/13/17

Well Name: Corley N-10HU

Pad Location: Corley Marshall

County, West Virginia

UTM (meters), NAD83, Zone 17:

NORTHING -4,400,363.58

EASTING -520,291.13

December 2017

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WW-9
(4/16)

API Number 47 - 051 - 01998
Operator's Well No. Corley N-10HU

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) Fish Creek - Ohio River (Undefined) Quadrangle Powhatan Point 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
- Undergound 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 Wetzel County Sanitary 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)

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 _____

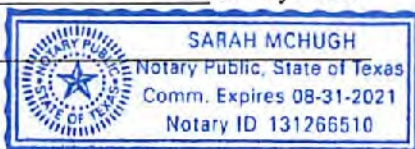
Company Official (Typed Name) Sean Gasser

Company Official Title Engineer

Subscribed and sworn before me this 12th day of December, 2017

Sarah Mchugh Notary Public

My commission expires 08-31-2021



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51-01998

Form WW-9

Operator's Well No. Corley N-10HU

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 17.78 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
Rye Grain	140	Tall Fescue	40
		Ladino Clover	5

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 Wickham*

Comments: _____

Title: Oil & Gas Inspector Date: 12/13/17

Field Reviewed? Yes No

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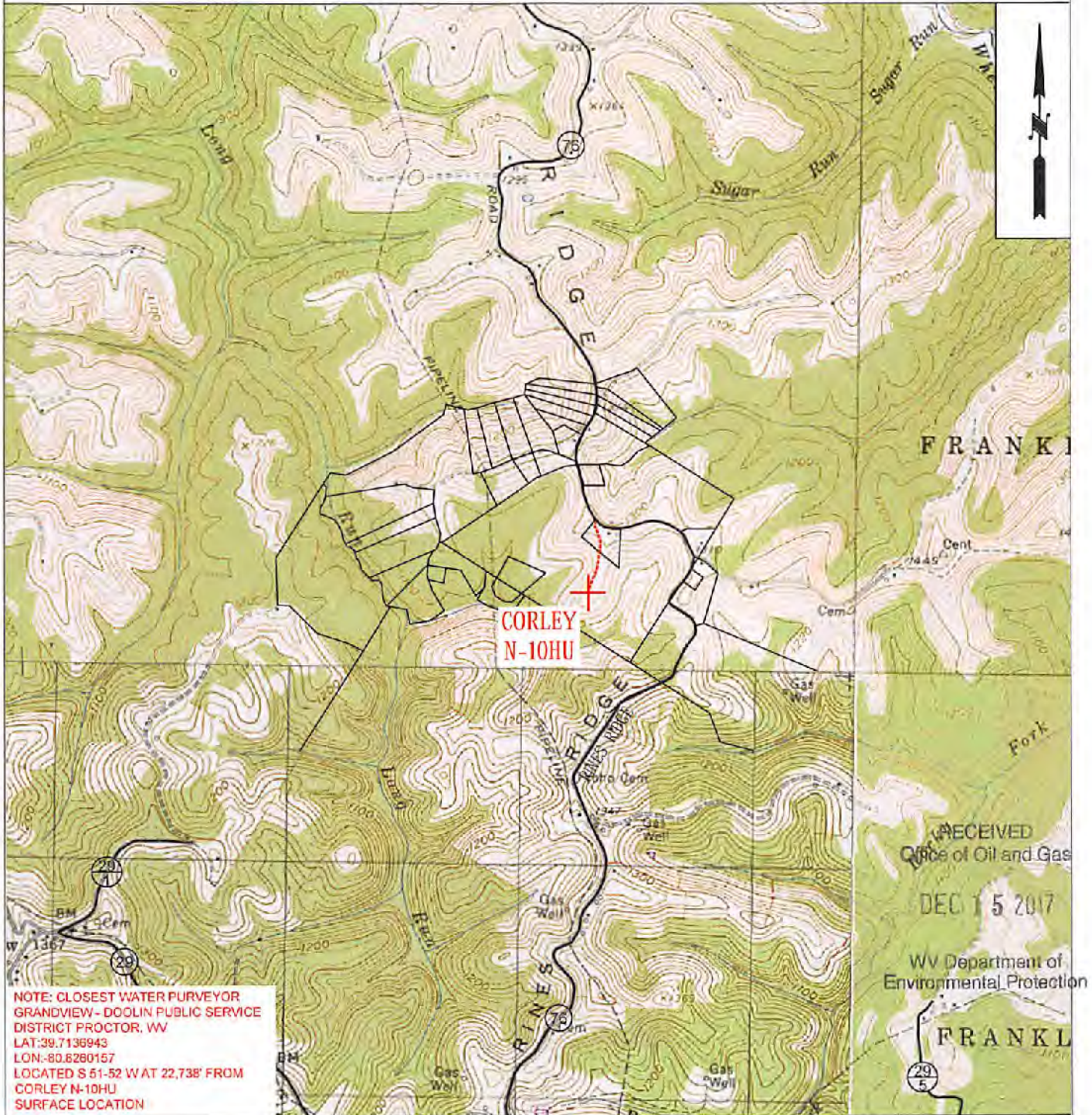
DEC 15 2017

WV Department of
Environmental Protection

WW-9

PROPOSED CORLEY N-10HU

SUPPLEMENT PG 2



NOTE: CLOSEST WATER PURVEYOR
GRANDVIEW - DOOLIN PUBLIC SERVICE
DISTRICT PROCTOR, WV
LAT: 39.7136943
LON: -80.6260157
LOCATED S 51-52° W AT 22,738' FROM
CORLEY N-10HU
SURFACE LOCATION



TUG HILL
OPERATING

OPERATOR	494510851	TOPO SECTION	LEASE NAME
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		POWHATAN POINT 7.5'	CORLEY
SCALE:		DATE:	
1" = 2000'		DATE: 12/08/17	

(BH) 7101' (TH) 3,751'

**CORLEY LEASE
UTICA UNIT - 354.194 AC±
WELL N-10HU
TUG HILL OPERATING**

13" BLACK LOCUST
S 86°48' W
283.9'

18" RED MAPLE

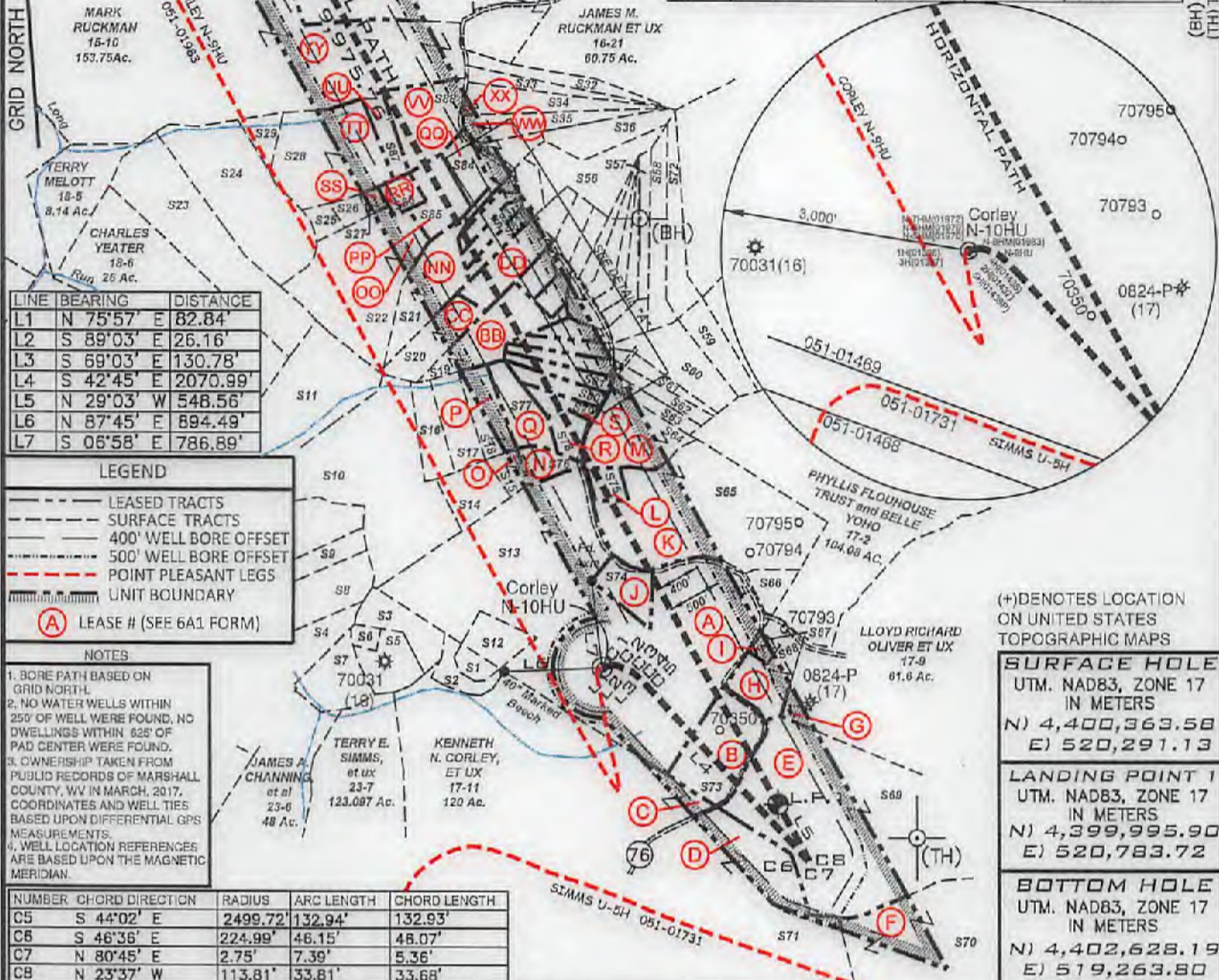
REFERENCES
SCALE 1"=300'

