



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

Earl Ray Tomblin , Governor
Randy C. Huffman , Cabinet Secretary
www.dep.wv.gov

Monday, September 12, 2016
WELL WORK PERMIT
Vertical / Re-Work

COLUMBIA GAS TRANSMISSION, LLC
P. O. BOX 1273

CHARLESTON, WV 253251273

Re: Permit approval for GLADY 7468
47-075-00037-00-00

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: GLADY 7468
Farm Name: U.S. FOREST SERVICE
U.S. WELL NUMBER: 47-075-00037-00-00
Vertical / Re-Work
Date Issued: 9/12/2016

Promoting a healthy environment.

09/16/2016

PERMIT CONDITIONS

West Virginia Code §22-6-11 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. 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 §22-6-20, 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 fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours
7. Well work activities shall not constitute a hazard to the safety of persons.
8. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced, drilling ceased, 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 within 30 days of commencement of drilling.

DM

4707500037W

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

1) Well Operator: Columbia Gas Transmission, LLC 307032 Pocahontas Green Bank Sinks of Gandy
Operator ID County District Quadrangle

2) Operator's Well Number: Glady 7468 3) Elevation: 3749

4) Well Type: (a) Oil _____ or Gas X
(b) If Gas: Production _____ / Underground Storage X
Deep X / Shallow _____

5) Proposed Target Formation(s): Oriskany Proposed Target Depth: 6043

6) Proposed Total Depth: 6260 (existing) Feet Formation at Proposed Total Depth: Helderberg

7) Approximate fresh water strata depths: 405 ft (per driller in 1966)

8) Approximate salt water depths: none reported by driller in 1966

9) Approximate coal seam depths: none reported by driller in 1966

10) Approximate void depths,(coal, Karst, other): none reported by driller in 1966

11) Does land contain coal seams tributary to active mine? no

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)

Clean well to TD with coil tubing using +/- 300 bbls fresh water. Perform acid stimulation using approximately 8000 gals HCl acid and 200 bbls fresh water.

* Casing listed below are existing. No plans to remove, alter, or install new casing/tubing.

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS			FOOTAGE	INTERVALS	CEMENT
	Size	Grade	Weight per ft			
Conductor	13.375	H-40	48	39	39	12 sx
Fresh Water	9.625	H-40	32	1424	1424	530
Coal						
Intermediate						
Production	7.0	J-55/N-80	23.0	6048	6048	267
Tubing						
Liners						

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JUL 27 2016

Packers: Kind: _____
Sizes: _____
Depths Set _____

47075000 37W

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

5. Lease Serial No.
WVBLMA022923
6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

7. If Unit or CA/Agreement, Name and/or No.
WVES39982

1. Type of Well
 Oil Well Gas Well Other: INJECTION

8. Well Name and No.
7468

2. Name of Operator Contact: JAMES E AMOS
COLUMBIA GAS TRANSMISSION LLC-Mail: jamos@nisource.com

9. API Well No.
47-075-00037-00-S1

3a. Address
1700 MACCORKLE AVE SE
CHARLESTON, WV 25325-1273

3b. Phone No. (include area code)
Ph: 304-373-2412
Fx: 304-373-2438

10. Field and Pool, or Exploratory
GLADY

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
Tract US-52
38.718370 N Lat, 79.741480 W Lon

11. County or Parish, and State
POCAHONTAS COUNTY, WV

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input checked="" type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

Project to be performed between 8/1/16 - 11/1/16
Duration: +/- 30 days

Procedure:
1. Perform coiled tubing cleanout
2. Perform acid treatment

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AUG 07 2016

WV Department of
Environmental Protection

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #344767 verified by the BLM Well Information System
For COLUMBIA GAS TRANSMISSION LLC, sent to the Milwaukee
Committed to AFMS for processing by TREY MITCHELL on 07/15/2016 (16TAM0064SE)

Name (Printed/Typed) JAMES E AMOS

Title SENIOR ENGINEER

Signature (Electronic Submission)

Date 07/15/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By TREY MITCHELL

Title PETROLEUM ENGINEER

Date 07/15/2016

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office Milwaukee

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

09/16/2016

4707500037W

**WVES 39982
Glady 7468
Columbia Gas Transmission, LLC
July 15, 2016
Conditions of Approval**

1. Subsequent sundry required within 2 weeks of completing the workover

TAM 071516

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**WV Department of
Environmental Protection**

09/16/2016

X77-7468

4707500037W

U. S. A. Dept. of Interior Tr. #52
 Atlantic Seaboard Corporation
 Green Bank District, Pocahontas County, W.Va.
 Map Square - 164-83
 Commenced - 6-10-66
 Completed - 6-23-66
 Elevation - 3743.62' Gr.
 3760.62' RKB

