



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

Wednesday, June 13, 2018
WELL WORK PERMIT
Vertical / Re-Work

COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVENUE SE

CHARLESTON, WV 25314

Re: Permit approval for GLADY 7455
47-075-00009-00-00

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

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

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

James A. Martin
Chief

A blue ink signature of James A. Martin, Chief, is written over the text.

Operator's Well Number:
Farm Name: US DEPT. OF INTERIOR
U.S. WELL NUMBER: 47-075-00009-00-00
Vertical Re-Work
Date Issued: 6/13/2018

Promoting a healthy environment.

06/15/2018

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 on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

ck# 002369
\$900⁰⁰ Deep Well

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 Greenbank Sinks of Gandy
Operator ID County District Quadrangle

2) Operator's Well Number: Glady 7455 3) Elevation: 3284.6 ft

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

5) Proposed Target Formation(s): Chert and Oriskany Proposed Target Depth: 5509 MD ft

6) Proposed Total Depth: 5941 MD ft (existing) Feet Formation at Proposed Total Depth: Helderberg

7) Approximate fresh water strata depths: 73 ft (reported by driller in 1958)

8) Approximate salt water depths: none reported by driller in 1958

9) Approximate coal seam depths: none reported by driller in 1958

10) Approximate void depths, (coal, Karst, other): none reported by driller in 1958

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 +/- 400 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	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	13-3/8		48	33	33	no record
Fresh Water	10-3/4		40.5	1056	0 - 1035	250 sx
Coal						
Intermediate						
Production	7	J-55/N-80	23	5895	5895	485 cu ft
Tubing						Office of Oil and Gas
Liners						MAY 09 2018

DM

Packers: Kind: _____
Sizes: _____
Depths Set _____

WV Department of
Environmental Protection

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

4707500009
FORM APPROVED
OMB NO. 1004-0137

Expires: January 31, 2018

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.
WVBLMA023190A

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2

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.
7455

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

9. API Well No.
47-075-00009-00-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 Area
GLADY

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Tract US-52
38.692180 N Lat, 79.753070 W Lon

11. County or Parish, State
POCAHONTAS COUNTY, WV

12. CHECK THE 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"/> Hydraulic Fracturing	<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 must 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 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Estimated start date: 4/1/18
Estimated completion date: 5/1/18

Scope of Work
Perform coiled tubing cleanout and acid treatment. Place well back in service.

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

**Electronic Submission #404756 verified by the BLM Well Information System
For COLUMBIA GAS TRANSMISSION LLC, sent to the Milwaukee
Committed to AFMSS for processing by TREY MITCHELL on 02/22/2018 (18TAM0022SE)**

Name (Printed/Typed) JAMES E AMOS	Title SENIOR ENGINEER
Signature (Electronic Submission)	Date 02/16/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>TREY MITCHELL</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>02/23/2018</u>
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 <u>Milwaukee</u>

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.

(Instructions on page 2)

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

06/15/2018

470750009W

Revisions to Operator-Submitted EC Data for Sundry Notice #404756

	Operator Submitted	BLM Revised (AFMSS)
Sundry Type:	ACID NOI	ACID NOI
Lease:	WVBLMA023190A	WVBLMA023190A
Agreement:	WVES39982	WVES39982 (WVES39982)
Operator:	COLUMBIA GAS TRANSMISSION, LLC 1700 MACCORKLE AVE SE CHARLESTON, WV 25325-1273 Ph: 304-357-2000	COLUMBIA GAS TRANSMISSION LLC 1700 MACCORKLE AVE SE CHARLESTON, WV 25325-1273 Ph: 304.373.2412 Fx: 304-373-2438
Admin Contact:	JAMES E AMOS SENIOR WELL SERVICES ENGINEER E-Mail: james_amos@transcanada.com Cell: 304-483-0073 Ph: 304-373-2412 Fx: 304-373-2438	JAMES E AMOS SENIOR ENGINEER E-Mail: jamos@nisource.com Cell: 304-483-0073 Ph: 304-373-2412 Fx: 304-373-2438
Tech Contact:	JAMES E AMOS SENIOR WELL SERVICES ENGINEER E-Mail: james_amos@transcanada.com Cell: 304-483-0073 Ph: 304-373-2412 Fx: 304-373-2438	JAMES E AMOS SENIOR ENGINEER E-Mail: jamos@nisource.com Cell: 304-483-0073 Ph: 304-373-2412 Fx: 304-373-2438
Location:		
State:	WV	WV
County:	POCAHONTAS	POCAHONTAS
Field/Pool:	GLADY STORAGE	GLADY
Well/Facility:	GLADY 7455 7455 38.692200 N Lat, 79.752800 W Lon	7455 Tract US-52 38.692180 N Lat, 79.753070 W Lon

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4707500009W

WR-35
Rev (8-10)

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

DATE: _____
API #: 47-075-00009

Farm name: US Dept of Interior Operator Well No.: 7455

LOCATION: Elevation: 3285 Quadrangle: Wildell & Sinks of Gandy

District: Greenbank County: Pocahontas
Latitude: 5859 Feet South of 38 Deg. 42 Min. 30 Sec.
Longitude 792 Feet West of 79 Deg. 45 Min. 00 Sec.