TOP HOLE LATITUDE: 39°47'30"
BOTTOM HOLE LATITUDE: 39°47'30"

- N-7HM (01972)
- N-8HM (01974)
- N-8HM (01970)
- N-8HM (02005)
- N-10HU (01998)
- N-8HU (01983)
- 1H (01386)
- 2H (01437)
- 3H (01397)
- 4H (01438)
- 5H (01439P)

DETAIL
SKETCH "A"
SCALE 1"=200'

NUMBER	CHORD DIRECTION	RADIUS	ARC LENGTH	CHORD LENGTH
C1	N 83°28' E	43.10'	11.30'	11.27'
C2	S 79°01' E	42.66'	14.97'	14.89'
C3	S 80°02' E	96.46'	23.08'	23.02'
C4	S 48°58' E	596.44'	86.16'	86.09'



LINE	BEARING	DISTANCE
L1	N 75°57' E	82.84'
L2	S 89°03' E	26.16'
L3	S 69°03' E	130.78'
L4	S 42°45' E	2070.99'
L5	N 29°03' W	548.56'
L6	N 87°45' E	694.49'
L7	S 06°58' E	786.89'

- LEGEND**
- LEASED TRACTS
 - SURFACE TRACTS
 - 400' WELL BORE OFFSET
 - 500' WELL BORE OFFSET
 - POINT PLEASANT LEGS
 - UNIT BOUNDARY
 - (A) LEASE # (SEE 6A1 FORM)

- 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.

NUMBER	CHORD DIRECTION	RADIUS	ARC LENGTH	CHORD LENGTH
C5	S 44°02' E	2499.72'	132.94'	132.93'
C6	S 46°36' E	224.99'	46.15'	46.07'
C7	N 80°45' E	2.75'	7.39'	5.36'
C8	N 23°37' W	113.81'	33.81'	33.68'

(+) DENOTES LOCATION ON UNITED STATES TOPOGRAPHIC MAPS

SURFACE HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,400,363.58
E) 520,291.13

LANDING POINT 1
UTM. NAD83, ZONE 17
IN METERS
N) 4,399,995.90
E) 520,783.72

BOTTOM HOLE
UTM. NAD83, ZONE 17
IN METERS
N) 4,402,628.19
E) 519,263.80

FILE NUMBER _____

DRAWING NUMBER CORLEY_WP_N-10HU

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

David L Jackson



JACKSON SURVEYING INC.
P.O. Box 1460
Clarksburg, WV 26302
304-823-5851



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 ___

LOCATION ELEVATION 1254.22' WATERSHED (HUC 10) Fish Creek

DISTRICT Franklin COUNTY Marshall

QUADRANGLE Powhatan Point 7.5' LEASE NUMBER SEE WW-6A1 ROYALTY OWNERS

SURFACE OWNER James A. & Jill C. Corley, et al ACREAGE 92.61

OIL & GAS ROYALTY OWNER James A. & Jill C. Corley, et al-See WW-6A1 Royalty Owners LEASE ACREAGE 92.61

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: 11,584' TMD: 22,196'

WELL OPERATOR TUG HILL OPERATING, LLC DESIGNATED AGENT DIANNA STAMPER
CT CORPORATION SYSTEM

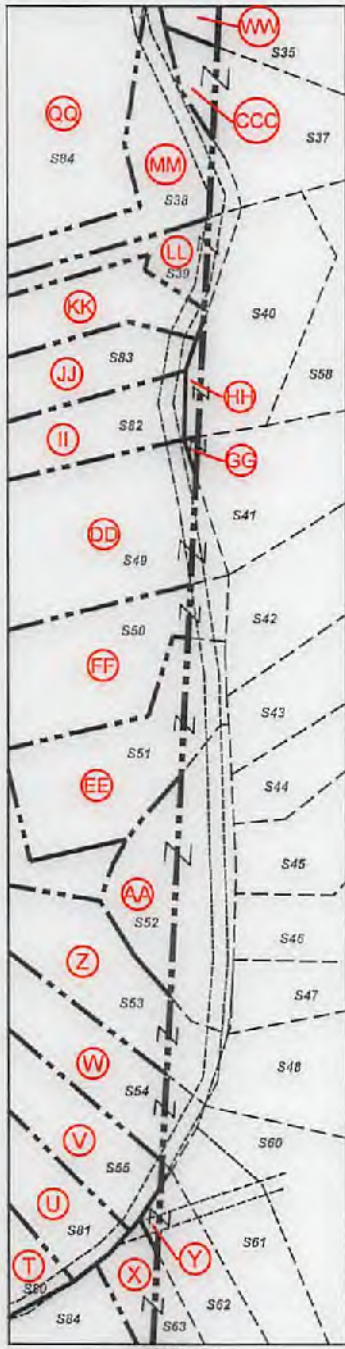
ADDRESS 1320 SOUTH UNIVERSITY DRIVE, SUITE 500 ADDRESS 5400 D BIG TYLER ROAD
FORT WORTH, TX 76107 CHARLESTON, WV 25313

COUNTY NAME
PERMIT

form web

GRID NORTH

**CORLEY LEASE
UTICA UNIT - 354.194 AC±
WELL N-10HU
TUG HILL OPERATING**



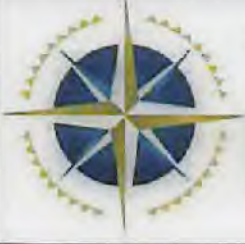
DETAIL "A"
SCALE 1"=375'



