



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

Tuesday, September 26, 2023
WELL WORK PERMIT
Vertical / Re-Work

COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVENUE SE

CHARLESTON, WV 25314

Re: Permit approval for TERRA ALTA 7520
47-077-00147-00-00

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: TERRA ALTA 7520
Farm Name: NICE, LINDSLEY W.
U.S. WELL NUMBER: 47-077-00147-00-00
Vertical Re-Work
Date Issued: 9/26/2023

Promoting a healthy environment.

09/29/2023

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.

4707700147

CK No. 43069
\$ 900.00
TAMMS CONCRETE
PIPELINES LIMITED

WW - 2B
(Rev. 8/10)

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 Preston Union Aurora, WV 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Terra Alta South 7520 3) Elevation: 2414

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

Handwritten: Mary K...
7/11/2023

5) Proposed Target Formation(s): Chert / Oriskany Proposed Target Depth: 5760 / 5966

6) Proposed Total Depth: 6176 Feet Formation at Proposed Total Depth: Helderberg Lime

7) Approximate fresh water strata depths: none reported by driller

8) Approximate salt water depths: none reported by driller

RECEIVED
Office of Oil & Gas
JUL 24 2023

9) Approximate coal seam depths: None reported by driller

10) Approximate void depths,(coal, Karst, other): None reported by driller

WV Department of
Environmental Protection

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)

Perform a fresh water treatment. Following results of FWT, perform coil tubing cleanout and 2000 gallon 15% HCL stimulation.

* casing and equipment listed below are existing

13) **CASING AND TUBING PROGRAM** * existing

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	13-3/8 *	H-40	48	32	32	40 sx
Fresh Water	9-5/8 *	K-55	36	2218	2218	680 sx
Coal						
Intermediate	7*	K-55	23	5961	5961	255 cuft
Production	4-1/2 *	N-80	11.6	6160	6160	170 sx
Tubing						
Liners						

Packers: Kind: _____
Sizes: _____
Depths Set _____

09/29/2023

4707700147W

WELL JOB PLAN		STS Well Engineering & Technology		PAGE 1	DATE JOB PREPARED: 4/19/2023					
Objective: Deliverability Enhancement				LAST PROFILE UPDATE:						
TITLE: FWW, CTOCO / acid stimulate if well performance is not restored following FW wash				WORK TYPE: Deliverability						
FIELD: Terra Alta South		WELL ID: 7520 (AC)		LEASE #: 91097						
STATE: WV		SHL (Lat/ Long) 39.360645 -79.600831		API: 47-077-00147						
DIST/TWP: Union		BHL (Lat/Long) 39.360645 -79.600831		CNTY: Preston						
EXISTING TUBULAR CONFIGURATION		OD (inches)	WEIGHT (PPF)	GRADE	THREAD	DEPTH (ft) TOP	DEPTH (ft) BOTTOM	WELLLINE #: X76SW7520	FORMATION: refer to MISC INFORMATION section	
Conductor	13 3/8	48	H-40			0	32	PAY: 6176' MD	ELEVATIONS	
Surface	9 5/8	36	K-55			0	2218	TD: 6176' MD	TMG:	
Intermediate	7	23	K-55	Seal-lok		0	5961	PBTD:	KB-RF:	
Production	4 1/2	11.6	N-80	8rd		0	6160	KB-GL:	GL: 2414	
Production								CSG	DEPTH	WELLBORE SCHEMATIC
Perforations	Perf clusteter intervals starting from 5808' through 6088' 6 SPF & 60deg phasing.								Refer to "Wellbore Diagram" tab	
Wellhead	3k API wellhead, 4.5 flowstring x 7" support, 2" 11-1/2V wellhead connection									
Refer to "Wellbore Diagram" tab										
D.H. EQUIPMENT		TYPE				DEPTH (ft)				
PACKER INFO:		Upper								
		Lower								
NIPPLE PROFILE INFO:		Upper								
		Lower								
SSSV INFO:										
CEMENT INFO								Calc TOC (ft)		
13 3/8	Cmt'd to surface with 40 sx Neat cmt.							0		
9 5/8	Cmt'd to surface with 680 sx Koolite cmt.							0		
7	Cmt'd primary with 410 gal Latex & 200 cu ft Kolite cmt, gel to surface.							4269		
4 1/2	Cmt'd primary with 170 sx Portland cmt. Volumetric cement top -->							4172 *		
* poor to partial cement quality per 1997 SBT log as per below										
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):		2717	psig	* input						
* Maximum storage field surface pressure (MAOP):		2350	psig	* input						
Well TD:		6145	ft TVD	* input						
Top of storage zone (Chert formation):		5760	ft TVD	* input						
Calculated maximum BH pressure at top of zone:		2729	psig	* output Kill Fluid (TOZ)						
Kill fluid density at top of zone @: 200 psi OB		9.78	ppg	* output Kill Fluid (TOZ)						
Proposed depth of BP (n/a):		5760	ft TVD	* input						
Calculated maximum BH pressure at depth of BP:		2729	psig	* output Kill Fluid (BP)						
Kill fluid density at depth of BP @: 200 psi OB		9.78	ppg	* output Kill Fluid (BP)						
Required minimum kill fluid density:		9.8	ppg	* greater of the two						
Current AOF:		24,399	MCF/D							
Top historical AOF:		42,479	MCF/D							
Last MVRT:		1/02/2020 Baker Atlas flux leakage log showed no metal loss defects over 20%. Greatest external metal loss of 15.25% was at 2982.69'.								
SBT:		10/20/1997 Western Atlas CBL shows intervals of poor to partial cement quality from 6130' - 4976'. See elogs tab for more.								
PROPOSED YEAR:	2024	ERCB PERMIT REQD:	YES	NO	(Internal) PDS Required:	YES	NO			
PREPARED BY:	Maria Medvedeva	DT. APPLIED:			ISSUED:			APPROVED:	Invalid signature	
PREP DATE:	4/19/2023	REVIEWED BY:	James Amos							

James Amos 7/18/2023

09/29/2023

4707700147W

WELL JOB PLAN		STS Well Engineering & Technology		PAGE 2	DATE JOB PREPARED: 4/19/2023
Objective: Deliverability Enhancement				LAST PROFILE UPDATE:	
TITLE: FWW. CTCO / acid stimulate if well performance is not restored following FW wash		WELL: 7520 (AC)		WORK TYPE: Deliverability	
FIELD: Terra Alta South		SHL (Lat/Long): 39.360645 -79.600831		API: 47-077-00147	
STAT: WV		BHL (Lat/Long): 39.360645 -79.600831		CNTY: Preston	
TWP: Union					

PROCEDURE

NOTE: Well has a history of salt bridges. MV and SV replaced in early 2023.

- 1 Obtain State Permit, EM&CP, pipeline crossing evaluation, call before you dig, etc. Prepare site specific SPCC.
- 2 Notify landowner.
- 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. If required, notify State/Federal regulatory agencies prior to beginning work.
- 6 Prepare access road and well site. Install ECD's per EM&CP.
- 7 Service all wellhead valves.
- 8 Document initial flowstring and 4-1/2' x 7" annular pressures.
- 9 If work occurs between May 01 and September 01, injection season, pump 40 bbls TFW down casing and place well back in service. If work occurs between September 01 and April 31, withdrawl season, pump 40 bbls TFW down casing, allow to soak 2 days and then place well back in service.
- 10 Perform a 45-min flowback test. Pending flowback results, may have to perform a CTCO and acid stimulation (Step 20+)
- 11 Notify WET Project Support that well is back in-service.
- 12 Reclaim R&L.
- 13 Commission well by completing, processing, and retain for records the Wellsite Review and Turnover Form.
- 14 Notify REG / WE&T that well is ready for storage service.

