



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

Friday, January 6, 2023
WELL WORK PERMIT
Vertical / Re-Work

COLUMBIA GAS TRANSMISSION, LLC
1700 MACCORKLE AVENUE SE

CHARLESTON, WV 25314

Re: Permit approval for 7417
47-077-00108-00-00

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: 7417
Farm Name: LEWIS, RALPH & JOANN P.
U.S. WELL NUMBER: 47-077-00108-00-00
Vertical Re-Work
Date Issued: 1/6/2023

Promoting a healthy environment.

01/13/2023

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. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. 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.
3. Well work activities shall not constitute a hazard to the safety of persons.
4. Operator shall provide the Office of Oil and Gas notification of the date that well Re-work commences on this well. Such notice shall be provided by sending an email to DEPOOGNOTIFY@WV.GOV and notifying the inspector 48 hours before well work is anticipated.

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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 Portland Terra Alta
Operator ID County District Quadrangle

2) Operator's Well Number: Terra Alta 7417 3) Elevation: 1860.9

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

5) Proposed Target Formation(s): Oriskany Proposed Target Depth: 4894

6) Proposed Total Depth: _____ Feet Formation at Proposed Total Depth: Oriskany

7) Approximate fresh water strata depths: No water shows reported by driller.

8) Approximate salt water depths: No salt water shows reported by driller.

9) Approximate coal seam depths: None anticipated

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10) Approximate void depths, (coal, Karst, other): None anticipated

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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)


Refer to attached wellbore diagram and job plan

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	20			21	21	-
Fresh Water	13-3/8	H-40	48	396	396	396
Coal						
Intermediate	9-5/8	H-540	32	1431	165	48
Production	7	J-55	23	4751	4751	2 stage - 206 and 1344
Tubing						
Liners						

Packers: Kind: _____
Sizes: _____
Depths Set _____

01/13/2023

WELL JOB PLAN		STS Well Engineering & Technology		PAGE 1	DATE JOB PREPARED: 9/22/2022			
Objective: Integrity Repair				LAST PROFILE UPDATE:				
TITLE: Casing leak repair		WELL ID: 7417		WORK TYPE: BF				
FIELD: Terra Alta		SHL (Lat/ Long) 39.417055 -79.580817		LEASE #: 90399				
STATE: WV		BHL (Lat/Long) 39.417055 -79.580817		API: 47-077-00108-00-00				
DIST/TWP: Portland				CNTY: Preston				
EXISTING TUBULAR CONFIGURATION		OD (inches)	WEIGHT (PPF)	GRADE	THREAD	DEPTH (ft)	WELLLINE #: X76W7417	
						TOP	BOTTOM	
Conductor		20				0	21	
Surface		13.375	48.00	H-40		0	396	
Intermediate		9.625	32.00	H-40		1266	1431	
Intermediate		7	23.00	J-55		0	4751	
Production		4.5	11.60	N-80		4310	4960	
Tubing		Refer to "Wellbore Diagram" tab						FORMATION: refer to MISC INFORMATION section
Perforations		4750 - 4925' 6 shots per foot						PAY: 5037
Wellhead		API 3k wellhead, 7-1/16" 8 round thread						TD: 5037
								PBTD:
								KB-GL: 1865
								CSG DEPTH WELLBORE SCHEMATIC
CEMENT INFO							Calc TOC (ft)	
20.00	Not cemented per records					-		
13.375	Cmt'd primary with 330 sx neat - cmt returned to surface.					0		
9.625	Cmt'd primary with 40 sx class A neat.					1278		
7	2 stage cement job for total of 1550cuft					0		
4.5	120 sx of standard 15.5ppg cmt					3557		
MISC INFORMATION								
REFER TO WELL SUMMARY RPT, WELLBORE DIAGRAM, ELOG, ETC. (see spreadsheet tabs below)								
Kill Fluid Calculation <small>* Note that kill fluid calculation tabs are hidden</small>								
Maximum calculated bottom-hole pressure (for reference only):		2694	psig	* input				
Maximum storage field surface pressure (MAOP):		2350	psig	* input				
Well TD:		5037	ft TVD	* input				
Top of Oriskany:		4894	ft TVD	* input				
Calculated maximum BH pressure at top of zone:		2674	psig	* output Kill Fluid				
Kill fluid density at top of zone @:		150	psi OB	11.10	ppg	* output Kill Fluid		
4.5" linter top:		4321	ft TVD	* input				
Calculated maximum BH pressure at depth of BP:		2636	psig	* output Kill Fluid				
Kill fluid density at depth of BP @:		150	psi OB	12.40	ppg	* output Kill Fluid		
DBP Depth:		4290	ft TVD	* input				
Calculated maximum BH pressure at depth of BP:		2634	psig	* output Kill Fluid				
Kill fluid density at depth of BP @:		150	psi OB	12.48	ppg	* output Kill Fluid		
7" DV tool:		3682	ft TVD	* input				
Calculated maximum BH pressure at depth of BP:		2595	psig	* output Kill Fluid				
Kill fluid density at depth of BP @:		150	psi OB	14.34	ppg	* output Kill Fluid		
Required minimum kill fluid density:		12.5	ppg					
Current AOF:		119,862 MCF/D						
Top historical AOF:		165,306 MCF/D						
MVRT:		Baker HRVRT 02.16.22 found one classable internal feature above the 20% threshold metal loss at 4' at 21% 13 3/8" and 9 5/8" external casings, 7" DV tool were identified in this data set.						
GR-N-DT-Sonan:		Baker GR-N_DT 02.16.22 sat down with 6.109" JCGR at 4317' and 1-1/16" GNT at 5019'. No decerning leak signature.						
SBT:		Western Atlas 9/13/96 SBT on the 7" shows good cement from 4718 to 4210', and 3666 - 3334' good w/some channeling (DV Stage Tool).						
PROPOSED YEAR:	2022 - 2023	ERCB PERMIT REQD:	YES	NO	X	(Internal) PDS I	Invalid signature	
PREPARED BY:	Maria Medvedeva	DT. APPLIED:	ISSUED:	REVIEWED BY:		APPROVED:	X 	
PREP DATE:	9/22/2022							

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WELL JOB PLAN		STS Well Engineering & Technology		PAGE 2	DATE JOB PREPARED: 9/22/2022
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TWP: Portland	BHL (Lat/Long): 39.417055	-79.580817	CNTY: Preston		

PROCEDURE

NOTE: MAASP is 175 psi due to well design. Wellhead seals were repacked and held pressure test 9/22/21. RBP set at 3758' on 6.08.22. Mixture of storage and native gas in annulus per Isotech gas sample testing.

- 1 Obtain State well work 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 (RE&G) 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 ~~Disconnect well line.~~
- 7 Prepare access road and well site. Install ECD's per EM&CP.
- 8 Service all wellhead valves.
- 9 Document and report to WE&T the initial casing and annular pressures.
- 10 Pull RBP. Flow well to recover wellbore fluids - fluid density of existing TFW fluid doesn't provide for over-balanced condition.
- 11 Install 7" composite DBP1 at 4290', correlated to GR-Neut-DT ran 2/16/22. Perform negative pressure test to 0 psig in increments. Load wellbore with viscosified 12.5 ppg kill weight fluid (150 psi over-balance at MAOP). Dump bail ~10' of cement on top of DBP. WOC.
- 12 Blow down casing pressure and top with kill weight drilling fluid.
- 13 MIRU service rig.
- 14 PU and set packer on 1 jt of drill pipe or tubing. Perform positive pressure test to 500 psig for 30 min as baseline.
- 15 Install 7" an upper composite DBP2 at 3630', correlated to GR-Neut-DT ran 2/16/22. Dump bail ~10' of cement on top of DBP. WOC.
- 16 PU and set packer on 1 jt of drill pipe or tubing. Perform positive pressure test to 500 psig for 30 min as baseline.

Note that pressure testing above may provide additional info regarding integrity of casing and/or stage cementing DV tool

- 17 Plumb annulus to FB tank, blow down, and leave venting.
- 18 Remove wellhead components down to casing head, spear 7" csg, and pull seals/slips.
- 19 Backoff and replace top joint of 7" csg.
- 20 Strip over and NU 13" annular BOPE on top of casing head. Function test.
- 21 Tighten 7" csg in 2000 lbs PU/stretch increments - STOP AT 28 Klbs.
- 22 Free-pt and wireline backoff 7" csg at ~1400'.
- 23 Separate 7" csg and circulate clean with viscosified drilling fluid.
- 24 Pull 7" csg. Clean threads and coat with Bestolife 2000 thread compound.
- 25 Run lead impression block on sandline to see what top of L/R nipple looks like.
- 26 Run 9-5/8" CBL.

Note: historic records indicate top of 9-5/8" casing is at 1266', calculated TOC per records is at 1278'.

- 27 Either cut / pull or mill-dress top of 9-5/8" csg to accommodate lead-seal external patch.
Note: if milling is dictated based on impression block results, then consult with mud engineer on fluid properties required to lift metal shavings OOH.
- 28 Run new 9-5/8" csg with lead-seal patch and stage cementing collar.
- 29 MIRU cementers. Establish circulation and cement 9-5/8" csg to surface with 15.6ppg Class A or Type 1 cement. WOC.
- 30 ND BOPE.
- 31 Cut down 9-5/8" csg and install 9 x 13 csg spool. Pressure test seals to 1000 psig.
- 32 NU double ram (blind + pipe) and annular BOPE. Function / pressure test low/high 250/2400 psig - confirm high test pressure with WE&T engineer.
- 33 TIH with 8-3/4" steel tooth roller-cone bit and drill cement. Wash down to top of 7" csg stub, circulate clean, and TOO.
- 34 Re-run 7" csg, circulate packer inhibitor behind casing, and screw back together.

NOTE: FULLY coat the pin end with Bestolife 2000 pipe dope, torque connections to maximum pipe specs, re-run casing in the order it was pulled or will likely gall out the threads

NOTE: ensure active controller with past experience re-running casing is available to assist in this critical operation (Jim Amos)

- 35 Pressure test to 500 psig for 30 minutes. Consult with the WE&T engineer, compare results against the baseline test in Step 14.
- 36 ND BOPE.
- 37 Pull 70 klbs on 7" csg and drop slips in top of csg spool. Cut down 7" csg, install primary seals, install DSPA, and pressure test seals to 2500 psig.
- 38 NU double ram (blind + pipe) and annular BOPE. Function / pressure test low/high 250/2400 psig - confirm high test pressure with WE&T engineer.
- 39 TIH with 6-1/4" steel tooth roller-cone bit, drill cement cap and upper composite DBP2, circulate clean, and TOO.
- 40 Chase debris to lower composite DBP1 set at 4290'.
- 41 Optional: scrape / brush internal patch / cladding interval.
- 42 Run Saltel internal patch / cladding and install across stage cementing DV tool as per Saltel representative and procedure.
- 43 Perform 500 psig pressure test for 30 minutes.