Company:

Address:	Casing & Tubing	Used in drilling	Left in well	Cement fill up Cu. Ft.
Columbia Gas Transmission, LLC 1700 MacCorkle Ave SE Charleston, WV 25325	13-3/8	33	33	none - sanded
Agent: Paul Amick	10-3/4	1056	1035	250 sx
Inspector: Joe McCourt	7	5895	5895	821
Date Permit Issued: 5/24/2011				
Date Well Work Commenced: 6/21/2011				
Date Well Work Completed: 11/21/2011				
Verbal Plugging: NA				
Date Permission granted on:				
Rotary X Cable Rig X				
Total Vertical Depth (ft):				
Total Measured Depth (ft): 5895				
Fresh Water Depth (ft.): 73				
Salt Water Depth (ft.): none reported				
Is coal being mined in area (N/Y)? N				
Coal Depths (ft.): none				
Void(s) encountered (N/Y) Depth(s) N				

OPEN FLOW DATA (If more than two producing formations please include additional data on separate sheet)

Producing formation Chert Pay zone depth (ft) 5509 - 5558

Gas: Initial open flow NA MCF/d Oil: Initial open flow NA Bbl/d

Final open flow commingled MCF/d Final open flow commingled Bbl/d

Time of open flow between initial and final tests NA Hours

Static rock Pressure 1780 psig (surface pressure) after 24 Hours

Second producing formation Oriskany Pay zone depth (ft) 5650 - 5834

Gas: Initial open flow NA MCF/d Oil: Initial open flow NA Bbl/d

Final open flow 62400 MCF/d Final open flow 0 Bbl/d

Time of open flow between initial and final tests NA Hours

Static rock Pressure 1780 psig (surface pressure) after 24 Hours

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I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.


Signature

11/30/11
Date

06/15/2018

Were core samples taken? Yes _____ No NA

Were cuttings caught during drilling? Yes _____ No NA

Were N Electrical, N Mechanical, N or Geophysical logs recorded on this well?
Y/N Y/N Y/N

NOTE: IN THE AREA BELOW PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF THE TOPS AND BOTTOMS OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE FROM SURFACE TO TOTAL DEPTH.

Perforated Intervals, Fracturing, or Stimulating:

Planned permitted stimulation was cancelled. Tubing was pulled, pipe inspection log ran, and a new wellhead installed.

Formations Encountered: _____ Top Depth _____ / _____ Bottom Depth
Surface: _____

Not applicable - rework.

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Record



4707500009W

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

Quadrangle Durbin

Permit No. POCA-9

WELL RECORD

Oil or Gas Well Gas

Company Columbian Carbon Company
 Address Box 873, Charleston 23, W. Va.
 Farm United States of America Acres 1828.67
 Location (waters) Fox Run
 Well No. I-1 GW-1271 Elev. 3314.85'
 District Greenbank County Pocahontas
 The surface of tract is owned in fee by Director, Bureau of Land Management
Interior Building Address Washington, D. C.
 Mineral rights are owned by Same
 Address _____
 Drilling commenced 1-10-58
 Drilling completed 5-21-58
 Date Shot not shot From _____ To _____
 With _____
 Open Flow 20/10ths Water in 3 Inch
 _____/10ths Merc. in. _____ Inch
 Volume 424,000 Cu. Ft.
 Rock Pressure 1550 lbs. 36 hrs.
 Oil _____ bbls., 1st 24 hrs.
 WELL ACIDIZED not acidized
 WELL FRACTURED See reverse side.

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer <u>Baker</u>
13 3/8" 48#	32'6"	32'6"	Full Bore Packer
10 3/4" 40.5#	1056'1"	1056'1"	Size of <u>7" x 3"</u>
8 1/4"			
6 3/8" 7" 23#	5941'4"	5941'4"	Depth set <u>5029'</u>
5 3/16"			
3 1/2" 9.2#	5094'3"	5094'3"	Perf. top _____
2			Perf. bottom _____
Liners Used			Perf. top _____
			Perf. bottom _____

CASING CEMENTED _____ SIZE _____ No. Ft. _____ Date _____
See reverse side.
 COAL WAS ENCOUNTERED AT None FEET _____ INCHES _____
 FEET _____ INCHES FEET _____ INCHES
 FEET _____ INCHES FEET _____ INCHES

RESULT AFTER TREATMENT 55# on Spring Gauge thru 3" - 14,276,000 cubic feet
 ROCK PRESSURE AFTER TREATMENT 1457# Dead Weight - 51 hours
 Fresh Water 73' Feet _____ Salt Water _____ Feet _____

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Top Soil			0	15			
Gritty Lime			15	210	Fresh Water	73'	2-13" bailers/h
Sand			210	290			
Gritty Lime			290	526			
Sand			526	649			
Gritty Lime			649	1048	1035' DLM - 1040' SLM		
Slate			1048	1068			
Gritty Lime			1068	1082			
Slate & Shells			1082	1292			
Lime & Shells			1292	2381			
Gray Shale			2381	2741			
Lime & Shells			2741	3210			
Lime & Shale			3210	3460			
Shale			3460	3765			
Lime			3765	4065			
Shale & Lime			4065	4567			
Shale			4567	4735			
Shale & Lime			4735	4936			
Shale			4936	5240			
Black Shale			5240	5425			
Shale & Lime			5425	5509			
Chert			5509	5558			
Shale			5558	5650			
Oriskany			5650	5834			
Lime			5834	5908'	Schlumberger Meas.		
				5895'	Landing Flange Meas.		
Total depth				5908'	Schlumberger Meas. -		
				5895'	Landing Flange Meas.		



Office of Oil and Gas

MAY 09 2018

WV Department of Environmental Protection

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(over)

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Cable tools 0 - 2891'							
Rotary tools 2891 - 5895'							
<u>Casing Record</u>							
2-27-58 - Ran 10 3/4" casing at 1040' SLM on shoe. Cemented with 250 sacks cement. Circulation but no returns.							
5-21-58 - Ran 7" 23# casing at 5895' on shoe and differential fill-up collar and 5 centralizers 1 - bottom and 1 - top of Sand. 1 - bottom, 1 - Middle-1 - top of Chert. Ran 225 sacks cement.							
<u>Perforation Record - 7" casing.</u>							
5801-08	29	4	shots per foot				
5780-82'	9	"	"	"	"		
5773-78'	21	"	"	"	"		
5745-72'	109	"	"	"	"		
5711-25'	14	"	"	"	"		
5699-5703'	17	"	"	"	"		
5671-73'	9	"	"	"	"		
5665-67'	9	"	"	"	"		
5651-53'	9	"	"	"	"		
5528-44'	65	"	"	"	"		Chert
Total of 334' Shots							
<u>Fracturing Record - 6-11-58</u>							
After perforating gas gauged 424M. Ran 3 1/2" tubing and set packer at 5029'. 36 hour pressure 1550#. Pumped in 2 barrels kerosene, 2000 gallons MCA, 25 barrels kerosene to load hole. Displaced 12 barrels acid at 1500# and 36 barrels acid at 1400#. 3400# Maximum pressure - Pump time 4 minutes. 493 gallons per minute Injection rate. Pumped in 1200 gallons kerosene and 12,800# Sand. Maximum pressure 3400#. Pressure at end of gel 2700#. Injection rate 1,000 gallons per minute. Flushed with 105 barrels kerosene - started flush at 2700# - end of flush 1700#. Used 400 perf balls. Final open flow 55# on Spring Gauge thru 3 1/2" tubing - 14,276MCF. 51 hour pressure 1457#.							