DM

Size	CASING: Weight	Point	
13 3/8"		39'	Cemented with 12 sacks regular with 3% CaCl ₂
9 5/8"		1430'	Cemented with 430 cu. ft. "Litepoz" and 100 cu.ft. regular with 3% CaCl ₂
7"	23#	6048'	Cemented with 200 cu.ft. "Litepoz" and 500 gals. Latex
2 3/8"		6252'	

CONTRACTOR: Lohmann-Johnson

Surface	0	22
Sand	22	83
Shale	83	445
Sand	445	570
Shale	570	1130
Sand	1130	1456
Shale	1456	2132
Sand	2132	2300
Shale & Sand	2300	3345
Shale	3345	5397
Tully Lime	5397	5422
Marcellus Shale	5422	5797
Onondaga Lime	5797	5850
Chert	5850	6005
Needmore Shale	6005	6043
Oriskany Sand	6043	6245
Helderberg	6245	
Total Depth		6260'

Water 405'

Gas show 6199-6202'

All gas test 3/10 W 4" 291 M when drilling completed.

Test before acidized 3/10 W 4" 291 M
 Acidized 6-28-66 with 12,000 gallons 28% Hcl, 4,000 gallons overflush water.
 Test after acidized 88# spring gauge 4" 37,000 M

FINAL OPEN FLOW - 37,000 M - Oriskany R.P. 1530#

Shut in 6-30-66

Permit No. - Poca.-37

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WV Department of
Environmental Protection

09/16/2016

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-075-00037 County Pocahontas District Green Bank
Quad Sinks of Gandy Pad Name _____ Field/Pool Name Glady Storage
Farm name U.S. Forest Service Well Number 7468
Operator (as registered with the OOG) Columbia Gas Transmission, LLC
Address 1700 MacCorkle Ave SE City Charleston State WV Zip 25325-1273

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing _____ Easting _____
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) 3749 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)

Date permit issued 6/2/15 Date drilling commenced _____ Date drilling ceased _____
Date completion activities began _____ Date completion activities ceased _____
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft _____ Open mine(s) (Y/N) depths _____
Salt water depth(s) ft _____ Void(s) encountered (Y/N) depths _____
Coal depth(s) ft _____ Cavern(s) encountered (Y/N) depths _____
Is coal being mined in area (Y/N) _____

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JUL 27 2015 Reviewed by:

WV Department of Environmental Protection 09/16/2016

WR-35
Rev. 8/23/13

API 47-075 - 00037 Farm name U.S. Forest Service Well number 7468

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt. ft	Basket Depth(s)	Did cement circulate (Y N) * Provide details below*
Conductor							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							
Packer type and depth set							

Comment Details No existing casing was altered and no additional casing installed during permitted well work.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) _____ Loggers TD (ft) _____
Deepest formation penetrated _____ Plug back to (ft) _____
Plug back procedure _____

Kick off depth (ft) _____

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

4707500037w

Glady 7468

Date well work commenced: 7/16/15

Date well work completed: 9/14/15

Work Performed

Killed well. Pulled tubing. Ran pipe inspection and cement bond logs. Installed new wellhead. Performed coil tubing clean-out and acid stimulation.

09/16/2016



 west virginia department of environmental protection

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

Earl Ray Tomblin, Governor
 Randy C. Huffman, Cabinet Secretary
 www.dep.wv.gov

June 02, 2015

WELL WORK PERMIT

Re-Work

This permit, API Well Number: 47-7500037, issued to COLUMBIA GAS TRANSMISSION, LLC, 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 all 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 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.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-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) 926-0499 ext. 1654.


 James Martin
 Chief

Operator's Well No: GLADY 7468
 Farm Name: U.S. FOREST SERVICE
 API Well Number: 47- 7500037
 Permit Type: Re-Work
 Date Issued: 06/02 2015

Promoting a healthy environment.

09/16/2016

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6, Section 8(d)
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:

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
US Dept of Interior	Columbia Gas Transmission, LLC	Storage Lease 1090700-000	not recorded

**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:
By: Its:

Columbia Gas Transmission, LLC
 James E. Amos
 Senior Engineer

[Signature]

Office of Oil and Gas

JUL 27 2016

WV Department of
Environmental Protection

WW-2B1
(5-12)

Well No. Glady 7468

West Virginia Department of Environmental Protection
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing. The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore, if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

Be advised, you have the right to sample and analyze any water supply at your own expense.

Listed below is the laboratory chosen by operator to perform analysis, and contactor chosen to collect sample.

Certified Laboratory Name _____
Sampling Contractor _____

Well Operator Not applicable - existing underground natural gas storage well.

