Exhibit No. 122

Staff – Exhibit 122
Jarrod J. Robertson
Rebuttal Testimony (Cost of Service)
File No. WR-2022-0303

Exhibit No.:	
Issue(s):	*Declining Usage*
Witness:	*Jarrod Robertson*
Sponsoring Party:	*MoPSC Staff*
Type of Exhibit:	*Rebuttal Testimony*
Case No.:	*WR-2022-0303*
Date Testimony Prepared:	*January 18, 2023*

MISSOURI PUBLIC SERVICE COMMISSION

INDUSTRY ANALYSIS DIVISION

WATER, SEWER & STEAM DEPARTMENT

REBUTTAL TESTIMONY

OF

JARROD J. ROBERTSON

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2022-0303

Jefferson City, Missouri
January 2023

REBUTTAL TESTIMONY

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JARROD J. ROBERTSON

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2022-0303

Q. Please state your name and business address.

A. My name is Jarrod J. Robertson and my business address is 200 Madison Street, Jefferson City, Missouri 65101.

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

A. I am employed by the Missouri Public Service Commission ("Commission") as a Senior Research/Data Analyst in the Water, Sewer, & Steam Department of the Industry Analysis Division, a member of Commission Staff ("Staff").

Q. Are you the same Jarrod J. Robertson who filed Direct Testimony in this rate case on November 22, 2022?

A. Yes, I am.

EXECUTIVE SUMMARY

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to address the direct testimony of Missouri-American Water Company ("MAWC") witness Charles B. Rea, regarding customer usage. I will also address Staff's recommended method for determining a normalized level of usage for MAWC's residential customers. This normalized level of usage is used to establish appropriate revenues.

DECLINING USAGE

Q. In your direct testimony, you discussed why it is it necessary to normalize customer usage. Would you care to summarize that discussion?

A. Yes, I would. Customer usage needs to be normalized in order to calculate normalized levels of revenues for the utility that are then compared to the utility's cost of service to determine if an increase or decrease in rates is necessary. As I stated on pages two and three of my direct testimony:

> Data (or customer usage) normalization is the process of organizing data in a way as to fit into a specific range or standard form. This process is advantageous for many reasons, but most importantly, by creating a homogenous data set, it allows for a comprehensive and cohesive view of a specific topic and simplifies the data for further analysis. Adjusting customer usage in this manner allows different sets of heterogeneous source data to be compared. Not all sources of customer usage are alike. Customer usage data stems from individual systems, each with its own particular characteristics, such as location of the system, number of customers on the system, differences in climate, and system-specific water rates which may affect discretionary customer use.
>
> While there are many variables that determine if the utility collects more or less than its Commission-approved revenues, it is important to establish a fair commodity/usage charge in order to lessen the effect this aspect has to alter revenues.

If normalized usage levels are not in line with actual usage, it is possible MAWC may not collect its Commission-authorized revenues in order to recover its cost of operations.

Q. What method did MAWC use to calculate residential usage?

A. As discussed on pages 34 through 36 of Mr. Rea's direct testimony, MAWC performed a statistical linear regression analysis over a ten (10) year period, utilizing one (1) data point per month for 120 historical data points overall, while accounting for independent explanatory variables (such as weather – both temperature and rainfall – and COVID-19), for Tariff District 1 (St. Louis County and Pevely Farms) and Tariff District 2

(All Other Service Territories). The independent explanatory variable is a variable manipulated within the experimental model in order to determine the variable's effect on the dependent variable; in this instance, residential customer usage represents the dependent variable.

Q. Does Staff have any issue with MAWC's method in estimating customer usage?

A. Yes. Staff identified two issues within MAWC's analysis.

Q. What are these issues?

A. The issues relate to the timing of two independent explanatory variables in MAWC's ten (10) year linear regression analysis.

Q. What is the first independent variable utilized by MAWC that Staff questions?

A. Staff questions using weather/climate data related to an individual calendar month to explain the effect on a specific billing month's usage.

Q. Why does Staff question the validity of using a calendar month's climate data when describing the impact thereof upon a specific billing month's usage?