DOUBLE ST 2000 PACK OFF ROASTER

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PREPARED BY: Maria Medvedeva	REVIEWED BY: James Amos	APPROVED: Brent Criser
PREP DATE: 9/22/2022		<i>[Signature]</i> 10/7/2022

WELL JOB PLAN		STS Well Engineering & Technology		PAGE 3	DATE JOB PREPARED: 9/22/2022
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DIST/TWP: Portland	BHL (Lat/Long): 39.417055	-79.580817	CNTY: Preston		

PROCEDURE (continued)

- 44 ND BOPE and install remainder of wellhead.
- 45 RDMO service rig.
- 46 MIRU 2" CTU.
- 47 RIH unloading wellbore fluid - track fluid volume recovered to determine how much fluid is left in wellbore above composite DBP1.
- 48 Either load wellbore with FW and perform 2400 psig casing pressure test, or perform 1.2 x MAOP pressure test with N2. Note that casing internal yield strength is inadequate to perform pressure test with 12.5 ppg fluid to the PHMSA requirement.
- 49 RIH with motor and bit / mill and drill cement and composite DBP1. Chase debris to top of 4-1/2" liner at ~4321'. POOH.
NOTE: post setting internal diameter drift of Saltel patch is 5.61".
- 50 RBIH with motor and bit / mill and clean to TD through the 4-1/2" liner. POOH.
- 51 Flow well to recover fluids and re-establish gas flow.
- 52 Perform a stablized flowback test thru 3/4" choke. Report results to RE&G and WE&T engineer to determine if acid wash / treatment is required.
- 53 If required: perform acid wash and acid treatment.
- 54 RDMO CTU.
- 55 Perform final 45-min flowback test thru 3/4" choke.
- 56 Notify WE&T Project Support that well is back in-service.
- 57 Reclaim R&L.
- 58 Reconnect well line.
- 59 Paint wellhead and well line.
- 60 Commission well by completing, processing, and retain for records the Wellsite Review and Turnover Form.
- 61 Notify RE&G that well is ready for storage service.

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PREPARED BY: Maria Medvedeva	REVIEWED BY: James Amos	APPROVED: Brent Criser
PREP DATE: 9/22/2022		<i>Handwritten signature</i> 10/7/2022

~ not to scale ~

Terra Alta 7417

(pre workover)
(09.16.2022)

Sea Level @ 1867 ft

No water shows reported by driller in 1963.

20" @ 21' (not cemented)

13-3/8" 48# H-40 @ 396'
(cemented with 330 sx - cement returned to surface)

9-5/8" 32# H-40 csg @ 1266 - 1431'
(cemented with 40 sx - calc. TOC 1278')

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Bridge plug @ 3758' set on 06.08.22

Stage Cementing Tool @ 3682 - 3685'
per caliper log 06.07.2022

Per Western Atlas 09.13.1996 SBT -
Partial cmt thru 3300' - 3700'

Per Western Atlas 09.13.1996 SBT -
Good cmt thru 4210 - 4715' *
*overdisplaced shoe

7" 23# J-55 csg @ 4751'
(cemented 1st stage 83 cuft Litepoz + 83 sx class "A" + 170 gal Cealment
2nd stage 600 cuft Litepoz + 620 sx class "A")

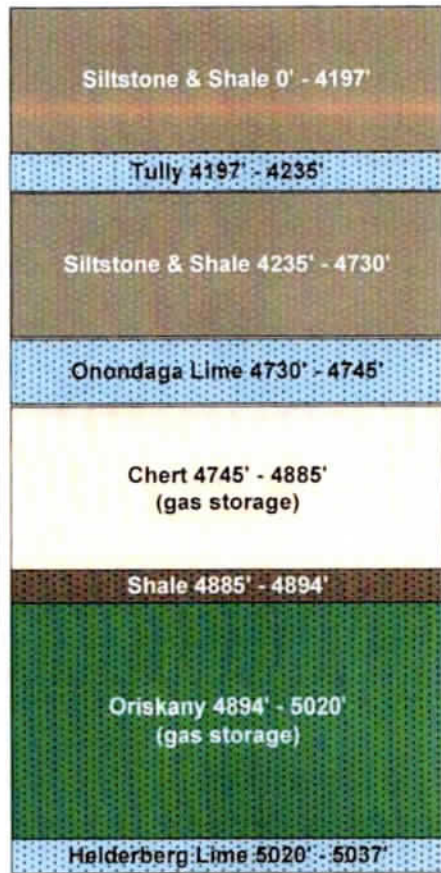
Perfs from 4750' - 4862'

Perfs from 4895'-4985'
Perfs from 4989' - 4998'

4-1/2" 11.60# N-80 liner @ 4321'-4960'
(120 sx 15.5ppg standard cmt)

- 7" x 4-1/2" crossover 4316 - 4321' per caliper, log 06.07.22
- SBL 10.06.96 - 4310' - 4386', 4750' - 4960' marginal decent cmt)

6-1/4" OH
TD 5037'



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Terra Alta 7417

(proposed workover)
(09.16.2022)

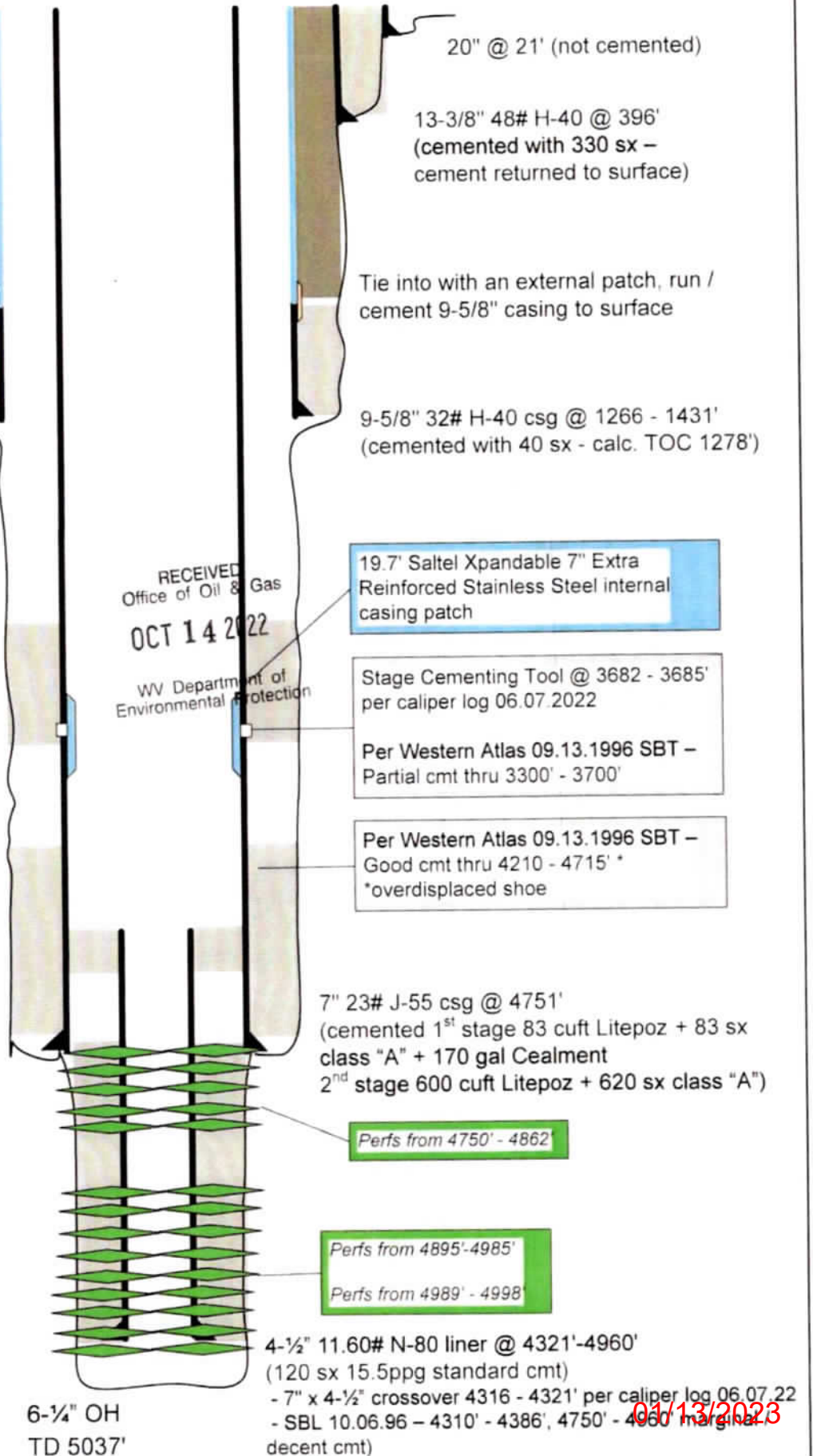
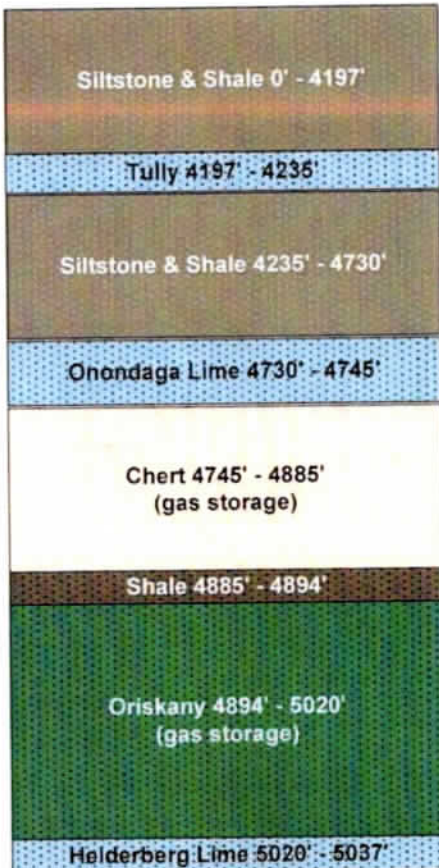
~ not to scale ~

Sea Level @ 1867 ft

No water shows reported by driller in 1963.