Address _____

Telephone _____

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

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Office of Oil and Gas

JUL 27 2016

WV Department of
Environmental Protection
09/16/2016

WW-2A
(Rev. 6-14)

1.) Date: 7/15/16
2.) Operator's Well Number Gladv 7468
State 47- County 075 Permit 00037
3.) API Well No.: 47- 075 - 00037

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

4) Surface Owner(s) to be served: (a) Name US Dept of Interior (BLM)
Address 626 East Wisconsin Ave Suite Milwaukee, WI 53202-4617
(b) Name _____ Address _____
(c) Name _____ Address _____
5) (a) Coal Operator Name _____ Address _____
(b) Coal Owner(s) with Declaration Name not operated Address _____
(c) Coal Lessee with Declaration Name _____ Address _____
6) Inspector Danny Mullins
Address 220 Jack Acres Rd Buckhannon, WV 26201
Telephone 304-932-6844

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

OR Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas
X Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)

I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through ___ on the above named parties by:

- _____ Personal Service (Affidavit attached)
- _____ Certified Mail (Postmarked postal receipt attached)
- X Publication (Notice of Publication attached) via approved BLM Sundry Notice

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

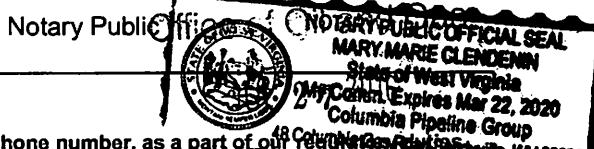
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator: Columbia Gas Transmission, LLC
By: James E. Amos *[Signature]*
Its: Senior Engineer
Address: 48 Columbia Gas Rd Sandville, WV 25275
Telephone: 304-373-2412
Email: jamos@cdq.com

Subscribed and sworn before me this 18th day of July, 2020, Columbia Gas Transmission

[Signature: Mary Marie Clendenen]
My Commission Expires 3/22/2020
Oil and Gas Privacy Notice



47 075000 37W



Well 7468
tmitchell to: jamos
Cc: jwood

07/15/2016 08:50 AM

History: This message has been replied to.

2 attachments



WVES 39982 7468 workover 071516.docx



EC344767.pdf

The sundry for Acidize you submitted has been approved by the BLM. Your original Electronic Commerce (EC) transmission was assigned ID 344767. Please be sure to open and save all attachments to this message, since they contain important information.

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AUG 07 2016
WV Department of
Environmental Protection
09/16/2016

DM

WW-9
(5/16)

API Number 47 - 075 - 00037
Operator's Well No. Glady 7468

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Columbia Gas Transmission, LLC OP Code 307032

Watershed (HUC 10) Snorting Lick Run of the Greenbrier River Quadrangle Sinks of Gandy

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: _____

Will a synthetic liner be used in the pit? Yes No If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection (UIC Permit Number 34-009-23821, 34-009-23823, 34-009-23824, 34-119-28776)
- 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 - steel piping connecting wellhead and tank(s)

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

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

Additives to be used in drilling medium? NaCl, biocide, polymer, starch, calcium carbonate, surfactant (CTCO), HCl acid (stimulation)

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. N/A

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

-Landfill or offsite name/permit number? if needed: Pinegrove Landfill - Amanda, OH

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 April 1, 2016, 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.

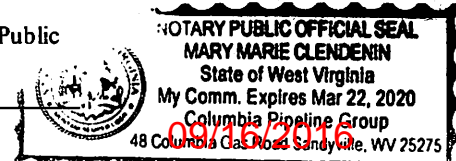
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is 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 *James E. Amos*
Company Official (Typed Name) James E. Amos
Company Official Title Senior Well Services Engineer

Subscribed and sworn before me this 18th day of July, 2020

Mary Marie Clendenin
My commission expires 3/22/2020

Notary Public



Proposed Revegetation Treatment: Acres Disturbed < 0.5 Prevegetation pH 6

Lime pellets @ 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-10

Fertilizer amount 500 lbs/acre

Mulch weed free straw @ 2 Tons/acre

*** Note that fertilizer, lime, mulch, seed mix, and application rates determined by US Forestry Service.**

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Winter Wheat (6/15 - 11/15)	40	Durana Clover (pre-inoculated)	2
Spring Wheat (2/15 - 6/15)	40	Mammoth Red Clover (pre-inoculated)	5
Alfalfa (pre-inoculated)	10	Chicory	3

* total seeding will be @ 60 lb/acre

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, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: _____

Comments: _____

Title: 005 Inspector Danny Miller

Date: 7-20-16

Field Reviewed? Yes No

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JUL 27 2016

WV Department of
Environmental Protection

09/16/2016

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

DM

Operator Name: Columbia Gas Transmission, LLC
Watershed (HUC 10): Snorting Lick Run of the Greenbrier River Quad: Sinks of Gandy
Farm Name: US Dept of Interior (managed by BLM and US Forest Service)

- 1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

No fertilizer will be stored on site. Small quantities of fuel, oil, and lubrications will be stored on site, but located within secondary containment.
Spills from construction equipment and well treatment fluids is the only source of contaminate to groundwater.