If flowback test results dictacte, complete a CTCO and acid stimulation as per below.

- 20 MIRU 1.75" CTU and H2S monitoring service.
- 21 Flow well. If well won't flow unload with nitrogen.
- 22 Perform CTCO and 2000 gallons of 15% HCL treatment.
- 23 RDMO CTU.
- 24 Flow well to recover treatment fluids.
- 25 Perform final 45-min flowback test thru 3/4" choke.
- 26 Notify WET Project Support that well is back in-service.
- 27 Reclaim R&L.
- 28 Reconnect well line.
- 29 Paint wellhead and well line.
- 30 Commission well by completing, processing, and retain for records the Wellsite Review and Turnover Form.
- 31 Notify REG that well is ready for storage service.

*James Amos
7/18/2023*

a Medvedeva	REVIEWED BY: <i>James Amos</i>	APPROVED: <i>Brent Criser</i>
1/19/2023		

09/29/2023

Terra Alta South 7520 (API 47-077-00147) - CTCO and Acid Treatment

API 3K wellhead, 4-1/2" FS x 7" support

4-1/2" 11.6# N-80 csg set at 6160

Burst: 7780 psig new (6224 psig assuming 80% safety factor)

Capacity: [6160 ft x 0.6528 gal/ft] = 4040.82 gals; x 0.0155 bbl/ft = 96.21 bbls

Openhole

Capacity 6-1/8" hole: 16 ft x 0.03644 bbl/ft = 0.59 bbls

Total Capacity: 97 bbls

Chert: 5760 – 5956

Oriskany: 5966 – 6096

Perforations: 5808' through 6088' 6 SPF & 60deg phasing

TD: 6176

Fluids Needed

2000 gals 15% HCl acid** treated with corrosion inhibitor, iron control/sequestering agent, H₂S scavenger, and surfactant. Biocide, clay stabilizer, and surfactant to treat +/- 300 bbls fresh water. Liquid caustic on location in case need to neutralize flowback fluids.

** Prior to acid treatment verify that the 4-1/2" x 7" and 7" x 9-5/8" annuli are full, top off with fresh water treated with biocide, corrosion inhibitor, and clay stabilizer as needed.*

CTCO Procedure

1. MIRU 1.75" CTU and H₂S monitoring service.
2. Load CT with treated fresh water (TFW) and pressure test CT and BOPs to 2500 psig.
** maximum pressure on wellhead components 2500 psig*
3. Open well and RIH under static conditions.
4. At 5700' begin jetting with foamed TFW. Jet to TD and cycle up and down across interval 5800' – TD.
5. Begin 15% HCl acid foamed to 50Q and cycle up and down across interval 5800' – TD until 1000 gals acid gone.
6. Chase acid with 40 bbls TFW foamed to 50Q to neutralize wellbore / flowback fluids.
7. Flow well while POOH to 5600'. Flow until returns are relatively dry.
8. CTU on stand-by until after acid treatment to unload wellbore if needed.

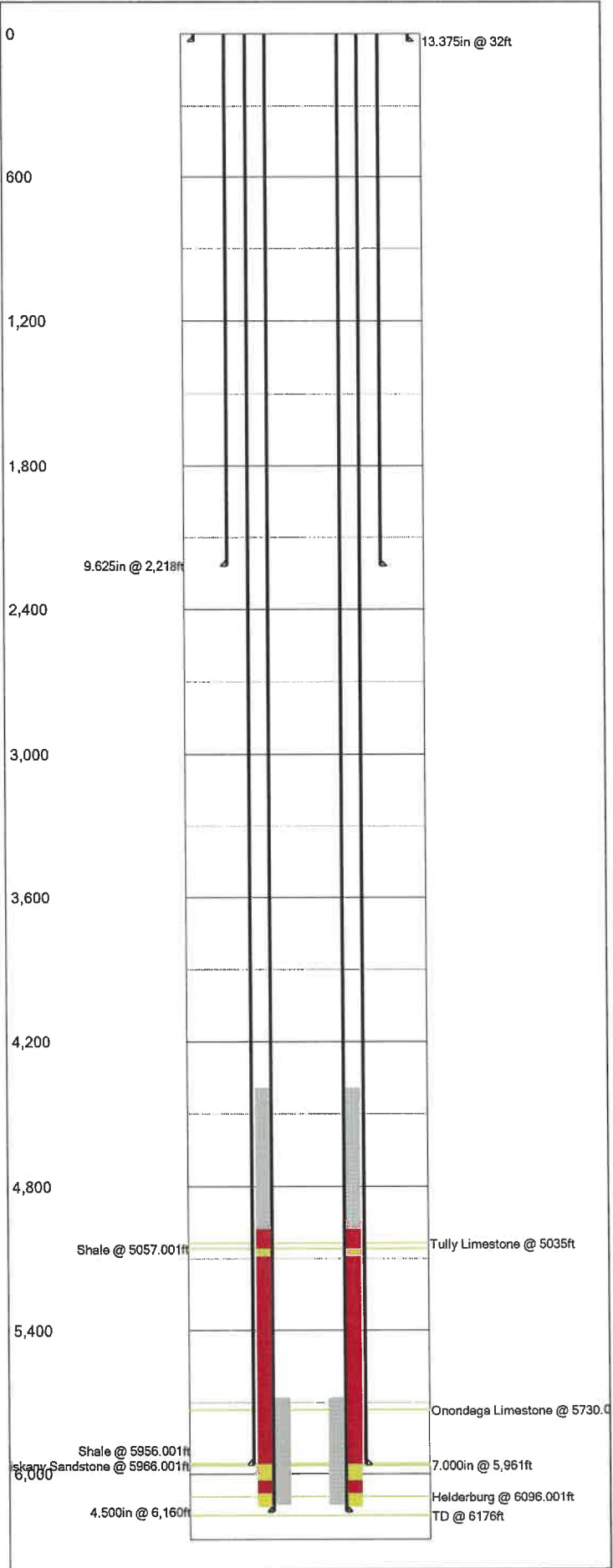
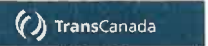
Acid Treatment

1. RU to perform acid treatment down casing as follows:

▪ 1000 gals 15% HCl acid	4-6 BPM	Max Treating Press = 2500 psig
▪ 20 bbls bbls TFW	4-6 BPM	Max Treating Press = 2000 psig
▪ 20 bbls bbls TFW	4-6 BPM	Max Treating Press = 1500 psig
▪ 20 bbls bbls TFW	4-6 BPM	Max Treating Press = 1000 psig
▪ 15 bbls TFW	2-4 BPM	Max Treating Press = 1000 psig
		▪ SHUT DOWN FOR 30 minutes TO ALLOW ACID TO SOAK
▪ 10 bbls TFW	2-3 BPM	Max Treating Press = 1000 psig
		▪ SHUT DOWN FOR 30 minutes TO ALLOW ACID TO SOAK
▪ 15 bbls TFW	2-3 BPM	Max Treating Press = 1000 psig

2. Flow well. If well quits flowing, RBIH with CT unloading fluid with N2.
3. RDMO and release CTU / acid equipment.

Last Updated: 3/8/2023 12:06 PM



Field Name		Lease Name		Well No.	
Terra Alta South		Terra Alta South - 07520		07520	
County		State		API No.	
PRESTON		WV		47077001470000	
Version		Version Tag			
		0 Current Completion			
G.L. (ft)	K.B. (ft)	Sec.	Township/Block	Range/Survey	
6,176.0		172-129	UNION	100407520	
Operator		Well Status		Latitude	Longitude
TransCanada		ACTIVE		39.3606	-79.6008
Dist. N/S (ft)	N/S Line	Dist. E/W (ft)	E/W Line	Footage From	
PropNum		Spud Date		Comp. Date	
"LINDSLEY E. NICE, ET UX"		10/1/1970			
Additional Information					
Other1		Other2		Other3	
Terra Alta South		1004		100407520	
Prepared By		Updated By		Last Updated	
				3/8/2023 12:06 PM	