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Office of Oil and Gas
MAY 09 2018
WV Department of
Environmental Protection

06/15/2018

Date June 27, 19 58

APPROVED Columbian Carbon Company, Owner

By R. B. Anderson, General Manager
(Title)

470750000gw

WW-2A
(Rev. 6-14)

1.) Date: 4/10/2018
2.) Operator's Well Number Gladv 7455
State County Permit
3.) API Well No.: 47- 075 - 00009

**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: 5) (a) Coal Operator
(a) Name US Dept of Interior (US Forests) Name not operated
Address 626 East Wisconsin Ave Suite Address _____
Milwaukee, WI 53202-4617
(b) Name _____ (b) Coal Owner(s) with Declaration
Address _____ Name _____
_____ Address _____
(c) Name _____ Name _____
Address _____ Address _____
6) Inspector Danny Mullins (c) Coal Lessee with Declaration
Address 220 Jack Acres Rd Name _____
Buckhannon, WV 26201 Address _____
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

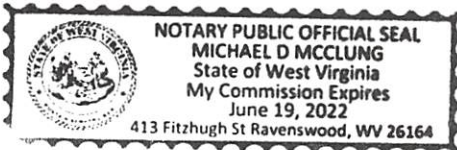
APPROVAL EMAIL FROM US FOREST SERV

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
Its: Senior Engineer
Address: 48 Columbia Gas Rd
Sandville, WV 25275
Telephone: 304-373-2412
Email: james_amos@transcanada.com



Subscribed and sworn before me this 13th day of April, 2018

Michael D McClung
My Commission Expires 6/19/2022

Notary Public

RECEIVED
Office of Oil and Gas
MAY 09 2018
WV Department of
Environmental Protection

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a 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

06/15/2018

WW-9
(5/16)

4707500009W

API Number 47 - 075 - 00009
Operator's Well No. Gladly 7455

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) Fox Run of the West Fork of Greenbrier River Quadrangle Wildell, WV

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 34-119-28776, 34-167-23862)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain Appalachian Water Services, Masontown, PA (permit 2608201))

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. N/A - no drilling planned

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

Additives to be used in drilling medium? No drilling planned; surfactant, HCl acid, iron control (for clean-out and stimulation)

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. N/A - no drilling planned

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

-Landfill or offsite name/permit number? if needed: Rumpke Beech Hollow Landfill - Wellston, 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.

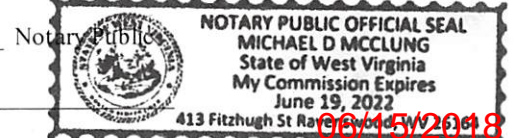
Company Official Signature [Signature]
Company Official (Typed Name) James E. Amos
Company Official Title Senior Well Services Engineer

MAY 09 2018

WV Department of
Environmental Protection

Subscribed and sworn before me this 13th day of April, 2018

My commission expires 6/19/2022



4707500009W

Operator's Well No. Glady 7455

Proposed Revegetation Treatment: Acres Disturbed < 1.0 Prevegetation pH 6

Lime pellets @ 3 Tons/acre or to correct to pH 7

Fertilizer type 10-20-10

Fertilizer amount 500 lbs/acre

Mulch weed free straw @ 1 Tons/acre

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

Seed Mixtures

Seed mixture prescribed by USFS

Seeding rate: 60 lbs/acre

Seed Type	lbs/acre
<u>Timothy @ 7</u>	
<u>Kentucky Bluegrass @ 7</u>	
<u>Winter Wheat (6/15-11/15) or Spring Wheat (2/15-6/15) @ 12</u>	
<u>Mammoth Red Clover (pre-inoculated) @ 5</u>	

Seed Type	lbs/acre
<u>Annual Rye (6/15-11/15) or Oats (2/15-6/15) @ 14</u>	
<u>Alfalfa (pre-inoculated) @ 10</u>	
<u>Durana Clover (pre-inoculated) @ 3</u>	
<u>Chicory @ 2</u>	

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: 006 Inspector 

Date: 4-18-18

Field Reviewed? () Yes () No

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

Operator Name: Columbia Gas Transmission, LLC
Watershed (HUC 10): Fox Run of the West Fork of Greenbrier River Quad: Wildell, WV
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.

No discharges planned. Fox Run is approximately 140 ft to the NE.

The closest Well Head Protection Area is 1 mile (PWSID WV9942049 - USFS Middle Mountain Cabins-HP). Refer to enclosed assessment letter dated 2/16/2018 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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5. Discuss any existing groundwater quality data for your facility or an adjacent property.



STATE OF WEST VIRGINIA
DEPARTMENT OF HEALTH AND HUMAN RESOURCES
Bureau for Public Health

Bill J. Crouch
Cabinet Secretary

Office of Environmental Health Services

Rahul Gupta, MD, MPH, MBA, FACP
Commissioner
State Health Officer

February 16, 2018

William Timmermeyer
TransCanada -Columbia Pipeline Group
1700 MacCorkle Ave., SE
Charleston, WV 25314

Re: WV DEP SWAP Info Request
Protection Areas for 8 wells
Randolph/Preston/Marshall Counties,

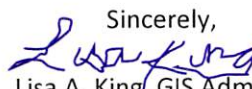
Dear Mr. Timmermeyer:

This is a response to the informational request dated February 15, 2018 concerning protection areas near eight wells.

