

*Exhibit No.:*  
*Issue(s):* *Non-revenue water, AMI meters*  
*Witness:* *Daronn A. Williams*  
*Sponsoring Party:* *MoPSC Staff*  
*Type of Exhibit:* *Rebuttal Testimony*  
*Case No.:* *WR-2023-0344*  
*Date Testimony Prepared:* *October 24, 2023*

**MISSOURI PUBLIC SERVICE COMMISSION**

**INDUSTRY ANALYSIS DIVISION**

**WATER, SEWER & STEAM DEPARTMENT**

**REBUTTAL TESTIMONY**

**OF**

**DARONN A. WILLIAMS**

**THE RAYTOWN WATER COMPANY**

**CASE NO. WR-2023-0344**

*Jefferson City, Missouri*  
*October 2023*

1 **REBUTTAL TESTIMONY OF**

2 **DARONN A. WILLIAMS**

3 **THE RAYTOWN WATER COMPANY**

4 **CASE NO. WR-2023-0344**

5 Q. Please state your name and business address.

6 A. My name is Daronn A. Williams. My business address is 200 Madison Street,  
7 Jefferson City, MO 65101.

8 Q. By whom are you employed and in what capacity?

9 A. I am employed by the Missouri Public Service Commission (“Commission”) as  
10 an Associate Engineer with the Water, Sewer, & Steam Department.

11 Q. Are you the same Daronn A. Williams who filed direct testimony in this case on  
12 October 10, 2023?

13 A. Yes, I am.

14 Q. What is the purpose of your rebuttal testimony in this case?

15 A. The purpose of my rebuttal testimony is to rebut certain statements made by  
16 Dr. Geoff Marke and Mr. John Robinett, both from Office of Public Counsel (“OPC”).

17 Q. What is it that Dr. Marke testifies to that you disagree with?

18 A. First, he states “...the theoretical argument for automated metering  
19 infrastructure (“AMI”) investment in Central States Water Company’s (“CSWR”) geographically dispersed water systems is stronger than it would be if it was one single,  
20 centralized, small water utility like the Raytown Water Company (“RWC” or “Company”).<sup>1</sup>

21 Q. Why does Staff disagree with this statement?  
22

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<sup>1</sup> See lines 12-14 on page 7 of Dr. Marke’s Direct Testimony

1           A.     Staff disagrees with this statement because a single, centralized area is a  
2 desirable location for AMI meters and its network. With RWC's area being denser in population  
3 than CSWR's area, this is a good setting for AMI meters and there are plenty of locations for  
4 towers, etc. Dr. Marke has not submitted data that supports a geographically dispersed water  
5 system is a better fit for AMI meters than a single, centralized area like RWC.

6           Q.     What else is it that Dr. Marke testifies to that you disagree with?

7           A.     On page 11 starting on line 10 of his Direct Testimony, he discusses that at  
8 minimum of two of the current three meter readers will still be employed by RWC after the  
9 conventional meters are replaced with AMI meters as meter readers. This is true, but Dr. Marke  
10 only states part of the Company's response to Data Request ("DR") 2009. In addition to the  
11 mentioned tasks done by the meter readers, Dr. Marke failed to include that the meter readers  
12 will also conduct the monthly water testing collections per Missouri Department of Natural  
13 Resources and the Environmental Protection Agency's requirements. In addition, the  
14 third meter reader will be transferred to the field crew to help with water main breaks,  
15 disconnects, restoration and regular system maintenance duties. This organizational change  
16 should result in the employees being more productive and should reduce the likelihood of office  
17 management being pulled into the field.

18          Q.     What else is it that Dr. Marke testifies to that you disagree with?

19          A.     Beginning on line 23 on page 12 of Dr. Marke's Direct Testimony, he discusses  
20 that RWC currently notifies customers of high and low bills on a monthly basis. He asserts that  
21 after the AMI meters are installed, RWC will discontinue this service and have customers  
22 heavily rely on the customer portal for notifications. This does not appear to align with what  
23 the Company has stated. In the Company's response to OPC's DR 2014, RWC states:

1 “In the future, customers will be able to "sign-up" for automatic notifications either by email  
2 or text for high/low usage.” This response does not state that RWC will cease to send out  
3 high/low billing alerts on a regular basis. Plus, offering automatic notifications is not relying  
4 on customers to proactively manage their account.

5 Q. What else is it that Dr. Marke testifies to that you disagree with?

6 A. Beginning on line 11 on page 13, Dr. Marke discusses that the AMI meters do  
7 not have leak detection valves installed. This is true, but per the Company’s response to  
8 OPC DR 2036:

9 “RWC will continue to have the annual leak loss survey completed by  
10 Westrum Leak Loss Survey...The Leak Loss Survey helps us to pinpoint small  
11 leaks/seapers so Company does not have to chase the leak and tear out more  
12 street, concrete, sidewalk than necessary thus minimizing city permit fees,  
13 degradation fees and restoration costs as much as possible. In addition to  
14 isolating leaks/seapers, the survey helps Company find hidden leaks which  
15 water running may not be visible as it may be running directly into a  
16 storm drain.”

