

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

DEC 15 2023
WV Department of
Environmental Protection

API 47-077-00108 County Preston District Portland
Quad Terra Alta, WV Pad Name Terra Alta Field/Pool Name Terra Alta
Farm name C.F. Williston, et al Well Number 7417
Operator (as registered with the OOG) Columbia Gas Transmission LLC
Address 1700 MacCorkle Ave SE City Charleston State WV Zip 25314

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing _____ Easting _____
Landing Point of Curve Northing Not applicable Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) 1860.9 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s)
N/A. Scope was to rework an existing well - milled out existing 7" csg / cement down to 1300', ran new 9-5/8" csg down to historic casing stub & cemented to surface, ran new 7" csg externally patching to csg stub, installed internal 7" csg patch over historic 7" DV tool, performed coil tubing cleanout & 15% HCl acid stimulation

Date permit issued 01.06.2023 Date drilling commenced N/A Date drilling ceased N/A
Date completion activities began N/A Date completion activities ceased N/A
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

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

Freshwater depth(s) ft None reported by driller when drilled Open mine(s) (Y/N) depths N
Salt water depth(s) ft None reported by driller when drilled Void(s) encountered (Y/N) depths N
Coal depth(s) ft None reported by driller when drilled Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:
Jay D. Kurtz
01/12/2023
12/14/2023

API 47-077 - 00108 Farm name C.F. Williston, et al Well number 7417

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

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Comment Details _____

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

Drillers TD (ft) 5037 Loggers TD (ft) _____
 Deepest formation penetrated Helderberg Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) N/A

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

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING N/A

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS N/A

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS N/A

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED N/A

API 47- 077 - 00108 Farm name C.F. Williston, et al Well number 7417

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	N/A	existing well			

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Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
	N/A		existing well					

Please insert additional pages as applicable.

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
Chert	4745 - 4885	TVD 4745 - 4885 MD
Oriskany	4894 - 5020	4894 - 5020

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
existing well	0		0		

Please insert additional pages as applicable.


Drilling Contractor Next LVL
Address 736 W Ingomar Rd, Units 268 City Ingomar State PA Zip 15127-6613

Logging Company Baker Atlas
Address PO Box 301057 City Dallas State TX Zip 75303-1057

Cementing Company Next LVL
Address 736 W Ingomar Rd, Units 268 City Ingomar State PA Zip 15127-6613

Stimulating Company Gladiator Energy LLC
Address 3200 Southwest Fwy City Houston State TX Zip 77027-7528

Please insert additional pages as applicable.

Completed by Maria Medvedeva Telephone 304-410-4313
Signature  Title Senior Wells Engineer STS Date 11/28/23

~ not to scale ~

Terra Alta 7417

(original completion)

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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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")

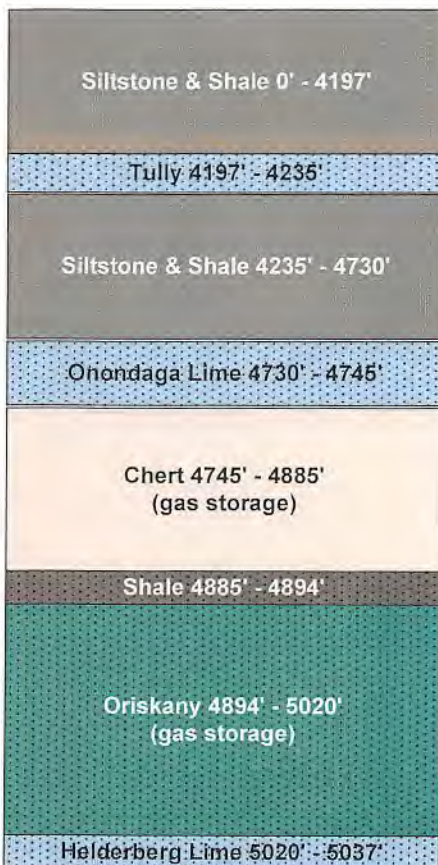
Perfs from 4750' - 4862'

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', 4751' - 4952' original /
decent cmt)

TD 5037'