Tubular Summary						
Date	Description	O.D. (in)	Wt (lb/ft)	Grade	Top (MD ft)	Bottom (MD ft)
10/1/1970	Drive Pipe	13.375	48.00	H-40	0	32
10/2/1970	Surface Pipe	9.625	36.00	K-55	0	2,218
10/3/1970	Casing	7.000	23.00	K-55	0	5,961
10/13/1997	Casing	4.500	11.60	N-80	0	6,160

Casing Cement Summary						
C	Date	No. Sx	Csg. O.D. (in)	Top (MD ft)	Bottom (MD ft)	Comments
	10/20/1997	0	4.500	4,393	4,977	Free Pipe
	10/20/1997	0	4.500	4,977	5,058	Poor Quality
	10/20/1997	0	4.500	5,058	5,090	Partial Quality
	10/20/1997	0	4.500	5,090	5,958	Poor Quality
	10/20/1997	0	4.500	5,958	6,025	Partial Quality
	10/20/1997	0	4.500	6,025	6,082	Poor Quality
	10/20/1997	0	4.500	6,082	6,139	Partial Quality
	5/26/1989	0	2.375	5,680	6,130	Free Pipe

Formation Tops Summary		
Formation	Top (TVD ft)	Comments
Tully Limestone	5,035	
Shale	5,057	
Onondaga Limestone	5,730	
Shale	5,956	
Oriskany Sandstone	5,966	Comments: Gas.
Helderburg	6,096	
TD	6,176	

Individual Well Detail Report History

Field Name: Terra Alta South
Well Number: 07520

Date:	Hours:	Operation Details:	Rig Contractor:
10-07-97	3.5	Circulated 5 joints to 6050' and circulated bottoms up. Pulled back up into 7" casing and shut down for the night.	Welltech Rig #290
10-08-97	11	Trip in hole with last 8 joints of drill pipe to TD 6176'. Circulated after each connection. Minor bridging encountered. TOOH laying down drill pipe.	Welltech Rig #290
10-09-97	11	Finish laying down drill pipe and drill collars, make up 4-1/2" handling tools and unload 4-1/2" casing onto pipe racks, Dug small pit for cement clean up.	Welltech Rig #290
10-10-97	11	Ran 144 joints of 4-1/2" , N-80 casing to bottom of 7" casing and loaded with mud.	Welltech Rig #290
10-13-97	3.5	Completed running 4-1/2" , N-80 casing to TD. 6178' of casing run. Setting depth 6160' (G.L.). 18' of casing above GL. Circulated and rotated last 100' of casing to TD. Waited on HES. 151 joints of 4-1/2" casing run total. 6146'(GL) latch down baffle. 6156'(GL) float collar. 6160'(GL) 4-3/4" used tooth bit. TD of casing 12 centralizers run on every third joint from bottom.	Welltech Rig #290
	3	HES rigged up. Pumped 80 bbl of mud with 5 gal. Anhib II. Pumped 5 bbl of fresh water. Pumped 6 bbl of mud flush. Pumped 36.5 bbl of cement: 170 sks. Portland cement w/ .6% Halad 344, .2% HR-5, 1/4#/sk. D-Air, 1/4# /sk. Flocele and 10 % salt. Released latch down plug. Pumped 96 bbl water. Plug landed at 1100#, pressured up to 2000#. Float held.	
	1	HES rigged down.	
10-14-97	8	Removed BOP and wellhead spool. Removed old seal assembly. New seal assembly would not fit existing braden head. Wait on new seal assembly from Kaverner National.	Welltech Rig #290
10-15-97	10	Had to have seal assembly turned down to fit braden head. Cut and beveled 4-1/2" casing and installed wellhead with 4-1/16" Newman master valve. Tested wellhead to 2800 psig for 15 minutes. HES pressure tested casing to 2800 psig for 1 hour.	Welltech Rig #290
10-16-97	6	Rigged up swab tools and swab 2000' of fluid off well. Rig down service rig and move to well 7534.	Welltech Rig #290
10-20-97		Devonian Industries hauled a load of fluid from the flowback tank and a load of fluid from the cementing pit tp Allegheny Liquid. No PCB tests were required - fluid was never in the well.	WALS
04-Jun-98			

NOTICE OF STORAGE WELL STATUS CHANGE

4707700,147W
CORRECTED

FORWARD ORIGINAL ONLY TO STORAGE DEPARTMENT.

SIGNATURE		STORAGE FIELD		COMPANY WELL NUMBER			
SOUTHEAST		TERRA ALTA SOUTH		7520			
MINE NAME		TOWNSHIP-DISTRICT	COUNTY	STATE	LEASE-DEED NO.	ACRES	DATE COMP.
L. NICE		UNION	PRESTON	WV	91097	53	8 10 8
IS THIS AN ACTIVE WELL ON FARM		(THIS BLOCK FOR STORAGE DEPT. USE ONLY)					
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		<input type="checkbox"/> SURRENDER LEASE		<input type="checkbox"/> RENEW LEASE		<input type="checkbox"/> OTHER	

WELL STATUS PRIOR TO THIS REPORT	<input type="checkbox"/> PRODUCTION	<input checked="" type="checkbox"/> STORAGE
	<input type="checkbox"/> DRILLING	<input type="checkbox"/> ACTIVE
	<input type="checkbox"/> S.I. COMPLETION	<input type="checkbox"/> ABANDONED
WELL STATUS CHANGE OR WORK PERFORMED	<input type="checkbox"/> COMPLETED	<input type="checkbox"/> Gas <input type="checkbox"/> Dry
	<input type="checkbox"/> INITIAL TURN ON	
	<input type="checkbox"/> REDRILLED FOR STORAGE	<input type="checkbox"/> Retained <input type="checkbox"/> Abandoned
	<input checked="" type="checkbox"/> RECONDITIONED	<input checked="" type="checkbox"/> Retained <input type="checkbox"/> Abandoned
	<input type="checkbox"/> TRANSFERRED TO	<input type="checkbox"/> Production <input type="checkbox"/> Storage
	<input type="checkbox"/> PURCHASED FOR STORAGE	
	<input type="checkbox"/> DRILLED DEEPER	
	<input type="checkbox"/> PLUGGED AND ABANDONED	
	<input type="checkbox"/> SOLD	

Remarks (PARTIAL INTEREST WELL-LIST PARTICIPANTS & PERCENTAGES-NAME OPERATOR)

REMOVED TUBING FROM WELL. CLEANED WELL TO 6159' GL. RERAN 2-3/8" 4.6 PPF SEAL-LOK 6033.94' ~~6033.94'~~ 6034' GL 6034' TUBING TO ~~6033.94'~~ WITH 4X2 SWEDGE, 2" 11-1/2" COLLAR, 8RD X 11-1/2" CHANGEOVER, 2" 8RD COLLAR, 8RD X SEAL-LOK CHANGEOVER, 2" SEAL-LOK COLLAR, 2-3/8" MODEL "F", 1.81" PORTED SEATING NIPPLE, WITH SEAL-LOK THREADS. MODIFIED WELLHEAD. ACIDIZED WELL TO RESTORE TO FORMER CONDITION.

