



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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Thursday, December 15, 2022

WELL WORK PERMIT
Vertical / Re-Work

COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVENUE SE

CHARLESTON, WV 25314

Re: Permit approval for W-99
47-087-01977-00-00

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: W-99
Farm Name: COLUMBIA GAS TRANS
U.S. WELL NUMBER: 47-087-01977-00-00
Vertical Re-Work
Date Issued: 12/15/2022

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4708701977W

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.

12/16/2022



- 1) API Well No. 47 - 087 - 01977
- 2) UIC Permit No. 2D8701977
- 3) Operator's Well No. Roane 099
- 4) Date: 11/23/2022

**STATE OF WEST VIRGINIA
NOTICE OF UIC WELL WORK PERMIT FOR THE DEPARTMENT OF
ENVIRONMENTAL PROTECTION, OFFICE OF OIL & GAS**

- 5) WELL TYPE: Liquid Injection Gas Injection (not storage) Solution Mining Injection
 Solution Mining Production Waste Disposal Mud Disposal
- 6) LOCATION: County: Roane District: Walton Quadrangle: Clio, WV
 Watershed: Potato Creek Elevation: 662.2
- 7) WELL OPERATOR: Columbia Gas Transmission LLC 8) DESIGNATED AGENT Maria Medvedeva
 Address 1700 MacCorkle Ave SE Address 1700 MacCorkle Ave SE
Charleston, WV 25314-1273 Charleston, WV 25314-1273
- 9) OIL & GAS INSPECTOR TO BE NOTIFIED 10) DRILLING CONTRACTOR
 Name Joe Taylor Name N/A - existing well
 Address 1478 Claylick Rd Address _____
Ripley, WV 25271
- 11) PROPOSED WELL WORK: Drill Drill Deeper Redrill Stimulate Convert
 Plug off old formation Perforate new formation
 Other physical change in well (specify) _____
- 12) GEOLOGIC TARGET FORMATION Devonian Shale Depth 4620 Feet (top) to 5106 Feet (bottom) perf interval
- 13) Estimated Depth of Completed Well, (or actual depth of existing well well): 5130 Feet
- 14) Approximate water strata depths: Fresh 297 Feet Salt none Feet
- 15) Approximate coal seam depths: none
- 16) Is coal being mined in the area? Yes No
- 17) Virgin reservoir pressure in target formation unknown psig Source _____
- 18) Estimated reservoir fracture pressure 3700 psig (BHFP)
- 19) MAXIMUM PROPOSED INJECTION OPERATIONS: Volume per hour 40 Bottom hole pressure 3600
- 20) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES 2000 gals
of 15% HCl acid treated with 2x corrosion inhibitor, iron control / sequestering agent, and biocide. FW displacement with Biocide and clay stabilizer
- 21) FILTERS (if applicable) none
- 22) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL
Corrosion inhibitor with treatment fluids

23) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE		CEMENT FILL -UP' OR SACKS (CU. FT.)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For Drilling	Left In Well		
Conductor	20"	H-40	94	X			34'	to surface	Kinds
Fresh Water	13-3/8"	H-40	48	X			124'	to surface	Baker 45A3 Lok-Set
Coal	9-5/8"	H-40	32	X			1902'	to surface	Sizes
Intermediate	7"	N-80	23	X			5130'	350sx, TOC 2630'	4-1/2" x 2-8"
Production	4-1/2"	J-55	10.5	X			4608'	150sx, TOC 3805'	Depths set
Tubing	2-3/8"	J-55	4.7	X			4583'	not cemented	4556'
Liners									Perforations
									Top Bottom
									4620' 5106'

- 24) APPLICANT'S OPERATING RIGHTS were acquired from W.O. Johnson
 by deed / lease / other contract / dated 09.03.1909 of record in the
Roane County Clerk's office in Deed Book 53 Page 109