01/15/2024

~ not to scale ~

Terra Alta 7417

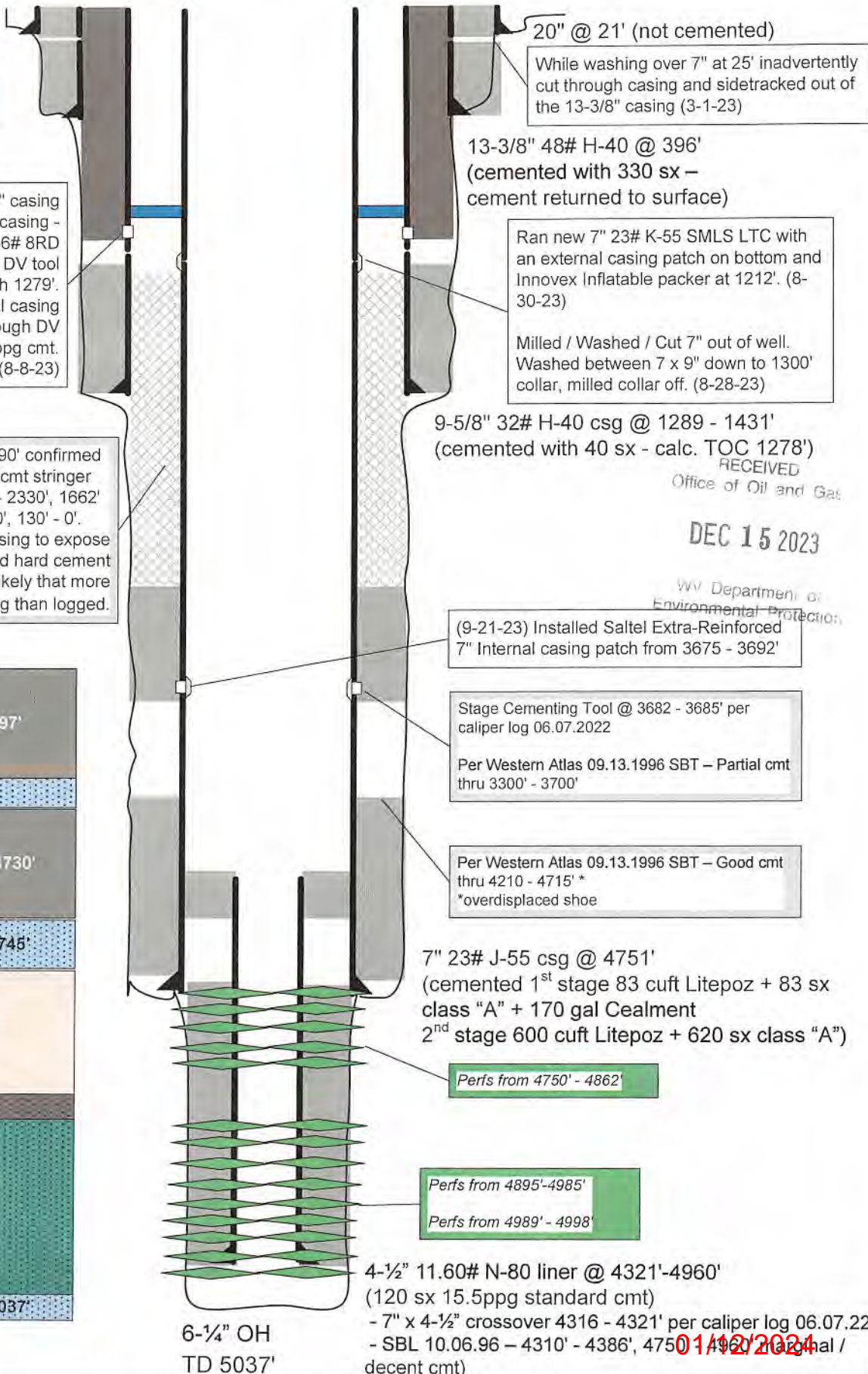
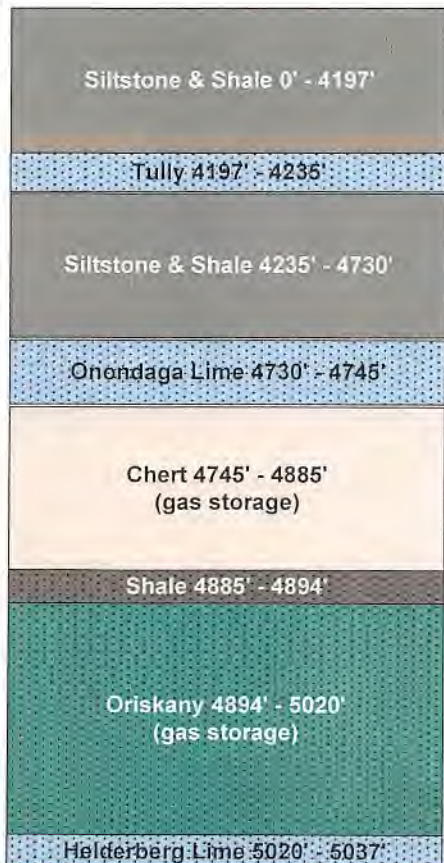
(10.18.2023)

Sea Level @ 1867 ft

No water shows reported by driller in 1963.

Washed over historic 9-5/8" casing stub to 1289'. Ran new 9-5/8" casing - 23 jts 40# BTC + 10 jts of 36# 8RD casing, for a total of 1287'. DV tool 1267' and external casing patch 1279'. Unable to latch with external casing patch. Cement to surface through DV tool with 100bbls type 1 15.6 ppg cmt. 28 bbls cmt to surface. (8-8-23)

Intex log ran 02.15.23 from ~4290' confirmed historic partial cement to 3300', cmt stringer signatures 3200' - 2900', 2338' - 2330', 1662' - 1650', 1010' - 1000', 830' - 810', 130' - 0'. However, washing over 7" casing to expose 9-5/8" csg stub for tieback, found hard cement all the way down to 1300'. It is likely that more cmt coverage is behind 7" csg than logged.



20" @ 21' (not cemented)

While washing over 7" at 25' inadvertently cut through casing and sidetracked out of the 13-3/8" casing (3-1-23)

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

Ran new 7" 23# K-55 SMLS LTC with an external casing patch on bottom and Innovex Inflatable packer at 1212'. (8-30-23)

Milled / Washed / Cut 7" out of well. Washed between 7 x 9" down to 1300' collar, milled collar off. (8-28-23)

9-5/8" 32# H-40 csg @ 1289 - 1431'
(cemented with 40 sx - calc. TOC 1278')

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(9-21-23) Installed Saltel Extra-Reinforced 7" Internal casing patch from 3675 - 3692'

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', 475' - 4920' marginal / decent cmt)

6-1/4" OH
TD 5037'

01/12/2024

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



December 14, 2023

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

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

Terra Alta 7417 (API 47-077-00108)

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

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