- 2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

All construction and well servicing equipment will be monitored and inspected daily for leaks. Fluid pumping well service equipment will have secondary containment under all leak paths. Spill kits will be on site.

- 3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

East Fork of Glady Fork is approximately 1800 ft to the NE. Snorting Lick Run is approximately 1950 ft to the SW.
The closest Well Head Protection Area is 2 miles (USFS Middle Mountain Cabin). Refer to enclosed assessment letter dated 7/15/16 from Department of Health and Human Resources, Source Water Assessment and Protection department.

- 4. Summarize all activities at your facility that are already regulated for groundwater protection.

N/A

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WV Department of
Environmental Protection
09/16/2016

- 5. Discuss any existing groundwater quality data for your facility or an adjacent property.

N/A

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

No waste material will be used for deicing or fill material on the property.

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

During routine tailgate meetings groundwater protection will be a topic of discussion.

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

No fertilizer will be stored on site. Small quantities of fuel, oil, and lubrications will be stored on site, but located within secondary containment. Construction and well servicing equipment will be monitored and inspected daily for leaks or spill.

Signature: *James E. Am*

Date: 7/18/16



STATE OF WEST VIRGINIA
DEPARTMENT OF HEALTH AND HUMAN RESOURCES
BUREAU FOR PUBLIC HEALTH
OFFICE OF ENVIRONMENTAL HEALTH SERVICES

Earl Ray Tomblin
Governor

Karen L. Bowling
Cabinet Secretary

July 15, 2016

William Timmermeyer
CESSWI
Natural Resource Permitting Principal
TransCanada | Columbia Pipeline Group
1700 MacCorkle Ave., SE
Charleston, WV 25314

Re: SWAP Information Request
Storage Well -38.718347,-79.741161
Pocahontas County, West Virginia

Dear Mr. Timmermeyer:

In response to the informational request dated July 15, 2016 concerning the closest Protection Areas to the indicated storage well, we have found the following:

Wellhead Protection Area	WV9942049	USFS Middle Mountain Cabin	2 miles
Zone of Critical Concern	WV3304202	Town of Beverly	6 miles
Zone of Peripheral Concern	WV3304204	Town of Harman	5 miles

Your location is 85.42 river miles upstream from the System Denmark Correctional Center.

We do not have information regarding private drinking wells in the area. I suggest you contact the county health department for this information.

I hope the information provided helps you with the completion of your project. If you have any questions, please do not hesitate to contact me at (304) 356-4309.