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12/16/2022

WELL JOB PLAN		STS Well Engineering & Technology		PAGE 1	DATE JOB PREPARED: 11/7/2022			
Objective: Injection restoration				LAST PROFILE UPDATE:				
TITLE: Acid treatment		WELL ID: 99		WORK TYPE: MOD				
FIELD: Roane		SHL (Lat/ Long) 38.560542		LEASE #: -				
STATE: WV		BHL (Lat/Long) 38.560542		API: 47-087-01977				
DIST/TWP: Walton				CNTY: Roane				
EXISTING TUBULAR CONFIGURATION		OD (inches)	WEIGHT (PPF)	GRADE	THREAD	DEPTH (ft)	FORMATION: refer to MISC INFORMATION section	
						TOP	BOTTOM	
Conductor		20	94.0	H-40	8rd	0	34	
Surface		13 3/8	48.0	H-40	8rd	0	124	
Intermediate		9 5/8	32.0	H-40	8rd	0	1902	
Intermediate		7	23.0	N-80	8rd	0	5130	
Production		4 1/2	10.5	M-65	8rd STC	0	2693	
Production		4 1/2	10.5	J-55	8rd STC	2693	4608	
Tubing		2-3/8	4.700	J-55	8rd EUE	0	4564	
Perforations		Perf interval 4620 - 5106 ft						
Perforations		Refer to "Wellbore Diagram" tab						
Wellhead		Threaded Production 2k, 7" support x 4.5" flowstring, 2.375" EUE 8 rd conn						
D.H. EQUIPMENT		TYPE		DEPTH (ft)				
PACKER INFO:		Upper	1.87" ID Baker L-10 On-off Tool					
		Lower	1.99" ID Baker 45A3 Lok-Set Packer		4556			
NIPPLE PROFILE INFO:		Upper	1.437" Baker model R profile seating nipple		4563			
		Lower	Wireline re-entry guide		4564			
SSSV INFO:								
CEMENT INFO							Calc TOC (ft)	
20	Cemented to surface					0		
13 3/8	Cemented to surface with 100 sxs					0		
9 5/8	Cemented to surface with 380 sxs					0		
7	Cemented with 350 sxs					2630		
4 1/2	Cemented with 150 sxs					3805		
2-3/8	Not cemented. Baker 45A3 Lok-Set Packer set at 4556'					-		
MISC INFORMATION								
REFER TO WELL SUMMARY RPT, WELLBORE DIAGRAM, ELOG, ETC. (see spreadsheet tabs below)								
Kill Fluid Calculation * Note that kill fluid calculation tabs are hidden								
Maximum calculated bottom-hole pressure (for reference only):		-	psig	* input				
Maximum storage field surface pressure (MAOP):		1102	psig	* input				
Well TD:		5130	ft TVD	* input				
Top of injection zone (Rhonestreet Shale):		4580	ft TVD	* input				
Calculated maximum BH pressure at top of zone:		1233	psig	* output Kill Fluid (TOZ)				
Kill fluid density at top of zone @:		200	psi OB	6.02	ppg	* output Kill Fluid (TOZ)		
Injection permitted zone (4620 - 5106'):		4620	ft TVD	* input				
Calculated maximum BH pressure at depth of BP:		1234	psig	* output Kill Fluid (BP)				
Kill fluid density at depth of BP @:		200	psi OB	5.97	ppg	* output Kill Fluid (BP)		
Required minimum kill fluid density:		6.1	ppg	* greater of the two				
Current AOF:		-						
Top historical AOF:		-						
Last MVRT:		6/24/20 4.5" HRVRT identified 76 metal loss features >20% reporting threshold. Of the 76 total features, 3 are internal, 73 are external w/ the max loss of 35% at 758'.						
SBT:		04/05/01 4.5" SBT showed top of solid cement at 4290', overall top of cement at 3805'. Gap in log from 3520 - 2080', top logged 1650'.						
PROPOSED YEAR:	2022	ERCB PERMIT REQD:	YES	NO	X	(Internal) PDS Required:	YES	NO
PREPARED BY:	Maria Medvedeva	DT. APPLIED:	ISSUED:		APPROVED:	Brent Criser		
PREP DATE:	11/7/2022	REVIEWED BY:	Mitch Chenaweth					

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WELL JOB PLAN		STS Well Engineering & Technology		PAGE 2	DATE JOB PREPARED: 11/7/2022
Objective: Injection restoration				LAST PROFILE UPDATE:	
TITLE: Acid treatment		WORK TYPE: MOD			
FIELD: Roane	WELL: 99				
STAT: WV	SHL (Lat/Long): 38.560542 -81.359684		API: 47-087-01977		
TWP: Walton	BHL (Lat/Long): 38.560542 -81.359684		CNTY: Roane		

PROCEDURE

Note: Performed FWT to restore injection capabilities on 9.21.22. Injectivity restored initially, however, did not yield longterm effects. Pumped a 500 gallon HCl treatment on 11.04.22 in interim while submitting for a well workover permit. Large volume acid treatment required.

- 1 Obtain State well work permit, pipeline crossing evaluation, make One Call, etc. Prepare site specific SPCC.
- 2 Notify landowner as applicable.
- 3 Obtain General Work Permit and Wellsite Review & Turnover Form from Operations.
- 4 Notify Reservoir Engineering & Geosciences (REG) of intent to take well out of service.
- 5 Notify environmental inspector prior to beginning work.
- 6 Service all serviceable wellhead valves.
- 7 Document and report to WE&T the initial 2-3/8"X 4-1/2" and 4-1/2" x 7" annular pressures.
- 8 Pump / displace into formation 2000 gallons of 15% HCl acid treated with 2x corrosion inhibitor, iron control / sequestering agent, and biocide, at 1 - 1.5 BPM. **Do not exceed 1100 psi during pumping. Treat FW displacement with Biocide and clay stabilizer.**
- 9 Allow to soak 2 days before resuming injection cycles.
- 10 Notify WET Project Support that well is back in-service.
- 11 Reclaim R&L.
- 12 Commission well by completing, processing, and retain for records the Wellsite Review and Turnover Form.
- 13 Notify REG / WE&T /Operations that well is ready for service.