DRILLED TO _____ feet _____ sand	PLUGGED BACK <input type="checkbox"/> NO <input type="checkbox"/> YES
WELL TREATMENT <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	If Yes, to depth of _____ feet _____ sand
If Yes, Type of Treatment	4000 GAL DOUBLE STRENGTH 15% FE ACID, 1000 GAL CLAYSOL, AND 180,000 SCF OF NITROGEN.

COMPLETION DATA (if applicable)	OPEN (if applicable)	BEFORE TREATMENT	TYPE OF GAUGE			
		Gauge Reading _____ inches	<input type="checkbox"/> Orifice Well Tester <input type="checkbox"/> Pilot Tube <input type="checkbox"/> Other (Specify) N/A			
	FLOW	FLOW _____ cu ft/day	DATE	ROCK PRESSURE _____ psig in _____ hours	DATE	
		FINAL READING	TYPE OF GAUGE			
TEST	<input type="checkbox"/> Shut In <input type="checkbox"/> Turned On	Gauge Reading _____ inches	<input type="checkbox"/> Orifice Well Tester <input type="checkbox"/> Pilot Tube <input type="checkbox"/> Other (Specify) N/A			
		FLOW _____ cu ft/day	DATE	ROCK PRESSURE _____ psig in _____ hours	DATE	

AUTHORIZATION FOR WORK PERFORMED	Budget Number	3972
	Well Work Order	1668
	Permit Number	47-077-00147
WORK PERFORMED BY	MACHINE NUMBER OR CONTRACTORS NAME	
	I. L. MORRIS	

For Storage Dept. Use Only		
SECTION	NOTED BY	DATE
STORAGE ENGINEER		
GEOLOGY		
MONITORING		
OFFICE & BUDGETS		

led By Mark A. Numa Date 8-23-89

led By _____ Date _____

MANAGER-DRILLING & FIELD LIAISON

09/29/2023

4707700147

Form OG-10



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

Rotary
Spudder
Cable Tools
Storage

Quadrangle Kingwood
Permit No. Pres. 147

WELL RECORD

Oil or Gas Well Gas
(KIND)

Company Atlantic Seaboard Corporation
Address P. O. Box 1273, Charleston, W. Va. 25325
Farm Lindsley E. Nice Acres 53
Location (waters) Garlic Creek
Well No. X-76-S-7520 Elev. 2407.60'
District Union County Preston
The surface of tract is owned in fee by Lindsley E. Nice
Address Rowlesburg, W. Va.
Mineral rights are owned by Lindsley E. Nice
Address Rowlesburg, W. Va.
Drilling commenced September 3, 1970
Drilling completed October 22, 1970
Date Shot From To
With
Open Flow /10ths Water in Inch
/10ths Merc. in Inch
Volume Cu. Ft.
Rock Pressure lbs. hrs.
Oil bbls. 1st 24 hrs.
WELL ACIDIZED (DETAILS) (See Reverse Side)
WELL FRACTURED (DETAILS)

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			Kind of Packer
16			
17 13 3/8"	32'	32'	Size of
17 9 5/8"	2218'	2218'	Depth set
8 1/4"			
6 3/4"	5961'	5961'	
5 3/16"			
4 1/2"			
3"			Perf. top (See Reverse Side)
2 2 3/8"	6150'	6150'	Perf. bottom
Liners Used			Perf. top
			Perf. bottom

Attach copy of cementing record.
CASING CEMENTED SIZE No. Ft. Date
Amount of cement used (bags) (See Reverse Side)
Name of Service Co. Dowell
COAL WAS ENCOUNTERED AT None FEET INCHES
 FEET INCHES FEET INCHES
 FEET INCHES FEET INCHES

RESULT AFTER TREATMENT (Initial open Flow or 100% 20.0 M)
ROCK PRESSURE AFTER TREATMENT 1600 # HOURS 24
Fresh Water Feet Salt Water Feet
Producing Sand Depth

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Siltstone & Shale			0	5035	Measured	from KB	
Tully Lime			5035	5057			
Shale			5057	5730			
Onondaga Lime			5730	5760			
Chert			5760	5956			
Shale			5956	5966			
Oriskany Sand			5966	6096	Gas		
Helderberg Lime			6096				
Total Depth				6147			

(over)

09/29/2023

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
NOTE:							
13 3/8"							48#/ft., H-40, casing cemented to surface with 40 sacks of neat cement plus 2% CaCl ₂ , September 4, 1970.
9 5/8"							36#/ft., K-55, casing cemented to surface with 680 sacks of Kolite cement plus 2% CaCl ₂ , September 10, 1970.
7"							23#/ft., K-55, Seal-lok casing cemented in 1000' with 410 gallons latex cement and 200 cubic feet of Kolite cement, October 18, 1970. Gel drilling mud to surface. Pipe set 13' from top of Oriskany sand.
2 3/8"							4.7#/ft., J-55, Seal-lok tubing, run to T. D. (1) Baker Model "J" ported seating nipple, (1) Baker BFC Model "L" sliding sleeve. Sliding sleeve is 423' off bottom, October 22, 1970.
Perforations:							
							Chert (5816' - 5960') with 144, 3 1/2" Alum Jet shots. Oriskany open hole. Basin Surveys Inc., October 21, 1970.
Stimulation:							
							Halliburton stimulated both the Oriskany and chert pays using one (1) drum Baroid B-11, 1500 gallons MCA 15% mud acid and 700 bbls. of fresh water. Average pressure 1800#, average pump rate 18 BPM, October 28, 1970.
Logging: Gamma Ray - P.D.C.: 6147' - 4900', October 21, 1970.							

Date November 20, 19 70
 APPROVED Atlantic Seaboard Corp. Owner
 By [Signature] Secret
 (Title)

WW-2A
(Rev. 6-14)

1). Date: 07.13.2023
2.) Operator's Well Number Terra Alta South 752
State County Permit
3.) API Well No.: 47- 077 - 00147

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 Richard III & Vanessa Bartlett Address 1727 Lake Shore Dr. Oakland, MD 21550
(b) Name _____ Address _____
(c) Name _____ Address _____
5) (a) Coal Operator Name Not operated Address _____
(b) Coal Owner(s) with Declaration Name Not operated Address _____
(c) Coal Lessee with Declaration Name Not operated Address _____
6) Inspector Gavne Knotowski Address 21 Energy Way Gorman, WV 26720 Telephone 304.546.8171

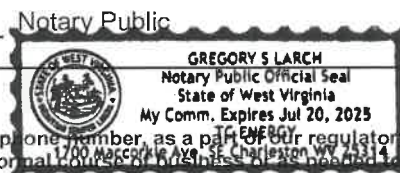
TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

OR Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas
 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)
 Publication (Notice of Publication attached)

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: 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

Subscribed and sworn before me this 13th day of July, 2023
Gregory S. Larch
My Commission Expires July 20 2025
Oil and Gas Privacy Notice



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. You must 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

09/29/2023

4707700147W

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



July 13, 2023

Richard P. Bartlett III and Vanessa N. Bartlett
1727 Lake Shore Dr
Oakland, MD 21550

Columbia Gas Transmission, LLC is applying for a permit to the WV Department of Environmental Protection – Office of Oil and Gas, to work on an existing underground natural gas storage well located on property owned by you. As reference, the field and well ID is Terra Alta South 7520 (API 47-077-00147).

As part of the well permitting process, Columbia, the well operator, is required to provide a copy of all applicable permit application forms for your review and record retention.

Regards,

Maria Medvedeva
Senior Wells Engineer
Well Engineering & Technology
Columbia Gas Transmission, LLC

**U.S. Postal Service™
CERTIFIED MAIL® RECEIPT**
Domestic Mail Only

For delivery information, visit our website at www.usps.com®.