Sincerely,

Lisa A. King, GIS Administrator
Source Water Assessment and Protection

CC: William J. Toomey

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Office of Oil and Gas

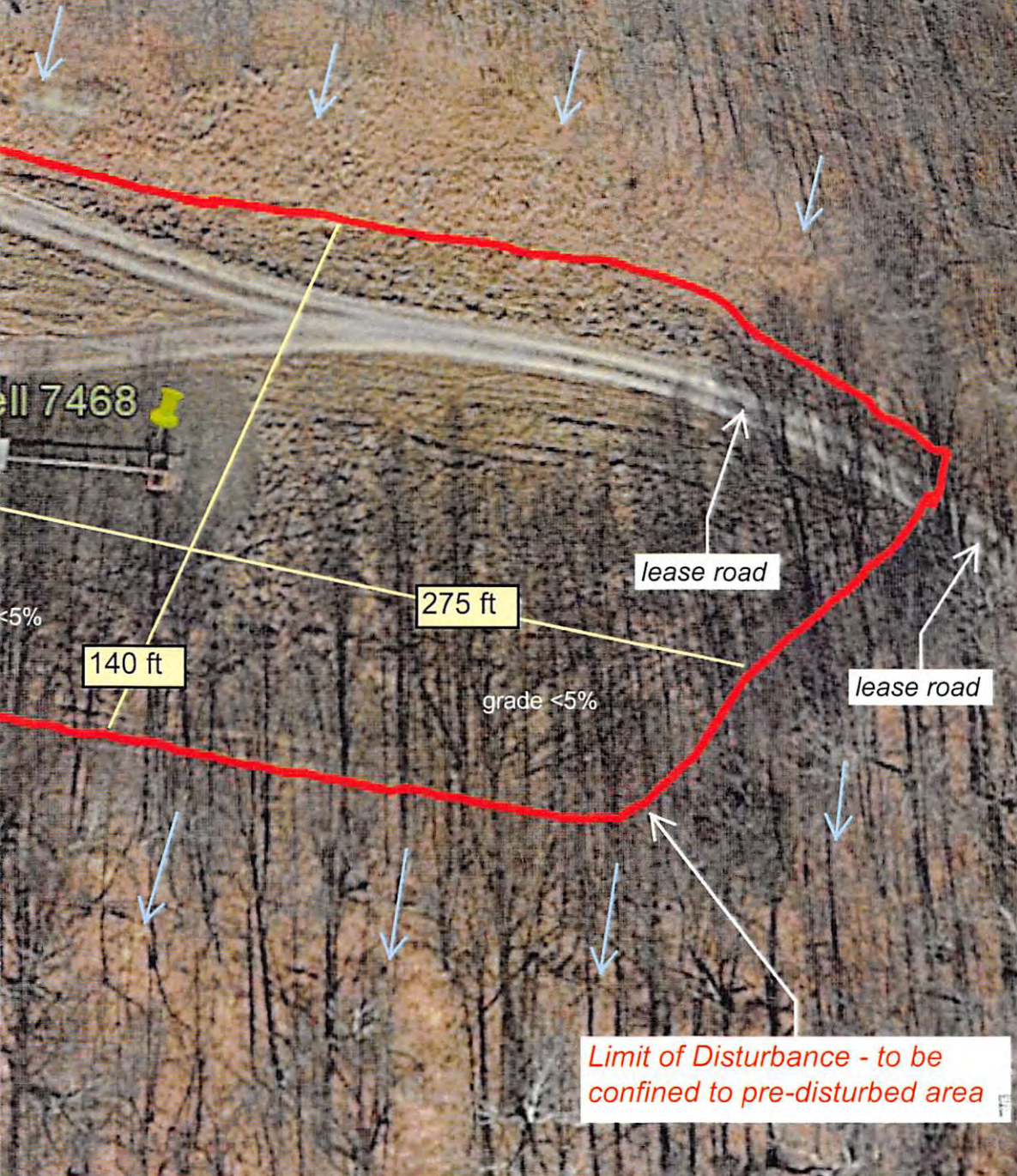
JUL 27 2016

WV DEP Reclamation Plan - Site Detail

Glady 7468 Stimulation

DM

- Existing road surface and culverts to be maintained
- BMPs to be utilized per WV DEP guidelines
- Requirements by US Forest Service to be implemented



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80WV Department of Environmental Protection

09/16/2016





Google earth

feet
meters

09/16/2016

- Existing
- BMPs
- Requi

Well Site

Glady - 07468

US Forest Service Rd 35A

Driving Directions
From Columbia's Glady compressor station
south on CR 22
0.3 mi continue on FS 422
2.5 mi turn right on Middle Mt. Rd
4.3 mi turn right on FS 35
0.6 mi turn right on FS 35A
0.4 mi to well

Lat: 38.718326 Long: -79.741117

09/16/2016

WV DEP Reclamation Plan - Overview

Glady 7468 Stimulation

DM

4707500037W

g road surface and culverts to be maintained
to be utilized per WV DEP guidelines
ements by US Forest Service to be implemented

Middle Mountain Rd

US Forest Service Rd 35



1000 ft

VED
and Gas

2016

tment of
Protection

09/16/2016

4707500037W



SINKS OF GANDY QUADRANGLE
WEST VIRGINIA
TOPOGRAPHIC SERIES

(BEVERLY EAST)

(WHITMER)

