



west virginia department of environmental protection

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

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

Thursday, October 3, 2019
WELL WORK PERMIT
Horizontal 6A / New Drill

TUG HILL OPERATING, LLC
380 SOUTHPOINTE BLVD

CANONSBURG, PA 15317

Re: Permit approval for WILLETT 21V
47-051-02255-00-00

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: WILLETT 21V
Farm Name: CNX LAND, LLC
U.S. WELL NUMBER: 47-051-02255-00-00
Horizontal 6A New Drill
Date Issued: 10/3/2019

PERMIT CONDITIONS

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

CONDITIONS

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

PERMIT CONDITIONS

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

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

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

2) Operator's Well Number: Willett 21V Well Pad Name: Willett

3) Farm Name/Surface Owner: CNX Land Resources, LLC Public Road Access: CR 62 New Bethel Road

4) Elevation, current ground: 1314.50' Elevation, proposed post-construction: 1309.48'

5) Well Type (a) Gas Oil Underground Storage

Other _____

(b) If Gas Shallow Deep

Horizontal

Handwritten signature and date: 7/18/19

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus is the target formation at a depth of 6874' - 6822', thickness of 52' and an anticipated approximate pressure of 3800 psi.

8) Proposed Total Vertical Depth: 6,870'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 6,870'

11) Proposed Horizontal Leg Length: 0' *Open to modification at a later date*

12) Approximate Fresh Water Strata Depths: 70'; 990'

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

14) Approximate Saltwater Depths: 1,740'

15) Approximate Coal Seam Depths: Sewickley Coal - 887'; Pittsburgh Coal - 984'

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

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

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

18) CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	30"	NEW	BW	BW	120'	120'	259ft^3 (CTS)
Fresh Water	13 3/8"	NEW	J55	54.5#	1080'	1080'	1100ft^3(CTS)
Coal	13 3/8"	NEW	J55	54.5#	1080'	1080'	1100ft^3(CTS)
Intermediate	9 5/8"	NEW	J55	36#	2850'	2850'	946ft^3(CTS)
Production	5 1/2"	NEW	P110	20#	6870'	6870'	1782ft^3(CTS)
Tubing	2 3/8"	NEW	N80	4.7#	1300'		
Liners							

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7/8/19

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	36"	1.0	2,333	1,866	CLASS A	1.2
Fresh Water	13 3/8"	17.5"	.33	2,740	2,192	SEE#24	1.2
Coal	13 3/8"	17.5"	.33	2,740	2,192	SEE #24	1.2
Intermediate	9 5/8"	17.5"	.33	2,740	2,192	SEE #24	1.2
Production	5 1/2"	8 7/8" _ 8 3/4"	.361	12,640	10,112	SEE#24	1.17/1.19
Tubing	2 3/8"		.19	11,200	8,960		
Liners							

PACKERS

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

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Environmental Protection

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7/8/19

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

Drill through the Marcellus tagging less than 100' from the top of the Onondaga to get depths and log data. Plug back to proposed kick off point.

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

Open to modification at a later date

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 15.60 acres

22) Area to be disturbed for well pad only, less access road (acres): 5.44 acres

23) Describe centralizer placement for each casing string:

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

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

*See attachment

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25) Proposed borehole conditioning procedures:

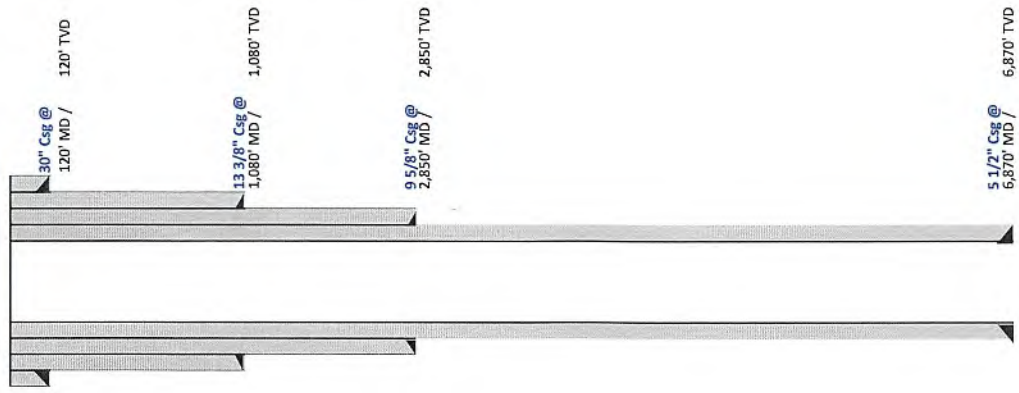
Will circulate a minimum of 3 hours at TD, short trip to curve, circulate bottoms up, check for flow, POOH.

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*Note: Attach additional sheets as needed.



WELL NAME: Williett 21V COUNTY: Marshall
 STATE: WV DISTRICT: #N/A
 DF Elev: 1,309' GL Elev: 1,309'
 TD: 6,870'
 TH Latitude: 39.82271214
 TH Longitude: -80.65639807
 BH Latitude: 39.82271214
 BH Longitude: -80.65639807



FORMATION TOPS	
Formation	Depth TVD
Deepest Fresh Water	990
Sewickley Coal	887
Pittsburgh Coal	984
Big Lime	2145
Weir	2566
Berea	2763
Gordon	3016
Rhinestreet	6143
Genesee/Burkett	6694
Tully	6709
Hamilton	6740
Marcellus	6822
Landing Depth	6870
Onondaga	6874
Pilot Hole Depth	6974

CASING SUMMARY							
Type	Hole Size (in)	Csg Size (in)	Depth (MD)	Depth (TVD)	Weight (lb/ft)	Grade	Top of Cement
Conductor	36	30	120'	120'	BW	BW	Surface
Surface	17.5	13 3/8	1,080'	1,080'	54.5	J55	Surface
Intermediate 1	12 1/4	9 5/8	2,850'	2,850'	36	J55	Surface
Production	8 3/4	5 1/2	6,870'	6,870'	20	CYHP110	Surface

CEMENT SUMMARY				DRILLING DETAILS	
Sacks	Class	Density	Fluid Type	Centralizer Notes	
338	A	15.6	Air	None	
1,113	A	15.6	Air	3 Centralizers at equal distance	
949	A	15	Air	1 Centralizer every other ft	
1,619	A	14.5	Air / SOBM	1 every other joint in lateral; 1 per joint in curve; 1 every other ft to sfc	

Handwritten signature and date: JW 7/18/19

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47 05 . 02255



Tug Hill Operating, LLC Casing and Cement Program

Willett 21V

Casing

	String	Grade	Bit Size	Depth (Measured)	Cement Fill Up
Conductor	30"	BW	36"	120'	CTS
Surface	13 3/8"	J55	17 1/2"	1,080'	CTS
Intermediate	9 5/8"	J55	12 1/4"	2,850'	CTS
Production	5 1/2"	CYHP110	8 3/4"	6,870'	CTS

Cement

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

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

Intermediate: Premium NE-1 + 1% bwoc CaC12 + 46.5% Fresh Water – Intermediate Cement mixed at 15.6 ppg, Y=1.19