A. A billing month cycle does not necessarily run from the first day of the month to the last day of the month. A billing month's usage may be affected by a climate pattern that spans multiple months. Depending on what date the billing cycle began, a billing month may be impacted by weather from the proceeding or following month, in addition to the current month. For example, while the usage tied to a February monthly bill may be attributed to weather during February, it may be more appropriate to associate this usage with weather in both February and March, if the billing cycle is something other than the first day of February to the last.

Staff's averaging method does not attempt to define and report on any usage data tied to a particular month and said month's climate effect. While this climate data is certainly a component of calculating an annual normalized level of usage, it is not necessary to separate this data out in order to perform said calculation of an annual average. Staff's method accounts for both monthly usage data and monthly climate data within its five (5) year average.

Q. What is the second independent variable utilized by MAWC that concerns Staff?

A. Staff questions the length and/or timeframe that the impact of COVID-19 is included in MAWC's statistical linear regression analysis.

Q. What specifically does Staff question, regarding the inclusion of a COVID-19 independent explanatory variable and subsequent timeframe?

A. According to MAWC's workpapers, "MO – ST. Louis DU Model" and "MO–-Outside of St. Louis DU Model," it appears the independent explanatory variable associated with COVID-19 begins April 2020 and remains through March 2022. Yet, Staff believes the COVID-19 variable should be removed as early as June 2020.

Q. Why does Staff believe June 2020 is a better removal date for the COVID-19 variable?

A. On June 11, 2020, Governor Mike Parson announced[1] that Missouri would fully reopen on June 16, 2020. Therefore, Staff's position is that it is reasonable to remove the impact of COVID-19 from the analysis as of June 16, 2020. In addition, in June of 2020, the United States Department of Labor - Occupational Safety and Health Administration published "Guidance on Returning to Work,"[2] which assists employers and employees in safely returning to the workplace and reopening businesses. This further supports Staff's position that the

[1] Office of Governor Mike Parson, June 11, 2020, Governor Mike Parson Announces Missouri Will Fully Reopen, Enter Phase 2 of Recovery Plan on June 16, [Press Release]: https://governor.mo.gov/press-releases/archive/governor-parson-announces-missouri-will-fully-reopen-enter-phase-2-recovery

[2] Occupational Safety and Health Administration. (2020, June). *Guidance on Returning to Work*. https://www.osha.gov/sites/default/files/publications/OSHA4045.pdf

impact of COVID-19 should be removed from MAWC's statistical linear regression analysis as of June 2020.

Q. Did Staff use any factors to adjust for COVID-19 usage?

A. No. Staff did not perform any calculation using specific factors and/or independent explanatory variables, as Staff's five (5) year average includes all environmental impacts, as well as recent usage trends.

Q. Are there any remaining issues related to Mr. Rea's direct testimony you wish to discuss?

A. Yes. Staff would like to address MAWC's position that declining usage for residential customers should continue indefinitely.

Q. What is the meaning of the term, "declining usage"?

A. The term "declining usage" refers to either a reduction in the volume of water per customer used on a daily, weekly, and/or annual basis, and/or a reduction in the total volume of water used.

Q. What affect does declining usage have on calculating appropriate revenues?

A. If not accounted for properly, an alleged decline in volumetric water consumption may affect the ability for MAWC to meet its Commission-approved revenue requirement.

To summarize, normalized usage is one of the billing determinants the Commission uses to establish commodity rates, and the process of normalizing usage affords an entity the ability to appropriately account for usage. If normalized usage levels are not in line with actual usage, MAWC may collect more or less than its Commission-authorized revenues, and if normalized usage levels are too high, the commodity/usage rate will be lower, and if normalized usage levels are too low, the commodity/usage charge will be higher. While there are many factors that determine if the water utility collects more or less than its Commission-approved revenues, it is important to establish a fair commodity/usage charge to lessen the effect this aspect has to alter revenues.