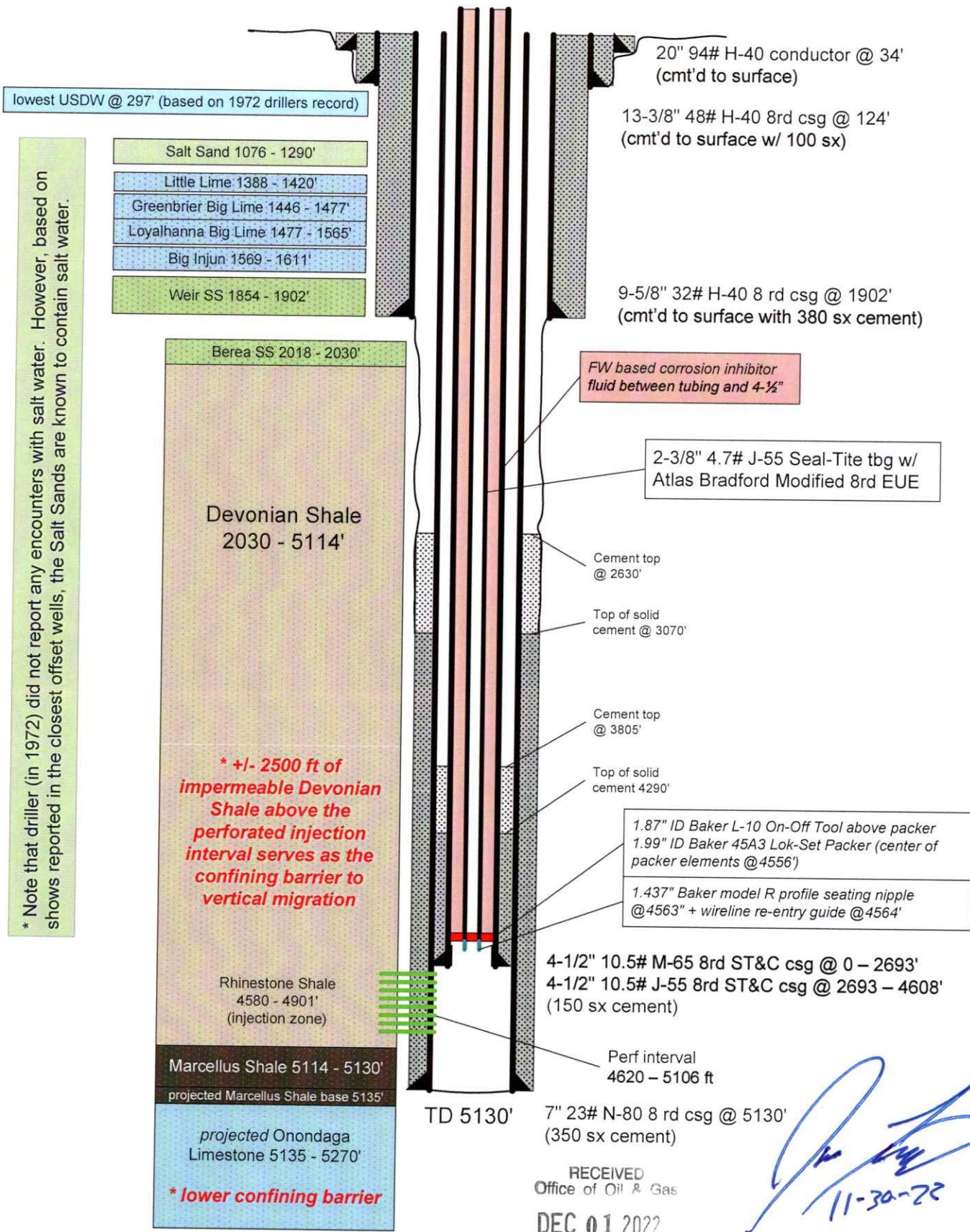
PREPARED BY: Maria Medvedeva	REVIEWED BY: Mitch Chenoweth	APPROVED: Brent Criser
PREP DATE: 11/7/2022		

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* not to scale *



* Note that driller (in 1972) did not report any encounters with salt water. However, based on shows reported in the closest offset wells, the Salt Sands are known to contain salt water.

- Salt Sand 1076 - 1290'
- Little Lime 1388 - 1420'
- Greenbrier Big Lime 1446 - 1477'
- Loyalhanna Big Lime 1477 - 1565'
- Big Injun 1569 - 1611'
- Weir SS 1854 - 1902'

- Berea SS 2018 - 2030'
- Devonian Shale 2030 - 5114'
- Rhinestone Shale 4580 - 4901' (injection zone)
- Marcellus Shale 5114 - 5130'
- projected Marcellus Shale base 5135'
- projected Onondaga Limestone 5135 - 5270'
- * lower confining barrier

20" 94# H-40 conductor @ 34' (cmt'd to surface)

13-3/8" 48# H-40 8rd csg @ 124' (cmt'd to surface w/ 100 sx)

9-5/8" 32# H-40 8 rd csg @ 1902' (cmt'd to surface with 380 sx cement)

FW based corrosion inhibitor fluid between tubing and 4-1/2"

2-3/8" 4.7# J-55 Seal-Tite tbg w/ Atlas Bradford Modified 8rd EUE

Cement top @ 2630'

Top of solid cement @ 3070'

Cement top @ 3805'

Top of solid cement 4290'

1.87" ID Baker L-10 On-Off Tool above packer
1.99" ID Baker 45A3 Lok-Set Packer (center of packer elements @4556')