17 Q. What is it that Mr. Robinett testifies to that you disagree with?

18 A. Beginning on line 17 on page six of Mr. Robinett’s Direct Testimony, he states:  
19 “The Water, Sewer, & Steam Department Field Operations and Tariff Review  
20 report has zero discussion of water loss, excessive system leaks, or the  
21 fourteen months where Raytown sold more water than it purchased. Instead, the  
22 discussion of Water Loss comes from the Purchased Water Section of  
23 Auditing Department Report in the Agreement.”

24 Because Staff’s Auditing Department already documented the poor quality of the data that  
25 would be used to calculate water loss, and the fourteen months where RWC sold more water  
26 than it bought, Staff’s Water, Sewer, & Steam Department did not see any reason to discuss  
27 these items in multiple sections. It is already apparent that additional analysis is unnecessary,

1 and Staff is under no obligation to author a section of its memo for OPC on water loss.  
2 Staff is unclear what the “excessive system leaks” are that Mr. Robinett mentions.  
3 RWC, like all drinking water utilities, experiences non-revenue water. Some portion of that  
4 non-revenue water is ‘lost’ due to breaks and leaks. But the amount is not known at this time.  
5 As mentioned by Auditing Staff, the Company’s water loss was calculated to be 12.04% during  
6 RWC’s 2020 rate case and was conservatively assumed to be the same in this rate case because  
7 of inaccurate data from at least November 2020 to March 2023. It was determined that this  
8 underbilling was the result of faulty meters owned by Kansas City Water (“KC”) and the true  
9 numbers would not be able to be calculated with bad data. Copies of letters were provided to  
10 Staff indicating that meters owned by KC were changed out in 2022 and 2023 due to concerns  
11 by RWC of the accuracy of the city’s meters.

12 Q. So, Mr. Robinett is raising concerns about a problem that was identified some  
13 time ago by RWC and KC, and has already been fixed?

14 A. Yes. In essence, RWC and KC responded appropriately to the kind of problem  
15 that is to be expected occasionally with aging infrastructure.

16 Q. What else is it that Mr. Robinett testifies to that you take issue with?

17 A. Beginning on line five on page seven, Mr. Robinett describes how water loss is  
18 calculated. While this description of the calculation is correct, Staff feels that the sources of  
19 water loss needs to be better explained. Please see the table below for an overview of the sources  
20 of non-revenue water. It is important to keep in mind that actual water loss is only a portion of  
21 non-revenue water. The calculations in Mr. Robinett’s testimony reflect all non-revenue water,

1 not just water loss, while also being based on unreliable data. This table is from a white paper  
2 from the American Water Works Association and can be found online.<sup>2</sup>

Volume from Own Sources (corrected for known errors)	System Input Volume	Water Exported (corrected for known errors)	Billed Water Exported				Revenue Water
			Water Supplied	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption	
Water Losses	Apparent Losses	Unbilled Authorized Consumption			Unbilled Unmetered Consumption	Non-revenue Water	
		Real Losses	Customer Metering Inaccuracies	Unbilled Metered Consumption			
Leakage on Transmission and Distribution Mains	Unauthorized Consumption						
Leakage and Overflows at Utility's Storage Tanks	Systematic Data Handling Errors						
Water Imported (corrected for known errors)					Leakage on Service Connections up to the point of Customer Metering		

NOTE: All data in volume for the period of reference, typically one year.  
Figure 1 AWWA Water Balance (Source: AWWA M36 Manual, 4th Ed.)

3  
4 Q. So, an important part of being able to identify ‘lost’ water is also ensuring  
5 accurate customer meters as well?

6 A. Yes. RWC’s efforts to replace older customer meters in its system will improve  
7 the quality of data so that other sources of non-revenue water can be identified, including  
8 actual loss.

9 Q. What else is it that Mr. Robinett testifies to that you disagree with?

10 A. On line two on page eight, he states “This water loss data is the lowest amount  
11 of loss reported since 2009.” Before this statement, at the bottom of page seven, he supplies a  
12 table with the calculated water loss for each year from 2009 to 2022. It is assumed that he is  
13 referring to the 2022 calculated water loss of 0.60%. I disagree with this statement because it’s

<sup>2</sup> <https://www.awwa.org/Portals/0/AWWA/ETS/Resources/WLCWhitePaper.pdf?ver=2017-09-11-153507-487>

1 illogical to use the data from the master meters from the past few years, especially in 2020,  
2 2021 and 2022, when RWC sold more water than they bought, which is obviously impossible.  
3 Later in his testimony, Mr. Robinett states that this data is “unreliable.”<sup>3</sup> As previously  
4 mentioned, it was determined that the KC meters were most likely faulty. However,  
5 since KC has changed all of their meters and RWC is replacing all of their customer meters, the  
6 data collected at this point is more accurate and more reliable. Staff’s assumption of a water  
7 loss of 12.04% is a relatively conservative estimate and a water loss calculation will be  
8 performed at the time of RWC’s next rate case.