Oakland, MD 21550

Certified Mail Fee	\$4.35	
Extra Services & Fees (check box, add fee as appropriate)		\$3.55
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00	
<input type="checkbox"/> Adult Signature Required	\$0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00	
Postage	\$9.65	
Total Postage and Fees	\$17.55	

Postmark Here: 07/13/2023

Sent To: Richard & Vanessa Bartlett
Street and Apt. No., or PO Box No.
City, State, ZIP+4®: TAS 7520

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION		COMPLETE THIS SECTION ON DELIVERY															
<ul style="list-style-type: none"> Complete items 1, 2, and 3. Print your name and address on the reverse so that we can return the card to you. Attach this card to the back of the mailpiece, or on the front if space permits. 		<p>A. Signature <input checked="" type="checkbox"/> Vanessa Bartlett <input type="checkbox"/> Agent <input type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) <i>VB</i> C. Date of Delivery</p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p>															
<p>1. Article Addressed to: Richard & Vanessa Bartlett 1727 Lake Shore Dr. Oakland, MD 21550</p>		<p>3. Service Type</p> <table border="0"> <tr> <td><input type="checkbox"/> Adult Signature</td> <td><input type="checkbox"/> Priority Mail Express®</td> </tr> <tr> <td><input type="checkbox"/> Adult Signature Restricted Delivery</td> <td><input type="checkbox"/> Registered Mail™</td> </tr> <tr> <td><input type="checkbox"/> Certified Mail®</td> <td><input type="checkbox"/> Registered Mail Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Certified Mail Restricted Delivery</td> <td><input type="checkbox"/> Signature Confirmation™</td> </tr> <tr> <td><input type="checkbox"/> Collect on Delivery</td> <td><input type="checkbox"/> Signature Confirmation Restricted Delivery</td> </tr> <tr> <td><input type="checkbox"/> Insured Mail</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)</td> <td></td> </tr> </table>		<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®	<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™	<input type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery	<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Signature Confirmation™	<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery	<input type="checkbox"/> Insured Mail		<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)	
<input type="checkbox"/> Adult Signature	<input type="checkbox"/> Priority Mail Express®																
<input type="checkbox"/> Adult Signature Restricted Delivery	<input type="checkbox"/> Registered Mail™																
<input type="checkbox"/> Certified Mail®	<input type="checkbox"/> Registered Mail Restricted Delivery																
<input type="checkbox"/> Certified Mail Restricted Delivery	<input type="checkbox"/> Signature Confirmation™																
<input type="checkbox"/> Collect on Delivery	<input type="checkbox"/> Signature Confirmation Restricted Delivery																
<input type="checkbox"/> Insured Mail																	
<input type="checkbox"/> Insured Mail Restricted Delivery (over \$500)																	
<p>2. Article Number (Transfer from certificate) 7022 2410 0002 6396 2990</p>		<p>Barcode: 9590 9402 7630 2122 5682 24</p>															

www.tcenergy.com

PS Form 3811, July 2020 PSN 7530-02-000-9053

09/29/2023 Domestic Return Receipt

WW-2A Surface Waiver
(4/16)

SURFACE OWNER WAIVER

County Preston

Operator
Operator well number

Columbia Gas Transmission LLC
Terra Alta South 7520

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A

The well operator named on page WW2A 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, and attachments consisting of pages 1 through ___ including a work order on Form WW2-B, a survey plat, WW-9, 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 _____

Print Name

Company Name _____
By _____
Its _____ Date _____

Signature Date _____

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

* coal not operated

County Preston

Operator Columbia Gas Transmission LLC

Operator's Well Number Terra Alta South 7520

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-2A1
(Rev. 1/11)

Operator's Well Number Terra Alta South 7520

**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
Lindsley E. Nice, et al	United Fuel Gas Company	Storage Lease - 1091097-000	406 / 269

**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

Maria Medvedeva

Senior Wells Engineer Storage Technical Services

09/29/2023

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Business and Licensing

Online Data Services Help

Business Organization Detail

NOTICE: The West Virginia Secretary of State's Office makes every reasonable effort to ensure the accuracy of information. However, we make no representation or warranty as to the correctness or completeness of the information. If information is missing from this page, it is not in the The West Virginia Secretary of State's database.

COLUMBIA GAS TRANSMISSION, LLC

Organization Information								
Org Type	Effective Date	Established Date	Filing Date	Charter	Class	Sec Type	Termination Date	Termination Reason
LLC Limited Liability Company	5/27/1971		5/27/1971	Foreign	Profit			

Organization Information			
Business Purpose	4862 - Transportation and Warehousing - Pipeline Transportation - Pipeline Transportation of Natural Gas		Capital Stock
Charter County		Control Number	0
Charter State	DE	Excess Acres	0
At Will Term	A	Member Managed	MBR
At Will Term Years		Par Value	
Authorized Shares		Young Entrepreneur	Not Specified

Addresses	
Type	Address
Mailing Address	700 LOUISIANA STREET, STE 1300 HOUSTON, TX, 77002 USA
Notice of Process Address	CORPORATION SERVICE COMPANY 209 WEST WASHINGTON STREET CHARLESTON, WV, 25302
Principal Office Address	700 LOUISIANA STREET, STE 1300 HOUSTON, TX, 77002 USA
Type	Address

Officers	
Type	Name/Address
Member	COLUMBIA PIPELINE GROUP, INC. 700 LOUISIANA STREET SUITE 700 HOUSTON, TX, 77002
Type	Name/Address

Name Changes	
Date	Old Name
1/30/2009	COLUMBIA GAS TRANSMISSION CORPORATION
Date	Old Name

Subsidiaries	
Name	Address
	NISOURCE, INC 801 E 86TH AVENUE MERRILLVILLE, IN, 46410 USA
Name	Address

Date	Amendment
1/30/2009	CONVERSION FILED CHANGING NAME FROM COLUMBIA GAS TRANSMISSION CORPORATION

11/19/1997	AMEND TO ARTICLES OF INCORPORATION
1/4/1991	MERGER; MERGING COMMONWEALTH GAS PIPELINE CORPORATION, A NON QUAL VA CORP, WITH AND INTO COLUMBIA GAS TRANSMISSION CORPORATION, A QUAL DE CORP, THE SURVIVOR.
11/14/1984	AMENDMENT: TO THE ARTICLES OF INCORPORATION.
3/31/1982	AMENDMENT: TO THE ARTICLES OF INCORPORATION.
3/2/1982	AMENDMENT: CERTIFICATE OF AMENDMENT
7/12/1973	AMENDMENT: CERTIFICATE OF AMENDMENT; ROLL 73
6/5/1973	AMENDMENT: CERTIFICATE OF INCORPORATION; ROLL 72.
1/23/1973	MERGER AMENDMENT: THE PRESTON OIL COMPANY MERGED WITH AND I NTO COLUMBIA GAS TRANSMISSION CORPORATION; ROLL 67.
7/29/1971	MERGER AMENDMENT: DUPLICATION OF ABOVE MENTIONED MERGER; RO LL 49
6/29/1971	MERGER: ATLANTIC SEABORD CORP., A DE CORP., CUMBERLAND AND ALLEGHENY GAS COMPANY, A WV CORP., THE MANUFACTURERS LIGHT AND HEAT COMPANY , A PA CORP., UNITED FUEL GAS COMPANY, A WV CORP., HOME GAS COMPANY, A NY CORP., KENTUCKY GAS TRANSMISSION CORPORATION, A DE CORP AND THE OHIO FUEL GAS COMPANY, AN OH CORP, MERGED WITH AND INTO COLUMBIA GAS TRANSMISSION CORPORATION, THE SURVIVOR. ROLL 48
Date	Amendment

Annual Reports

Filed For

2023
2022
2021
2020
2019
2018
2017
2016
2015
2014
2013
2012

2011
2010
2009
2008
2007
2005
2004
2003
2002
2001
2000
1999
Date filed

For more information, please contact the Secretary of State's Office at 304-558-8000.