Q. What is Staff's concern regarding MAWC's forecasting of future residential declining usage?

A. In its linear regression model, MAWC does not account for a change in the trend of declining usage as MAWC's proposed amount of declining usage continues indefinitely, and MAWC does not explain why. While Staff does not take issue with the reasoning behind the trend of declining residential use (caused by more efficient appliances, improvements in infrastructure, regulatory conservation efforts, changes in customer discretionary use, etc.). Staff points out that at some point there must be a logical plateau. Usage will only decline to a certain point, in order to sustain the lifestyle of a typical Missouri customer.

Q. What is Staff's recommendation for addressing the trend of declining residential customer usage and its effect on calculating, and MAWC receiving, its Commission-approved revenues?

A. In this rate case, Staff gathered information related to residential customer usage on a per day basis, within Tariff District 1 and Tariff District 2 where metered usage data was available.

For its review, Staff analyzed historical usage data and residential customer counts MAWC provided. Staff determined that the most reasonable method to determine annual customer usage was to use a five (5) year average of usage for the period of July 2017 through

June 2022. In certain service territories (profit centers) MAWC did not have five (5) years of data, so Staff used an average of the available data provided.

Q. Why does Staff believe that using a five (5) year average to normalize residential customer usage is the most reasonable approach?

A. Staff's approach is reasonable because it uses actual data to support an annualized level of usage. Averaging the data over the most recent five (5) year period represents reliable data and provides evidence of recent trends in customer usage. While many factors affect water usage, these factors change over time; therefore using the most recent five (5) years of data provides for a reasonable determination of customers' usage habits while avoiding using data so outdated, it no longer reflects the current situation.

Q. Has Staff performed any analysis comparing Staff's five (5) year average versus MAWC's ten (10) year statistical linear regression analysis, regarding normalization of residential customer usage and the ongoing trend of residential customer usage?

A. Yes. Schedule JJR-r1, attached to this testimony, presents a comparison of residential customer usage between Staff and MAWC, on a customer per day and an annual residential decline per customer on a volumetric scale. The averages on Schedule JJR-r1 were calculated using information related to Staff's five (5) year average(s) compared to actual usage for Tariff District 1 (St. Louis County and Pevely Farms), Tariff District 2 (All Other Service Territories), and the predicted usage provided in MAWC's workpapers, "MO – ST. Louis DU Model" and "MO– Outside of St. Louis DU Model".

To further elaborate, Staff prepared Schedule JJR-r1 to offer a comparison of data between to the two methods. This data set includes the utilization of Staff's averaging technique (the average of a specific set of years minus any explanatory variables), over a ten (10) year period for both Tariff Districts, as well as the utilization of MAWC's predicted usage data for a five (5) and ten (10) year period, in order to compare data related MAWC's ten (10) year linear regression analysis.

Q. What are the results of this comparison?

A. Schedule JJR-r1 separates the data into two main categories, Tariff District 1 (St. Louis County and Pevely Farms) and Tariff District 2 (All Other Systems). Within each tariff district there are two sub-groups of data, the first consisting of data related to residential customer usage per day, and the second representing an annual residential decline per customer on a volumetric scale.