Light grey fill indicates cement in place during well construction.

Dark grey fill indicates cement placed during the workover.



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Terra Alta 7417 (API 47-077-00108) - CTCO and Acid Treatment

API 3K wellhead, 7" FS x 13-3/8" support

7" 23# csg J-55 set at 4751'

Burst: 4360 psig new (3488 psig assuming 80% safety factor)

Capacity from liner top: 4321 ft x 1.6535 gal/ft = 7,144.8 gals; x 0.0394 bbl/ft = 170.2 bbls

02/16/2022 HRVRT found one interval metal loss of 21% at 4.3'

4-1/2" 11.6# N-80 liner ran 4321 – 4960'

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

Capacity: 639 ft x 0.6528 gal/ft = 417.1 gals; x 0.0155 bbl/ft = 9.9 bbls

Openhole

Capacity 6-1/4" hole: 77 x 0.0379 bbl/ft = 2.9 bbls

Oriskany: 4894 – 5020'

Perfs: 4750 – 4862', 4895 – 4985' and 4989 – 4998'

TD: 5037'

Fluids Needed

2000 gals 15% HCl acid treated with corrosion inhibitor, iron control/sequestering agent, and surfactant. Biocide, clay stabilizer, and surfactant to treat +/- 500 bbls fresh water. Liquid caustic on location in case need to neutralize flowback fluids.

** One day before acid treatment load 7" x 9-5/8" annulus with fresh water treated with biocide, corrosion inhibitor, and clay stabilizer (~45 bbls).*

CTCO Procedure

1. MIRU 1.75" CTU.
2. Load CT with treated fresh water (TFW) and pressure test CT and BOPs to 2000 psig.
** maximum pressure on wellhead components 2500 psig*
3. Open well and RIH under static conditions.
4. At 4500' begin jetting with foamed TFW. Jet to TD and cycle up and down across interval 4750' – TD.
5. Begin 15% HCl acid foamed to 50Q and cycle up and down across interval 4750' – 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 4400'. Flow until returns are relatively dry.
8. CTU on stand-by until after acid treatment to unload wellbore if needed.

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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
▪ 40 bbls bbls TFW	4-6 BPM	Max Treating Press = 2000 psig
▪ 40 bbls bbls TFW	4-6 BPM	Max Treating Press = 1500 psig
▪ 40 bbls bbls TFW	4-6 BPM	Max Treating Press = 1000 psig
▪ 20 bbls TFW	2-4 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

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- 30 bbls TFW
 - SHUT DOWN FOR 30 minutes TO ALLOW ACID TO SOAK
- 2-3 BPM Max Treating Press = 1000 psig
2. Flow well. If well quits flowing, RBH with CT unloading fluid with N2.
 3. RDMO and release CTU / acid equipment.

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State of West Virginia
Division of Environmental Protection
Section of Oil and Gas

Office of Oil & Gas

Well Operator's Report of Well Work

Farm name: Lewis, Ralph and Joann P. Operator well no.: 7417

LOCATION Elevation: 1860.31 Quadrangle: Terra Alta

District: Portland County: Preston
Latitude: 0 Feet South of 39 Deg. 25 Min. 0 Sec.
Longitude: 11150 Feet West of 79 Deg. 35 Min. 30 Sec.

Company: Columbia Gas Transmission
P.O. Box 1273
Charleston, WV 25325-1273

Agent: Richard L. Coty

Inspector: Phil Tracey

Permit Issued: 3/13/96

Well Work Commenced: 9/11/96

Well Work Completed: 10/28/96

Verbal Plugging

Permission granted on: N/A

Rotary Yes Cable N/A Rig

Total Depth (ft) 5036

Fresh water depths (ft) See previous records

Salt water depths (ft) See previous records

Is coal being mined in the area (Y/N)? N

Coal Depths (ft) N/A

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill Up C.I. Ft.
20"	21'	21'	Surf. (Driven)
13 3/8"	403'	403'	Surf. 330 sxs
9 5/8"	1441'	195'	N/A 40 sxs
7"	4773'	4773'	Surf. 683 sxs*
4 1/2"	621'	621'	Liner** 120 sxs

2 3/8" 4861' 0' removed

Open Flow Data

Producing formation Chert Pay zone depth (ft) 4750'-4862'
 Gas: Initial open flow N/A MCF/d Oil: Initial open flow N/A Bbl/d
 Final open flow N/A MCF/d Final open flow N/A Bbl/d
 Time of open flow between initial and final tests N/A Hours
 Static rock Pressure N/A psig (surface pressure) after N/A Hours

Second producing formation Oriskany Pay zone depth (ft) 4895'-4985', 4993'-5002'
 Gas: Initial open flow N/A MCF/d Oil: Initial open flow N/A Bbl/d
 Final open flow N/A MCF/d Final open flow N/A Bbl/d
 Time of open flow between initial and final tests N/A Hours
 Static rock Pressure N/A psig (surface pressure) after N/A Hours

NOTE: On the back of this form put the following: 1). Details of perforated intervals, fracturing or stimulating, physical change etc. 2). The well log which is a systematic detailed geological record of all formations including coal encountered by the wellbore.

Notes: * Also used 680 cu. ft. of Lite poz.
** 4 1/2" Liner run from 4321'-4968'

For: Columbia Gas Transmission Corp.
By: _____
Date: _____

PRE 0108

4707700108W

WR-35

11/22/96

API # 47-77-00108

**State of West Virginia
Division of Environmental Protection
Section of Oil and Gas**

Well Operator's Report of Well Work

The well was killed with a Baroid Barazan polymer mud system on 9/12/96. Then, 4861' of 2 3/8", 4.7 #/ft. EUE tubing was pulled out of the hole and retired. The 13 3/8" slip on weld head was inspected and rev rapped. Atlas ran a gauge ring and junk basket to 4730'. Atlas also ran a GR/SBT tool. Atlas then set a retrievable cast iron bridge plug at 4670'. Atlas also ran a Verilog from 4670' to the surface. The 7" casing looked good and did not need to be replaced. The expendables in the 13 3/8" slip on weld head were replaced. A new 13 3/8" x 7" adapter flange and secondary seal was installed and tested. The retrievable cast iron bridge plug was pulled out of the hole. A 6 1/8" bit was tripped into the hole on the end of 3 1/2" drill pipe and the fill in the hole was cleaned out from 4893'-5036'. Atlas then ran open hole logs including a Z-Density, GR/N, Sonic (MAC), CBIL and Hex Dip. Atlas took 11 rotary SWC's at 4986', 4981', 4989', 4952', 4948', 4920', 4917', 4896', 4897', 4792', 4788' and 4783'. Approximately 621' of 4 1/2", 11.6 #/ft. N-80 casing was run in the hole as a liner with the top of the liner at 4321' and the bottom of the liner at 4968'. (621' does not include the liner hanger assembly). The 4 1/2" liner was cemented with 25.6 bbls (120 sxs) of Standard cement with additives. The balls on the WACO rig failed and the drill pipe string was dropped into the hole. The drill pipe was fished out of the hole. The cement in the hole was cleaned out to the bottom of the liner at 4968'. The open hole portion of the well was cleaned out to 5036'. (The liner was inadvertently set approximately 68' off bottom.) One cone from the bit had been lost in the hole when the drill string was dropped into the hole. A second cone was lost in the hole while cleaning out the hole to 5036'. Atlas perforated from 4989.5'-4998.5' Atlas made a second perforating run and perforated from 4965'-4985'. The perforating gun stuck in the hole. (This is when it was discovered that the 4 1/2" liner had been set 68' off bottom and the perforating gun had been detonated with part of the gun in the open hole and part of the gun in cased hole.) Atlas pulled out of the rope socket and rigged down. An attempt was made to recover the stuck perforating gun with Halliburton's 1 3/4" slick line unit. The fish was caught with an overshot, hydraulic and mechanical jars. The slick line tools pulled apart leaving some of the tools and the original fish in the hole. The slick line unit was rigged down. The well was killed a second time with the Baroid Barazan polymer mud system. The lost tools and stuck perforating gun were retrieved with an overshot and fishing assembly on 2 3/8" drill pipe. The well was swabbed to kick it off. Atlas finished the perforating of the Oriskany with perforations from 4965'-4945', 4945'-4925', 4925'-4905' and 4905'-4895'. The Chert was then perforated from 4862'-4842', 4842'-4322', 4822'-4802', 4802'-4782', 4782'-4762' and 4762'-4750'. All of the intervals were perforated with 3 3/8" EHSC, 21 gram, RDX charges phased at 60 degrees at 6 SPF. Halliburton pickled the 4 1/2" casing and hydroblasted the completion with 1 3/4" coiled tubing and 1500 gals of 7 1/2% SWIC acid. After the hydroblasting the Oriskany and Chert perforations were treated in 5' intervals with Halliburton's Selective Injection Packer and 500 gals of 7 1/2% H₂O₂ acid with additives. After removing the coil tubing from the well it unloaded on its own. To clean up the well it was blown to a 500 bbl frac. tank. The well was placed back into service on 10/22/96.