Tuesday, July 25, 2023 — 10:08 AM

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Business Organization Detail

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UNITED FUEL GAS COMPANY

Organization Information								
Org Type	Effective Date	Established Date	Filing Date	Charter	Class	Sec Type	Termination Date	Termination Reason
C Corporation	2/1/1916		2/1/1916	Domestic	Profit		6/30/1971	Merger

Organization Information			
Business Purpose		Capital Stock	10000.0000
Charter County		Control Number	0
Charter State	WV	Excess Acres	0
At Will Term		Member Managed	
At Will Term Years		Par Value	100.000000
Authorized Shares	100	Young Entrepreneur	Not Specified

Addresses

Type	Address
Principal Office Address	CHARLESTON, WV, 25301
Type	Address

Date	Amendment
6/30/1971	UNITED FUEL GAS COMPANY, ATLANTIC SEABOARD CORPORATION, CUMBERLAND AND ALLEGHENY GAS COMPANY, MANUFACTURERS LIGHT AND HEAT COMPANY, HOME GAS COMPANY, KENTUCKY GAS TRANSMISSION CORPORATION AND THE OHIO FUEL GAS COMPANY MERGED WITH AND INTO COLUMBIA GAS TRANSMISSION CORPORATION, A DE CORP, THE SURVIVOR. ROLL 48
9/30/1963	AMERE GAS UTILITIES COMPANY MERGED WITH AND INTO UNITED FUEL GAS COMPANY, THE SURVIVOR FILED BOOK 238 PAGE
12/9/1954	INCREASE TO \$10,000,000 (4,000,000 SHARES WITH PAR VALUE AT \$25 PER SHARE) BOOK 216 PAGE 406
12/30/1946	INCREASE TO \$10,000,000 AND CHANGE OF PAR VALUE OF SHARES TO \$25 (400,000 SHARES AT A PAR VALUE OF \$25) BOOK 173 PAGE 296
12/21/1946	INCREASE TO \$400,000 (400,000 SHARES AT PAR VALUE OF \$1 PER SHARE) BOOK 173 PAGE 293
5/31/1944	ARTICLES OF INCORPORATION BOOK 175 PAGE 320
12/17/1938	AMENDMENT: CHANGE AUTHORIZED CAPITAL STOCK FROM 300,000 SHARES AT PAR VALUE OF \$100.00 TO 300,000 SHARES AT PAR VALUE OF \$1.00. BOOK 151 PAGE 451
12/17/1938	AMENDMENT: DECREASE AUTHORIZED STOCK FROM \$30,000,000.00 TO \$300,000.00
4/7/1920	INCREASE TO \$30,000 BOOK 102 PAGE 558
3/14/1916	CHANGE OF NAME FROM KERMIT GAS COMPANY BOOK 32 PAGE 440
Date	Amendment

For more information, please contact the Secretary of State's Office at 304-558-8000.

Tuesday, July 25, 2023 — 10:01 AM

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N/A

4707700147W

WW-2B1
(5-12)

Well No. Terra Alta South 7520

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.

09/29/2023

4707700147W

WW-9
(5/16)

API Number 47 - 077 - 00147
Operator's Well No. Terra Alta South 7520

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) McKown Creek of the Poca River Quadrangle Aurora, WV 7.5'

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

Will a pit be used? Yes No

If so, please describe anticipated pit waste: 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)
- Undergound Injection (UIC Permit Number 34-167-23862)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain Mud Master 64054; Reserve Environmental Services (WMGR 123SW008)
Appalachian Water Services (WMGR 123SW001))

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. Fresh water

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

Additives to be used in drilling medium? NaCl, biocide, soda ash, polymer, starch, CaCO3, HCl acid

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? To be managed by Waste Management and US Ecology for disposal at permitted landfill

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*

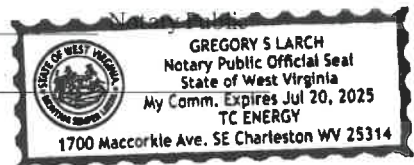
Company Official (Typed Name) Maria Medvedeva

Company Official Title Senior Wells Engineer Storage Technical Services

Subscribed and sworn before me this 13th day of July, 20 23

Gregory S. Larch

My commission expires July 20, 2025



09/29/2023

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: *Wayne J. Katar*

Comments:

Title: *Inspector* Date: *7/18/2023*

Field Reviewed? (*x*) Yes () No

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS
GROUNDWATER PROTECTION PLANOperator Name: Columbia Gas Transmission, LLCWatershed (HUC 10): McKown Creek of the Poca RiverQuad: Aurora, WV 7.5'Farm Name: LINDSLEY E. NICE, ET UX

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. Fuel, oil, and lubricants will be stored on site, but located within secondary containment. Accidental spills from construction equipment, well treatment fluids, and produced well fluids are the only possible source of contamination to groundwater. Drilling and flowback fluids to be stored in tanks. All accumulated fluids to be hauled off site to UIC disposal facility.

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. Tanks to be monitored daily for leaks. 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.

Big Run is at a distance of 0.12 miles SW.

Aurora Elementary and Junior High WV 9939036 is the closest Well Head Protection Area at a distance of 3.33 miles SE from discharge area.

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

N/A

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.

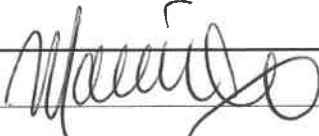
During routine tailgate and JSA meetings groundwater protection will be a topic of discussion.

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

No fertilizer will be stored on site. Fuel, oil, and lubricants will be stored on site, but located within secondary containment. Spills from construction equipment, well treatment fluids, and produced well fluids are the only possible source of contamination to groundwater.

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

Signature: _____



Date: _____



07.13.2023

WV DEP Reclamation Plan - Site Detail

Terra Alta South well 7520 (API 47-077-00147)

- BMPs and erosion control devices to be utilized per WV DEP guidelines and Columbia's WV Environmental Construction Standards
- Existing drainage, culverts, and road ditches to be maintained
- Minor grading and surface material to be applied as needed

Legend

-  CWA 7520
-  Terra Alta South - 07520

Existing access road

~0.5 acre

Limit of Proposed Disturbance on existing well site

Terra Alta South - 07520



300 ft

09/29/2023

Legend

Terra Alta South - 07520



WV DEP Reclamation Plan - Overview

Terra Alta South well 7520 (API 47-077-00147)

Best Management Practices (BMPs) and erosion control devices to be utilized per WV DEP guidelines and Columbia's WV Environmental Construction Standards. Existing drainage, culverts, and road ditches to be maintained. Minor grading and surface material to be applied as needed.