Based on the current information, we have found the following:

Well	PA PWSID	PA Type	System Name	County	Note
Glady 7455	WV9942049	ZPC	USFS Middle Mountain Cabins HP	Randolph	Distance 1 mile, does not intersect any PA
Glady 7459					Out of WV State
Terra Alta South 7500	WV3303908	ZPC	Kingwood Water Board Primary	Preston	Intersects Protection Area
Victory B 2265	WV9925016	ZPC	Covestro (FKA Bayer Material)	Marshall	Intersects Protection Area
	WV3304803	ZPC	Sistersville Municipal Water	Marshall	Intersects Protection Area
Victory B 2345	WV9925016	ZPC	Covestro (FKA Bayer Material)	Marshall	Intersects Protection Area
	WV3304803	ZPC	Sistersville Municipal Water	Marshall	Intersects Protection Area
Victory B 2589	WV9925016	ZPC	Covestro (FKA Bayer Material)	Marshall	Intersects Protection Area
Victory B 3522	WV9925016	ZPC	Covestro (FKA Bayer Material)	Marshall	Intersects Protection Area
Victory B 4502	WV9925016	ZPC	Covestro (FKA Bayer Material)	Marshall	Distance 250 feet, does not intersect any PA

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

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CC: William J. Toome

WV Department of
Environmental Protection

N/A

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

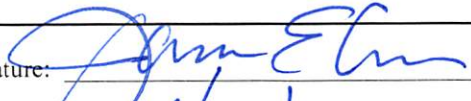
No waste material will be used for deicing or fill material on the property.

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.

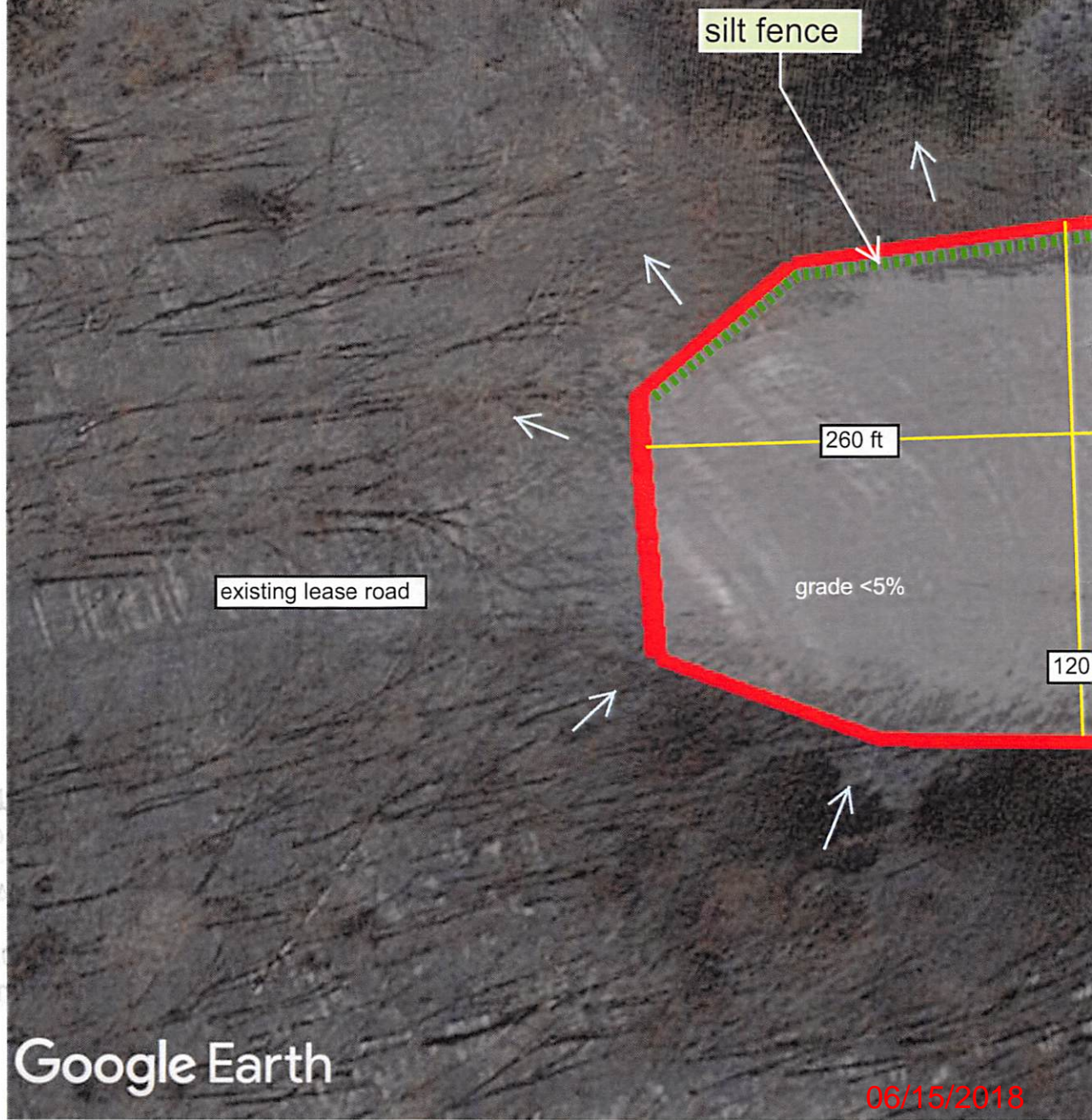
Signature: 
Date: 4/13/18

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WV DEP Reclamation Plan - Siting Detail