079° 45' 59.06" W

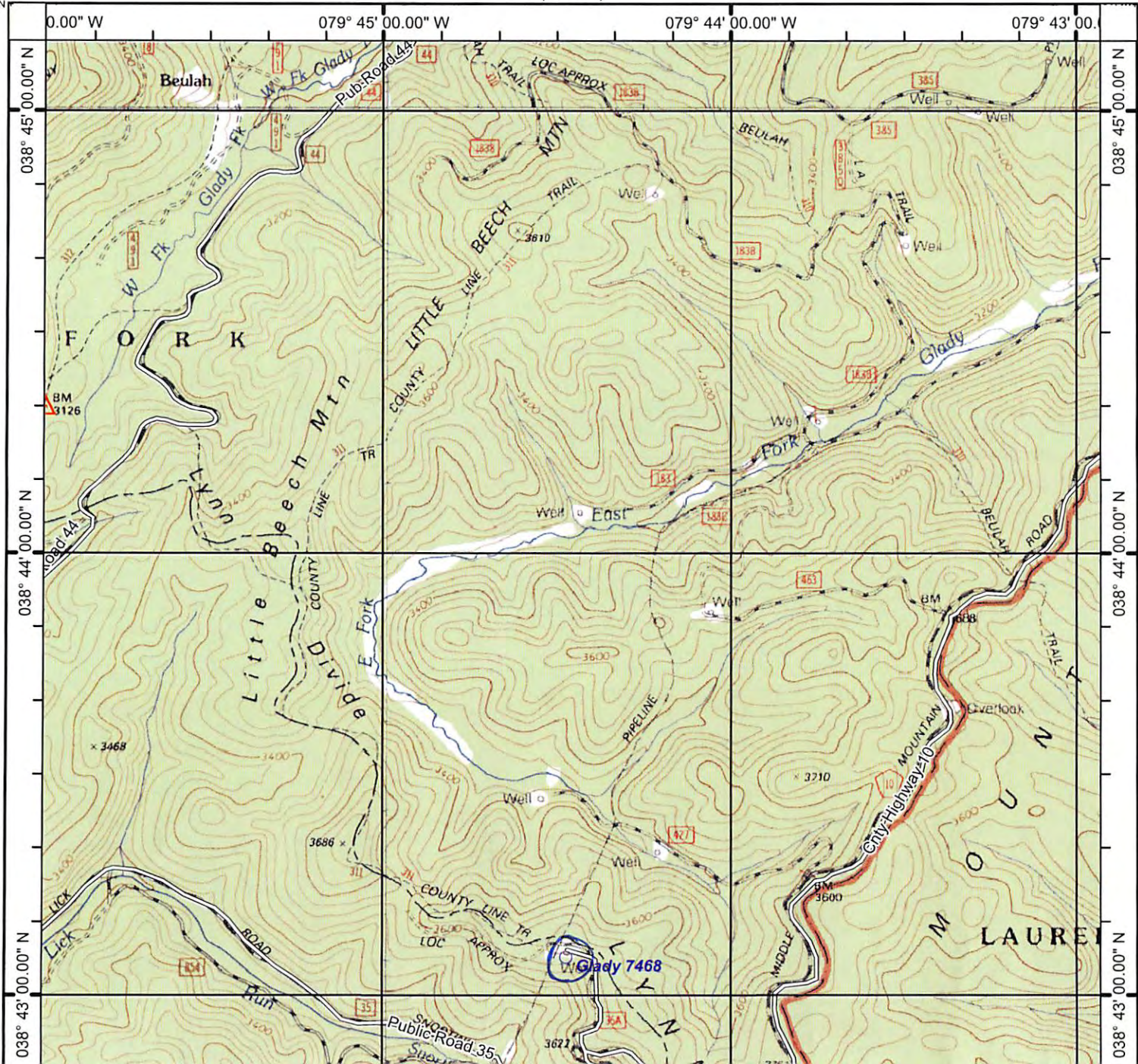
(GLADY)