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

Production: 50:50 Poz: Premium NE-1 + .1% bwoc ASA-301 + 60lb/sk ASCA-1 + .35% bwoc BA-10A + .25% bwoc MPA-170, 44 lb sack + .5% bwoc R-3 + .75 gals/100sk FP-13L – Production Cement mixed at 15.2ppg, Y = 1.19

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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 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

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Page 1 of 2

WW-9
(4/16)

47-051-02255

API Number 47 - 051 - _____
Operator's Well No. Willet 21V

**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) Middle Fish Creek Quadrangle Glen Easton 7.5'

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

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

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

-If oil based, what type? Synthetic, petroleum, etc. n/a

Additives to be used in drilling medium? N/A

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

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

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

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

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

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

Company Official Signature *Jim Pancake*

Company Official (Typed Name) Jim Pancake

Company Official Title Vice President - Geosciences

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Subscribed and sworn before me this 3 day of JULY, 20 19

Maureen A Stead

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

My commission expires 1/28/23

Tug Hill Operating, LLC

Proposed Revegetation Treatment: Acres Disturbed 5.44 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch 2.5 Tons/acre

Seed Mixtures

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

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jim Nicholas*

Comments: _____

Title: Oil and Gas Inspector

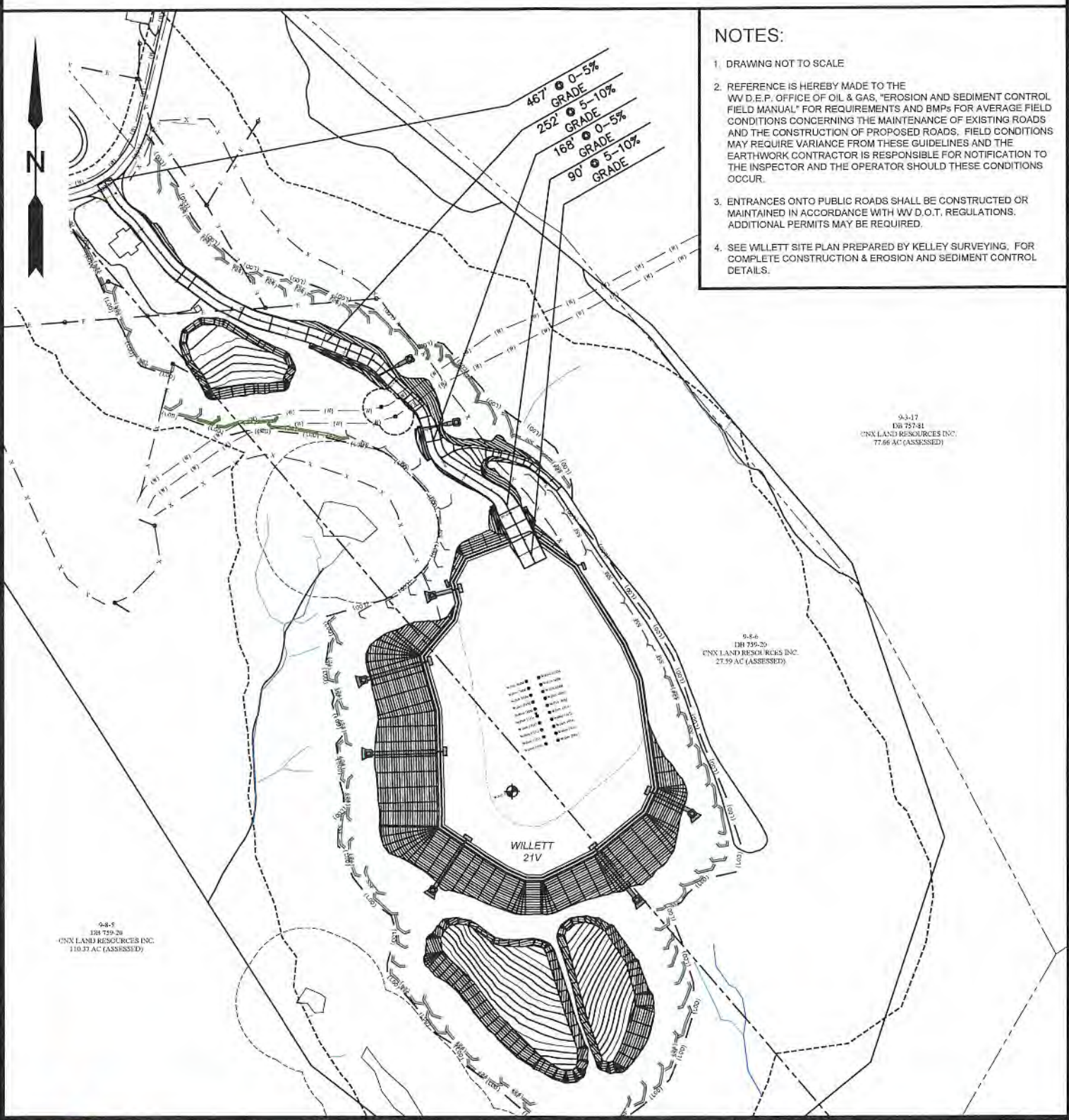
Date: 7/8/19

Field Reviewed? () Yes () No

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Environmental Protection

WW-9

PROPOSED WILLETT - 21V



- NOTES:**
1. DRAWING NOT TO SCALE
 2. REFERENCE IS HEREBY MADE TO THE WV D.E.P. OFFICE OF OIL & GAS, "EROSION AND SEDIMENT CONTROL FIELD MANUAL" FOR REQUIREMENTS AND BMPs FOR AVERAGE FIELD CONDITIONS CONCERNING THE MAINTENANCE OF EXISTING ROADS AND THE CONSTRUCTION OF PROPOSED ROADS. FIELD CONDITIONS MAY REQUIRE VARIANCE FROM THESE GUIDELINES AND THE EARTHWORK CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION TO THE INSPECTOR AND THE OPERATOR SHOULD THESE CONDITIONS OCCUR.
 3. ENTRANCES ONTO PUBLIC ROADS SHALL BE CONSTRUCTED OR MAINTAINED IN ACCORDANCE WITH WV D.O.T. REGULATIONS. ADDITIONAL PERMITS MAY BE REQUIRED.
 4. SEE WILLETT SITE PLAN PREPARED BY KELLEY SURVEYING, FOR COMPLETE CONSTRUCTION & EROSION AND SEDIMENT CONTROL DETAILS.