9 Q. Is it realistic for any drinking water distribution system of significant size to  
10 experience non-revenue water below 1%?

11 A. Certainly not. It is highly likely that the 0.6% from Mr. Robinett’s testimony is  
12 calculated from inaccurate data, as previously discussed.

13 Q. How much non-revenue water should a drinking water system have?

14 A. There is no particular threshold where non-revenue water is unacceptable that  
15 can be applied to all systems. There are simply too many variations in the cost to produce  
16 water, costs to identify and repair leaks, challenging construction locations such as historic  
17 neighborhoods, miles of distribution lines, amount of water theft, etc. Utilities are expected to  
18 make prudent investments so as to have efficient operational costs, including controlling  
19 non-revenue water. Staff examines the various factors surrounding a particular drinking water  
20 system before making any recommendations for additional investments.

21 Q. What else did Mr. Robinett have to say about water loss?

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<sup>3</sup> See line 10, page nine of Mr. Robinett’s Direct Testimony

1           A.     In addition to the previous statements about water loss, Mr. Robinett states on  
2 page eight, beginning on line 17:

3                     "...I expect a direct correlation between water loss and maintenance expense.  
4                     With a large amount of water loss, one expects a large value of maintenance  
5                     expense—tied to fixing the issues causing that water loss. Therefore, as an  
6                     inverse, if there is next to zero water loss, one would expect very  
7                     little O&M expense."

8     Again, Mr. Robinett is basing this assertion on bad data. The "next to zero water loss" statement  
9     is based on data that is obviously inaccurate due to the faulty meters. I do agree  
10    with Mr. Robinett that non-revenue water and operational and maintenance ("O&M") expenses  
11    can be related. The correlation is based on the Company's response to water loss. If they do  
12    little to combat water loss, O&M expenses will be low. However, if the Company is actively  
13    combatting water loss by replacing mains and fixing leaks, then the O&M expenses are going  
14    to be greater. He also states that the Company has increased its spending on O&M since  
15    the 2020 rate case.<sup>4</sup> It's Staff's opinion that O&M expenses are based on the Company's  
16    response to actively fixing water leaks and reducing water loss. These expenses grew over time  
17    due to the Company diligently replacing mains and due to the increasing costs of goods and  
18    services that everyone has experienced since 2020. This means that Mr. Robinett's position is  
19    flawed. If utilities are punished for making prudent investments to control non-revenue water,  
20    this will only result in less efficient operation and higher costs for customers.

21           Q.     What else is it that Mr. Robinett testifies to that you disagree with?

22           A.     I disagree with this statement he made beginning on line nine on page nine:

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<sup>4</sup> Lines three and four on page 8



Rebuttal Testimony of  
Daronn A. Williams

1 “...the Commission should open an investigation to look into the unreliable water loss data  
2 being caused by months of selling more water than Raytown has purchased...” Staff does not  
3 believe an investigation is needed. Simply put, KC and RWC’s customers had aging, inaccurate  
4 meters, which led to “the unreliable water loss data.” All of KC’s meters have been replaced  
5 with new meters and RWC is well underway to replacing all its customers’ meters with  
6 new AMI meters. Mr. Robinett’s recommendation is a solution in search of a problem.  
7 The investigation has been completed, causes were determined, and the problem has been fixed.  
8 Staff will re-evaluate RWC’s water loss during the next rate case with accurate data.

9 Q. Do you have any corrections to your Direct Testimony?

10 A. Yes.

11 Q. What corrections to your Direct Testimony would you like to make?

12 A. On page 5, line 3 I state, “New company trucks were purchased in  
13 February 2023.” Upon further investigation, Staff has determined that the vehicles were  
14 purchased in 2022. The exact dates of purchase are not known but the vehicles were added to  
15 the Company’s general ledger from July 1, 2022 to December 1, 2022. Safety features were  
16 added through February 2023.

17 Q. Does this conclude your rebuttal testimony?

18 A. Yes it does.

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

In the Matter of the Application of a Rate )  
Increase of Raytown Water Company )

Case No. WR-2023-0344

**AFFIDAVIT OF DARONN A. WILLIAMS**

STATE OF MISSOURI )  
 ) ss.  
COUNTY OF COLE )

**COMES NOW DARONN A. WILLIAMS** and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony of Daronn A. Williams*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

  
DARONN A. WILLIAMS

**JURAT**

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 18<sup>th</sup> day of October 2023.

D. SUZIE MANKIN  
Notary Public - Notary Seal  
State of Missouri  
Commissioned for Cole County  
My Commission Expires: April 04, 2025  
Commission Number: 12412070

  
Notary Public