079° 42' 55.50" W

038° 45' 09.79" N

038° 45' 09.79" N

DM



0.00" W

079° 45' 00.00" W

079° 44' 00.00" W

079° 43' 00.00" W

038° 45' 00.00" N

038° 45' 00.00" N

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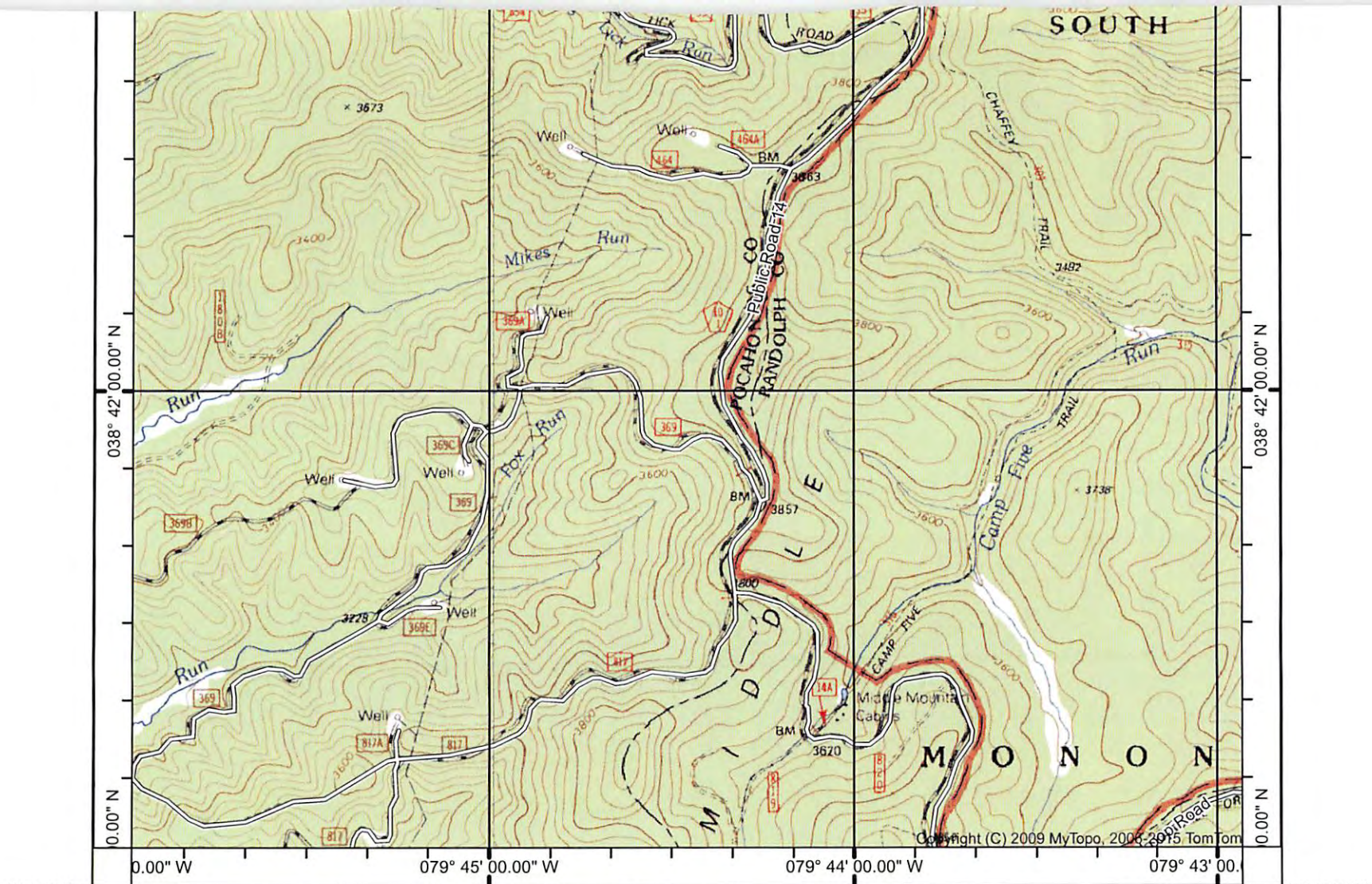
038° 45' 00.00" N

038° 45' 00.00" N

038° 45' 00.00" N

(WILDELL)

(SPRUCE KNOB)



038° 41' 00.67" N
079° 45' 59.06" W
038° 42' 00.00" N
079° 45' 00.00" W
038° 42' 00.00" N
079° 44' 00.00" W
038° 41' 00.67" N
079° 43' 00.00" W
038° 41' 00.67" N
079° 42' 55.50" W

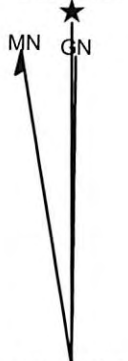
(DURBIN)

Produced by MyTopo Terrain Navigator
Topography based on USGS 1:24,000 Maps

North American 1983 Datum (NAD83)
Lambert Conformal Conic Projection

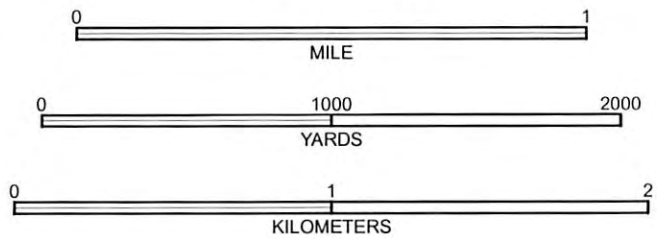
To place on the predicted North American 1927 move the
projection lines 13M N and 19M E

Declination



GN 0.78° E
MN 9.09° W

(THORNWOOD)
SCALE 1:24000



CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM 1929

Printed: Tue Jan 06, 2015
Copyright (C) 2009 MyTopo, 2004-2005 TomTom

(SNOWY MT)