1.437" Baker model R profile seating nipple @4563" + wireline re-entry guide @4564'

4-1/2" 10.5# M-65 8rd ST&C csg @ 0 - 2693'
4-1/2" 10.5# J-55 8rd ST&C csg @ 2693 - 4608' (150 sx cement)

Perf interval 4620 - 5106 ft

TD 5130' 7" 23# N-80 8 rd csg @ 5130' (350 sx cement)

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[Signature]
11-30-22



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS WELLS DIVISION

Rotary
Spudder
Cable Tools
Storage

Quadrangle Glendenin

Permit No. Roa-1977

WELL RECORD

Oil or Gas Well Disposal
(KIND)

Company Columbia Gas Transmission Corporation
Address Charleston, West Virginia
Farm Columbia Gas Transm Corp. Acres 322
Location (waters) _____
Well No. W-99 Elev. _____
District Walton County Roane
The surface of tract is owned in fee by _____
Address _____
Mineral rights are owned by _____
Address _____
Drilling commenced November 24, 1972
Drilling completed December 3, 1972
Date Shot _____ From _____ To _____
With _____

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16 13"	114'	114'	Kind of Packer _____
13 9"	1918'	1918'	
10 7"	5258'	5258'	Size of _____
8 1/4"			
6 5/8"			Depth set _____
5 3/16"			
4 1/2"			
3"			Perf. top _____
2"			Perf. bottom _____
Liners Used			Perf. top _____
			Perf. bottom _____

Open Flow _____ /10ths Water in _____ Inch
_____ /10ths Merc. in _____ Inch
Volume _____ Cu. Ft.
Rock Pressure _____ lbs. _____ hrs.

Attach copy of cementing record.
CASING CEMENTED 7" SIZE 5258 No. Ft. 11-30-72 Date
Amount of cement used (bags) 350
Name of Service Co. Dowell
COAL WAS ENCOUNTERED AT _____ FEET _____ INCHES
_____ FEET _____ INCHES FEET _____ INCHES
_____ FEET _____ INCHES FEET _____ INCHES

WELL ACIDIZED (DETAILS) _____
WELL FRACTURED (DETAILS) _____

RESULT AFTER TREATMENT (Initial open Flow or bbls.) _____
ROCK PRESSURE AFTER TREATMENT _____ HOURS
Fresh Water 297 Feet _____ Salt Water _____ Feet _____
Producing Sand Shale Depth 5130

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Sand			0	20			
Sand & Gravel			20	25			
Sand			25	311			Water 297
Shale			311	367			
Sand			367	480			
Sandy Shale			480	498			
Shale			498	502			
Sand			502	599			
Sandy Shale			599	630			
Sand			630	678			
Sandy Sand			678	693			
Sand			693	723			
Sandy Shale			723	778			
Sand			778	836			
Sandy Sand			836	852			
Sand			852	923			
Sandy Shale			923	990			
Sand			990	1140			
Shale			1140	1159			
Sand			1159	1296			
Sand			1296	1390			
Sand			1390	1430			
Shale			1430	1440			
Sand			1440	1580			
Shale			1580	1640			
Sand			1640	1709			
Shale			1709	5130			
Total Depth				5130			

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JD

** no WV DEP well work permit required*

- 2010 Lost annular pressure. Re-pressurized annulus but would not hold. Pulled tbg/pkr. Ran HRVRT. Ran rental tbg and pkr – set and pressure tested csg – good test. Re-ran Seal Tite tbg (replaced connection seals) and new pkr – pkr set @ 4586'. MIT passed. Left 980 psig on annulus.
** no WV DEP well work permit required*
- 2015 Lost annular pressure. Re-pressurized annulus and observed wellhead fitting leak. Replaced fitting. MIT passed. Left 900 psig on annulus. Placed well back in service per Office O&G approval. 9 days later annular pressure dropped to 620 psig. Replaced other suspect wellhead fittings and removed/cleaned wellhead packing. MIT passed. Left 800 psig on annulus. Placed well back in service per Office O&G approval. 12 days later annulus pressure dropped to 300 psig. Pulled tbg/pkr. Replaced tbg connection seals. Re-ran tbg and new pkr. WHX. MIT passed. Placed well back in service per Office O&G approval. 22 days later lost annular pressure. Discovered thread leak at base of tbg head. Welded tbg head to 4-1/2" csg. Per instructions from Office O&G, re-pressured annulus to 1740 psig to monitor for a few days – well not approved to be placed back in service. 2 days later pressure dropped to 980 psig. Per Office of O&G, released annular pressure to 0 psig, resumed injections, and monitored annulus for pressure buildup – no pressure increase. MIT passed. Per Office O&G, new operating practice is to leave annular pressure at 0 psig and monitor for pressure increase while well in service. Office O&G approved resuming injections.
** no WV DEP well work permit required*
- 2019 Injection rate fell off. Pumped 2000 gals fresh water downhole and allowed to soak for 48 hours. Re-established rate.
- 2020 Injection well MIT failed on 6/11/20. Facility was removed from service. Pulled tubing and packer. Diagnostics indicated leak in 4-1/2" casing at ~1780'. Backed off 4-1/2" casing at 2750', replaced with new casing, and screwed back together. Pressure tested – good. Re-ran tubing and packer. Performed MIT - passed. WV DEP witnessed MIT and granted authorization to resume injections on 8/11/20.
- 2022 Pumped 2000 gallons of freshwater treated with corrosion inhibitor, clay stabilizer and biocide to treat downhole scale to restore injection rates. Did not observe desired long-term effect with freshwater treatment. Pumped a 500 gallon 15% HCl acid treatment treated with bactericide, clay stabilizer, corrosion inhibitor. Observe well's performance post treatment.