P.S. 708 *David L Jackson*

Number	TAX MAP -PARCEL	SURFACE OWNER	ACRES
S1	17-12.1	Williams Ohio Valley Midstream LLC	1.67
S2	17-12	James A. & Jill C. Corley	3.33
S3	18-13.8	Lori D. Carpenter	5.545
S4	18-29	Carl G. Berg	5.319
S5	18-32	Kenneth E. Restall	5.335
S6	18-32.1	Lori D. Carpenter	1.165
S7	18-31	Kenneth E. Restall	6.94
S8	18-13.10	Carl Berg	10.88
S9	18-30	John Schmidt et al	5.46
S10	18-13	Southern Country Farm Inc.	24.724
S11	18-16	Charles Yeater	17.768
S12	17-10.5	Williams Ohio Valley Midstream LLC	4.24
S13	17-10	James A. Corley & Jill C. Corley, et al	92.61
S14	18-33	Sandra K & Glenn E Whisler	5.343
S15	18-13.14	Glenn E & Sandra K Whisler	2.116
S16	18-34	Jodi A & Gary A Hall	5.002
S17	18-13.13	Glenn E & Sandra K Whisler	5.59
S18	18-13.6	Glenn Eugene Whisler Et Ux	5.384
S19	18-13.1	Cory A. Holt	9.248
S20	18-17	Michael Fincham & Kezia Winters	6.555
S21	18-13.3	Robert G. Closterman	9.813
S22	18-15.5	Derrell Boley & Teresa Boley	23.547
S23	18-15.3	Charles Yeater	26.44
S24	18-15.4	Edward Lee Burge Jr.	22.34
S25	18-10.1	David Anderson et ux	1.65
S26	18-10.2	David Anderson et ux	1.377
S27	18-10	David & Nancy Anderson	0.907
S28	18-11.1	Edward Lee Burge Jr.	18.0
S29	18-15	Edward Lee Burge Jr.	2.495
S30	15-13	CNX Land Resources Inc	11.0
S31	15-09	CNX Land Resources Inc	81.98
S32	18-56	William E. O'Hara	3.965
S33	18-55	William E. O'Hara	3.202
S34	18-28	Dotsen Harrison et ux	6.36
S35	18-28.1	Carol Diane Helmick	5.696
S36	18-13.2	Steven G. Berisford	6.023
S37	18-50	Steven G. Berisford	2.170
S38	18-36	Ruth Mulligan Est.	2.003
S39	18-13.5	Bryan Wesley	1.023
S40	18-49	Tanner Butler	2.023
S41	18-37	John Wetzel	2.064
S42	18-38	Marlon Connor	2.231
S43	18-39	Marlon R. Connor	2.001
S44	18-27.1	Marion R. Connor	2.003
S45	18-27.2	Linda L. Moore	3.009
S46	18-27	Linda L. Moore	2.447
S47	18-26	Linda L. Moore	2.624
S48	18-53	Christopher M. Previtera	2.00
S49	18-14	Michael Fincham & Kezia Winters	6.386
S50	18-40	Cory A. Holt	2.237
S51	18-41	Cory A. Holt	2.308
S52	18-25	Charles & Maria Ray	2.521
S53	18-44	Renee Straight	2.133
S54	18-43	Roy Butler	2.532
S55	18-51	Roger Hall Jr.	2.505
S56	18-13	Southern Country Farms, Inc.	11.054
S57	18-13.11	Linda L. Moore	3.158
S58	18-53.1	Christopher M. Previtera	6.283
S59	17-01	Southern Country Farms, Inc.	5.03
S60	18-13	Southern Country Farms Inc	11.054
S61	18-58	Kevin Roberts	2.635
S62	18-35	Mary Anderson	2.308
S63	18-42	Roger Howard Hall Jr.	2.383
S64	18-19	Roger White Jr.	10.0
S65	17-10.3	James & Jill Corley	37.39
S66	17-10.2	Sidney Pozell et ux Ests.	2.6
S67	17-9.1	Linda L. Moore	1.0
S68	17-9.2	Jeri J. White	7.136
S69	17-9.4	Vicki Bowan	60.3
S70	24-01	Linda Hendrickson & Donald Pickering	175.0
S71	17-11.1	Randy Francis et ux	67.0
S72	18-60	Christopher M. Previtera	6.297
S73	17-9.3	James Corley et ux	12.478
S74	17-10.1	James & Jill Corley	4.51
S75	17-10.4	Ron Murrin et al	2.01
S76	18-48	Marvin Dean Roberts et al	2.920
S77	18-13.7	Victor Woods, Jr. & Jessica Woods	5.255
S78	18-18	Linda Coen	3.0
S79	18-57	Marvin Roberts	2.228
S80	18-61	Roger White, Jr.	2.984
S81	18-52	Roger Hall	2.536
S82	18-45	Michael Fincham & Kezia Winters	2.07
S83	18-46	Dale & Patricia Gardner	2.030
S84	18-15.2	Edward Burge	4.171
S85	18-15.1	Jason Blair	5.948
S86	18-12	William Wayne et ux	2.270
S87	18-11.2	Edward Lee Burger, Jr.	2.00
S88	18-11	Benjamin Robinson	12.883
S89	16-22	James M. Ruckman et ux	54.605

51-01998 H6A



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: Corley N-10HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

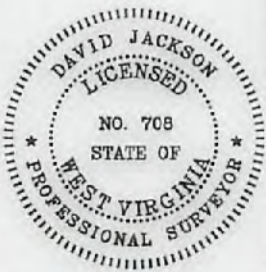
WELL PLAT
PAGE 2 OF 3
DATE: 12/07/2017
REVISED DATE:
02/02/2018

form wwg

**CORLEY LEASE
UTICA UNIT - 354.194 AC±
WELL N-10HU
TUG HILL OPERATING**

GRID NORTH

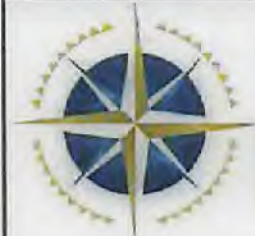
NUMBER	LEASE NAME OR NO.	TAG	PARCEL	OIL & GAS ROYALTY OWNER	DEED BOOK/ PAGE
1	10*14095	A	5-17-10	JAMES A CORLEY AND JILL C CORLEY	666 545
2	10*14096	A	5-17-10	RUTH A CORLEY	666 545
3	10*14095	B	5-17-9.3	JAMES A CORLEY AND JILL C CORLEY	666 545
4	10*14126	C	5-17-11	SHARON MIDCAP	897 152
5	10*14126	D	5-17-11.1	SHARON MIDCAP	897 152
6	10*14066	E	5-17-9.4	VICKI L BOWEN	665 375
7	10*14138	F	5-24-1	LINDA AND DONALD HENDRICKSON	666 528
8	10*14139	G	5-17-9	LLOYD RICHARD OLIVER AND DEANN	666 49
9	10*14135	H	5-17-9.2	GEORGE A WHITE AND JERI J WHITE	706 132
10	10*14135	I	5-17-9.1	GEORGE A WHITE AND JERI J WHITE	706 132
11	10*14096	J	5-17-10.1	RUTH A CORLEY	666 545
12	10*14095	K	5-17-10.3	JAMES A CORLEY AND JILL C CORLEY	666 545
13	10*14095	L	5-17-10.4	JAMES A CORLEY AND JILL C CORLEY	666 545
14	10*14298	M	5-18-19	MICHAEL L WEST	702 115
15	10*14299	M	5-18-19	CONRAD A. FLOUHOUSE	735 271
16	10*18898	N	5-18-48	COLBY ANN FLOUHOUSE HOMER AND THE ESTATE OF PHYLLIS J FLOUHOUSE	940 427
17	10*14099	N	5-18-48	SOUTHERN COUNTRY FARMS INC	666 489
18	10*14099	O	5-18-13.14	SOUTHERN COUNTRY FARMS INC	666 489
19	10*18898	O	5-18-13.14	COLBY ANN FLOUHOUSE HOMER AND THE ESTATE OF PHYLLIS J FLOUHOUSE	940 427
20	10*14099	P	5-18-13.6	SOUTHERN COUNTRY FARMS INC	666 489
21	10*18898	P	5-18-13.6	COLBY ANN FLOUHOUSE HOMER AND THE ESTATE OF PHYLLIS J FLOUHOUSE	940 427
22	10*14099	Q	5-18-13.7	SOUTHERN COUNTRY FARMS INC	666 489
23	10*14099	R	5-18-18	SOUTHERN COUNTRY FARMS INC	666 489
24	10*14099	S	5-18-57	SOUTHERN COUNTRY FARMS INC	666 489
25	10*18898	S	5-18-57	COLBY FLOUHOUSE	940 266
26	10*18898	T	5-18-61	COLBY FLOUHOUSE	940 266
27	10*18143	T	5-18-61	ROGER D WHITE JR	940 279
28	10*17644	U	5-18-52	ROGER HALL	942 404
29	10*18898	U	5-18-52	COLBY FLOUHOUSE	940 266
30	10*17644	V	5-18-51	ROGER HALL	942 404
31	10*18898	V	5-18-51	COLBY FLOUHOUSE	940 266
32	10*14099	W	5-18-43	SOUTHERN COUNTRY FARMS INC	666 489
33	10*14099	W	5-18-43	SOUTHERN COUNTRY FARMS INC	666 489
34	10*17826	X	5-18-42	ALLDALE MINERALS II, LP	940 439
35	10*17812	X	5-18-42	POTOMAC MINERAL GROUP, LLC	940 437
36	10*21463	X	5-18-42	MOLLY D. ASTON, ET VIR	954 131
37	10*21460	X	5-18-42	MAGGY D. ASTON, ET VIR	954 125
38	10*14914	X	5-18-42	CHESTNUT HOLDINGS INC	827 548
39	10*14099	X	5-18-42	SOUTHERN COUNTRY FARMS INC	666 489
40	10*14099	Y	5-18-35	SOUTHERN COUNTRY FARMS INC	666 489
41	10*14099	Z	5-18-44	SOUTHERN COUNTRY FARMS INC	666 489
42	10*17618	AA	5-18-25	CHARLES H RAYL AND MARIA A RAYL	942 329
43	10*19341	BB	5-18-13.1	FRANKLIN BOYD TAGG ET UX	938 569
44	10*19342	BB	5-18-13.1	SONNY MICHAEL TAGG ET UX	938 521
45	10*19343	BB	5-18-13.1	SUZANNA LYNETT GUSEMAN ET CON	938 537
46	10*19222	CC	5-18-17	CHARLES E. GALLOWAY SR. AND LINDA S. GALLOWAY	737 437
47	10*19222	DD	5-18-14	CHARLES E. GALLOWAY SR. AND LINDA S. GALLOWAY	737 437
48	10*14099	EE	5-18-41	SOUTHERN COUNTRY FARMS INC	666 489
49	10*14099	FF	5-18-40	SOUTHERN COUNTRY FARMS INC	666 489
50	10*14099	GG	5-18-37	SOUTHERN COUNTRY FARMS INC	666 489
51	10*14099	HH	5-18-49	SOUTHERN COUNTRY FARMS INC	666 489
52	10*14099	II	5-18-45	SOUTHERN COUNTRY FARMS INC	666 489
53	10*14099	JJ	5-18-46	SOUTHERN COUNTRY FARMS INC	666 489
54	10*14099	KK	5-18-47	SOUTHERN COUNTRY FARMS INC	666 489
55	10*14099	LL	5-18-13.5	SOUTHERN COUNTRY FARMS INC	666 489
56	10*14099	MM	5-18-36	SOUTHERN COUNTRY FARMS INC	666 489
57	10*14099	NN	5-18-13.3	SOUTHERN COUNTRY FARMS INC	666 489
58	10*14503	OO	5-18-15.5	IMA LEE YOHO	756 85
59	10*19155	PP	5-18-15.1	JAMES A WAYNE AND BETTY LUE WAYNE	701 78
60	10*19188	QQ	5-18-15.2	BURGE EDWARD L	781 437
61	10*19145	RR	5-18-12	WILLIAM WAYNE, ET UX	706 87
62	10*19160	SS	5-18-10	ANDERSON DAVID V ET UX	704 319
63	10*19218	TT	5-18-11.1	ROBINSON BENJAMIN	727 211
64	10*19218	UU	5-18-11.2	ROBINSON BENJAMIN	727 211
65	10*19218	VV	5-18-11	ROBINSON BENJAMIN	727 211
66	10*14099	WW	5-18-28.1	SOUTHERN COUNTRY FARMS INC	666 489
67	10*47051.104.0	XX	5-18-28	DOTSON GALE AND DOLLY MARIE HARRISON	873 48
68	10*19339	YY	5-15-10	MARK STANLEY RUCKMAN	664 495
69	10*19338	ZZ	5-16-22	JAMES M AND KIMBERLY L RUCKMAN	741 72
70	10*19294	AAA	5-16-23	BRENDA K BRYAN, ET AL	741 78
71	10*19295	BBB	5-15-9	BRENDA K BRYAN, ET AL	741 78
72	10*14099	CCC	5-18-50	SOUTHERN COUNTRY FARMS INC	666 489