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanlom Drive • Glenville, WV 26351 • (304) 462-5634
www.slsww.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
		SUITE 200	
		CANONSBURG, PA 15317	
DRAWN BY	JOB NO.	DATE	SCALE
K.G.M.	8939	07/01/19	NONE

TUG HILL
OPERATING



Well Site Safety Plan

Tug Hill Operating, LLC

JW
7/8/19

Well Name: Willett 21V

Pad Location: Willett Pad

Marshall County, West Virginia

UTM (meters), NAD83, Zone 17:

Northing: 4,408,136.77

Easting: 529,405.50

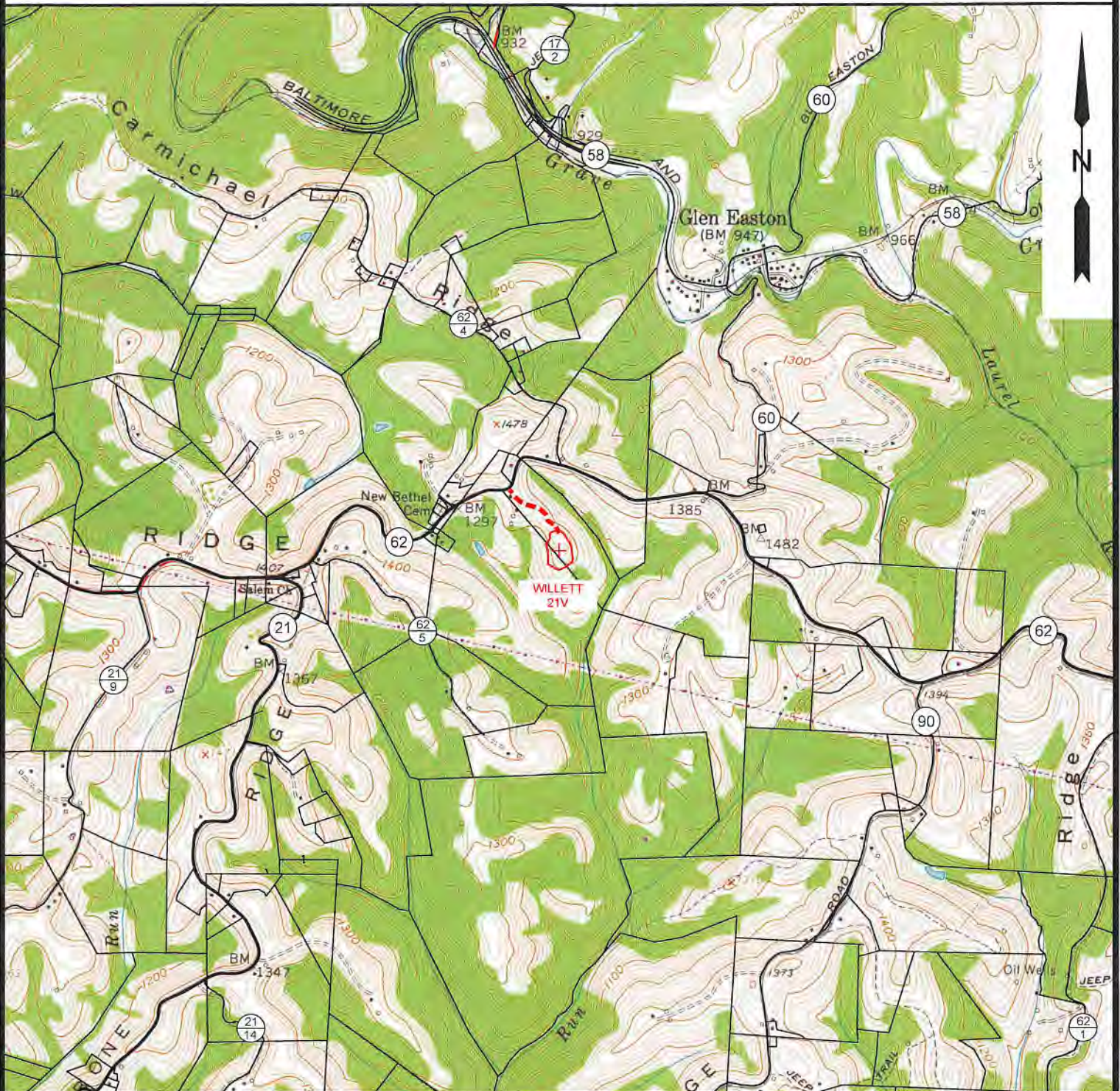
July 2019

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Environmental Protection

PROPOSED WILLETT - 21V



NOTE: CLOSEST WATER PURVEYOR
CITY OF CAMERON - FRANK WALKER RESERVOIR
CAMDEN, WV

LAT: 39.829865
LON: -80.573724
LOCATED: N 84°36'39" E AT 23,313.72' FROM THE CENTER OF WILLETT WELL PAD LOCATION.

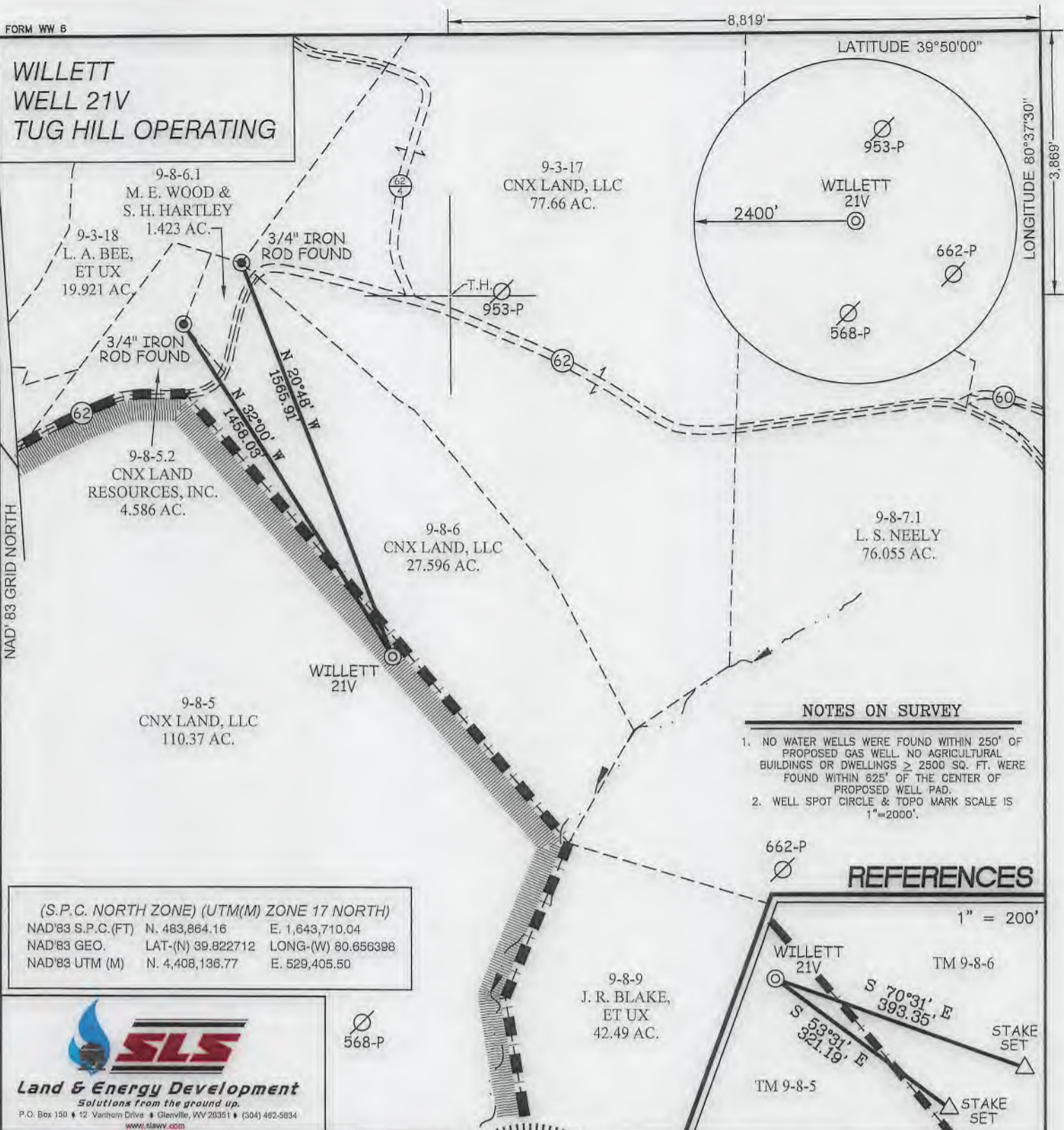
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TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
DRAWN BY		DATE	SCALE
K.G.M.		07/01/2019	1" = 2000'