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Roane W-99 Well Work History

- 1972 Well was drilled.
- 1989 Ran tubing on packer inside the 7" csg. Performed WHX. MIT passed.
* no record of WV DEP well work permit
- 1992 MIT on 7" csg failed. Pulled tbg/pkr. Leak detected @ 4098' but no record of any repairs to 7" csg. Re-ran tbg/pkr – pkr set @ 3887'. MIT passed.
* no WV DEP well work permit required
- 1997 MIT failed. Pulled tbg/pkr. Re-ran tbg and new pkr – found holes in 3 jts of tubing (not ran) – pkr set @ 3756'. MIT passed. Left 500 psig on tbg/csg annulus.
* no WV DEP well work permit required
- 2001-02 MIT failed. Pulled tbg/pkr. Ran MVRT. Ran 4595' of new 4-1/2" csg and cmt'd. WHX. Ran SBT. Drilled plugs/cmt to 4850'. Ran new tbg/pkr – pkr set @ 4583'. Poor injection rate. Performed CTCO – no improvement. Pulled tbg/pkr. Cleaned/drilled to 5106'. Spotted acid and re-perfed 4620 – 5106'. Re-ran tbg/pkr – pkr set @ 4583'. MIT passed. Still poor injection. Pulled tbg/pkr. Fracture stimulated. Re-ran tbg/pkr – pkr set @ _____ ft. MIT passed. Left 500 psig on tbg/csg annulus.
* WV DEP well work permit obtained – J Amos submitted WR-35 Dec 2007.
- 2004 Lost annular pressure. Attempted to csg pressure test – failed. Installed tbg plug and tested tbg – good test. Attempted csg pressure test – failed. Pulled tbg/pkr. Ran VRT. Backed off and replaced top 2141' of 4-1/2" csg. Set BP and pressure tested – good. Re-ran tbg and redressed pkr – pkr set @ 4588'. MIT passed.
* no WV DEP well work permit required
- 2005 Lost annular pressure. Set tbg plug and pressure tested tbg – good. Pressure tested tbg/csg annulus – leaking into tbg. Pulled tbg/pkr. Ran MVRT. Could not locate tbg leak. Ran new tbg/pkr. MIT passed. Left 500 psig on tbg/csg annulus.
* no WV DEP well work permit required
- 2007 Lost annular pressure. Re-pressurized annulus and it held. MIT passed. Placed well back in service. 7 days later lost annular pressure. Pulled tbg/pkr. Re-dressed pkr. Re-ran tbg/pkr. MIT failed. Leak in tbg or on-off tool above pkr – could not discriminate. Pulled tbg/pkr. Ran new Seal Tite tbg and new pkr – pkr set @ 4589'. MIT passed. Left 500 psig on tbg/csg annulus.

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Form WW-3(A)
9/15

NOTE: The surface owner is also the Well Operator. Columbia requests that the comment / protest period be waived, and the well work permit be issued at the DEP's earliest convenience.

- 1) API Well No. 47 - 087 - 01977
- 2) Operator's Well No. Roane 099
- 3) UIC Permit No. 2D8701977
- 4) Date: 11/23/2022

STATE OF WEST VIRGINIA

NOTICE OF LIQUID INJECTION OR WASTE DISPOSAL WELL WORK PERMIT APPLICATION FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

5) Surface Owners to be served:

(a) Name Columbia Gas Transmission LLC
Address 1700 MacCorkle Ave SE
Charleston, WV 25314-1273

(b) Name _____
Address _____

(c) Name _____
Address _____

6) Inspector Joe Taylor
Address 1478 Claylick Rd
Ripley, WV 25271
Telephone _____

7) (a) Coal Operator
Name Not Operated
Address _____

(b) Coal Owner(s) with Declaration
Name _____
Address _____

(c) Coal Lessee with Declaration
Name _____
Address _____

TO THE PERSONS NAMED ABOVE: You should have received this form and the following documents

- (1) The application for a Liquid Injection or Waste Disposal Well Work Permit on Form WW-3(B), which sets out the parties involved in the drilling or other work;
- (2) The plat (surveyor's map) showing the well location of Form WW-6; and
- (3) The Construction and Reclamation Plan on Form WW-9 (unless the well work is to plug the well).

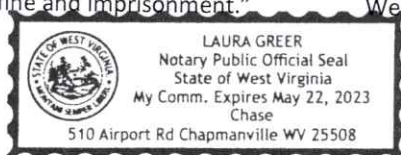
The date proposed for the first injection or waste disposal is N/A - existing well recondition 20 .