P.S. 708

David L Jackson

51-01998H6A



**TUG HILL
OPERATING**

OPERATOR'S
WELL #: Corley N-10HU
DISTRICT: Franklin
COUNTY: Marshall
STATE: WV

WELL PLAT
PAGE 3 OF 3
DATE: 12/07/2017
REVISED DATE:
02/02/2018

WW-6A1
(5/13)

Operator's Well No. Corley N-10HU

**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

RECEIVED
Office of Oil and Gas

DEC 15 2017

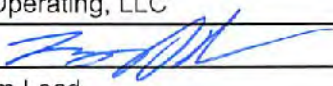
WV Department of
Environmental Protection

**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: Ben Irwin 
 Its: Land Team Lead

Lease No.	Tag	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*14095	A	5-17-10	JAMES A CORLEY AND JILL C CO	GASTAR EXPLORATION USA, INC.	1/8+	666	545	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14096	A	5-17-10	RUTH A CORLEY	GASTAR EXPLORATION USA, INC.	1/8+	666	545	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14095	B	5-17-9.3	JAMES A CORLEY AND JILL C CO	GASTAR EXPLORATION USA, INC.	1/8+	666	545	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14126	C	5-17-11	SHARON MIDCAP	GASTAR EXPLORATION USA, INC.	1/8+	697	152	N/A	N/A	N/A	23/353 Gastar Exploration USA, Inc. to Atinum Marcellus I LLC -50%	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	32/362 Gastar Exploration Inc. and Atinum Marcellus I LLC to Chevron U.S.A. Inc.	40/127 Chevron U.S.A. Inc. to TH Exploration, LLC
10*14126	D	5-17-11.1	SHARON MIDCAP	GASTAR EXPLORATION USA, INC.	1/8+	697	152	N/A	N/A	N/A	23/353 Gastar Exploration USA, Inc. to Atinum Marcellus I LLC -50%	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	32/362 Gastar Exploration Inc. and Atinum Marcellus I LLC to Chevron U.S.A. Inc.	40/127 Chevron U.S.A. Inc. to TH Exploration, LLC
10*14066	E	5-17-9.4	VICKI L BOWEN	GASTAR EXPLORATION USA, INC.	1/8+	665	375	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14138	F	5-24-1	LINDA AND DONALD HENDRICKSON	TRIENERGY, INC.	1/8+	666	528	20/348 TriEnergy Inc to AB Resources LLC	21/491 AB Resources to Chief Exploration & Development, LLC and Radler 2000 Limited Partnership	685/643 Chief and Radler to Enerplus Resources, USA	24/39 AB Resources, LLC, Chief Exploration & Development, LLC and Radler 2000 to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14139	G	5-17-9	LLOYD RICHARD OLIVER AND DEANN	TRIENERGY, INC.	1/8+	666	49	20/348 TriEnergy Inc to AB Resources LLC	21/491 AB Resources to Chief Exploration & Development, LLC and Radler 2000 Limited Partnership	685/643 Chief and Radler to Enerplus Resources, USA	24/39 AB Resources, LLC, Chief Exploration & Development, LLC and Radler 2000 to Gastar Exploration USA, Inc and Atinum Marcellus I LLC	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14135	H	5-17-9.2	GEORGE A WHITE AND JERI J WHITE	GASTAR EXPLORATION USA INC	1/8+	706	132	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC

51-01998

Lease No.	Tag	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*14135	I	5-17-9.1	GEORGE A WHITE AND JERI J WHITE	GASTAR EXPLORATION USA INC	1/8+	706	132	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14096	J	5-17-10.1	RUTH A CORLEY	GASTAR EXPLORATION USA, INC.	1/8+	666	545	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14095	K	5-17-10.3	JAMES A CORLEY AND JILL C CO	GASTAR EXPLORATION USA, INC.	1/8+	666	545	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14095	L	5-17-10.4	JAMES A CORLEY AND JILL C CO	GASTAR EXPLORATION USA, INC.	1/8+	666	545	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14298	M	5-18-19	MICHAEL L WEST	TRIENERGY HOLDINGS, LLC	1/8+	702	115	N/A	N/A	24/29 TriEnergy Holdings, LLC to AB Resources, LLC	24/32 AB Resources to Gastar Exploration USA, Inc. and Atinum Marcellus I LLC	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14299	M	5-18-19	CONRAD A. FLOUHOUSE	GASTAR EXPLORATION USA INC	1/8+	735	271	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*18898	N	5-18-48	COLBY ANN FLOUHOUSE HOMER AND THE ESTATE OF PHYLLIS J FLOUHOUSE	TH EXPLORATION, LLC	1/8+	940	427	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*14099	N	5-18-48	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14099	O	5-18-13.14	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*18898	O	5-18-13.14	COLBY ANN FLOUHOUSE HOMER AND THE ESTATE OF PHYLLIS J FLOUHOUSE	TH EXPLORATION, LLC	1/8+	940	427	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*14099	P	5-18-13.6	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC

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Lease No.	Tag	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment	Assignment
10*18898	P	5-18-13.6	COLBY ANN FLOUHOUSE HOMER AND THE ESTATE OF PHYLLIS J FLOUHOUSE	TH EXPLORATION, LLC	1/8+	940	427	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*14099	Q	5-18-13.7	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14099	R	5-18-18	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14099	S	5-18-57	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*18898	S	5-18-57	COLBY FLOUHOUSE	TH EXPLORATION LLC	1/8+	940	266	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18898	T	5-18-61	COLBY FLOUHOUSE	TH EXPLORATION LLC	1/8+	940	266	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18143	T	5-18-61	ROGER D WHITE JR	TH EXPLORATION LLC	1/8+	940	279	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17644	U	5-18-52	ROGER HALL	TH EXPLORATION LLC	1/8+	942	404	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18898	U	5-18-52	COLBY FLOUHOUSE	TH EXPLORATION LLC	1/8+	940	266	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17644	V	5-18-51	ROGER HALL	TH EXPLORATION LLC	1/8+	942	404	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*18898	V	5-18-51	COLBY FLOUHOUSE	TH EXPLORATION LLC	1/8+	940	266	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*14099	W	5-18-43	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14099	W	5-18-43	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*17826	X	5-18-42	ALLDALE MINERALS II, LP	TH EXPLORATION, LLC	1/8+	940	439	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*17812	X	5-18-42	POTOMAC MINERAL GROUP, LLC	TH EXPLORATION, LLC	1/8+	940	437	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21463	X	5-18-42	MOLLY D. ASTON, ET VIR	TH EXPLORATION, LLC	1/8+	954	131	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*21460	X	5-18-42	MAGGY D. ASTON, ET VIR	TH EXPLORATION, LLC	1/8+	954	125	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*14914	X	5-18-42	CHESTNUT HOLDINGS INC	GASTAR EXPLORATION INC	1/8+	827	548	N/A	N/A	N/A	N/A	N/A	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*14099	X	5-18-42	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC

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10*14099	Y	5-18-35	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*14099	Z	5-18-44	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*17618	AA	5-18-25	CHARLES H RAYL AND MARIA A RAYL	TH EXPLORATION LLC	1/8+	942	329	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19341	BB	5-18-13.1	FRANKLIN BOYD TAGG ET UX	TH EXPLORATION, LLC	1/8+	936	569	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19342	BB	5-18-13.1	SONNY MICHAEL TAGG ET UX	TH EXPLORATION, LLC	1/8+	936	521	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19343	BB	5-18-13.1	SUZANNA LYNETT GUSEMAN ET CON	TH EXPLORATION, LLC	1/8+	936	537	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19222	CC	5-18-17	CHARLES E. GALLOWAY SR. AND LINDA S. GALLOWAY	CHEVRON U.S.A., INC.	1/8+	737	437	N/A	N/A	N/A	N/A	25/449 TriEnergy Holdings, LLC to NPAR, LLC	756/332 NPAR, LLC to Chevron U.S.A. Inc.	40/127 Chevron U.S.A. Inc. to TH Exploration, LLC
10*19222	DD	5-18-14	CHARLES E. GALLOWAY SR. AND LINDA S. GALLOWAY	TRIENERGY HOLDINGS, LLC	1/8+	737	437	N/A	N/A	N/A	N/A	25/449 TriEnergy Holdings, LLC to NPAR, LLC	756/332 NPAR, LLC to Chevron U.S.A. Inc.	40/127 Chevron U.S.A. Inc. to TH Exploration, LLC
10*14099	EE	5-18-41	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*14099	FF	5-18-40	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*14099	GG	5-18-37	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*14099	HH	5-18-49	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*14099	II	5-18-45	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*14099	JJ	5-18-46	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc and Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC

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10*14099	KK	5-18-47	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc tnd Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*14099	LL	5-18-13.5	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc tnd Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*14099	MM	5-18-36	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc tnd Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*14099	NN	5-18-13.3	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	23/353 Gastar Exploration USA, Inc. to Atinum Marcellus I LLC	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	32/362 Gastar Exploration Inc. and Atinum Marcellus I, LLC to Chevron U.S.A Inc.	40/127 Chevron USA Inc to TH Exploration LLC
10*14503	OO	5-18-15.5	IMA LEE YOHO	GASTAR EXPLORATION USA, INC.	1/8+	756	85	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	36/9 Gastar Exploration Inc to TH Exploration II, LLC	40/552 TH Exploration II, LLC to TH Exploration, LLC
10*19155	PP	5-18-15.1	JAMES A WAYNE AND BETTY LUE WAYNE	GASTAR EXPLORATION USA, Inc.	1/8+	701	78	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	32/362 Gastar Exploration, Inc. to Chevron USA Inc.	40/127 Chevron USA Inc. to TH Exploration, LLC
10*19188	QQ	5-18-15.2	BURGE EDWARD I	CHEVRON USA INC	1/8+	781	437	N/A	N/A	N/A	N/A	N/A	N/A	40/127 Chevron U.S.A. to TH Exploration, LLC
10*19145	RR	5-18-12	WILLIAM WAYNE, ET UX	TRIENERGY HOLDINGS, LLC	1/8+	705	87	N/A	N/A	N/A	N/A	24/180 TriEnergy Holdings, LLC to NPAR, LLC	756/332 NPAR, LLC to Chevron U.S. A. Inc.	40/127 Chevron U.S.A. to TH Exploration, LLC
10*19160	SS	5-18-10	ANDERSON DAVID V ET UX	GASTAR EXPLORATION USA INC	1/8+	704	319	N/A	N/A	N/A	N/A	21/41 Cert. of Merger Gastar Exploration USA, Inc to Gastar Exploration Inc	32/362 Gastar Exploration Inc. to Chevron U.S.A. Inc.	40/127 Chevron U.S.A. Inc. to TH Exploration, LLC
10*19218	TT	5-18-11.1	ROBINSON BENJAMIN	TRIENERGY HOLDINGS, LLC	1/8+	727	211	N/A	N/A	N/A	N/A	25/463 Tri Energy Holdings, LLC to NPAR, LLC	26/269 NPAR, LLC to Chevron USA, Inc.	40/127 Chevron U.S.A. Inc. to TH Exploration, LLC
10*19218	UU	5-18-11.2	ROBINSON BENJAMIN	TRIENERGY HOLDINGS, LLC	1/8+	727	211	N/A	N/A	N/A	N/A	25/463 Tri Energy Holdings, LLC to NPAR, LLC	26/269 NPAR, LLC to Chevron USA, Inc.	40/127 Chevron U.S.A. Inc. to TH Exploration, LLC
10*19218	VV	5-18-11	ROBINSON BENJAMIN	TRIENERGY HOLDINGS, LLC	1/8+	727	211	N/A	N/A	N/A	N/A	25/463 Tri Energy Holdings, LLC to NPAR, LLC	26/269 NPAR, LLC to Chevron USA, Inc.	40/127 Chevron U.S.A. Inc. to TH Exploration, LLC

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10*14099	WW	5-18-28.1	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA INC	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc tnd Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC
10*47051.104.0	XX	5-18-28	DOTSON GALE AND DOLLY MARIE HARRISON	TH EXPLORATION, LLC	1/8+	873	48	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10*19339	YY	5-15-10	MARK STANLEY RUCKMAN	TRIENERGY INC	1/8+	664	495	N/A	N/A	N/A	N/A	N/A	28/356 TriEnergy Inc. & TriEnergy Holdings, LLC to Chevron U.S.A. Inc.	40/57 Chevron U.S.A. Inc. to TH Exploration, LLC
10*19338	ZZ	5-16-22	JAMES M AND KIMBERLY L RUCKMAN	TRIENERGY INC	1/8+	741	72	20/348 TriEnergy Inc to AB Resources LLC	21/491 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	685/643 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources (USA) Corporation	25/1 Chief Exploration & Development, LLC, Chief Oil and Gas, LLC, Radler 2000 Limited Partnerhsip and Enerplus Resources to Chevron USA Inc	756/397 AB Resources LLC to Chevron USA Inc	28/356 TriEnergy Holdings LLC and TriEnergy Inc to Chevron USA Inc	40/57 Chevron USA Inc to TH Exploration LLC
10*19294	AAA	5-16-23	BRENDA K BRYAN, ET AL	TRIENERGY INC	1/8+	741	78	20/348 TriEnergy Inc to AB Resources LLC	21/491 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	685/643 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources (USA) Corporation	25/1 Chief Exploration & Development, LLC, Chief Oil and Gas, LLC, Radler 2000 Limited Partnerhsip and Enerplus Resources to Chevron USA Inc	756/397 AB Resources LLC to Chevron USA Inc	28/356 TriEnergy Holdings LLC and TriEnergy Inc to Chevron USA Inc	40/57 Chevron USA Inc to TH Exploration LLC
10*19295	BBB	5-15-9	BRENDA K BRYAN, ET AL	TRIENERGY INC	1/8+	741	78	20/348 TriEnergy Inc to AB Resources LLC	21/491 AB Resources LLC to Chief Exploration & Development LLC and Radler 2000 Limited Partnership	685/643 Chief Exploration & Development LLC and Radler 2000 Limited Partnership to Enerplus Resources (USA) Corporation	25/1 Chief Exploration & Development, LLC, Chief Oil and Gas, LLC, Radler 2000 Limited Partnership and Enerplus Resources to Chevron USA Inc	756/397 AB Resources LLC to Chevron USA Inc	28/356 TriEnergy Holdings LLC and TriEnergy Inc to Chevron USA Inc	40/57 Chevron USA Inc to TH Exploration LLC
10*14099	CCC	5-18-50	SOUTHERN COUNTRY FARMS INC	GASTAR EXPLORATION USA, INC.	1/8+	666	489	N/A	N/A	N/A	N/A	23/353 Gastar Exploration USA Inc. to Atinum Marcellus I LLC	32/362 Gastar Exploration USA Inc tnd Atinum Marcellus I LLC to Chevron USA Inc	40/127 Chevron USA Inc to TH Exploration LLC

51-01998



December 14, 2017

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

RE: Corley N-10HU

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 Bryan N-2HM 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-hilop.com.