TUG HILL
OPERATING

**WILLETT
WELL 21V
TUG HILL OPERATING**

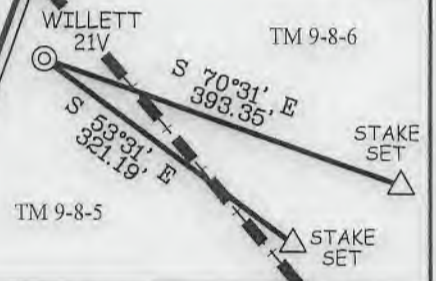


NOTES ON SURVEY

1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS OR DWELLINGS ≥ 2500 SQ. FT. WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'.

REFERENCES

1" = 200'

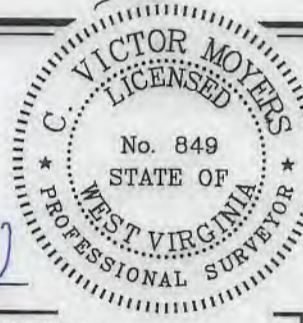


(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
 NAD'83 S.P.C.(FT) N. 483,864.16 E. 1,643,710.04
 NAD'83 GEO. LAT-(N) 39.822712 LONG-(W) 80.656398
 NAD'83 UTM (M) N. 4,408,136.77 E. 529,405.50

P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26031 • (304) 462-5834
 www.slsrv.com

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

P.S. 849 *C. Victor Moyers*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE JULY 1, 20 19
 REVISED _____, 20 ____
 OPERATORS WELL NO. WILLETT 21V
 API WELL NO. 47 - 31 - 02255
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8939P21V.dwg
WILLETT 21V
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE 1" = 500'

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

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

LOCATION: GROUND = 1,314.50' ELEVATION PROPOSED = 1,309.48' WATERSHED MIDDLE FISH CREEK (HUC 10)
 DISTRICT MEADE COUNTY MARSHALL QUADRANGLE GLEN EASTON 7.5'

SURFACE OWNER CNX LAND, LLC ACREAGE 110.37±
 ROYALTY OWNER APPALACHIAN BASIN MINERALS, LP, ET AL ACREAGE 110.37±
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
 ESTIMATED DEPTH 6,870'

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

COUNTY NAME
 PERMIT

WW-6A1
(5/13)

Operator's Well No. Willett 21V

**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 sheet

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

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

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

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

Well Operator: Tug Hill Operating, LLC

By: Amy L. Miller 

Its: Permitting Specialist Appalachia Region

Lease No.	Tag	Parcel	Lessor	Lessee	Royalty	Book	Page	Assignment
10*23743	A	9-8-5	WILDES MINERAL INTERESTS, LLC	TH EXPLORATION, LLC	1/8+	1011	534	N/A
10*23742	A	9-8-5	PURPLEBURGH VENTURES, LLC	TH EXPLORATION, LLC	1/8+	1011	536	N/A
10*23740	A	9-8-5	PENNMARC RESOURCES II, LP	TH EXPLORATION, LLC	1/8+	1011	532	N/A
10*23741	A	9-8-5	MCCROW ENERGY PARTNERS II, LLC	TH EXPLORATION, LLC	1/8+	1011	515	N/A
10*23749	A	9-8-5	MARCELLUS TX MINERAL PARTNERS, LTD.	TH EXPLORATION, LLC	1/8+	1011	193	N/A
10*23739	A	9-8-5	APPALACHIAN BASIN MINERALS, LP	TH EXPLORATION, LLC	1/8+	1011	538	N/A



July 5, 2019

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

RE: Willett 21V

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 Willett 21V 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,

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

Amy L. Miller
Permitting Specialist – Appalachia Region

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Environmental Protection

WW-6AC
(1/12)

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

Date of Notice Certification: 07/09/2019

API No. 47- 051 -
Operator's Well No. Willet 21V
Well Pad Name: Willet

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>529,405.50</u>
County:	<u>Marshall</u>		Northing:	<u>4,408,136.77</u>
District:	<u>Mead</u>	Public Road Access:	<u>CR 62 New Bethel Road</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>CNX Land Resources, LLC</u>	
Watershed:	<u>Middle Fish Creek (HUC 10)</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: 40px;"><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>
<p>RECEIVED Office of Oil and Gas JUL 10 2019 WV Department of Environmental Protection</p>	

Required Attachments:

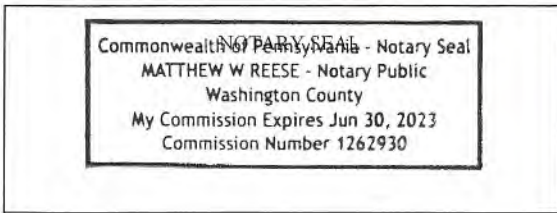
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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

WW-6AC
(1/12)

Certification of Notice is hereby given:

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

Well Operator:	<u>Tug Hill Operating, LLC</u>	Address:	<u>380 Southpointe Boulevard, Plaza II, Suite 200</u>
By:	<u>Amy L. Miller <i>Amy Miller</i></u>		<u>Canonsburg, PA 15317</u>
Its:	<u>Permitting Specialist - Appalachia Region</u>	Facsimile:	<u>724-338-2030</u>
Telephone:	<u>734-749-8388</u>	Email:	<u>amiller@tug-hillop.com</u>



Subscribed and sworn before me this 9 day of July 2019.
Matthew W Reese Notary Public
 My Commission Expires 6-30-2023

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.

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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: 7/5/2019 **Date Permit Application Filed:** 7/8/2019

Notice of:

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

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

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

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

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

SURFACE OWNER(s)

Name: CNX Land Resources, LLC Attn: Casey Saunders
 Address: 1000 Consol Energy Drive
1000 Consol Energy Drive
 Name: _____
 Address: _____

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

Name: _____
 Address: _____
 Name: _____
 Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
 Address: _____

COAL OWNER OR LESSEE

Name: Consolidation Coal Company
 Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

COAL OPERATOR

Name: Murray American Energy, Inc. attn: Mason Smith
 Address: 46226 National Road
St. Clairsville, OH 43905

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

Name: *See attached list
 Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____
 Address: _____

*Please attach additional forms if necessary

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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 referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

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

Water Well Testing:

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

Water Testing Laboratories:

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

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

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

Written Comment:

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

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

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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.**

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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WW-6A
(8-13)

API NO. 47-051-02255
OPERATOR WELL NO. Willett 21V
Well Pad Name: Willett

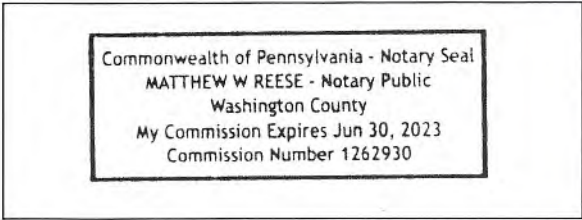
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

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



Subscribed and sworn before me this 5 day of July, 2019.