01/13/2023

File
well
80d
w/o 126-11
7417
606

4707700108W



STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

Quadrangle Kingwood

Permit No. MHS. 196

WELL RECORD

Gas - Storage
Oil or Gas Well Storage
(KIND)

Company <u>Atlantic Seaboard Corporation</u>	Casing and Tubing	Used in Drilling	Left in Well	Packers
Address <u>P. O. Box 1273 - Charleston, W. Va.</u>	Size			
Farm <u>C. J. Lewis, Rt. 12</u> Acres <u>81</u>	10" <u>3/8"</u>	<u>21'</u>	<u>21'</u>	Kind of Packer
Location (waters) <u>Salt Lick Creek</u>	8" <u>5/8"</u>	<u>403.37'</u>	<u>403.37'</u>	<u>None</u>
Well No. <u>K-76-7417</u> Elev. <u>1859.39'</u>	6" <u>7"</u>	<u>4773'</u>	<u>4773'</u>	Size of
District <u>Portland</u> County <u>Preston</u>	5 3/16"			Depth set
The surface of tract is owned in fee by _____	2"			Perf. top
Address _____	2"			Perf. bottom
Mineral rights are owned by _____	Liners Used			Perf. top
Address _____				Perf. bottom
Drilling commenced <u>May 13, 1963</u>				
Drilling completed <u>June 2, 1963</u>				
Date Shot <u>---</u> From <u>---</u> To <u>---</u>				
With <u>---</u>				
Open Flow <u>---</u> /10ths Water in <u>---</u> Inch				
<u>---</u> /10ths Merc. in <u>---</u> Inch				
Volume <u>See reverse</u> Cu. Ft.				
Rock Pressure <u>Storage</u> lbs. hrs.				
Oil <u>---</u> bbls., 1st 24 hrs.				
WELL ACIDIZED <u>See reverse</u>				
WELL FRACTURED <u>---</u>				

CASING CEMENTED	SIZE	No. Ft.	Date
COAL WAS ENCOUNTERED AT	FEET	INCHES	
	FEET	INCHES	
	FEET	INCHES	

RESULT AFTER TREATMENT See reverse

ROCK PRESSURE AFTER TREATMENT Storage

Fresh Water _____ Feet Salt Water _____ Feet

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Siltstone & Shale			0	4197			
Tully Lime			4197	4235			
Siltstone & Shale			4235	4730			
Onondaga Lime			4730	4745			
Chert			4745	4885			
Shale			4885	4894			
Oriskany			4894	5020			
Halderberg			5020				
Total Depth				5037			

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Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth Found	Remarks
Casing & Cement:							
20" Head Casing (conductor) - 21' Driven into 17 1/2" drilled hole 5-13-63 - Not cemented.							
13-3/8", 48#/ft. H-40 casing - 403' (threads on) set 9409' (KB). Cemented to surface w/330 sacks neat cement and 2% Ca Cl - 5-17-63 - Dowell							
9-5/8", 32#/ft H-40 casing 1441' (threads on) set 91443' (KB). Cemented 40 sacks Class A Neat cement with 2% Ca Cl - 5-21-63 Dowell.							
Backed off 9-5/8" Left and Right Collar and pulled 1246' (threads on) 9-5/8" casing. Left 195' (threads on) 9-5/8" Casing in well 5-27-63.							
Top of left and right nipple left in well was rolled out. 5-28-63.							
7", 23#/ft. J-55 casing - 4773' (threads on) set 94751' (KB). Two stage cemented to surface. 1st Stage - 83 cu. ft. "Litepoz" & 83 sacks Class A cement tailed w/170 gallons of "Gociment" (Latex Cement). 2nd stage - 600 cu. ft. "Litepoz" and 600 sacks Class A cement tailed w/20 sacks of regular cement and 2% Ca Cl - 5-28-63 - Dowell.							
Stimulation:							
5000 gal. 15% Retarded HCl Acid; 5000 gal. 15% Regular HCl Acid; 5000 gal. water overflush and 145,000 scf of N ₂ - 6-13-63 - Dowell							
Production:							
During drilling: Chart gas tested 1,835 Mcf - 5-31-63							
Chart & Oriskany gas tested 11,236 Mcf - 6-2-63							
Before Acid - 21,000 Mcf @ 2350 psig (Back Pressure Test) 6-6-63							
After Acid - 82,000 Mcf @ 2350 psig (Back Pressure Test) 7-10-63							
Final Shut-in date: 7-10-63							

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WV Department of
Environmental Protection

Date OCT 3 1963, 19

APPROVED _____
By [Signature] Supr.
(Title)

01/13/2023

WW-2A
(Rev. 6-14)

1). Date: 09.29.2022
2.) Operator's Well Number Terra Alta 7417
State County Permit
3.) API Well No.: 47- 077 - 00108

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

4) Surface Owner(s) to be served: 5) (a) Coal Operator
(a) Name Ralph and Joann Lewis Name Not operated
Address 7582 Saltlick Rd Address _____
Terra Alta, WV 26764
(b) Name _____ (b) Coal Owner(s) with Declaration
Address _____ Name Not operated
Address _____
(c) Name _____ Name RECEIVED
Address _____ Office of Oil & Gas
OCT 14 2022
Address _____ WV Department of
Environmental Protection
6) Inspector Gavne Knitowski (c) Coal Lessee with Declaration
Address PO Box 108 Name Not operated
Gormaniam, WV 26720 Address _____
Telephone 304.546.8171

TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:

Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas

OR

x Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)

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

- _____ Personal Service (Affidavit attached)
- x _____ 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

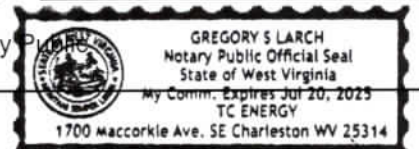
Subscribed and sworn before me this 29 day of Sept 2022

[Signature]

Notary Public

My Commission Expires July 20, 2025

Oil and Gas Privacy Notice



4707700108W

Columbia Gas Transmission, LLC

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



September 29, 2022

Ralph and Joann Lewis
7582 Saltlick Rd
Terra Alta, WV 26764

Columbia Gas Transmission, LLC is applying for a permit to the WV Department of Environmental Protection – Office of Oil and Gas, to repair an existing underground natural gas storage located on property owned by you. As reference, the field and well ID is Terra Alta 7417 (API 47-077-00108).

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

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Environmental Protection



KANAWHA CITY
4600 MACCORKLE AVE SE
CHARLESTON, WV 25304-9998
(800)275-8777

09/29/2022 01:31 PM

Product	Qty	Unit Price	Price
---------	-----	------------	-------

Priority Mail®	1		\$9.25
Legal FR Env			
Terra Alta, WV 26764			
Flat Rate			
Expected Delivery Date			
Mon 10/03/2022			
Certified Mail®			\$4.00
Tracking #:			
70220410000271832373			
Return Receipt			\$3.25
Tracking #:			
9590 9402 6856 1104 6535 75			
Total			\$16.50

Grand Total: \$16.50

Credit Card Remit \$16.50

Card Name: VISA
Account #: XXXXXXXXXXXXX4694
Approval #: 02289S
Transaction #: 665
AID: A0000000031010 Chip
AL: VISA CREDIT
PIN: Not Required

2022 0410 0000 0140 0710 2000 0917 2372

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

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

OFFICIAL USE

Terra Alta, WV 26764

Certified Mail Fee	\$4.00
Extra Services & Fees (check box, add fee as appropriate)	\$7.25
<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	\$9.25
Total Postage and Fees	\$16.50

Sent To: Ralph & Joann Lewis TA 7417
Street and Apt. No., or PO Box No.: 7582 Saltlick Rd
City, State, ZIP+4®: Terra Alta, WV 26764

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

Postmark: KANAWHA CITY POST OFFICE SEP 29 2022

www.tcenergy.com

Text your tracking number to 2025 (USPS) to get the latest status. Standard Message and Data rates may apply. You may also visit www.usps.com USPS Tracking or call

01/13/2023

WW-2A Surface Waiver
(4/16)

SURFACE OWNER WAIVER

County Preston Operator Columbia Gas Transmission LLC
Operator well number Terra Alta 7417

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 _____

Company Name _____
By _____
Its _____ Date _____

Print Name

Signature Date _____

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Office of Oil & Gas
OCT 14 2022
WV Department of
Environmental Protection

Remove X

Tracking Number:

70220410000271832373

Copy

Add to Informed Delivery

(<https://informedelivery.usps.com/>)

Latest Update

We attempted to deliver your item at 1:07 pm on October 12, 2022 in TERRA ALTA, WV 26764 and a notice was left because an authorized recipient was not available.

Delivery Attempt

Notice Left (No Authorized Recipient Available)

TERRA ALTA, WV 26764
October 12, 2022, 1:07 pm

Redelivery Scheduled

TERRA ALTA, WV 26764
October 11, 2022

Reminder to Schedule Redelivery of your item

October 8, 2022

Delivery Exception, Animal Interference

TERRA ALTA, WV 26764
October 3, 2022, 2:40 pm

Notice Left (No Authorized Recipient Available)

TERRA ALTA, WV 26764
October 3, 2022, 2:40 pm

Out for Delivery

TERRA ALTA, WV 26764
October 3, 2022, 6:11 am

Feedback

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● **Arrived at Post Office**
TERRA ALTA, WV 26764
October 3, 2022, 6:00 am

● **In Transit to Next Facility**
October 2, 2022

● **Arrived at USPS Regional Destination Facility**
BALTIMORE MD DISTRIBUTION CENTER
October 1, 2022, 1:30 am

● **Arrived at USPS Regional Facility**
CHARLESTON WV PROCESSING CENTER
September 29, 2022, 6:25 pm

● **Departed Post Office**
CHARLESTON, WV 25304
September 29, 2022, 4:30 pm

● **USPS in possession of item**
CHARLESTON, WV 25304
September 29, 2022, 1:29 pm

● **Hide Tracking History**

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WV Department of
Environmental Protection

Feedback

Text & Email Updates



USPS Tracking Plus®



Product Information



See Less ^

Track Another Package

Enter tracking or barcode numbers

4707700108W

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 7417

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

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WV Department of
Environmental Protection

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

01/13/2023

**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
Charles John & Wanda L. Lewis	Atlantic Seaboard Corp.	Lease - 1090399-000	340 / 300

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**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

WW-2B1
(5-12)

Well No. Terra Alta 7417

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 contractor 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 underlining which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

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01/13/2023

4707700108W

WW-9
(5/16)

API Number 47 - 077 - 00108
Operator's Well No. Terra Alta 7417

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) Saltlick Creek Quadrangle Terra Alta, 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 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

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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

WV Department of
Environmental Protection

-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

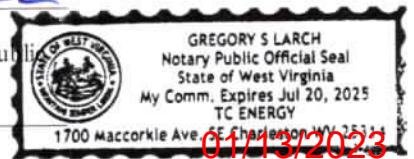
Company Official Title Senior Wells Engineer Storage Technical Services

Subscribed and sworn before me this 29 day of Sept., 2022

[Signature]

Notary Public

My commission expires July, 20 2025



Proposed Revegetation Treatment: Acres Disturbed _____ 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

For wetland areas: Annual Rye (40 lbs/acre) until indigenous plants re-establish cover.

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: Marye J. Kmitowski

Comments: Reclaim SITE ASAP after well work.