09/29/2023

4707700147W

(KINGWOOD)



AURORA QUADRANGLE
WEST VIRGINIA
TOPOGRAPHIC SERIES (OAKLAND)

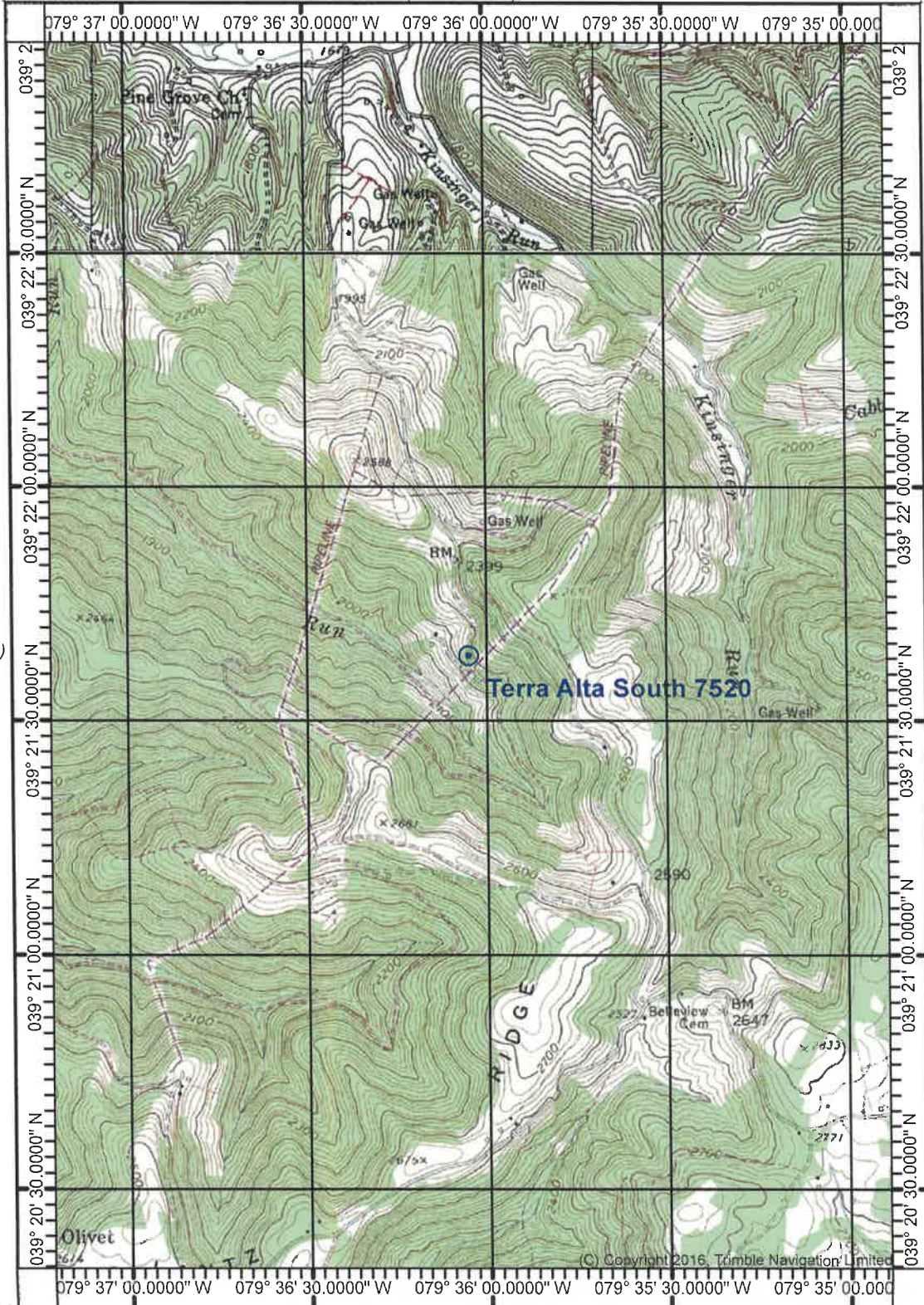
(TERRA ALTA)

079° 37' 12.8583" W
039° 22' 56.9711" N

079° 34' 52.5995" W
039° 22' 56.9711" N

(ROWLESBURG)

(TABLE ROCK)



039° 20' 19.2419" N
079° 37' 12.8583" W

Printed: Tue May 23, 2023
079° 34' 52.5995" W
039° 20' 19.2419" N

(ST GEORGE)

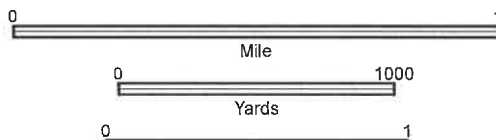
(LEAD MINE)
SCALE 1:24000

09/29/2026 (AVIS)

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

North American 1983 Datum (NAD83)

Declination

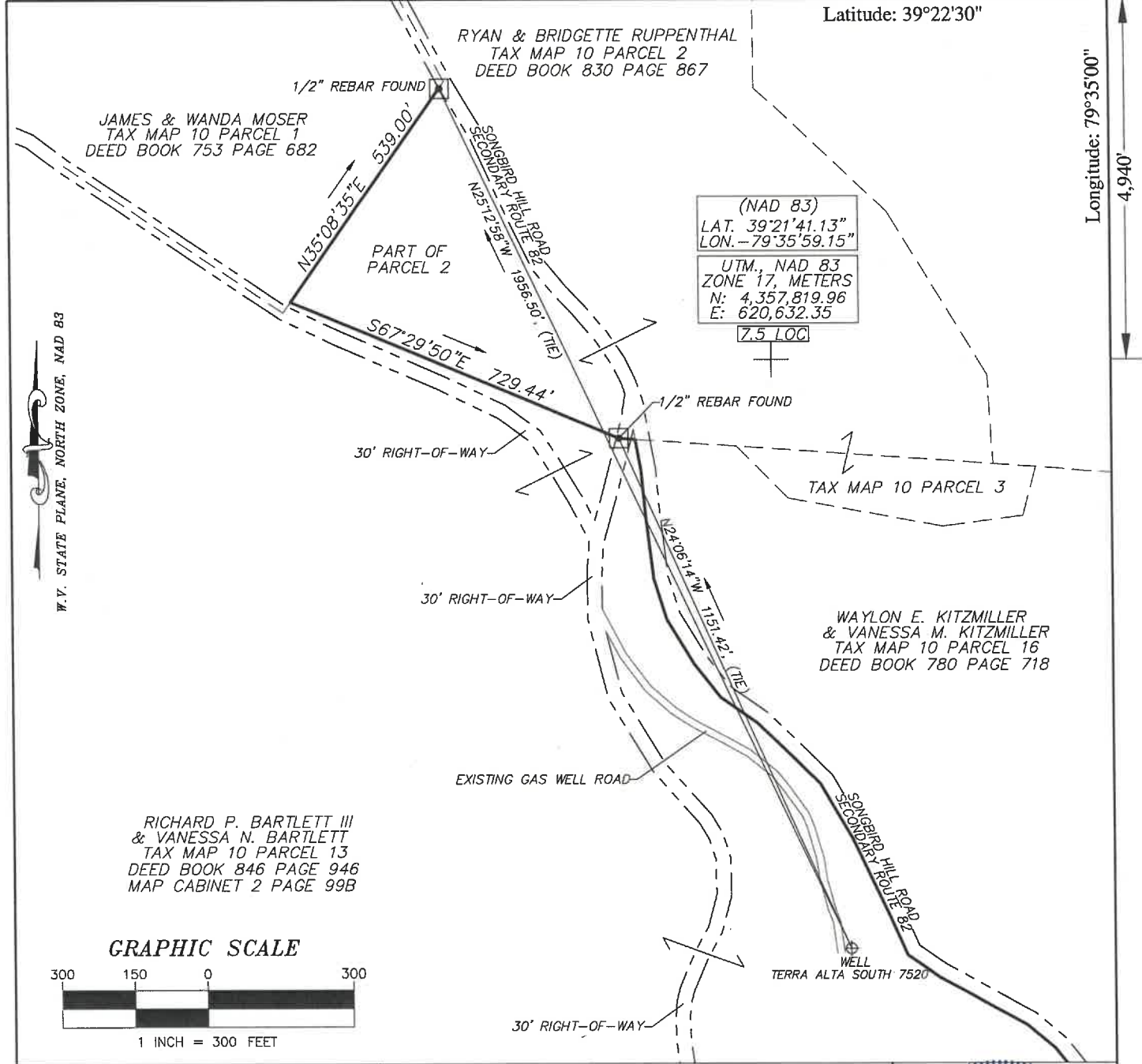


39079-C4-TM-024
AURORA, WV

4707700 147W
4,650'