Matthew W Reese Notary Public

My Commission Expires 6-30-2023

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Exhibit WW-6A

Supplement Pg. 1A

Tug Hill Operating, LLC
 380 Southpointe Blvd, Suite 200
 Cannonsburg, PA 15137

Residences within Two-Thousand Feet (2,000')

Well: Willett – 21V
 District: Meade
 State: WV

There are eight (8) residences, no business or commercial sites, no churches, no schools or emergency facilities within two-thousand feet (2,000') of the above referenced well location.

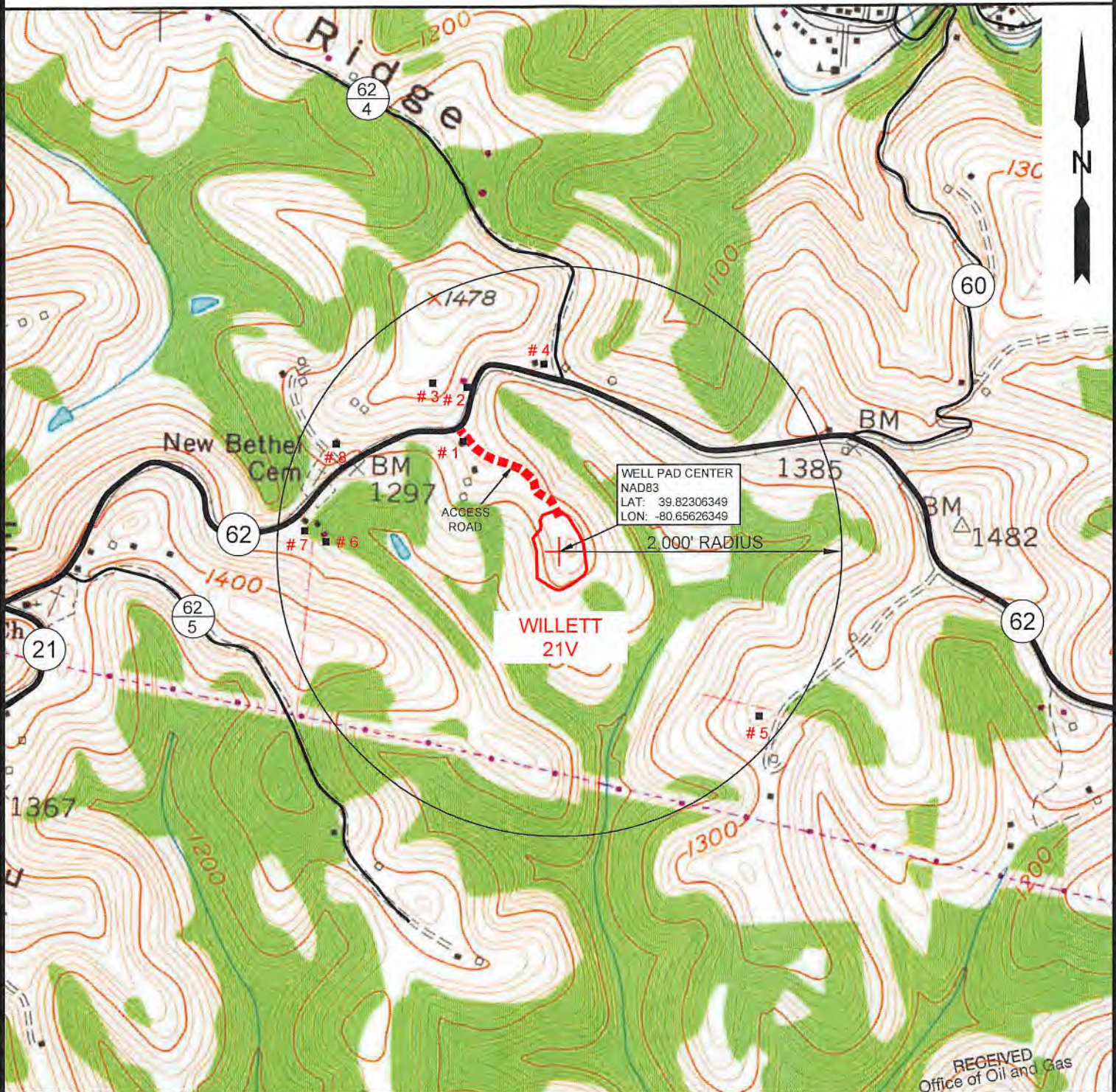
<p>Residence (#1) TM 8 Pcl. 6 CNX Land Resources, Inc. Phone: None Found Physical Address: 819 New Bethel Rd Glen Easton, WV 26039 Tax Address: 1000 Consol Energy Dr. Canonsburg, PA 15317-6506</p>	<p>Residence (#2) TM 8 Pcl. 6.1 Mark E. Wood & Sunni H. Hartley Phone: 304-845-8611 Physical Address: 860 New Bethel Rd Glen Easton, WV 26039 Tax Address: Same</p>	<p>Residence (#3) TM 8 Pcl. 5.2 CNX Land Resources, Inc. c/o CNX Gas Company LLC Phone: 304-686-2532; 304-686-2827 (Dustin S. Evans – Reverse Address) Physical Address: 756 New Bethel Rd Glen Easton, WV 26039 Tax Address: 1000 Consol Energy Dr. Canonsburg, PA 15317-6506</p>
<p>Residence (#4) TM 3 Pcl. 17 CNX Land Resources, Inc. Phone: 304-845-6388 (Leah J. Woods – Reverse Address) Physical Address: 40 Carmichael Ln Glen Easton, WV 26039 Tax Address: 1000 Consol Energy Dr. Canonsburg, PA 15317-6506</p>	<p>Residence (#5) TM 8 Pcl. 9 James Richard Blake, Et Ux Phone: None Found – Reverse Address Physical Address: 295 Homestead Ln. Glen Easton, WV 26039 Tax Address: Same</p>	<p>Residence (#6) TM 8 Pcl. 5.1 CNX Land LLC Phone: 304-845-4529; 304-845-3756 (Raymond E. White – Reverse Address) Physical Address: 575 New Bethel Rd Glen Easton, WV 26039 Tax Address: 1000 Consol Energy Dr. Canonsburg, PA 15317-6506</p>
<p>Residence (#7) TM 3 Pcl. 19 CNX Land LLC Phone: 304-843-5284 (Gary E. Whitlatch – Reverse Address) Physical Address: 569 New Bethel Rd Glen Easton, WV 26039 Tax Address: 1000 Consol Energy Dr. Canonsburg, PA 15317-6506</p>	<p>Residence (#8) TM 3 Pcl. 18.2 Raymond E. & Cindy L. White Phone: 304-845-4529; 304-845-3756; 304-686-2241 (Trevor L. Neely – Reverse Address) Physical Address: 692 New Bethel Rd Glen Easton, WV 26039 Tax Address: 656 New Bethel Rd Glen Easton, WV 26039</p>	<p>RECEIVED Office of Oil and Gas JUL 10 2019 WV Department of Environmental Protection</p>

47 05 K02255

WW-6A

PROPOSED WILLETT - 21V

SUPPLEMENT PG. 1B



NOTE: THERE APPEARS TO BE EIGHT (8) POSSIBLE WATER SOURCES WITHIN 2,000'.