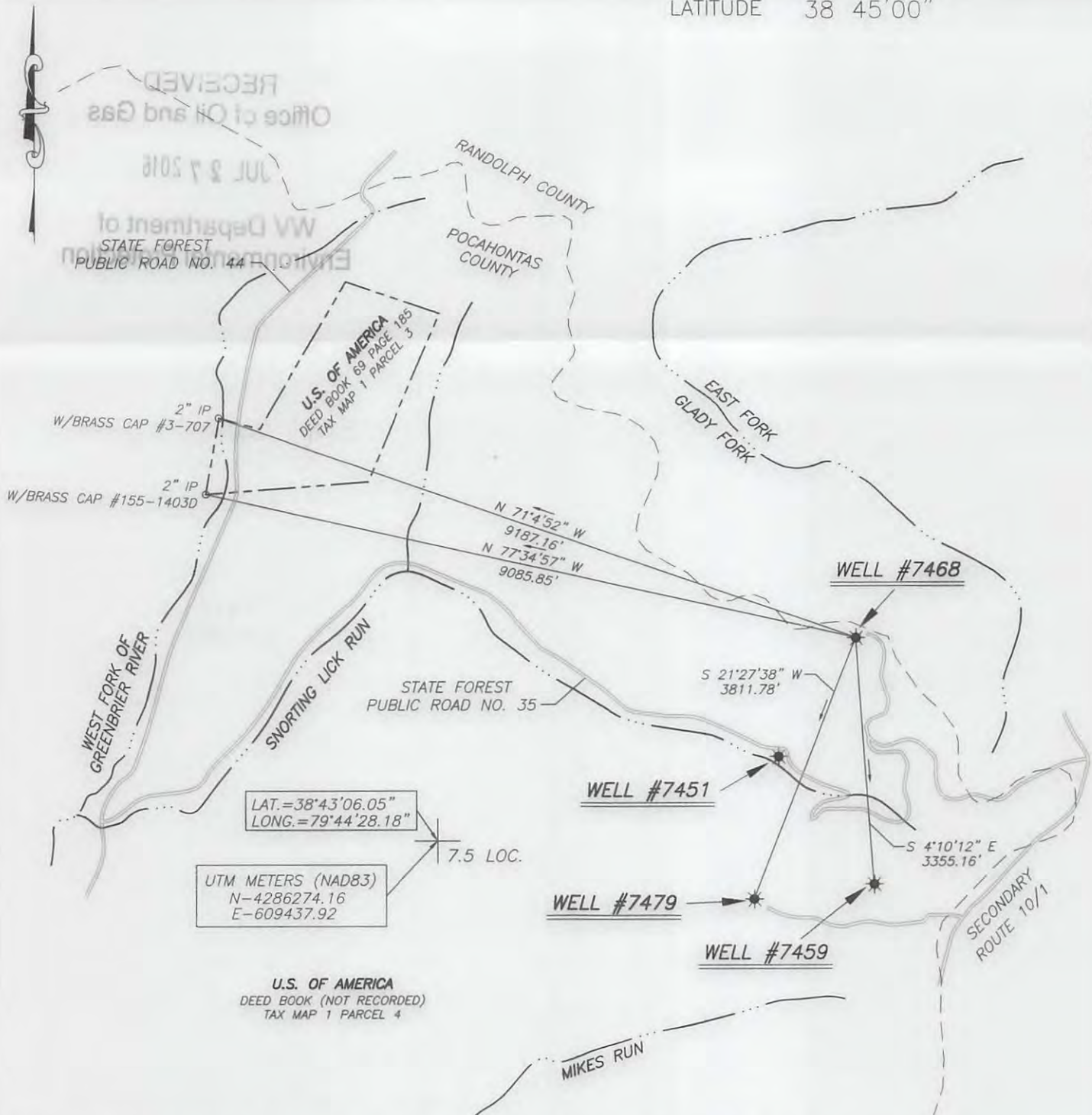
SINKS OF GANDY, WV
1998

9,440'

LATITUDE 38 45'00"

LONGITUDE 79 42'30"

11,550'



LAT.=38°43'06.05"
LONG.=79°44'28.18"

UTM METERS (NAD83)
N-4286274.16
E-609437.92

U.S. OF AMERICA
DEED BOOK (NOT RECORDED)
TAX MAP 1 PARCEL 4

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE No. 15-100-002
DRAWING No. 15-100-002
SCALE 1"=2000'
MINIMUM DEGREE OF ACCURACY 1:200
PROVEN SOURCE OF ELEVATION TRIMBLE PRO XH GPS UNIT

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.
(SIGNED) [Signature]
RICHARD J. PRINE PS #851



STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
NITRO, WV

DATE MARCH 20 20 15
OPERATOR'S WELL No. 7468
API WELL No. 47 075 - 00037 W

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

LOCATION: ELEVATION 3749 WATER SHED SNORTING LICK RUN
DISTRICT GREENBANK COUNTY POCAHONTAS
QUADRANGLE SINKS OF GANDY

SURFACE OWNER U.S. DEPT. OF INTERIOR ACREAGE 6,595
OIL & GAS ROYALTY OWNER U.S. DEPT. OF INTERIOR LEASE ACREAGE 1,852
LEASE No. 90700

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) ACID TREATMENT

PLUG AND ABANDON CLEAN OUT AND REPLUG

TARGET FORMATION CHERT & ORISKANY ESTIMATED DEPTH 6260
WELL OPERATOR COLUMBIA GAS TRANSMISSION, LLC DESIGNATED AGENT PAUL AMICK
ADDRESS PO BOX 1273, CHARLESTON, WV 25325-1273 ADDRESS P.O. BOX 1273, CHARLESTON W.V. 25325-1273

09/16/2016

FORM IV-6 (8-78)