Tariff District 1					
	Cust. Usage/Day				
Staff Est 5yr Avg (Actuals)	0.211040				
Staff Est 5yr Avg Based on Co. Predicted	0.210816	**Cust. Usage /Yr**	**Cust. Usage/yr**	**Usage Units**	**Total $/Yr**
Difference	0.000224	0.0819	25,968.7278	25.97	$ 146.18
Staff Est 10yr Avg (Actuals)	0.220246				
Staff Est 10yr Avg, Based on Co. Predicted	0.222275	**Cust. Usage /Yr**	**Cust. Usage/yr**	**Usage Units**	**Total $/Yr**
Difference	0.002029	0.7410	235,110.6562	235.11	$ 1,323.44
Tariff District 1					
	Annually				
Staff 5yr Avg Decline/Customer (Actuals)	1,160				
Co. Predicted 5yr Avg Decline/Customer	1,143	**Total Usage/Cust./Yr**	**Usage Units**	**Total $/Yr**	**Per Cust. (Annually)**
Difference	17	5,393,539.00	5,393.54	$ 30,360.23	$ 0.10
Staff 10yr Avg Decline/Customer (Actuals)	1,827				
Co. Predicted 10yr Avg Decline/Customer	1,400	**Total Usage/Cust./Yr**	**Usage Units**	**Total $/yr**	**Per Cust. (Annually)**
Difference	427	135,473,009.00	135,473.01	$ 762,577.57	$ 2.40
Tariff District 2					
	Cust. Usage/Day				
Staff Est 5yr Avg (Actuals)	0.154006				
Staff Est 5yr Avg Based on Co. Predicted	0.152730	**Cust. Usage /Yr**	**Cust. Usage/yr**	**Usage Units**	**Total $/Yr**
Difference	0.001276	0.4661	52,725.2547	52.73	$ 329.37
Staff Est 10yr Avg (Actuals)	0.159773				
Staff Est 10yr Avg Based on Co. Predicted	0.160072	**Cust. Usage /Yr**	**Cust. Usage/yr**	**Usage Units**	**Total $/Yr**
Difference	0.000299	0.1093	12,364.9555	12.36	$ 77.24
Tariff District 2					
	Annually				
Staff 5yr Avg Decline/Customer (Actuals)	56.93				
Co. Predicted 5yr Avg Decline/Customer	418.74	**Total Usage/Cust./Yr**	**Usage Units**	**Total $/Yr**	**Per Cust. (Annually)**
Difference	361.81	40,213,622.59	40,213.62	$ 251,210.48	$ 2.26
Staff 10yr Avg Decline/Customer (Actuals)	1,145				
Co. Predicted 10yr Avg Decline/Customer	1,200	**Total Usage/Cust./Yr**	**Usage Units**	**Total $/Yr**	**Per Cust. (Annually)**
Difference	55	6,113,030.00	6,113.03	38,187.49	$ 0.34

For both Districts 1 and 2, the labels in the second column from the left pertain to the following data:

- Tariff District 1 – 2 (Cust. Usage/Day = Customer Usage Per Day);
  - Staff's method of averaging over a five (5) year period, calculated by using actual usage data MAWC provided ("Actuals"), and calculated by using MAWC's predicted usage data ("Based on Co. Predicted");
  - Staff's method of averaging over a ten (10) year period, calculated by using actual usage data MAWC provided ("Actuals"), and calculated by using MAWC's predicted usage data ("Based on Co. Predicted").
- Tariff District 1 – 2 (Annually = Per Customer on an Annual Basis);
  - Staff's method of averaging the amount of annual volumetric decline over a five (5) year period, calculated by using actual usage data MAWC provided ("Actuals"), and calculated by using MAWC's predicted usage data (Co. Predicted);
  - Staff's method of averaging the amount of annual volumetric decline over a ten (10) year period, calculated by using actual usage data MAWC provided ("Actuals"), and calculated by using MAWC's predicted usage data (Co. Predicted).

Q. What were the sources of data Staff utilized to calculate these data sets?

A. Staff calculated its data by averaging actual usage over either a five (5) or ten (10) year period, based on data MAWC provided in its Microsoft Excel Spreadsheet titled, "CAS 11 and 12 Support – Water Customer Count & Usage".

Except for data related to "Co. Predicted 10yr Avg Decline Per Customer," all other MAWC figures in this data set were calculated utilizing MAWC's "Predicted" usage, according to MAWC workpaper, "DU STL County" and/or "DU All Other" and Staff's method of averaging, whether for a five (5) or ten (10) year period.

Q. How were data related to "Co. Predicted 10yr Avg Decline Per Customer," calculated?

A. These figures were provided in Mr. Rea's direct testimony on page 39, lines 12-14.

Q. Is there a discrepancy in MAWC's data?

A. Yes. It appears the "actual" usage data MAWC provided in "CAS 11 and 12—Water Customer Counts & Usage," contains an additional three (3) months of data compared to the usage data MAWC utilized in calculating the "Company Predicted" data. The data utilized to calculate the "Company Predicted" data in both "MO – St. Louis DU Model" and "MO – Outside St. Louis DU Model" end March 2022, whereas the data provided in "CAS 11 and 12 – Water Customer Counts & Usage" includes data from April, May, and June of 2022.