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WV Department of
Environmental Protection

SLS
Land & Energy Development
Solutions from the ground up.
P.O. Box 150 • 12 Vanhorn Drive • Glenville, WV 26351 • (304) 462-5634
www.slsww.com

TOPO SECTION:		OPERATOR:	
GLEN EASTON 7.5'		PREPARED FOR:	
COUNTY	DISTRICT	TUG HILL OPERATING, LLC	
MARSHALL	MEADE	380 SOUTHPOINTE BLVD	
DRAWN BY		DATE	SCALE
K.G.M.		07/01/2019	1" = 1000'

TUG HILL
OPERATING

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: 6/4/2019 **Date of Planned Entry:** 6/11/2019

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: CNX Land Resources, LLC Attn: Casey Saunders
 Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

Name: _____
 Address: _____

Name: _____
 Address: _____

COAL OWNER OR LESSEE

Name: Consolidation Coal Company
 Address: 1000 Consol Energy Drive
Canonsburg, PA 15317

MINERAL OWNER(s)

Name: *See attached list
 Address: _____

*please attach additional forms if necessary

Notice is hereby given:

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

State: <u>West Virginia</u>	Approx. Latitude & Longitude: <u>39.82306349; -80.65626349</u>
County: <u>Marshall</u>	Public Road Access: <u>New Bethel Road (County Route 62)</u>
District: <u>Meade</u>	Watershed: <u>Middle Fish Creek</u>
Quadrangle: <u>Glen Easton 7.5'</u>	Generally used farm name: <u>CNX Land Resources, LLC</u>

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

Notice is hereby given by:

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

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

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Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of 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.

*WW-6A3 Notice of Entry for Plat Survey****Willet Pad******Additional Mineral Owners***

Carol Vallandingham
2430 Venetian Way
Burlington, KY 41005

Cheryl Brauch
6670 Snead Ln.
Florence, KY 41042

Teresa R. Fox
106 Brookside Ave
Ewing, NJ 08638

Juanita S. Hatch
1437 North Overland Trails Dr.
Washington, UT 84780

Bruce Johnson
6272 Highland Meadows Dr
Medina, OH 44256

Diane DeVault
9315 Brandywine Rd
Northfield, OH 44067

Bertha Lynn Klug
47 Shutler Ln.
Proctor, WV 26055

Marcellus TX Mineral Partners, Ltd.
307 West 7th St, Ste 1110
Fort Worth, TX 76102

McCrow Energy Partners II, LLC
8235 Douglas Ave., Ste 815
Dallas, TX 75225

Matthew Grossaint
4820 132 Pl SE
Mill Creek, WA 96012

Lou Ann Grossaint
1920 S. Atlantic St
Boise, ID 83705

Rachel Marie McLardy
5808 Medusa St
P.O. Box 931
Sechelt, British Columbia, V0N 3A0

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PennMarc Resources II, LP
2 East Market St., Ste 1
Clearfield, PA 16830

Purpleburgh Ventures, LLC
4675 Carfefree Trail
Parker, CO 80134

Wildes Mineral Interests, LLC
3517 Gillon Ave.
Dallas, TX 75205

Phillip A. Wilson
1715 Lancaster Dr
Youngstown, OH 44511

Jessica M. Chavez
5525 Alta Verde Cir
Arlington, TX 76017

Edward F. Wilson
2933 Hastings Dr
Grand Prairie, TX 75052

Denise Marie Rogers
9671 King Graves Rd NE
Warren, OH 44484

Julianne Erdos
119 Noran Cir
Bedford, OH 44146

The Robert Wise Living Trust
Trustee: Shirley Hagenbaugh
529 Genoa Dr
Kissimmee, FL 34759

Harry Albert Richardson
19819 10th Ave NW
Shoreline, WA 98177

Rev. Jane D. Bearden
19106 Timothy's Manor Ct
Parkton, MD 21120

Janet M. Smith
122 Kandahar Dr
East Aurora, NY 14052

Brad Lehner
2570 Chasewood Ct
Aurora, IL 60502

Bryan S. Lehner
372 5th Ave Apt 4J
New York, NY 10018

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Barbara Krus
421 Fox Chapel Dr
Lutherville Timonium, MD 21093

Maureen Wilson
12 Juliet Ln Apt 102
Nottingham, MD 21236

Russell Bredbenner
965 Seybert St
Hazelton, PA 18201

Joseph R. Zbozien
704 Pontiac Ave
Brooklyn, MD 21225

Jasmine Lee Hall Pena
c/o Robert A Hall
4400 Falls Rd
Baltimore, MD 21211

William Edward Stacy
116 Ocoee Falls Dr
Chapel Hill, NC 27517

Carol Stacy Saunders
4149 Andros Way
Oceanside, CA 92056

Carol D. Elmore
6461 Mesquite Dr
Midlothian, TX 76065

James S. Wilson
6306 Farley Dr
San Diego, CA 92122

Margaret Lee Hall
2910 Avenida De Autlan
Camarillo, CA 93010

Marvin Wilson
214 Saint Andrews Cir
Oxford, MS 38655

James Ovies
1204 5th St
Moundsville, WV 26041

Rick Heuser
162 Lawrence Lane
Reynoldsburg, OH 43068

Mark Heuser
209 Cherokee Ct
Pickerington, OH 43147

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Environmental Protection

Cindy Lee Richmond
157 Richmond Ln
Glen Easton, WV 26039

Berger Boys, LLC
1305 Center St
Moundsville, WV 26041

Ella Jean McCardle
348 Fairmont Ave
Wheeling, WV 26003

Jesse Allen Wilson
49 Forest Hill Dr
Glen Dale, WV 26038

Troy Thomas Wilson
49 Forest Hill Dr
Glen Dale, WV 26038

April Dawn Hogan
5032 Castleman Run Rd
Bethany, WV 26032

Kimberly Sue Pierson
30 Forest Hill Dr
Glen Dale, WV 26038

Kenneth R. Anderson
1706 N Washington Ave
Springfield, MO 65803

Charles Pratico
25 Hamilton Ave
Princeton, NJ 08542

Marietta Agocs
50 Orourke Dr Apt O
Trenton, NJ 08691

Eileen Sennett
10 Orchard Dr
Chesterfield, NJ 08515

Patricia Cassidy
46 Heather Narrows
Toms River, NJ 08755

Sharon Bucci
120 7th Ave
Seaside Park, NJ 08752

Amy Pratico
19 E Railroad Ave
Jamesburg, NJ 08831

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47 051-02255

Abigail Constance
612 East Rd
Middletown, NJ 07748

Rachel Constance
36 Cherokee Ave
Rockaway, NJ 07866

Lawrence Bernard Ostry Estate, by
Rachael Marie McLardy as Trustee
5808 Medusa Street, PO Box 931
Sechely, British Columbia, V0N 3A0

The Bernard E. Kurlich Family Trust
c/o Richard P. Martin Co. L.P.A.
3603 Darrow Rd.
Stow, OH 44224