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Title: Inspector Date: 10/7/2022

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, LLCWatershed (HUC 10): Saltlick CreekQuad: Terra AltaFarm Name: C.F. Williston, et al

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 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.

Earthen berm to be constructed around perimeter of well pad with storm water sumps to control release of captured precipitation.

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

Saltlick Creek is at a distance of 0.07 miles SE

The Terra Alta Water Works WV3303917 is the closest Well Head Protection Area at a distance of 2.78 miles NE from discharge area.

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

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N/A

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

01/13/2023

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.

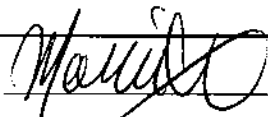
During routine tailgate and JSA meetings groundwater protection will be a topic of discussion.

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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 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: 09/29/2022

4707700108

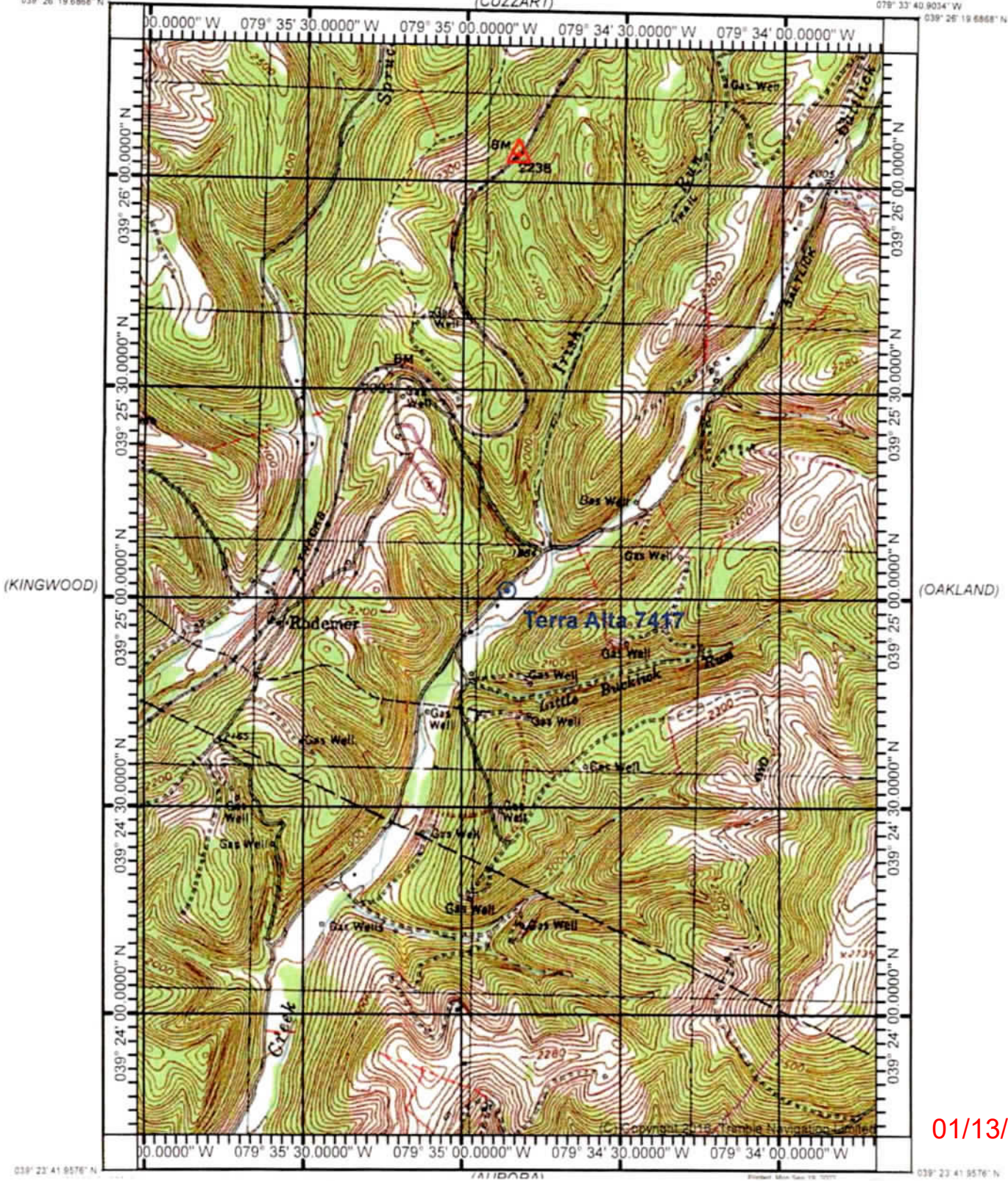
(VALLEY POINT) 

TERRA ALTA QUADRANGLE
WEST VIRGINIA
TOPOGRAPHIC SERIES (SANG RUN)

079° 36' 01.2754" W
039° 26' 19.6868" N

(CUZZART)

079° 33' 40.9034" W
039° 26' 19.6868" N



01/13/2023

039° 23' 41.9576" N

(TAIBOBA)

039° 23' 41.9576" N

4707700108W

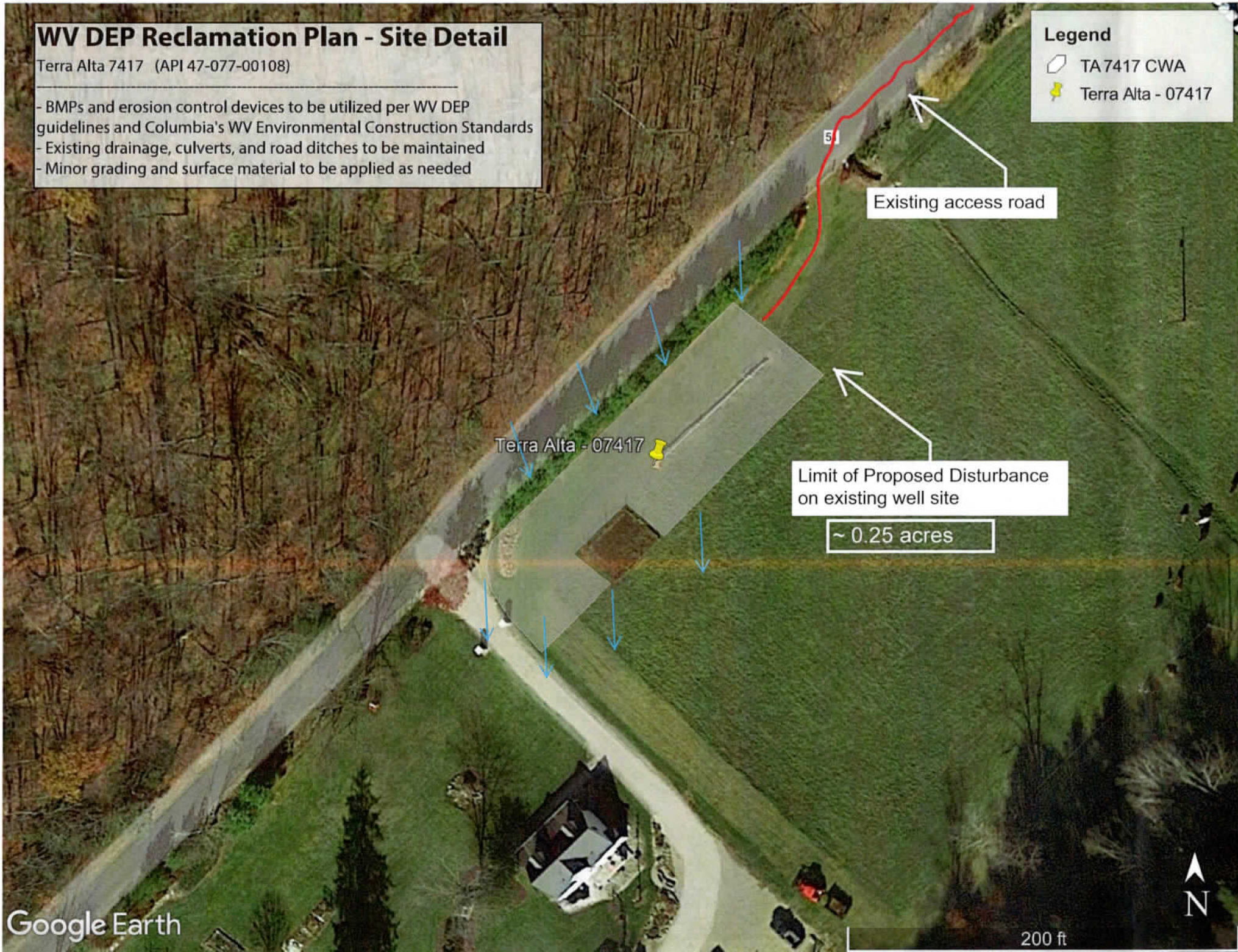
WV DEP Reclamation Plan - Site Detail

Terra Alta 7417 (API 47-077-00108)