Sincerely,

Amy L. Miller
Permitting Specialist – Appalachia Region

RECEIVED
Office of Oil and Gas

DEC 15 2017

WV Department of
Environmental Protection

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

Date of Notice Certification: 12/14/2017

API No. 47- 051 - _____
Operator's Well No. Corley N-10HU
Well Pad Name: Corley

Notice has been given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>520,291.13</u>
County:	<u>Marshall</u>		Northing:	<u>4,400,363.58</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>	
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Corley, James A. and Jill C.</u>	
Watershed:	<u>HUC-10 Fish Creek</u>			

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

<p>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:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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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 performance, the return receipt card or other postal receipt for certified mailing.

RECEIVED
Office of Oil and Gas

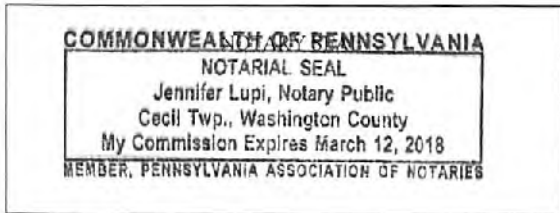
DEC 15 2017

Certification of Notice is hereby given:

THEREFORE, I Amy L. Miller *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: Tug Hill Operating, LLC
By: Amy L. Miller
Its: Permitting Specialist - Appalachia
Telephone: 724-749-8388

Address: 380 Southpointe Boulevard, Plaza II, Suite 200
Canonsburg, PA 15317
Facsimile: 724-338-2030
Email: amiller@tug-hillop.com



Subscribed and sworn before me this 14th day of Dec 2017.
Jennifer Lupi Notary Public
My Commission Expires March 12, 2018

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.

RECEIVED
Office of Oil and Gas

DEC 15 2017

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: 12/14/2017 **Date Permit Application Filed:** 12/15/2017

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: James A. and Jill C. Corley (Well Pad)
Address: 208 Flicksville Road
Bangor, PA 18013

Name: _____
Address: _____

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

Name: James A. and Jill C. Corley
Address: 208 Flicksville Road
Bangor, PA 18013

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: James A. and Jill C. Corley
Address: 208 Flicksville Road
Bangor, PA 18013 *See Attached List

COAL OPERATOR

Name: CNX Gas Company, LLC *
Address: 1000 Canonsburg, PA 15317 ✓

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

Name: *See Attached List
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
Address: _____

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Office of Oil and Gas

*Please attach additional forms if necessary

DEC 15 2017

Notice is hereby given:

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

This Notice Shall Include:

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

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

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

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

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

Well Location Restrictions

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

WW-6A
(8-13)

API NO. 47- 051 - 01998
OPERATOR WELL NO. Corley N-10HU
Well Pad Name: Corley

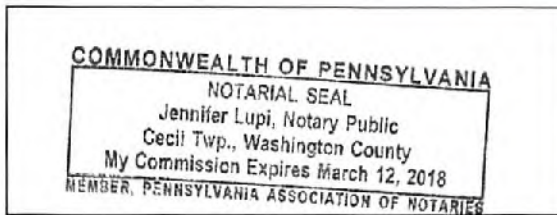
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 14th day of Dec., 2017.
Jennifer Lupi Notary Public
My Commission Expires March 12, 2018

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WV Department of
Environmental Protection

WW-6A

Supplement Pg. 1A

Tug Hill Operating, LLC
 380 Southpointe BLVD, Suite 200
 Canonsburg, PA 15317

WATER WELL REPORT

Well: CORLEY No. N-10HU
 District: Franklin
 County: Marshall
 State: WV

There appears to be seven (7) possible water sources within 2,000 feet of the above referenced well location.

Topo spot #1 (Water Well) TM 17 Par.10.1 James A. & Jill C. Corley 610-588-7929 208 Flicksville Rd. Bangor, PA 18013	Topo spot #2 (Spring) TM 17 Par.11 Kenneth N. & Deborah Corley 304-455-5670(H), 304-455-3844(C) 7069 Rines Ridge Rd. Proctor, WV 26055	Topo Spot #3 (House) TM 17 Par.11.1 Randy W. & Jessica Francis 304-455-5670(H), 304-455-3844(C) 6860 Rines Ridge Rd. Proctor, WV 26055
Topo Spot #4 (House) TM 17 Par.11.1 Randy W. & Jessica Francis 304-455-5670(H), 304-455-3844(C) 6860 Rines Ridge Rd. Proctor, WV 26055	Topo Spot #5 (House) TM 17 Par.9.4 Vicki L. Bowen 304-455-1985(H), 304-830-7846(C), 304-771-0864(C) 6676 Rines Ridge Rd. Proctor, WV 26055	Topo Spot #6 (House) TM 17 Par.9.2 Jeri J. White 304-455-6002 6316 Rines Ridge Rd. Proctor, WV 26055
Topo Spot #7 (House) TM 17 Par.10.2 Sidney & Lillian Pozell, Estates 304-281-1491(C) c/o Kevin Pozell 6198 Rines Ridge Rd. Proctor, WV 26055		

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WV Department of
 Environmental Protection

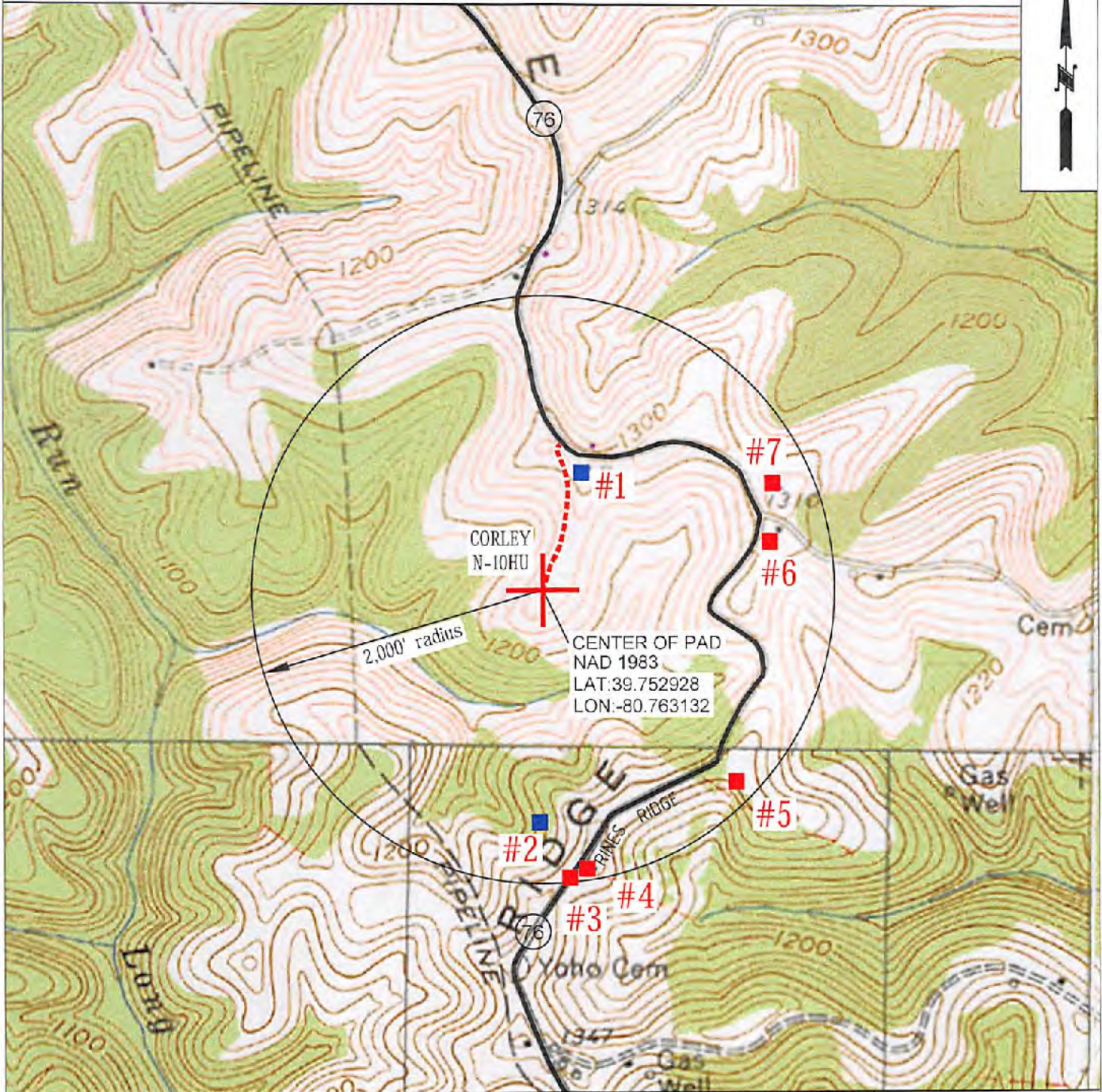
SI-01998

WW-6A

PROPOSED CORLEY N-10HU

SUPPLEMENT PG 1

There appears to be Seven (7) possible water sources within 2,000'.