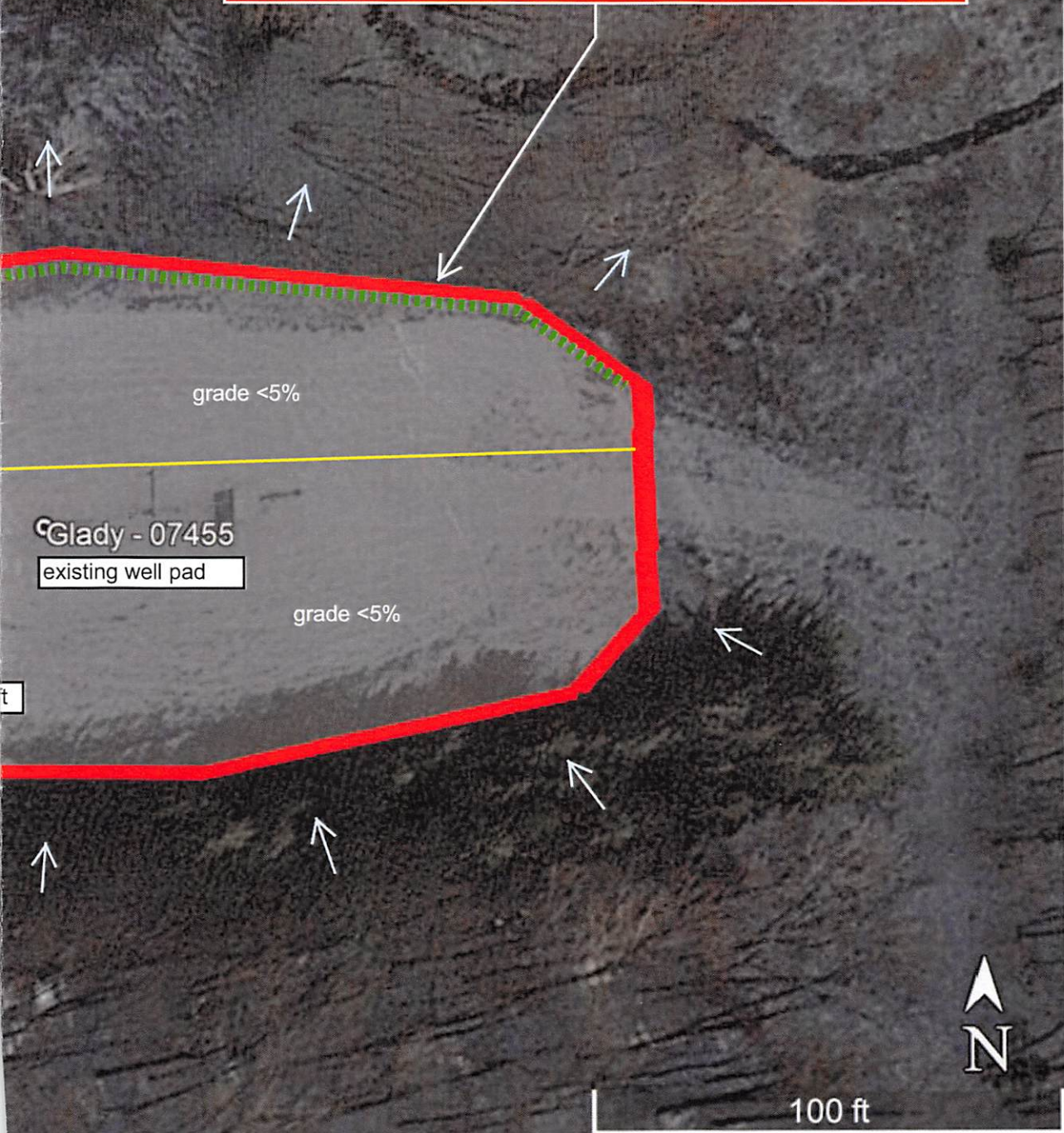
Glady well 7455

- 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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Limits of Disturbance
- to be confined to predisturbed area
- minor grading and application of crush limestone to provide stabilization for equipment