- 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

- TA 7417 CWA
- Terra Alta - 07417



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Google Earth

200 ft

N

4707700108W

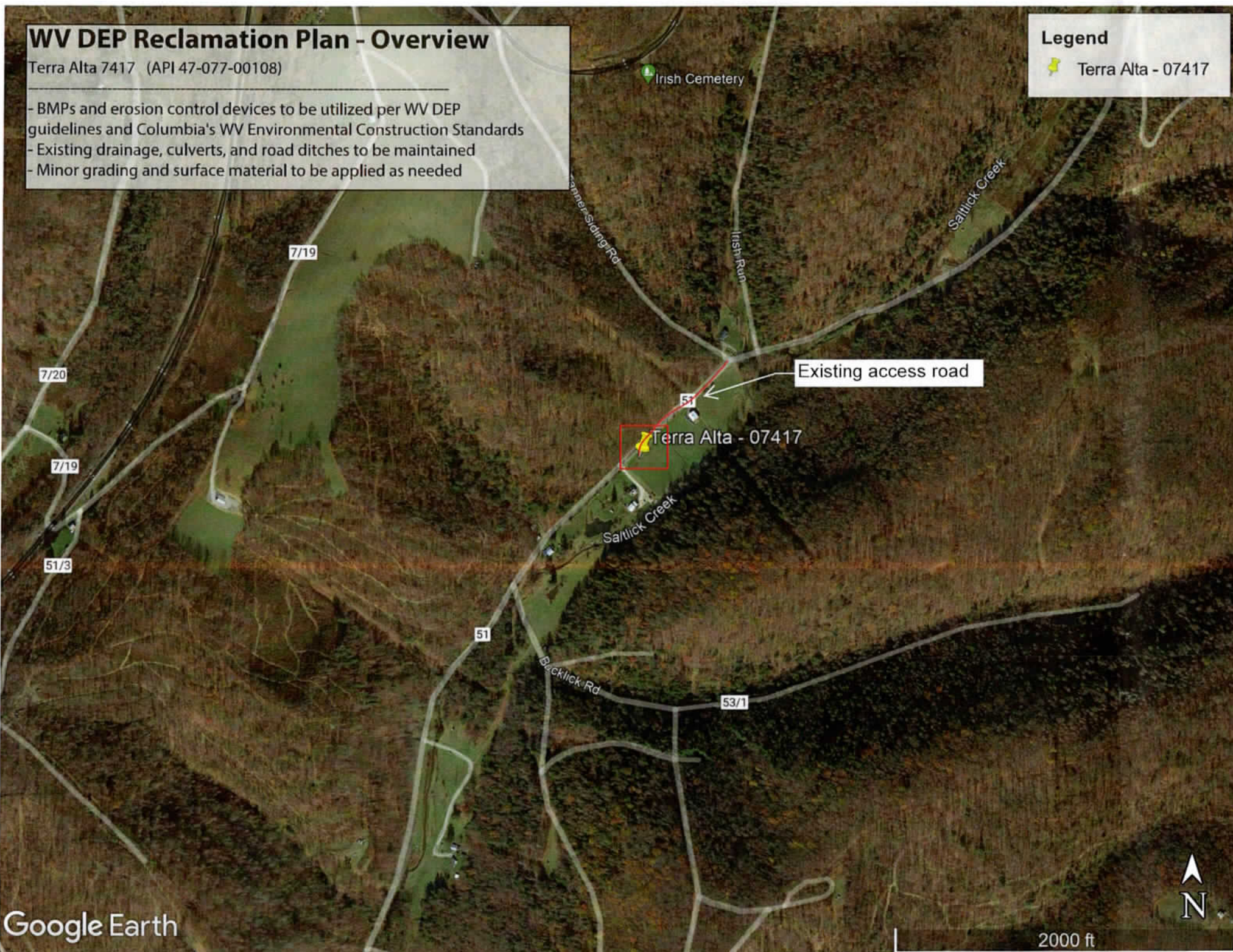
WV DEP Reclamation Plan - Overview

Terra Alta 7417 (API 47-077-00108)

- 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

 Terra Alta - 07417



Google Earth

2000 ft



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4707700108W

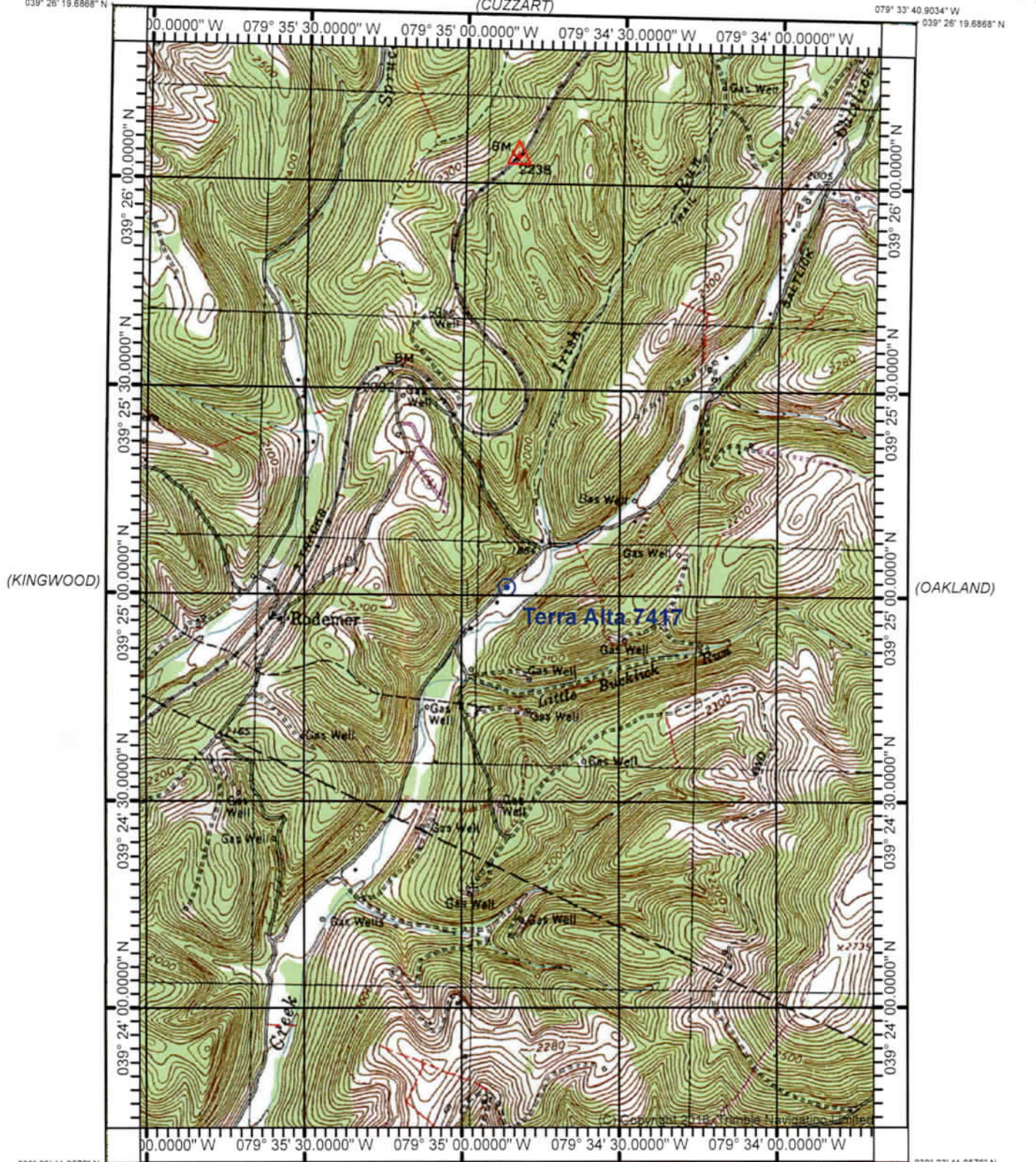
(VALLEY POINT) 

TERRA ALTA QUADRANGLE
WEST VIRGINIA
TOPOGRAPHIC SERIES (SANG RUN)

079° 36' 01.2754" W
039° 26' 19.6868" N

(CUZZART)

079° 33' 40.9034" W
039° 26' 19.6868" N



039° 23' 41.9576" N
079° 36' 01.2754" W

Printed: Mon Sep 19, 2022

079° 33' 40.9034" W
039° 23' 41.9576" N

(ROWLESBURG)

Declination



(AURORA)
SCALE 1:24000



CONTOUR INTERVAL 20 FT

(TABLE ROCK)

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

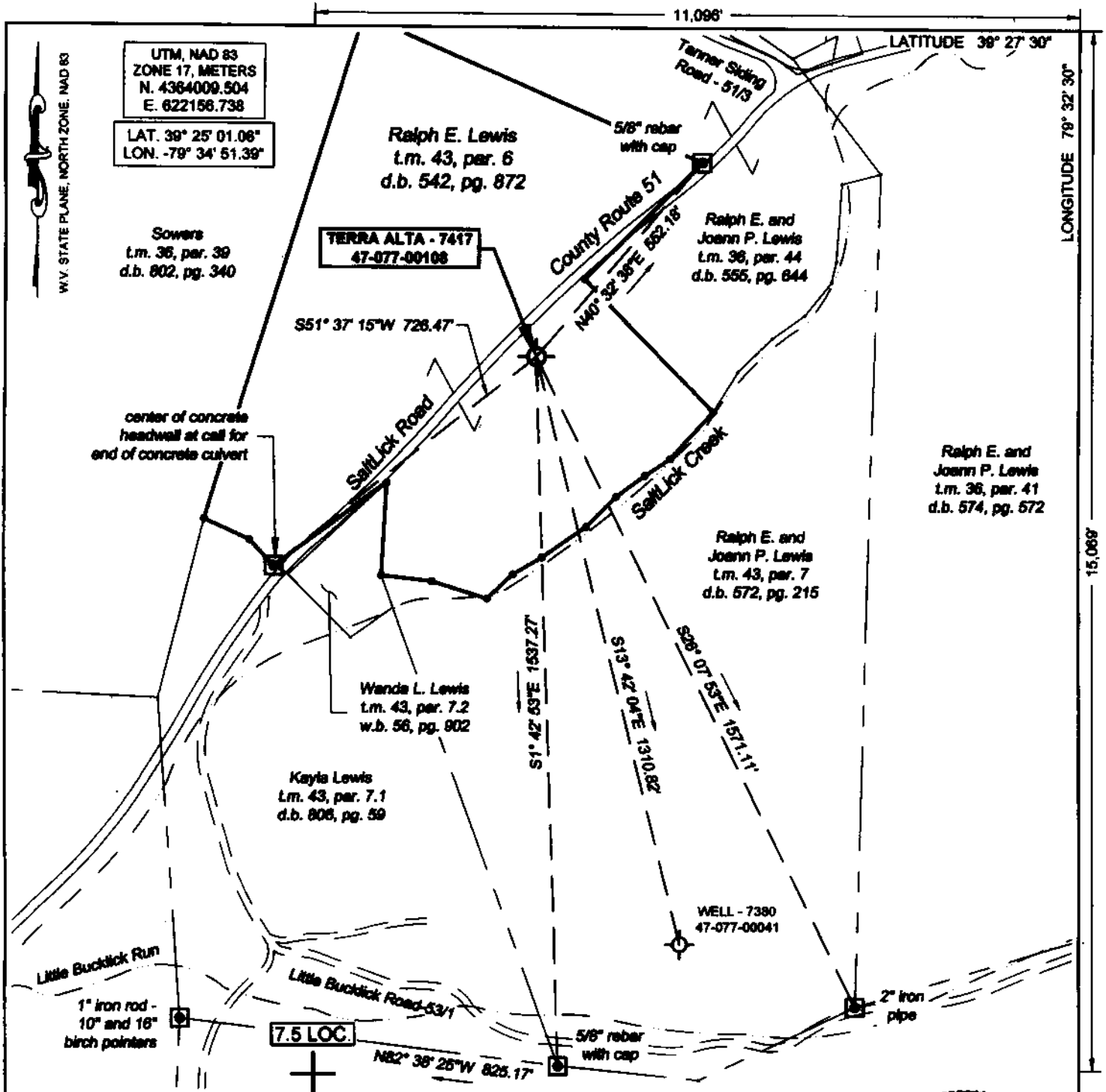
North American 1983 Datum (NAD83)