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a Well Work Permit with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to a well at the location described on the attached application and depicted on the attached Form WW-6. Copies of this Notice, the Application, the plat, and the Construction and Reclamation Plan have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of the mailing or delivery to the Chief.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document 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: Maria Medvedeva
Its: Senior Wells Engineer Storage Technical Services
Address: 1700 MacCorkle Ave SE
Charleston, WV 25314-1273
Telephone: 304 - 410 - 4313
Email: maria_medvedeva@tcenergy.com

(Notary Seal)



Subscribed and sworn before me this 23 day of November, 2022
Laura Greer Notary Public
My Commission Expires May 22, 2023

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Oil and Gas Privacy Notice
The Office of Oil and Gas processes your personal information, such as name, address and phone 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.

12/16/2022

SURFACE OWNER WAIVER

County Roane

Operator
Operator well number

Columbia Gas Transmission LLC

Roane 99

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A / 3A

The well operator named on page WW-2A / 3A is applying for a permit from the State to do oil or gas well work. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:

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

Time Limits and methods for filing comments. The law requires these materials to be served on or before the date the operator files his Application. You have **FIFTEEN (15) 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.

Comments must be in writing. Your comments must 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.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation...".

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A / 3A, and attachments consisting of pages 1 through ___ including a work order on Form WW-2B / 3A, a survey plat, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Signature

Date

Company Name Columbia Gas Transmission LLC

By Maria Medvedeva 12.15.2022
Its _____ Date

Senior Wells Engineer Storage Technical Services

Print Name

Maria Medvedeva 12.15.2022
Signature Date

12/16/2022

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Roane

Operator Columbia Gas Transmission LLC

Operator's Well Number Roane 99

* coal not operated

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by WV Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office. Mail objections to:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0499 extension 1654

WAIVER

The undersigned coal operator _____ / owner _____ / lessee _____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Signature Date _____

Company Name _____
By _____
Its _____ Date _____

Signature Date _____

WW-9
(5/16)

API Number 47 - 087 - 01977
Operator's Well No. Roane 99

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

Operator Name Columbia Gas Transmission OP Code 307032

Watershed (HUC 10) Potato Creek of Lefthand Creek Quadrangle Clio, 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: N/A

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain None anticipated for this acid treatment job scope)

Will closed loop system be used? If so, describe: yes - steel flow line to tanks

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. treated fresh water, 15% HCl acid

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

Additives to be used in drilling medium? corrosion inhibitor, iron control / sequestering agent, biocide, bactericide

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) N/A

-Landfill or offsite name/permit number? N/A

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Office of Oil & Gas

DEC 01 2022

WV Department of
Environmental Protection

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 *Maria Medvedeva*

Company Official (Typed Name) Maria Medvedeva

Company Official Title Senior Wells Engineer Storage Technical Services

Subscribed and sworn before me this 23 day of November, 20 22

Laura Greer Notary Public

My commission expires May 22, 2023

J.P.
11-30-22



Proposed Revegetation Treatment: Acres Disturbed < 1.0 Prevegetation pH 6 - 7

Lime 2 Tons/acre or to correct to pH 7 - 8

Fertilizer type 10-10-10

Fertilizer amount 600 lbs/acre

Mulch hay or straw @2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual rye	40	Orchard Grass and/or Tall Fescue	29
		Birdsfoot Trefoil (Empire)	9
		Annual Rye	12

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: Joe Tyle

Comments: _____

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Environmental Protection

EXISTING LOCATION gmm

Title: Impacts

Date: 11-30-22

Field Reviewed? (X) Yes () No

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): Potato Creek of Lefthand Creek Quad: Clio, WV

Farm Name: _____

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

- No fluids planned to be discharged.
- No fertilizer will be stored on site. Small quantities of fuel, oil, and lubrications will be stored on site, but located within secondary containment.
- Accidental release from well fluids and spills from construction equipment are the only sources of contaminants 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. Spill kits will be on site. Tanks to be monitored for leaks.

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

Potato Creek is at a distance of 0.08 miles W.

The Trail Kitchen (WV9908037) is the closest Well Head Protection Area at a distance of 12.5 miles NE from discharge area.

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.

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 lubricants will be stored on site, but located within secondary containment. Accidental release from well fluids and spills from construction equipment are the only sources of contaminants to groundwater.

All construction and well servicing equipment will be monitored and inspected daily for leaks or spills.

Signature: _____

[Handwritten Signature]