WV DEP Reclamation Plan - Access Road

Glady storage well 7455

Bemis

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

Wildell

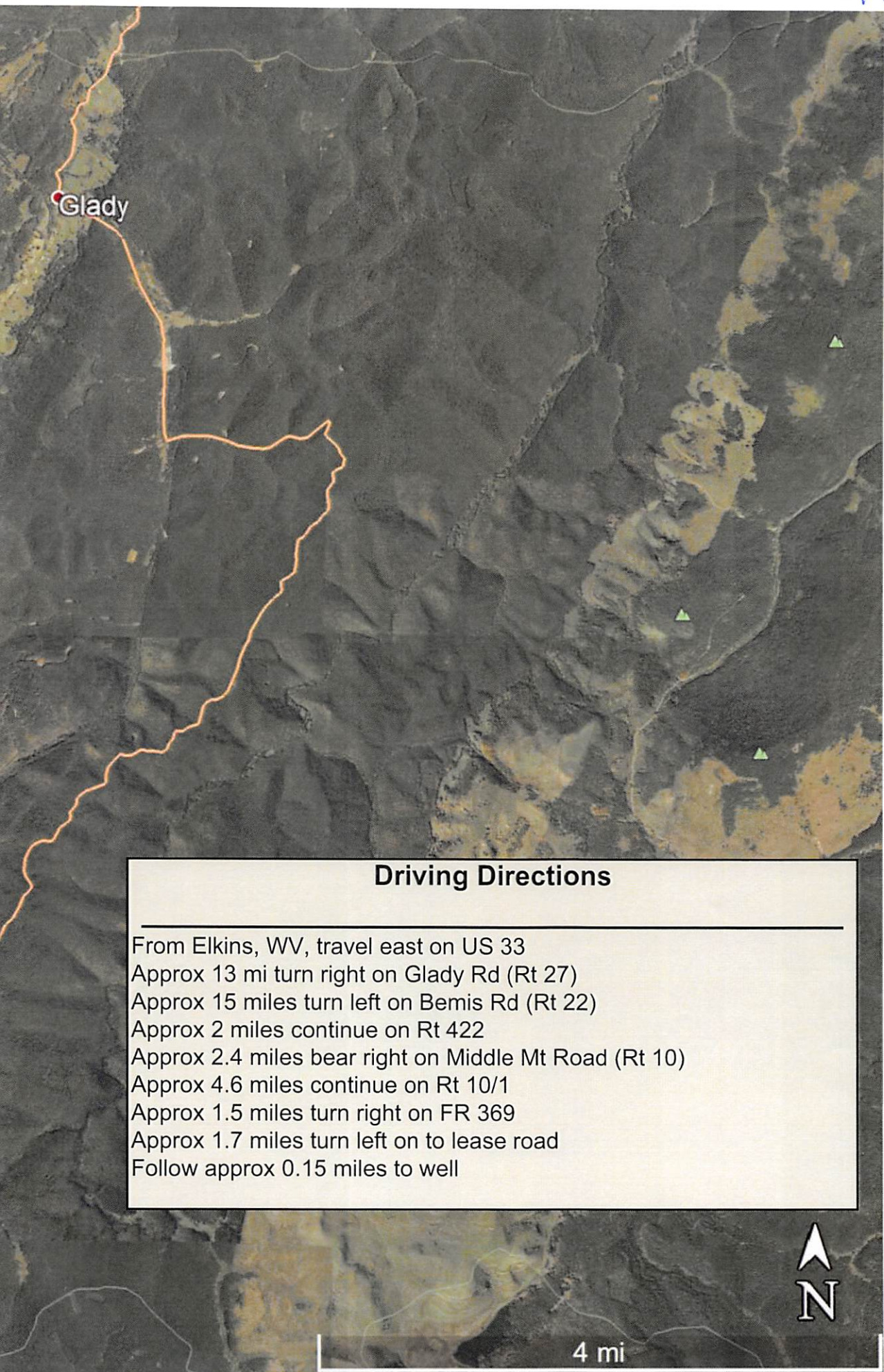
Glady - 07455

Google Earth

Image Landsat / Copernicus

Image USDA Farm Service Agency

06/15/2018



Glady

Driving Directions

From Elkins, WV, travel east on US 33
Approx 13 mi turn right on Glady Rd (Rt 27)
Approx 15 miles turn left on Bemis Rd (Rt 22)
Approx 2 miles continue on Rt 422
Approx 2.4 miles bear right on Middle Mt Road (Rt 10)
Approx 4.6 miles continue on Rt 10/1
Approx 1.5 miles turn right on FR 369
Approx 1.7 miles turn left on to lease road
Follow approx 0.15 miles to well

DM



4 mi

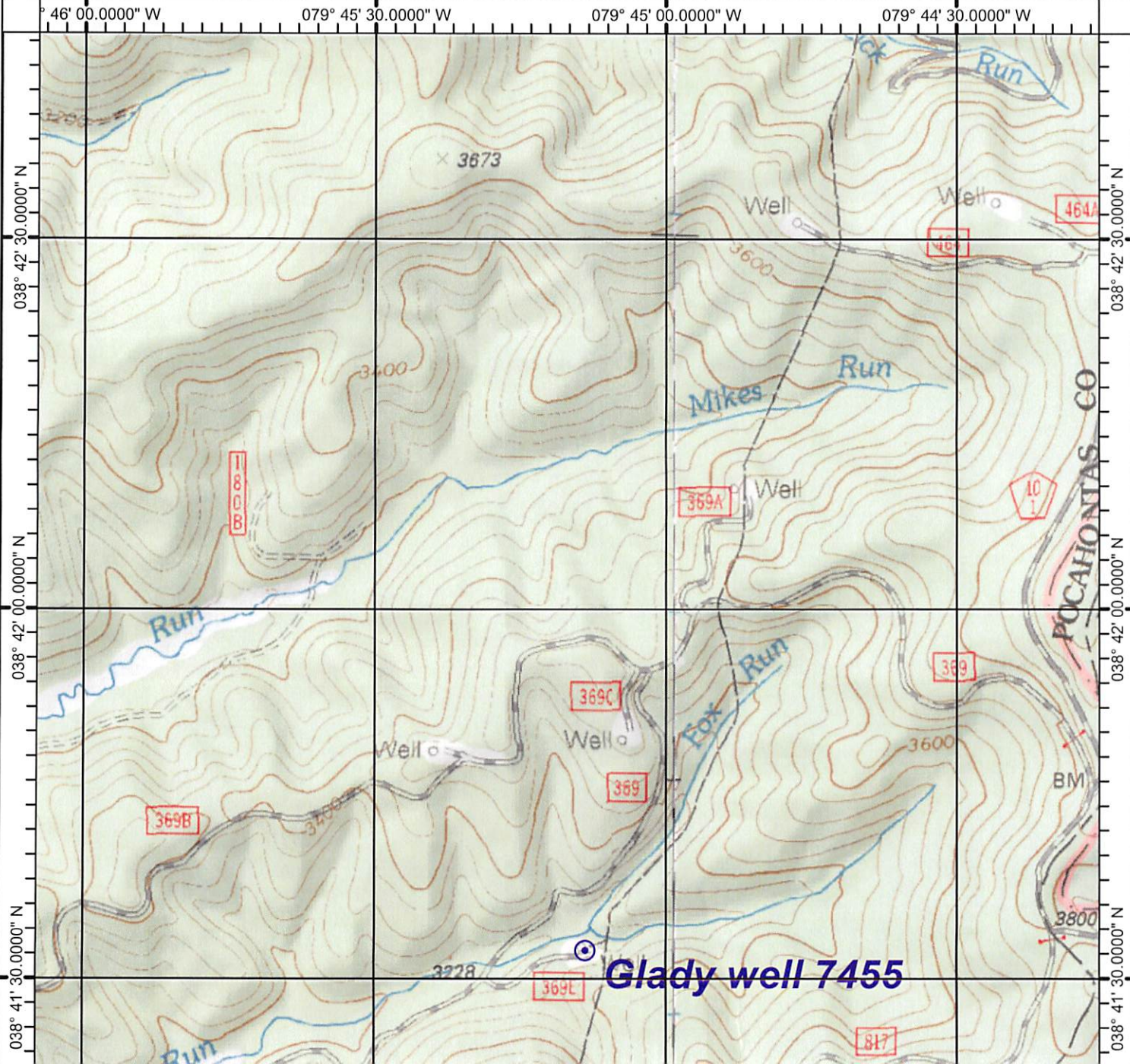
4707500009W



(Outdoor Contour Map)