To place on the predicted North American
1927 move the projection lines 11M N and
19M E

39079-D4-TM-024
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 OCT 14 2022 JAN 1, 2000

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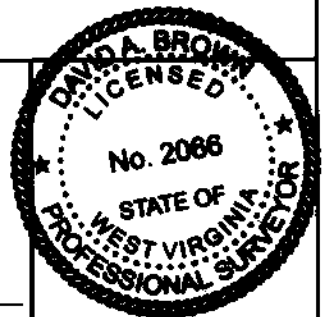


(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE No 2201-2345-001-008
 DWG No. TERRA ALTA-7417
 SCALE 1 INCH = 300 FEET
 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) *David A. Brown*
DAVID A. BROWN PS #2066



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



DATE SEPTEMBER 28 2022
 OPERATOR'S WELL No. 7417
 API WELL No. 47 077 - 00108W

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL STATE COUNTY PERMIT

(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 1860.9' WATER SHED SALT LICK CREEK

DISTRICT PORTLAND COUNTY PRESTON

QUADRANGLE TERRA ALTA, WV

SURFACE OWNER RALPH E. LEWIS ACREAGE 19.337

OIL & GAS ROYALTY OWNER CHARLES J. AND WANDA L. LEWIS

LEASE No. 1000399-000 LEASE ACREAGE 81

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE

PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

OTHER PHYSICAL CHANGE IN WELL (SPECIFY) CASING LEAK REPAIR

PLUG AND ABANDON CLEAN OUT AND REPLUG

TARGET FORMATION ORISKANY ESTIMATED DEPTH 5037

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)

01/13/2023



west virginia department of environmental protection

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

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

January 5, 2023

Ralph and Joann Lewis
7582 Saltlick Road
Terra Alta, WV 26764

Re: Re-Work Permit for Columbia Gas Transmission, LLC
API Number: 47-077-00108 (Terra Alta 7417)

Mr. and Mrs. Lewis,

The Office of Oil and Gas has reviewed your comments concerning Columbia Gas Transmission LLC's permit for the above-referenced Re-Work permit. The comments were sent to the operator for its response. The operator has responded, and their response is attached to this correspondence.

After considering your comments, the applicant's response, and the inspector's findings, the Office of Oil and Gas has determined that the application meets the requirements set forth in Article 6, Chapter 22 of the West Virginia Code and Legislative Rule Title 35 Series 4. Consequently, the Office of Oil and Gas is issuing the permit with conditions today. For your information and convenience, I am including with this letter, a copy of the permit as issued.

If you have any questions, you may contact me at 304-926-0499 ext. 41110.

Regards,

A handwritten signature in blue ink that reads "Jeffrey W. McLaughlin".

Jeffrey W. McLaughlin, Technical Analyst
B. S. Petroleum Engineering
WV DEP, Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304-2345
Phone: 304-926-0499 ext. 41110

Columbia's response for document titled "Response-comments-concerns to permit 10-27-2022 (1)"Page 1 of 4 – Paragraph 1:

Columbia performed a diverse set of technical diagnostic tests on the Terra Alta 7417 well. We made headway to isolating and resolving the issue at hand, indicative of the permitted well workover job scope.

Page 1 of 4 – Paragraph 2:

Baker Hughes high resolution magnetic flux leakage casing inspection survey was run on 02.16.22 inside the flowstring. This tool measures internal and external metal loss features associated with corrosion. The survey found one classifiable internal feature at 4' of 21% metal loss. For reference, Class 1 casing is anything at or below 20% metal loss. Considering the flowstring is original from 1963 construction, corrosion is not an issue in this well. The top joint of casing with the feature will be replaced as part of the well workover scope.

Page 1 of 4 – Paragraph 4:

Per the site visit on 10-25-22 it was stated that Columbia will take under consideration the project timing understanding the landowner concerns with an upcoming holiday season. Steve indicated that it will be hard to find crews during the hunting and holiday season only. No settlements were made at that time.

Page 1 of 4 – Paragraph 5:

Terra Alta field does not have a history of H₂S, nor is it a known byproduct of wellwork in this area. Well 7417 flux leakage log result does not suggest any corrosion issues (see response to paragraph 2 for additional details). An acid stimulation is a common and safe deliverability restoration method widely used in this and other WV fields. As detailed in the job procedure, the acid treatment will be performed in less than 1 day, stimulation fluids will be flowed back to recover and neutralize all fluid.

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Page 1 of 4 – Paragraph 7:

As discussed during the 10-25-22 site visit, Columbia intends to use the workspace around the well as detailed on the Site Detail of the Reclamation Plan for a period of 3-4 weeks, trying not to extend past the vegetable garden and leaving an access space for landowner between the county road and well. The pasture will be reclaimed to its original state after the project is completed at the expense of the company. Columbia does compensate with pre-construction damage settlements.

Page 1 of 4 – Paragraph 8 – WV DEP Reclamation Plan – Site Detail:

During the site visit of 10-25-22 it was agreed by all parties that the proposed staging area was acceptable if it did not extend into the private driveway (this was not in scope as submitted for permitting), an effort was made not to extend past the edge of the vegetable garden, and that an access remained parallel to the main road between the road and the well workspace.

Page 2 of 4 – Paragraph 1:

The work site will be contained, and operations controlled. There will be no intentional drainage and damage of the landowner's property. Columbia typically collects accumulated water and disposes of it offsite.

Page 2 of 4 – Paragraph 2 – State of WV DEP Protection Office of Oil and gas - #2:

An earthen berm is recommended by Columbia to protect the landowner's hay pasture from uncontrolled releases of rain and snow precipitation. This measure allows company to capture rain and snow precipitation and haul it away as needed versus uncontrolled releases. We could use existing soil on location, segregate top and sub soils and reclaim location at the end of the project at our cost.

Page 2 of 4 – Paragraph 2 – State of WV DEP Protection Office of Oil and gas - #3:

During the 10-25-22 site visit it was agreed that water sampling will be conducted by a 3rd party provider AGES before and after project execution. All reported results will be shared with the landowner. 8 water source points will be sampled in this effort. AGES communicated a start date for this effort of November 17th, 2022, allowing for a 2 weeks' landowner notice requested by landowner.

Page 2 of 4 – Paragraph 4 – Form WW-9:

Columbia agrees to remove all wood chips from location. This request will be incorporated into the site reclamation plan.

Page 2 of 4 – Paragraph 5 – Form WW-9:

HCl acid is a proven stimulation method used in this Terra Alta and other WV fields frequently. It will be pumped downhole and recovered / neutralized, on surface as well as downhole, within hours of the initial introduction of fluids to downhole. Gas monitors will be utilized during the operation. This field, this well, does not have H₂S or corrosion history. Columbia has a 24hr / 365day gas monitoring center for all operated wells. Additionally, all Storage Technical Services Wells staff are trained first responders for well remediation.

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Page 3 of 4 – Paragraph 1:

All required agencies have been consulted through Columbia's internal ~~environmental~~ review and approval process before any diagnostic work began on the well.

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Page 3 of 4 – Paragraph 5 – Site meeting commentary:

Columbia agreed to make all reasonable attempts not to extend past the vegetable garden during the 10-25-22 site visit with the landowners. It was also confirmed then that the passage space will not be impacted, nor the private driveway.

Page 3 of 4 – Paragraph 6 – Site meeting commentary:

Columbia agreed to add an electric fence during project execution as needed for cattle.

4707700108W

Page 3 of 4 – Paragraphs 7 and 8 – Site meeting commentary:

Water sampling has been addressed in previous Columbia responses to landowner comments.

Page 4 of 4 – WV DEP Reclamation Plan – Site Detail:

Reclamation Plan Site Detail has been addressed in previous Columbia responses to landowner comments.

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We respectfully ask that these concerns/questions be answered prior to signing off on this permit.

- 1 First and foremost I do wholeheartedly believe that the ongoing, more than 15 months, exploration attempt at locating a leak is now reaching a level where there is no need for urgency by TC Energy.
- 2 TC Energy/Columbia Gas Transmission did testify in court that this well SW-7417 API 47-077-00108 is one of the most corrosive in the X76N storage field. We do not feel that this storage well, with our combined 60 years in the oil and gas field, is sound. Ralph's specialty is as a NACE corrosion technologist. I know for a fact that the annulus was open to atmosphere until approximately 7 years ago. The gauged readings have been accumulated for MAYBE the past 6-7 years.

REC'D
Office of Oil & Gas

OCT 27 2022

3 **Does the time frame for the 24 months start when TC Energy first began this exploratory leak investigation on August 30 2022? If this attempt fails PLEASE force them to plug this well.**

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4 We are asking that with the Thanksgiving and Christmas Holidays in less than a month we are asking that this project be pushed into January 2023. **Steve agreed during the onsite meeting 10-25-22 that this project can be pushed into January 2023.**

5 TC Energy is proposing to introduce chemicals and acids into a well that TC Energy (Columbia Gas) declares to be one of their most corrosive storage wells. In the past in the same storage field X76N this has created a situation resulting in H2S exposure to Ralph Lewis and another employee. Saltlick was evacuated. We are concerned that this process will in a day, week, month or months later expose us via gas leaks, which is EXTREMELY DIFFICULT TO GET THE TO REPAIR, will lead to the same situation with H2S exposure and potential death. This is a valid concern as our home is 100 feet away and our driveway is 50 feet away from the site.

6 Columbia Gas around 1996 did the same project with the same footprint that currently has orange safety fence since February 2022. The current area should be more than enough space to get this done.

7. **This field in which they will be working is our winter pasture. How long will they be continuing to occupy this pasture? Our past experience is that TC Energy does not/will not compensate for loss of use of the fenced areas or construction damage.**

8 **WV DEP Reclamation Plan – Site Detail** – the area depicted on the document is **NOT** acceptable.

The area depicted on the map eliminates our path to and from the garage. We need the pathway to remain open.