Joseph Richard Fox
2116 Autumn Way
Melbourne, FL 32935

Norma V. Pratico
821 River Road
Yardley, PA 19067

James R. Blair
1400 10th Street
Moundsville, WV 26041

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Environmental Protection

WW-6A5
(1/12)

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: 07/05/2019

Date Permit Application Filed: 07/08/2019

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

CERTIFIED MAIL
 RETURN RECEIPT REQUESTED

HAND
 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: CNX Land Resources, LLC Attn: Casey Saunders

Name: _____

Address: 1000 Consol Energy Drive

Address: _____

Canonsburg, PA 15317

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>529,405.50</u>
County:	<u>Marshall</u>		Northing:	<u>4,408,136.77</u>
District:	<u>Meade</u>	Public Road Access:	<u>CR 62 New Bethel Road</u>	
Quadrangle:	<u>Glen Easton 7.5'</u>	Generally used farm name:	<u>CNX Land Resources, LLC</u>	
Watershed:	<u>Middle 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.com

Address: 380 Southpointe Boulevard, Plaza II, Suite 200

Canonsburg, PA 15317

Facsimile: 724-338-2030

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Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of 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.

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

Byrd E. White, III
 Secretary of Transportation

July 8, 2019

Jimmy Wriston, P. E.
 Deputy Secretary/
 Acting Commissioner

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

Subject: DOH Permit for the Willet Pad, Marshall County
 Willett 21V Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2011-0438 transferred to Tug Hill Operating for access to the State Road for a well site located off Marshall County Route 29 SLS.

This operator is in compliance with §22-6A-20 of the WV Code. 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 October 1, 2018.

Very Truly Yours,

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

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

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 Environmental Protection

51-02255



PLANNED ADDITIVES TO BE USED IN FRACTURING OR STIMULATION

Well No. Willett 21V

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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Willett Well Site

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

Tug Hill Operating

Marshall County

Meade District

Latitude 39.82306349°
Longitude -80.65626349°
Middle Fish Creek Watershed

APPROVED WVDEP OOG

8/15/2019

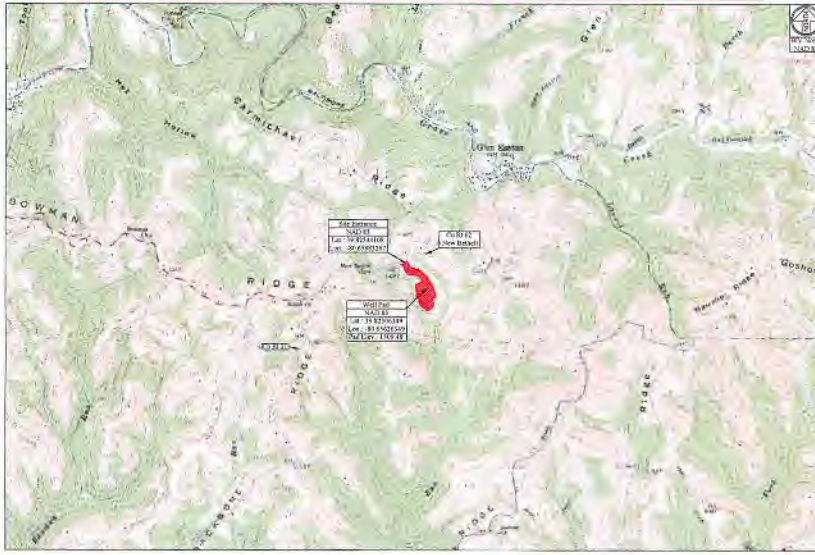
Pertinent Site Information
 Willett Well Site
 Emergency Number: 304-845-1920
 Meade District, Marshall County, WV
 Watershed: Middle Fish Creek Watershed
 Tug Hill Contact Number: 1-817-632-3400



Property Owner Information - Willett Well Site

Name	Year	Value	Acres	Assessed	Taxable	Actual	Estimated
TUG HILL OPERATING, INC	2019	1,500,000	10.00	10.00	10.00	10.00	10.00
389272300	FAA	1,000,000	10.00	10.00	10.00	10.00	10.00

Exhibit A: Final Design: Issue for Permitting



WV Dept. of Ecology & Environment
 Division of Air Quality
 Permitted by Permit 2019-025
 and 019 Per-Permit

Arroyo Road

Name	Year	Value	Acres	Assessed	Taxable	Actual	Estimated
389272300	FAA	1,000,000	10.00	10.00	10.00	10.00	10.00

Disturbed Area

Category	Area (Acres)	Notes
Well Pad Construction	1.00	
Access Road Construction	0.50	
Site Preparation	0.50	
Total	2.00	

Willett Well Site Quantities

Item	Quantity	Notes
Well Pad Area	1.00	
Access Road Area	0.50	
Total	1.50	

Site Location (SAD 27)

Number	Latitude (NAD 83)	Longitude (NAD 83)
1	39.82306349	-80.65626349
2	39.82306349	-80.65626349
3	39.82306349	-80.65626349
4	39.82306349	-80.65626349
5	39.82306349	-80.65626349
6	39.82306349	-80.65626349
7	39.82306349	-80.65626349
8	39.82306349	-80.65626349
9	39.82306349	-80.65626349
10	39.82306349	-80.65626349
11	39.82306349	-80.65626349
12	39.82306349	-80.65626349
13	39.82306349	-80.65626349
14	39.82306349	-80.65626349
15	39.82306349	-80.65626349
16	39.82306349	-80.65626349
17	39.82306349	-80.65626349
18	39.82306349	-80.65626349
19	39.82306349	-80.65626349
20	39.82306349	-80.65626349

Site Location (SAD 27) (Continued)

Number	Latitude (NAD 83)	Longitude (NAD 83)
21	39.82306349	-80.65626349
22	39.82306349	-80.65626349
23	39.82306349	-80.65626349
24	39.82306349	-80.65626349
25	39.82306349	-80.65626349
26	39.82306349	-80.65626349
27	39.82306349	-80.65626349
28	39.82306349	-80.65626349
29	39.82306349	-80.65626349
30	39.82306349	-80.65626349
31	39.82306349	-80.65626349
32	39.82306349	-80.65626349
33	39.82306349	-80.65626349
34	39.82306349	-80.65626349
35	39.82306349	-80.65626349
36	39.82306349	-80.65626349
37	39.82306349	-80.65626349
38	39.82306349	-80.65626349
39	39.82306349	-80.65626349
40	39.82306349	-80.65626349

Project Contacts

The HILL Operating | **Survey and Engineer**
 Kathryn Killy
 724-638-1975 Fax
 724-638-1975 Cell
 724-638-1975 Home

Client | **Geotechnical**
 Jody Sear
 304-845-9228 Cell
 304-845-9228 Home

Environmental
 2019-025 and 019 Per-Permit

MISS UTILITY OF WEST VIRGINIA
 1-800-245-4848
 www.missutility.com

811
 Call before you dig.

Approach Roads:
 From the intersection of WV Rt 2 and 14th Street in Meadeville, WV. Travel South on WV Rt 2 for 3.3 miles. Turn Left onto AL-2. Follow WV Rt 2 for 1.5 miles. Turn Right onto Co R (Lindsey Ln). Follow Co R for 1.8 miles. Turn Right onto Co R 21 (Roberts Ridge Rd). Follow Co R 21 for 9.1 miles. Turn Left onto Co R 62 (New Bethel). Follow Co R 62 for 0.2 miles. The site entrance will be on the Right (County) side of the road.