(Outdoor Contour Map)

079° 46' 04.8589" W (Outdoor Contour Map) 079° 44' 14.7602" W
038° 42' 46.6556" N 038° 42' 30.0000" N 038° 42' 00.0000" N 038° 41' 30.0000" N

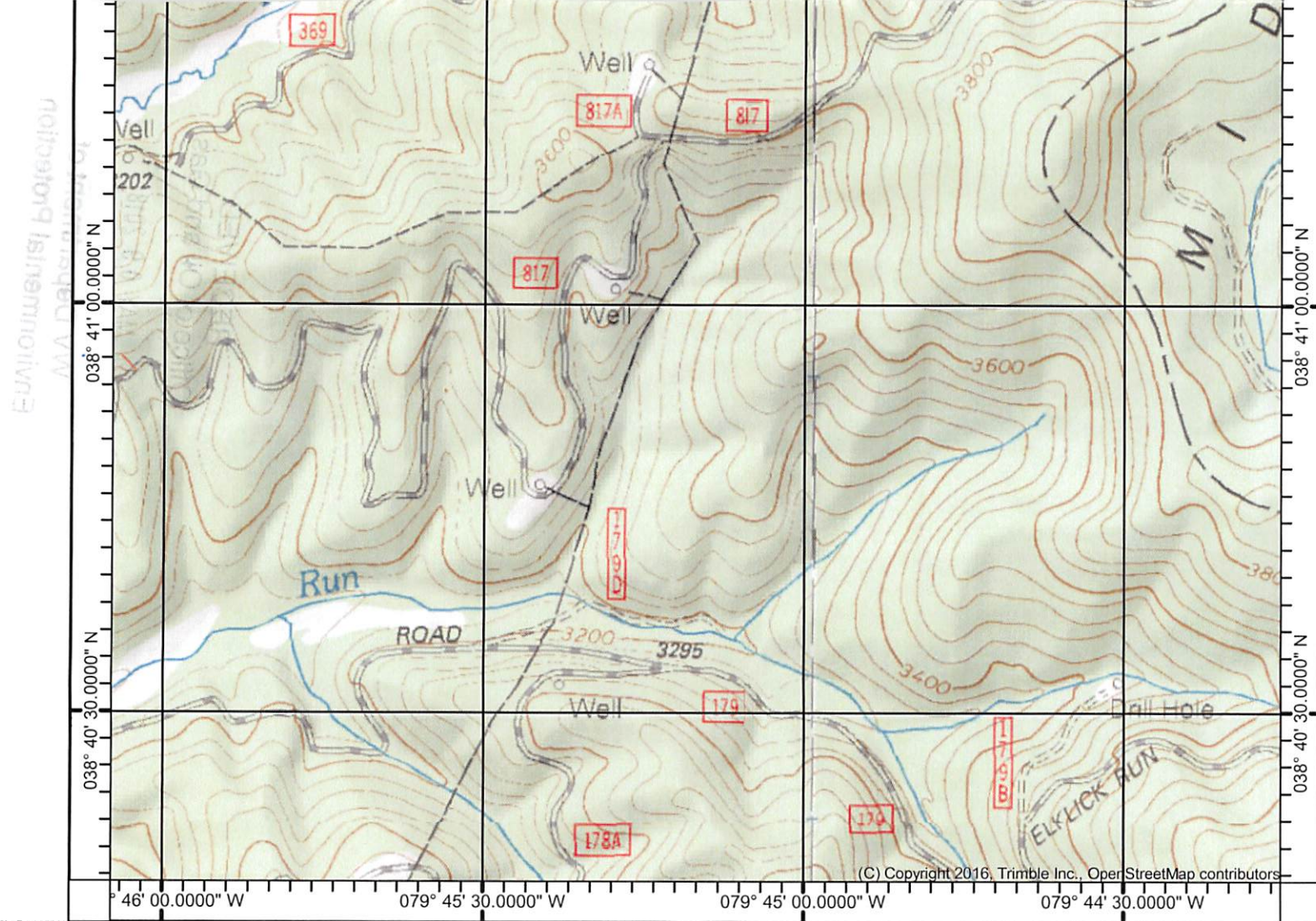


(Outdoor Contour Map)

(Outdoor Contour Map)

Glady well 7455

DM



038° 40' 17.1835" N 079° 46' 04.8589" W 038° 41' 00.0000" N 079° 45' 30.0000" W 038° 40' 30.0000" N 079° 45' 00.0000" W 038° 40' 17.1835" N 079° 44' 30.0000" W 038° 41' 00.0000" N 079° 44' 14.7602" W

(C) Copyright 2016, Trimble Inc., OpenStreetMap contributors

Printed: Tue Apr 10, 2018

(Outdoor Contour Map)

(Outdoor Contour Map)

Produced by Trimble Terrain Navigator Pro
Topography based on USGS variable Maps

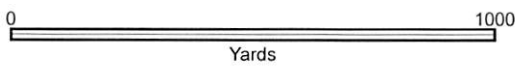
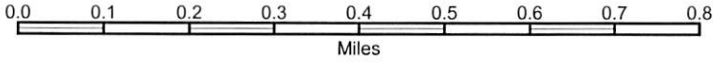
North American 1983 Datum (NAD83)