Latitude: 39°22'30"

Longitude: 79°35'00"



W.V. STATE PLANE, NORTH ZONE, NAD 83

(NAD 83)
LAT. 39°21'41.13"
LON. -79°35'59.15"
UTM, NAD 83
ZONE 17, METERS
N: 4,357,819.96
E: 620,632.35
7.5 LOC

JAMES & WANDA MOSER
TAX MAP 10 PARCEL 1
DEED BOOK 753 PAGE 682

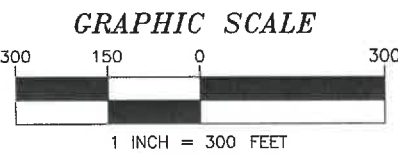
RYAN & BRIDGETTE RUPPENTHAL
TAX MAP 10 PARCEL 2
DEED BOOK 830 PAGE 867

PART OF
PARCEL 2

TAX MAP 10 PARCEL 3

WAYLON E. KITZMILLER
& VANESSA M. KITZMILLER
TAX MAP 10 PARCEL 16
DEED BOOK 780 PAGE 718

RICHARD P. BARTLETT III
& VANESSA N. BARTLETT
TAX MAP 10 PARCEL 13
DEED BOOK 846 PAGE 946
MAP CABINET 2 PAGE 99B



FILE # 23R-100_TERRADON
DRAWING # 7520
SCALE 1"=300'
MINIMUM DEGREE
OF ACCURACY 1 / 200
PROVEN SOURCE
OF ELEVATION SOKKIA GRX3
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 DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: Brian W. Lawrence
BRIAN W. LAWRENCE
R.P.E.: _____ L.L.S.: 2056



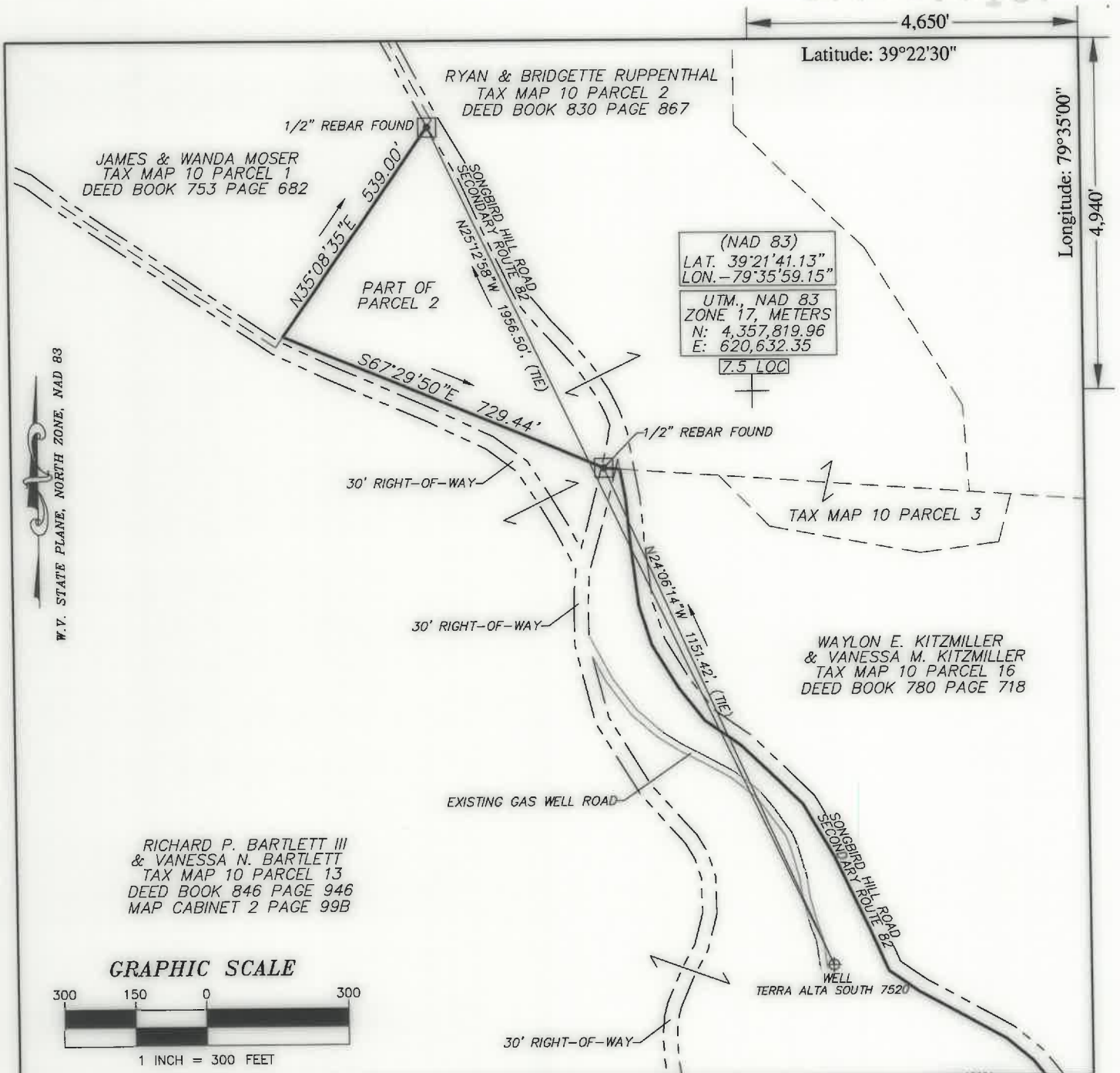
(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304



DATE: 07/10/2023
OPERATORS WELL #: Terra Alta South 7520
API WELL # 47 077 000147W
STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED McKOWN CREEK OF THE POCA RIVER ELEVATION: 9929/2023
COUNTY/DISTRICT PRESTON/UNION QUADRANGLE: AURORA, WV 7.5'
SURFACE OWNER RICHARD P. BARTLETT III ACREAGE 113.167



FILE # 23R-100_TERRADON
 DRAWING # 7520
 SCALE 1"=300'
 MINIMUM DEGREE OF ACCURACY 1 / 200
 PROVEN SOURCE OF ELEVATION SOKKIA GRX3 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 DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: Brian W. Lawrence
 BRIAN W. LAWRENCE
 R.P.E.: _____ L.L.S.: 2056



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP
 OFFICE OF OIL & GAS
 601 57TH STREET
 CHARLESTON, WV 25304



DATE: 07/10/2023
 OPERATORS WELL #: Terra Alta South 7520
 API WELL # 47 077 000147
 STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep
 Gas Liquid Injection Storage Shallow

WATERSHED McKOWN CREEK OF THE POCA RIVER ELEVATION: 2467.2
 COUNTY/DISTRICT PRESTON/UNION QUADRANGLE: AURORA, WV 7.5'
 SURFACE OWNER RICHARD P. BARTLETT III ACREAGE 113.167

09/29/2023

4707700147W

Columbia Gas Transmission, LLC

1700 MacCorkle Ave., SE, Charleston, WV, USA 25314



July 21, 2023

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

Enclosed is a well work permit application for the following Columbia Gas Transmission existing storage well:

Terra Alta South7520 (API 47-077-00147)

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,

A handwritten signature in black ink, appearing to read "Maria Medvedeva", written in a cursive style.

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

www.tcenergy.com

09/29/2023