Well Location Restrictions
 All pad construction complies with the following restrictions:
 *250' from an existing well or developed spring used for human or domestic animals.
 *50' from an occupied dwelling or barn greater than 2,500 sq feet for poultry or dairy animals.
 *50' from the edge of a surface water body, seasonal stream, natural or artificial lake, pond or reservoir.
 *50' from the edge of a disturbance to a naturally reproducing trout stream.
 *100' from a surface or ground water table to a public water supply.
 (Well Location Restrictions of WV Code 22A-2-11)

FLORIDA CONTRACTORS ASSOCIATION

FLORIDA CONTRACTORS ASSOCIATION

FLORIDA CONTRACTORS ASSOCIATION

Section: 10/2019
 Issue: 10/2019
 Date: 10/2019

THIS DOCUMENT PREPARED FOR TUG HILL OPERATING

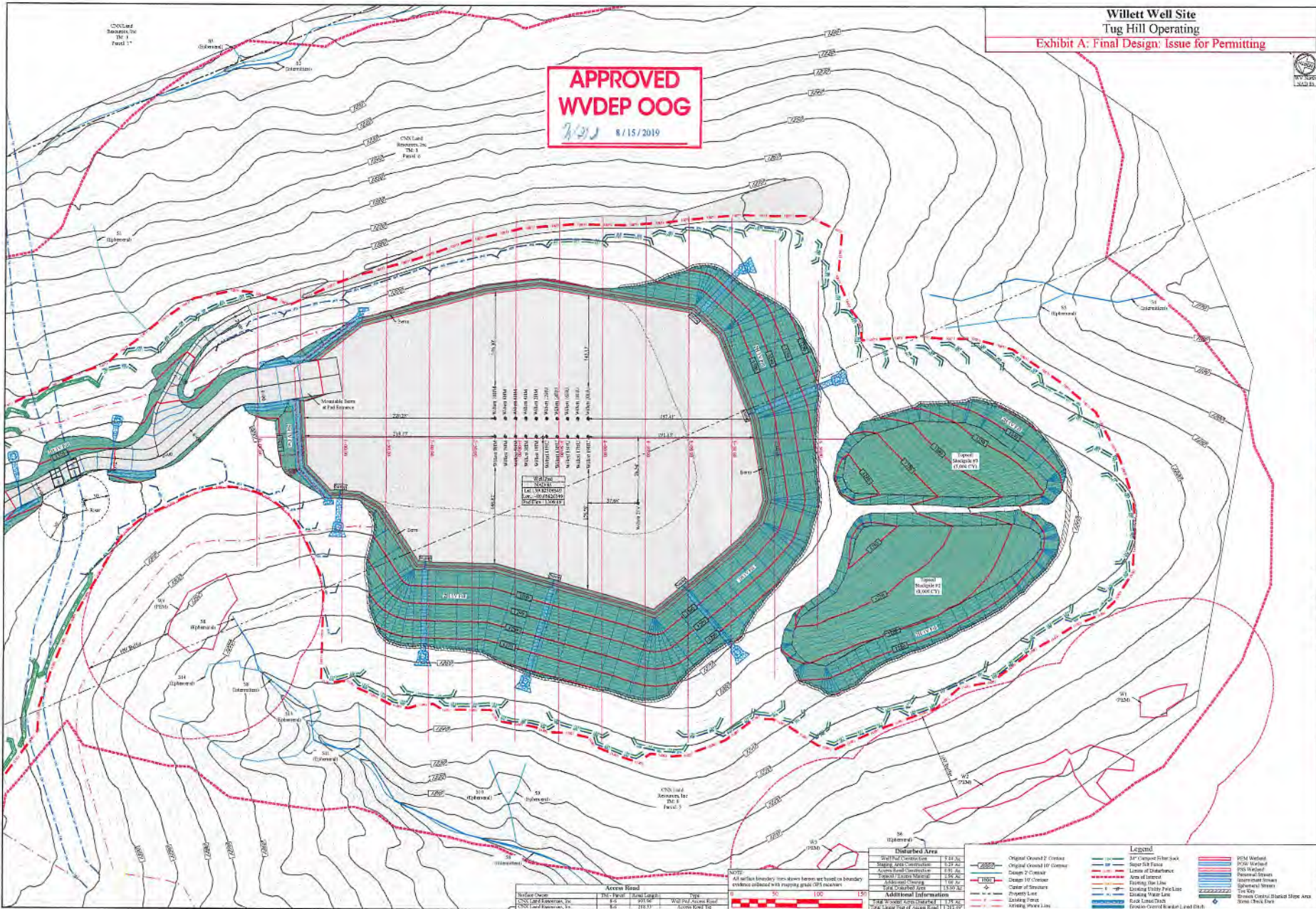
Willett Well Site
 Meade District
 Marshall County, WV

Cover Sheet

Sheet: 1 of 16
 Date: 08/15/2019
 Scale: As Shown
 Drawn By: J.S.
 File No:
 Project:
 Access Road Details
 Pad Details

Willett Well Site
Tug Hill Operating
Exhibit A: Final Design: Issue for Permitting

APPROVED
WVDEP OOG
8/15 8/15/2019



Access Road

Material Name	Qty (Cubic Yards)	Unit Price	Total Price
Gravel	100	1.50	150.00
Asphalt	50	3.00	150.00
Concrete	20	4.00	80.00
Other	10	2.00	20.00
Total	180		300.00

Disturbed Area

Material Name	Qty (Cubic Yards)	Unit Price	Total Price
Gravel	100	1.50	150.00
Asphalt	50	3.00	150.00
Concrete	20	4.00	80.00
Other	10	2.00	20.00
Total	180		300.00

Legend

Symbol/Color	Description
Original Contour 2' Contour	Original Contour 2' Contour
Original Contour 10' Contour	Original Contour 10' Contour
Proposed 2' Contour	Proposed 2' Contour
Proposed 10' Contour	Proposed 10' Contour
Area of Interest	Area of Interest
Disturbed Area	Disturbed Area
Proposed Well Path	Proposed Well Path
Existing Well Path	Existing Well Path
Rock Lined Ditch	Rock Lined Ditch
Proposed 10' Contour	Proposed 10' Contour
Proposed 2' Contour	Proposed 2' Contour
Area of Interest	Area of Interest
Disturbed Area	Disturbed Area
Proposed Well Path	Proposed Well Path
Existing Well Path	Existing Well Path
Rock Lined Ditch	Rock Lined Ditch
Proposed 10' Contour	Proposed 10' Contour
Proposed 2' Contour	Proposed 2' Contour
Area of Interest	Area of Interest
Disturbed Area	Disturbed Area
Proposed Well Path	Proposed Well Path
Existing Well Path	Existing Well Path
Rock Lined Ditch	Rock Lined Ditch

TUG HILL OPERATING
 THIS DOCUMENT PREPARED FOR TUG HILL OPERATING
 K+S
 Site Plan
Willett Well Site
 Mingo District
 Marshall County, WV
 Date: 10/22/2019
 Scale: As Shown
 Designed By: JES
 File No:
 Sheet 10 of 14