Date: _____

11.23.22

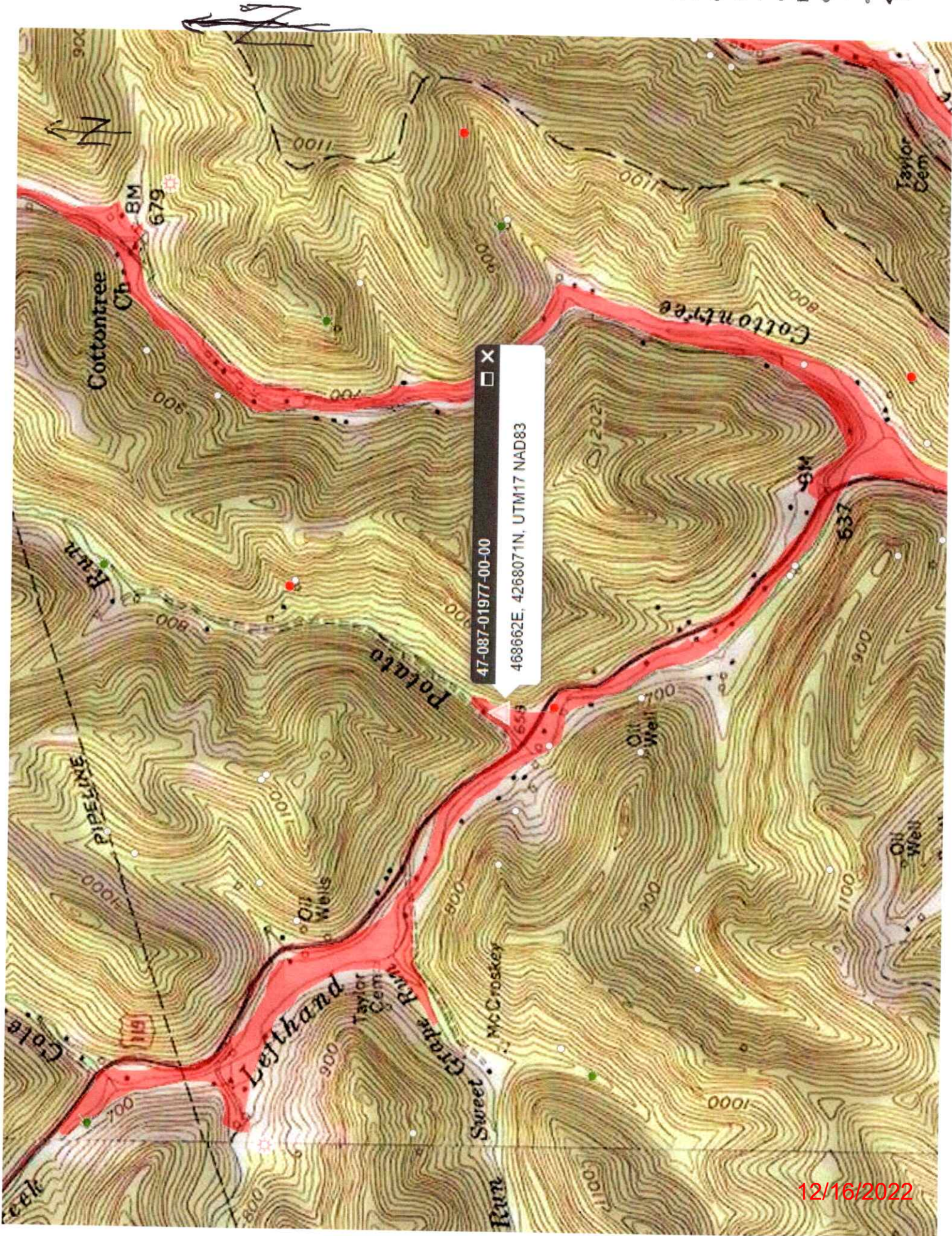
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[Handwritten Initials]

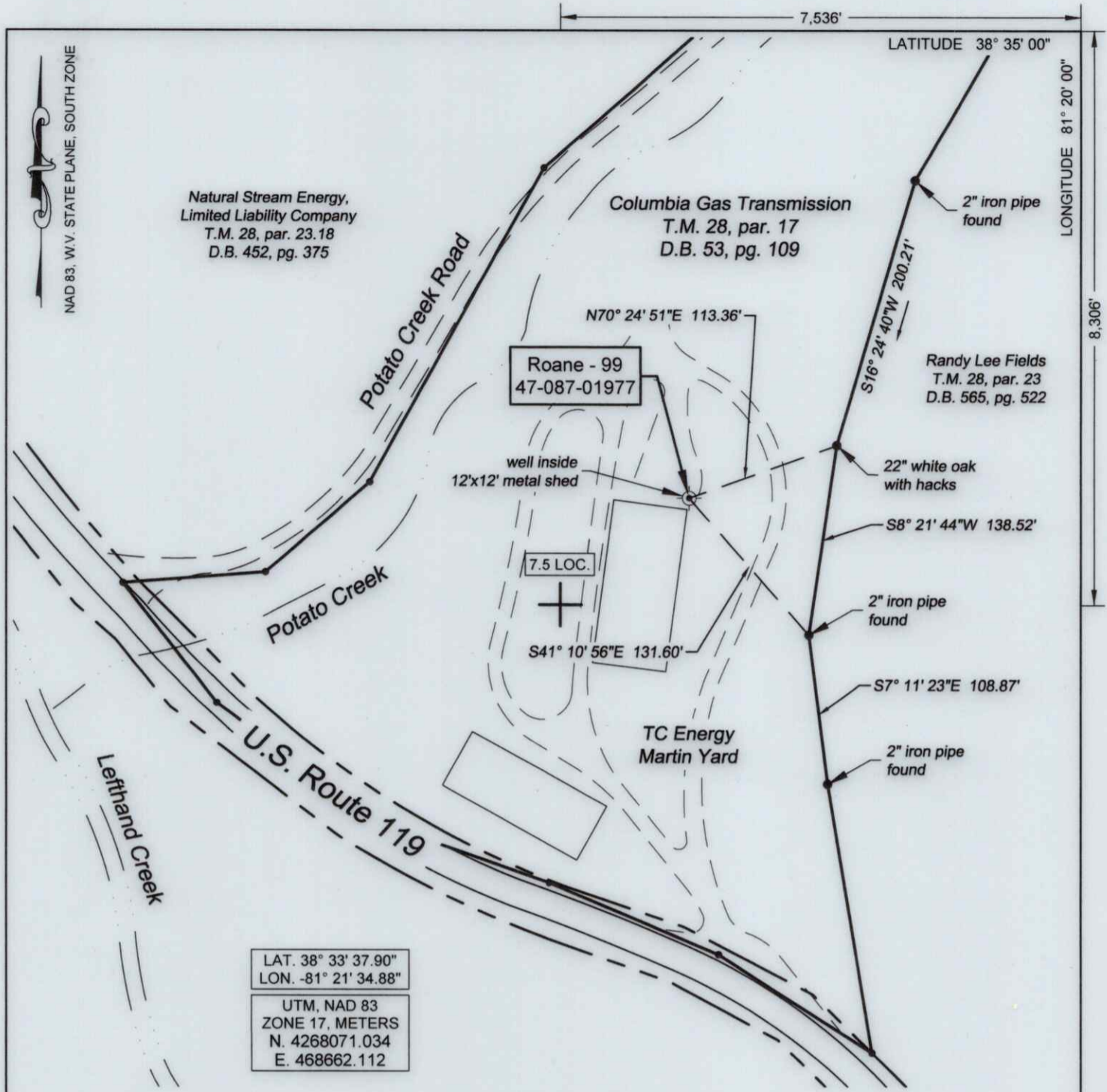
WV Department of
Environmental Protection