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

Declination

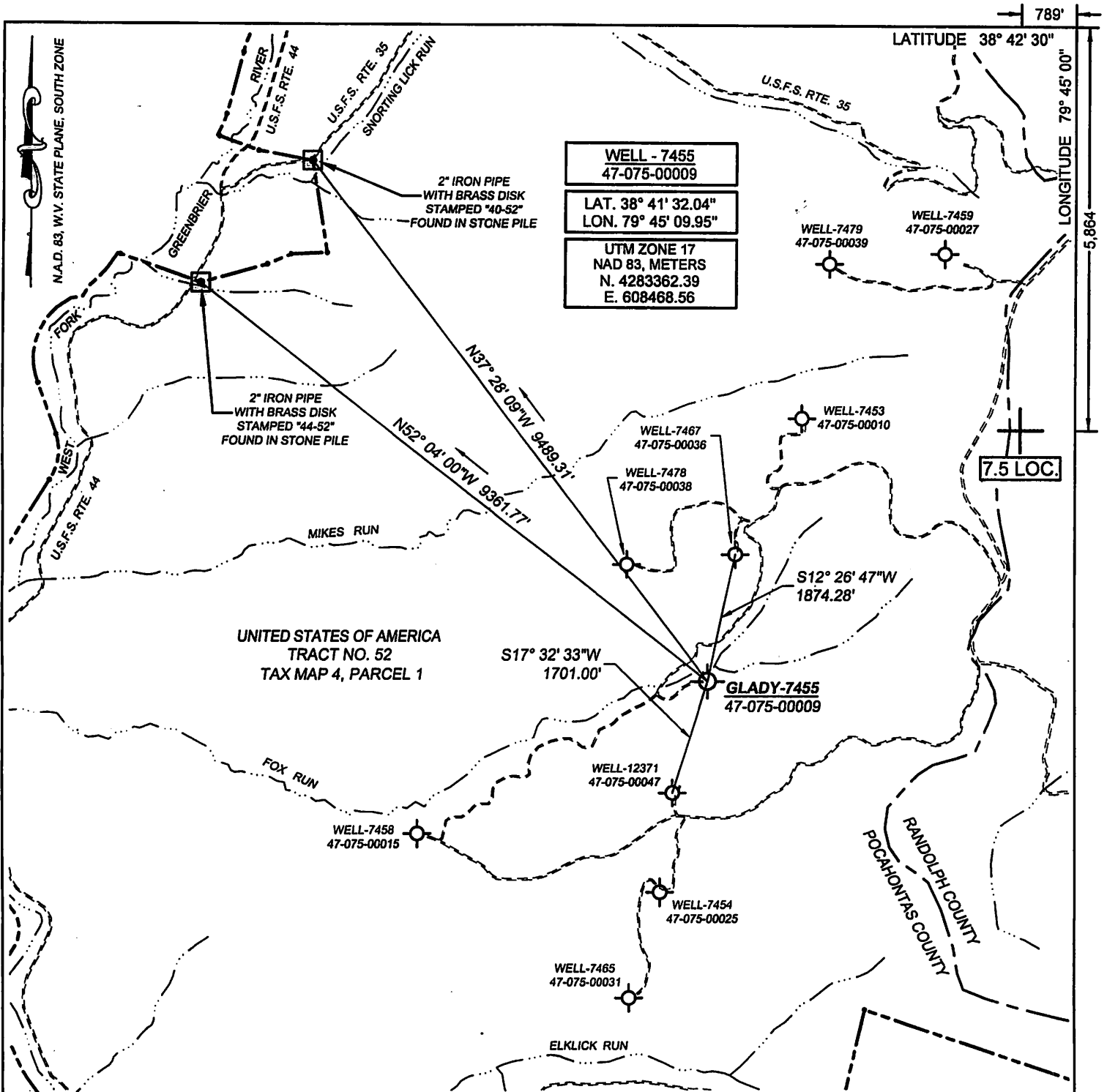


(Outdoor Contour Map)
SCALE 1:14400



CONTOUR INTERVAL UNKNOWN FT

N/A
WILDELL, WV
UNKNOWN

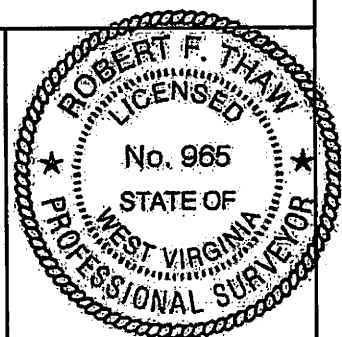


(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE No 1701-2345-001-020
 DRAWING No. GLADY-7455
 SCALE 1"=2000'
 MINIMUM DEGREE OF ACCURACY 1:200
 PROVEN SOURCE OF ELEVATION TRIMBLE R8-3
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) R. Thaw
ROBERT F. THAW PS #965



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

DATE FEBRUARY 14 2018
 OPERATOR'S WELL No: 7455
 API WELL No. 47 075 - 00009W

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

LOCATION: ELEVATION 3284.6 WATER SHED FOX RUN OF WEST FORK OF THE GREENBRIER RIVER
 DISTRICT GREENBANK COUNTY POCAHONTAS
 QUADRANGLE SINKS OF GANDY, WV

SURFACE OWNER UNITED STATE DEPARTMENT OF THE INTERIOR ACREAGE 6595
 OIL & GAS ROYALTY OWNER U. S. DEPT. OF THE INTERIOR LEASE ACREAGE 1852
 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) REWORK

PLUG AND ABANDON CLEAN OUT AND REPLUG

TARGET FORMATION ORISKANY ESTIMATED DEPTH 5941 FT

WELL OPERATOR COLUMBIA GAS TRANSMISSION, LLC DESIGNATED AGENT JAMES AMOS
 ADDRESS PO BOX 1273, CHARLESTON, WV 25325-1273 ADDRESS P.O. BOX 1273, CHARLESTON W.V. 25325-1273

FORM IV-6 (8-78)

06/15/2018