OPERATOR	494510851	TOPO SECTION	LEASE NAME
TUG HILL OPERATING, LLC 380 SOUTHPOINTE BLVD SUITE 200 CANONSBURG, PA 15317		POWHATAN POINT 7.5'	CORLEY
		SCALE:	DATE:
		1" = 1000'	DATE: 12/08/2017

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**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: 8/30/2017 **Date of Planned Entry:** 9/6/2017

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: Ruth A. Corley (Access Road)
Address: 1495 Ackerman Road
Bangor, PA 18013

Name: James A. and Jill C. Corley (Pad and Access Road)
Address: 208 Flicksville Road
Bangor, PA 18013

Name: Charles W. and Ruth A. Corley (Pad and Access Road)
Address: 1495 Ackerman Road
Bangor, PA

COAL OWNER OR LESSEE

Name: Ruth A. Corley *See attached list
Address: 1495 Ackerman Road
Bangor, PA 18013

MINERAL OWNER(s)

Name: Ruth A. Corley *See attached list
Address: 1495 Ackerman Road
Bangor, PA 18013

*please attach additional forms if necessary

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WV Department of
Environmental Protection

Notice is hereby given:

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

State: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>39.7527964; -80.7631465</u>
County: <u>Marshall</u>	Public Road Access: <u>Rinas Ridge Road (County Route 76)</u>
District: <u>Franklin</u>	Watershed: <u>HUC 10 - Fish Creek</u>
Quadrangle: <u>Powhatan Point 7.5'</u>	Generally used farm name: <u>Corley, James A. and Jill C.</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: <u>Tug Hill Operating, LLC</u>	Address: <u>380 Southpointe Boulevard, Plaza II, Suite 200</u>
Telephone: <u>724-749-8388</u>	<u>Canonsburg, PA 15317</u>
Email: <u>amiller@tug-hilltop.com</u>	Facsimile: <u>724-338-2030</u>

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 of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

51-01998

WW-6A3 NOTICE OF ENTRY FOR PLAT SURVEY.....CORLEY N-10HU

COAL OWNER OR LESSEE

CNX Land Resources, Inc. /
Consol Plaza Tax Level 2
1000 Consol Energy Drive
Canonsburg, PA 15317

CNX Gas Company, LLC /
1000 Consol Energy Drive /
Canonsburg, PA 15317

MINERAL OWNER

James A. and Jill C. Corley /
208 Flicksville Road
Bangor, PA 18013

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WV Department of
Environmental Protection

WW-6A5
(1/12)

Operator Well No. Corley N-10HU

**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: 12/12/2017 **Date Permit Application Filed:** 12/15/2017

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: James A. and Jill C. Corley
Address: 208 Flicksville Road
Bangor, PA 18013

Name: _____
Address: _____ ✓

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>520,291.13</u>
County:	<u>Marshall</u>	Northing:	<u>4,400,363.58</u>
District:	<u>Franklin</u>	Public Road Access:	<u>Rines Ridge Road (County Route 76)</u>
Quadrangle:	<u>Powhatan Point 7.5'</u>	Generally used farm name:	<u>Corley, James A. and Jill C.</u>
Watershed:	<u>HUC-10 Fish Creek</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-hill-op.com

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

Oil and Gas Privacy Notice:

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

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WV Department of
Environmental Protection



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

Jim Justice
 Governor

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

September 20, 2017

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

Subject: DOH Permits for the Corley Well Pad, Marshall County
 Corley N-10HU Well Site

Dear Mr. Martin,

This well site will be accessed from Permit #06-2011-0057 transferred to Tug Hill Operating for access to the State Road for a well site located off of Marshall County Route 76 SLS.

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

Very Truly Yours,

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

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

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 Environmental Protection



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Corley N-10HU

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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Corley Well Site

Site Design, Construction Plan, &
Erosion and Sediment Control Plans
Tug Hill Operating
Marshall County
Franklin District
Latitude 39.75292819°
Longitude -80.76313190°
Lower Fish Creek Watershed

Pertinent Site Information
Corley Well Site
 Emergency Number: 304-845-1920
 Franklin District, Marshall County, WV
 Watershed: Lower Fish Creek Watershed
 Tug Hill Contact Number: 1-817-632-1400

Sheet	1st Priority	2nd Priority	3rd Priority	4th Priority	5th Priority	6th Priority	7th Priority	8th Priority	9th Priority	10th Priority
1	1	1	1	1	1	1	1	1	1	1

Exhibit A: Final Design: Issue for Permitting

Section	Coordinates	Section	Coordinates	Section	Coordinates
1	W 123.4567 89.1234	2	N 123.4567 89.1234	3	E 123.4567 89.1234
4	S 123.4567 89.1234	5	W 123.4567 89.1234	6	N 123.4567 89.1234
7	E 123.4567 89.1234	8	S 123.4567 89.1234	9	W 123.4567 89.1234
10	N 123.4567 89.1234	11	E 123.4567 89.1234	12	S 123.4567 89.1234
13	W 123.4567 89.1234	14	N 123.4567 89.1234	15	E 123.4567 89.1234
16	S 123.4567 89.1234	17	W 123.4567 89.1234	18	N 123.4567 89.1234
19	E 123.4567 89.1234	20	S 123.4567 89.1234	21	W 123.4567 89.1234
22	N 123.4567 89.1234	23	E 123.4567 89.1234	24	S 123.4567 89.1234
25	W 123.4567 89.1234	26	N 123.4567 89.1234	27	E 123.4567 89.1234
28	S 123.4567 89.1234	29	W 123.4567 89.1234	30	N 123.4567 89.1234
31	E 123.4567 89.1234	32	S 123.4567 89.1234	33	W 123.4567 89.1234
34	N 123.4567 89.1234	35	E 123.4567 89.1234	36	S 123.4567 89.1234
37	W 123.4567 89.1234	38	N 123.4567 89.1234	39	E 123.4567 89.1234
40	S 123.4567 89.1234	41	W 123.4567 89.1234	42	N 123.4567 89.1234
43	E 123.4567 89.1234	44	S 123.4567 89.1234	45	W 123.4567 89.1234
46	N 123.4567 89.1234	47	E 123.4567 89.1234	48	S 123.4567 89.1234
49	W 123.4567 89.1234	50	N 123.4567 89.1234	51	E 123.4567 89.1234
52	S 123.4567 89.1234	53	W 123.4567 89.1234	54	N 123.4567 89.1234
55	E 123.4567 89.1234	56	S 123.4567 89.1234	57	W 123.4567 89.1234
58	N 123.4567 89.1234	59	E 123.4567 89.1234	60	S 123.4567 89.1234
61	W 123.4567 89.1234	62	N 123.4567 89.1234	63	E 123.4567 89.1234
64	S 123.4567 89.1234	65	W 123.4567 89.1234	66	N 123.4567 89.1234
67	E 123.4567 89.1234	68	S 123.4567 89.1234	69	W 123.4567 89.1234
70	N 123.4567 89.1234	71	E 123.4567 89.1234	72	S 123.4567 89.1234
73	W 123.4567 89.1234	74	N 123.4567 89.1234	75	E 123.4567 89.1234
76	S 123.4567 89.1234	77	W 123.4567 89.1234	78	N 123.4567 89.1234
79	E 123.4567 89.1234	80	S 123.4567 89.1234	81	W 123.4567 89.1234
82	N 123.4567 89.1234	83	E 123.4567 89.1234	84	S 123.4567 89.1234
85	W 123.4567 89.1234	86	N 123.4567 89.1234	87	E 123.4567 89.1234
88	S 123.4567 89.1234	89	W 123.4567 89.1234	90	N 123.4567 89.1234
91	E 123.4567 89.1234	92	S 123.4567 89.1234	93	W 123.4567 89.1234
94	N 123.4567 89.1234	95	E 123.4567 89.1234	96	S 123.4567 89.1234
97	W 123.4567 89.1234	98	N 123.4567 89.1234	99	E 123.4567 89.1234
100	S 123.4567 89.1234				



Station	Station	Station	Station
1+00	2+00	3+00	4+00

Area	Area	Area
1	2	3

Adjacent	Adjacent	Adjacent
1	2	3

All dimensions shall be within the previously recorded limits of disturbance for the Corley Well Site. No additional clearing shall be allowed within the LAD. All dimensions shall be within the previously recorded limits of disturbance for the Corley Well Site. No additional clearing shall be allowed within the LAD. All dimensions shall be within the previously recorded limits of disturbance for the Corley Well Site. No additional clearing shall be allowed within the LAD.