TC Energy is attempting to access/encroach on our driveway - there is no need to extend past our vegetable garden (which I need access)– they can go in the other direction but we do not want them interfering with ingress and egress from our home. The proximity would cause our driveway alarms to be active constantly. The blue arrows depicting natural drainage will be an issue when a leak or spill occurs flowing toward our yard/driveway and home. I have a marked the map as to what will be better for all involved. Per a Federal court agreement TC Energy is not to utilize our driveway, agreed to not go

PARAGRAPHS
1/2

past areas that have signage and again there is no need to move beyond the garden in closer proximity to our home and driveway where the noise/people will be of greater nuisance to us and our pets.

Pooled/dammed/collected rainwater/snow melt/spills from the containment site needs to be removed from the property and not drained. Contaminates from equipment, chemicals and the gas stream in this operation need to be kept away from our pets/livestock and us. From prior personal knowledge working in the same storage facilities this gas stream has high levels of benzene at 232+PPM, arsenic, mercury and lead and occasionally PCBs.

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State of WV DEP Protection Office of Oil and gas –

#2 we object to an Earthen Berm – there are other methods that are more effective that can be utilized. Removing the topsoil is not desirable. The reclaim of the area would be more extensive with winter.

#3

- Our potable water source is a natural spring downstream is 437 feet from the SW7417 storage well which is the water source for our home and our livestock and is a Tributary for Saltlick Creek Proper. verified 10-26-22
- Saltlick Creek is a water source for our livestock and for native brown trout and is 345 feet from the well head –verified 10-26-22
- We have a fresh water fish pond with bass, bluegill and catfish at a great expense.
- ✶ • We want all of our water sources tested prior to TC Energy injecting any chemicals and before any spills occur. We want copies of the tests performed. **We need 2 weeks' notice so that we may have our own test equipment/lab on site.**

Form WW-9

1. We do not want wood chips in any amount left behind from the environmental controls or reclamation. This is a pasture/hay field.

Again - Additives to be used in drilling medium – The use of HCl acid and other additives are of concern due to the fact that months after the acid is introduced it has led to an H2S situation in the same storage field. How will they assure us that 1 week, 2 weeks, a month or 3 months that we will not end up with a well that produces H2S? What does TC Energy propose to do to assure our safety? What monitoring methods will be utilized? Gas leaks are inevitable and extremely difficult to get the field crew to repair.

4707700108W

I have contacted other agencies and am awaiting responses from the Friends of the Cheat, WV Water and Waste, WV natural resources US Fish and Wild life and Preston county Flood Plain coordinator. I am asking for the time for these agencies to respond – I believe that will be in the next 5 days.

I also noticed that the permit is for 24 months. I respectfully ask that the 15 months they have been unable to determine the location of the leak is considered part of the 24 months and beg not to allow the 24 months to begin IF this permit is approved.

How long after on site will TC Energy and the contractors have to complete the well work? Steve on 10-25-22 indicated 3 weeks – if they are here for months what can your office do to get them moving?

Is there a time limit?

If this is another failure to locate and repair the leak will the state of WV require them to plug the well? Plugging this well would be in everyone's best interest.

We respectfully ask that these concerns/questions be answered prior to signing off on this permit.

10-22-2022

Joann Lewis and Ralph Lewis 7582 Saltlick Road Terra Alta WV 26764

A site meeting was held with Maria, Lorrie, Steve and Gayne on 10-25-2022 @ 9 AM.

TC Energy agreed not to go past the garden and leave the current passage from the driveway to the garage open.

If the project is during the pasturing of the cattle in the affected field TC Energy agrees to install new electric fence and remove it once the project is complete.

TC Energy has agreed to perform sampling of our potable water, fish pond and the Saltlick Creek before and after the project.

We asked that we are given notice of the sampling date so that we may take samples from the same areas at the same time.

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*Site Meeting 10.22.2022
Steve, Maria, Lorie, Gayle, Ralph, Joan*



WV DEP Reclamation Plan - Site Detail
Terra Alta 7417 (API 47-077-001 08)

- 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
 TA 7417 CWA
 Terra Alta - 07417

Limit of Proposed Disturbance on existing well site
 ~ 0.25 acres

NO changed per meeting 10-21-22

ADDITION ON HOUSE NOT DEPICTED. MAKING OUR HOME 100 FEET FROM THE WELL HEAD

DRAINAGE NOT ACCURATE. DITCHLINE FLOWS DOWN THE HILLSIDE TO A CULVERT THAT OVERFLOWS INTO OUR YARD

Google Earth

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Columbia's response for document titled "TCO Permit Application with comments 10-27-22"Page 4 of 27 – Form WW-2A Surface Owner Waiver:

Landowner highlighted comment "1) The proposed well work will constitute a hazard to the safety of persons."

Columbia's response –

As an operator, we ensure industry and regulatory recommended safety measures are strictly adhered to. Safety to people and the environment is at the forefront of any of our operations. We do not see any abnormal safety hazards related to the permitted scope of well work.

Page 4 of 27 – Form WW-2A Surface Owner Waiver:

Landowner highlighted comment "4) The proposed well work fails to protect fresh water sources or supplies."

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Columbia's response –

Freshwater zones were not reported by the driller from when the well was originally drilled in 1963. Well site has undergone rigorous environmental permitting and studies to assess and mitigate the potential for impacting fresh water sources. Environmental controls will be in place to protect these resources. Columbia has additionally contracted Applied Geology and Environmental Services Inc (AGES) to perform water testing before and after project execution at 8 water resource sampling points. AGES plans to perform the water sampling November 17, 2022 which accommodates the 2 weeks' notice landowner requested. Via Columbia's Land Department, AGES shared a survey form with the landowner, to be filled out by the landowner for each water source to be tested, to begin the water sampling work. The Water Resource Survey form is attached separately with Columbia's response for WV DEP's reference.

Page 10 of 27 – Form WW-2B1 Notice to Surface Owners:

Landowner highlighted "Listed below is the laboratory chosen by operator to perform analysis, and contractor chosen to collect sample" and commented "Due to proximity of spring water, Saltlick Creek and a stocked fish pond we need this answered".

Columbia's response –

This permit Form is applicable to operations related to drilling of new wells and is not the scope of work in this permit application. However, in good faith, Columbia already communicated to landowner during 10-25-2022 site visit that a 3rd party contractor AGES would perform water sample testing before and after project execution on the bodies of water requested by landowner (additional feedback above with Form WW-2A response).

Page 12 of 27 – Form WW-9 Fluids / Cuttings Disposal and Reclamation Plan:

Landowner commented "No wood chips left behind from silt socks – this is a hay"

Columbia's response –

This request will be incorporated into the site reclamation plan.

Page 13 of 27 – Form WW-9-GPP Groundwater Protection Plan:

Landowner commented “No earthen berm – no release of accumulated rain / snow in our hay/pasture”.

Columbia’s response –

This is a recommended measure to protect the landowner’s hay pasture form uncontrolled releases of rain and snow precipitation. This measure allows company to capture rain and snow precipitation and haul it away as needed.

Page 13 of 27 – Form WW-9-GPP Groundwater Protection Plan:

Landowner commented “Saltlick Creek is 345 feet from the wellhead. Our spring is 437 feet from the wellhead”.

Columbia’s response –

A desktop review using the West Virginia Source Water Protection Map yielded a distance to nearest water body of 0.07 miles or 369.6 feet. The difference in measurement will not impact the proposed scope of work or barriers in place.

Page 15 of 27 – Well Job Plan Page 1:

Landowner highlighted “Casing leak repair” and commented “10-24-22 we were told it is not a casing leak!”.

Columbia’s response –

Mr. and Mrs. Lewis received email communication on 10-24-22 from Columbia’s Land Department representative regarding a site visit meeting between them, company representatives and a state representative.

Page 16 of 27 – Well Job Plan Page 2:

Landowner commented “if this is left venting someone needs to remain on site to monitor”

Columbia’s response –

This is a necessary process for this specific operation and job plan step. No annuli will be left open unattended overnight / weekends.

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Page 18 of 27 – CTCO and Acid Treatment Procedure:

Landowner commented “this stage needs a constant monitor for H2S”

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Columbia’s response –

We will have 4 gas monitors on site measuring the air while work is ongoing. This will not be an issue and was communicated on 10-25-22 during the landowner / company site visit meeting. We can additionally commit to having a dedicated Safety or Environmental Representative on location for this operation.

Page 27 of 27 – WV DEP Reclamation Plan – Site Detail:

Landowner commented “Drainage not accurate – ditchline flows down the hillside to a culvert that overflows into our yard”

Columbia’s response –

The blue arrows are drawn in to indicate topographical / natural elevation change and natural drainage without man-made devices, i.e. culverts.

Page 27 of 27 – WV DEP Reclamation Plan – Site Detail:

Landowner commented “No” next to Existing access road callout box.

Columbia’s response –

The existing historical access road is correctly depicted in red pencil line.

Page 27 of 27 – WV DEP Reclamation Plan – Site Detail:

Landowner commented “NO changed per meeting 10-24-22”

Columbia’s response –

During the site visit of 10-25-22 it was agreed by all parties that Columbia was to be allowed to come in with equipment through the historic access road facing towards the private driveway with the service rig derrick. Due to the direction of the historic access road, it was explained that this is necessary so that the rig may be centered over the well while running casing string to surface. We indicated that we would make all effort not to extend the workspace past the garden. The private driveway will not be impacted, nor had Columbia planned to encroach on that space as depicted on the Site Detail map.

Page 27 of 27 – WV DEP Reclamation Plan – Site Detail:

Landowner commented “Agreed not to use” in reference to private driveway.

Columbia’s response –

See above response.

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NOV 3 2022

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Environmental Protection

Page 27 of 27 – WV DEP Reclamation Plan – Site Detail:

Landowner commented “Addition on house not depicted making our home 100 feet from the wellhead” and “home addition”.

Columbia’s response –

The Site Detail map image is the only available image through Google Earth maps that Columbia has access to. Not knowing exactly where the addition extends to, measuring the distance to the wellhead from the private driveway directly across from the T of the driveway going to the front house entrance - it puts the well at 141 feet away. During the 10-25-22 site visit Mr. Gayne, the state inspector, called out a measurement of 57 yards to the landowners’ home, which is 171 feet away. It must be said for the record, well construction predates (May-June 1963) any of the structures built on the property by the landowner.