12/16/2022

4708701977W



12/16/2022



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

FILE No 2201-2345-001-000
DRAWING No. ROANE-99
SCALE 1"=100'
MINIMUM DEGREE OF ACCURACY 1:200
PROVEN SOURCE OF ELEVATION TRIMBLE R10 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. F. Thaw
ROBERT F. THAW PS #965



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

DATE NOVEMBER 18 2022
OPERATOR'S WELL No. 99
API WELL No. 47 087 - 01977W

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL STATE 47 COUNTY 087 PERMIT 01977W
(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 662.2' WATER SHED POTATO CREEK OF LEFTHAND CREEK
DISTRICT WALTON COUNTY ROANE
QUADRANGLE CLIO, WV

SURFACE OWNER COLUMBIA GAS TRANSMISSION ACREAGE 5.5 AC. (PLAT)
OIL & GAS ROYALTY OWNER COLUMBIA GAS TRANSMISSION

LEASE ACREAGE 5.5 ACRES LEASE NO. 1002399-000

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE 12/16/2022
STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION
OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____
PLUG AND ABANDON CLEAN OUT AND REPLUG

TARGET FORMATION RHINESTONE SHALE ESTIMATED DEPTH 5130
WELL OPERATOR COLUMBIA GAS TRANSMISSION, LLC DESIGNATED AGENT MARIA MEDVEDEVA
ADDRESS PO BOX 1273, CHARLESTON, WV 25325-1273 ADDRESS 1700 MACCORKLE AVE., S.E. CHARLESTON, WV 25314

FORM IV-6 (8-78)

Columbia Gas Transmission, LLC
1700 MacCorkle Ave., SE, Charleston, WV, USA 25314



December 1st, 2022

Andrew Lockwood
WV DEP – Office of Oil & Gas
601 57th Street, SE
Charleston, WV 25304-2345

ck # 43057
\$550.00

Enclosed is a well work permit applications for the following Columbia Gas Transmission existing underground injection well:

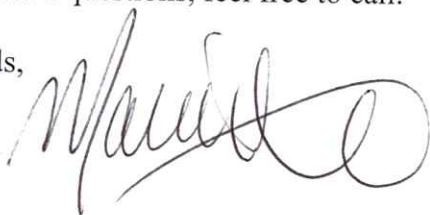
UIC Permit 2D08701977 - Roane 99 - API 47-087-01977

Please email to address below, and return hardcopies of permits to:

Columbia Gas Transmission
1700 MacCorkle Ave SE
Charleston, WV 25314
Attn: Maria Medvedeva

If you have questions, feel free to call.

Regards,



Maria Medvedeva
Senior Wells Engineer
Well Engineering & Technology
Columbia Gas Transmission, LLC
Mob: 304-410-4313
maria_medvedeva@tcenergy.com

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Kennedy, James P <james.p.kennedy@wv.gov>

Well work permit issued 4708701977

1 message

Kennedy, James P <james.p.kennedy@wv.gov>


Thu, Dec 15, 2022 at 3:47 PM

To: maria_medvedeva@tcenergy.com, Andrew L Lockwood <andrew.l.lockwood@wv.gov>

To whom it may concern a well work permit has been issued for 4708701977.

James Kennedy

WVDEP OOG

 **4708701977.pdf**
4301K

12/16/2022