Utility	Utility	Utility	Utility
1	2	3	4

09/17/2017

WVDEP OOG
ACCEPTED AS-BUILT

WJL 10/17/2017

Project Contacts

Lead Engineer: [Name]
 Designer: [Name]
 Checker: [Name]
 Project Manager: [Name]

Endorsement

Professional Engineer: [Name]
 State of West Virginia: [Name]

Agreement/Notes

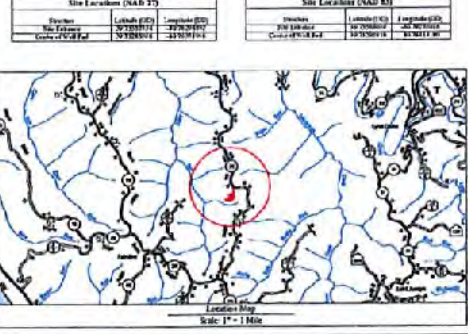
From the information of WV P 2 and CE B, 7 near New...
 The site location will be on the right...
 (West) side of the road

Well Location/Structure

All dimensions shall be within the previously recorded limits of disturbance for the Corley Well Site. No additional clearing shall be allowed within the LAD.

Municipal Conditions

The site location will be within the LAD...
 The WV Mine Website was consulted. Previous (Current) mining activities are not within the ADE.



The design and construction of this project shall be in accordance with the provisions of the West Virginia Code, Title 30, Chapter 25, and the West Virginia Department of Environmental Protection, Division of Highways, Manual of Practice and Specifications for Road and Bridge Construction, 2014 Edition.

Accepted: [Signature] 10/17/2017

Sheet	Description
1	Cover Sheet
2	Schedule of Quantities
3	Site Maps
4	Site Construction Site Conditions
5	Site Soil Map
6	Clearing Exhibit
7	Driveway Erosion
8	EAS Has View
9	The Key Exhibit
10	Plan View
11	Cross Section - Well Pad
12	Cross Section - Access Road
13	Cross Section - Erosion
14	Landowner Disturbed Area Exhibit
15	Site Restoration
16	Proposed EAS
17	Erosion and Sediment Control Details
18	Access Road Details
19	Pad Details

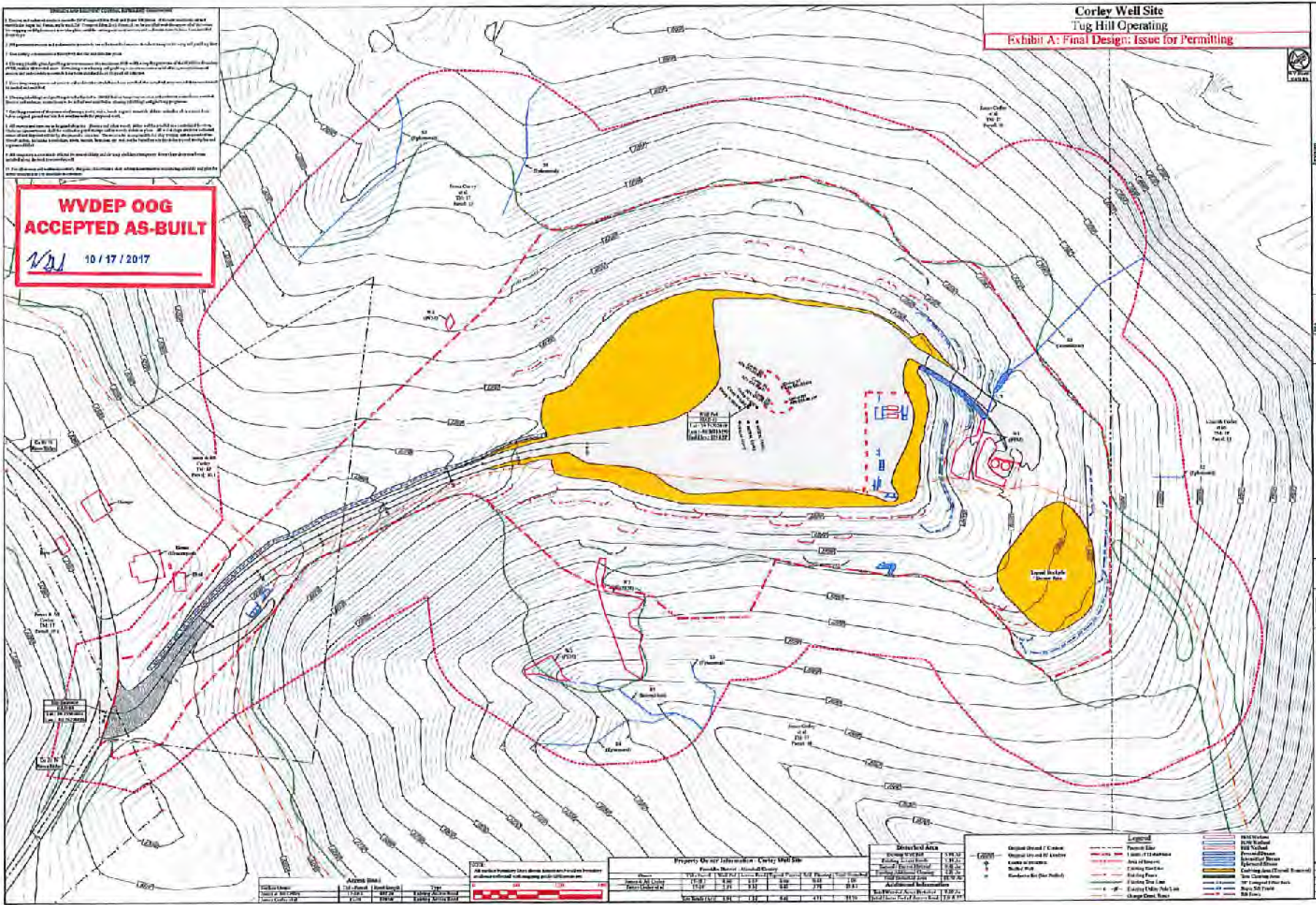
TUG HILL OPERATING
 THIS DOCUMENT PREPARED FOR TUG HILL OPERATING
 K&S SURVEYING
 Cover Sheet
 Corley Well Site
 Franklin District
 Marshall County, WV
 Date: 09/17/2017
 Drawn By: JLS
 Sheet 1 of 19

**Corley Well Site
Tug Hill Operating**

Exhibit A: Final Design: Issue for Permitting

**WVDEP OOG
ACCEPTED AS-BUILT**

WJ 10/17/2017



NOTES AND REVISIONS:

1. This drawing is a final design for the proposed development. It is not to be used for construction purposes without the approval of the appropriate regulatory agency.
2. All dimensions and elevations are in feet unless otherwise noted.
3. The owner is responsible for obtaining all necessary permits and approvals from the appropriate regulatory agencies.
4. The owner is responsible for ensuring that all construction is completed in accordance with the approved design and specifications.
5. The owner is responsible for ensuring that all construction is completed within the approved schedule.
6. The owner is responsible for ensuring that all construction is completed within the approved budget.
7. The owner is responsible for ensuring that all construction is completed within the approved environmental requirements.
8. The owner is responsible for ensuring that all construction is completed within the approved safety requirements.
9. The owner is responsible for ensuring that all construction is completed within the approved quality requirements.
10. The owner is responsible for ensuring that all construction is completed within the approved performance requirements.

ASBUILT SHEET

Sheet No.	Sheet Description	Scale
1	Site Plan	1" = 40'
2	Grading Plan	1" = 40'
3	Foundation Plan	1" = 40'
4	Structural Plan	1" = 40'
5	Utility Plan	1" = 40'
6	Site Erosion Control Plan	1" = 40'
7	Site Access Plan	1" = 40'
8	Site Security Plan	1" = 40'
9	Site Safety Plan	1" = 40'
10	Site Maintenance Plan	1" = 40'

PROPERTY OWNER INFORMATION - Corley Well Site

Property Address	Owner Name	Address	City	State	Zip
10000 W. 10th St.	Franklin County	10000 W. 10th St.	Franklin	WV	26035

DEVELOPED AREA

Category	Area (sq. ft.)
Building Footprint	1,200
Driveway	1,500
Garage	1,000
Deck	500
Pool	1,000
Other	1,000
Total	6,200

LEGEND

- Proposed Road
- Proposed Lot
- Proposed Utility
- Proposed Structure
- Proposed Foundation
- Proposed Deck
- Proposed Pool
- Proposed Other
- Proposed Erosion Control
- Proposed Access
- Proposed Security
- Proposed Safety
- Proposed Maintenance

TUG HILL OPERATING

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

K&S ENGINEERING

Corley Well Site
Franklin District
Mingo County, WV

Scale: As Shown
Drawing No: 20
Date: 10/17/2017