Q. Does this create any issues with the comparison?

A. While the discrepancy in data does not create any major issues, it does create an inherent difference, although slight, in data related to overall volume.

Q. Did Staff calculate, on a per customer revenue basis, the difference between Staff's estimated annual decline based on past actual usage and MAWC's predicted annual decline?

A. Yes. First, I would like to point out the correlation between a higher usage per customer per day, and a lower annual average volume of decline per customer. The more customers are using daily, the less the amount of annual decline.

Next, I would like to focus on Staff's estimates versus MAWC's predicted use, based on an average annual volume of decline per customer, for a five (5) year average, and the dollar amounts associated with the difference between Staff and MAWC. For Tariff District 1, Staff's estimated five (5) year average of annual decline based on actual usage (1,160 gallons) is virtually identical to MAWC's five (5) year average of annual decline based on predicted usage (1,143 gallons). This difference in volumetric data equates to a difference of $0.10 per customer annually.

For Tariff District 2, Staff's estimated five (5) year average of annual decline based on actual usage (56.93 gallons) is less than MAWC's five (5) year average of annual decline based on predicted usage (418.74 gallons). This difference in volumetric data equates to a difference of $2.26 per customer annually.

Next, I will focus on Staff's estimates versus MAWC's predicted, based on an average annual volume of decline per customer, for a ten (10) year average and the dollar amounts associated with the difference between Staff and MAWC. For Tariff District 1, Staff's estimated ten (10) year average of annual decline based on actual usage (1,827 gallons) is larger than MAWC's ten (10) year average of decline based on predicted (1,400 gallons). This difference in volumetric data equates to a difference of $2.40 per customer annually.

For Tariff District 2, Staff's estimated ten (10) year average of decline based on actual usage (1,145 gallons) is virtually identical to MAWC's ten (10) year average of decline based on predicted (1,200 gallons). This difference in volumetric data equates to a difference of $0.34 per customer annually.

Q. What does Staff conclude from its analysis of this data?

A. Comparing Staff's and MAWC's methodologies, the impact on revenues on a per customer basis is minute, at $2.40 and $2.26 per customer annually, respectively. This is despite some variance in the data provided by the analysis performed in Schedule JJR-r1, with the largest discrepancy being between Staff's ten (10) year average and MAWC's predicted average (427 total gallons annually), as well as between Staff's and MAWC's five (5) year average of decline per customer (361.81 gallons annually).

Q. Will you address the other remaining volumetric comparisons?

A. Yes. The other two comparisons are even more closely aligned than the previously mentioned data set, with the greatest difference being between Tariff District 2. Staff's estimated ten (10) year average of decline, based on actual usage, is larger than MAWC's ten (10) year average of decline based on predicted, at 1,145 gallons and 1,200 gallons, respectively. This 55 gallon difference in volumetric data equates to a difference of $0.34 per customer annually. And for Tariff District 1, Staff's estimated five (5) year average of decline based on actual usage is virtually identical to MAWC's five (5) year average of decline based on predicted, at 1,160 gallons and 1,143 gallons, respectively. This 17 gallon difference in volumetric data equates to a difference of $0.10 per customer annually.

Q. What is Staff's conclusion based on comparisons between Staff's methodology based on actual usage versus MAWC's predicted usage methodology?

A. While there are many similarities with the results related to either customer usage per day or volumetric annual decline between Staff and MAWC, Staff's five (5) year average incorporates more recent data, therefore capturing the most recent trends, while also not including independent variables which may have been accounted for in calculations incorrectly and/or for too long a duration(s).

Q. What is Staff's recommendation?

A. Staff recommends the Commission approve Staff's five (5) year average method in calculating normalized customer usage in order to determine normalized levels of revenues for the utility.

Q. Does this conclude your rebuttal testimony?

A. Yes it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Missouri-American Water Company's Request for Authority to Implement General Rate Increase for Water and Sewer Service Provided in Missouri Service Areas	)))))	Case No. WR-2022-0303

AFFIDAVIT OF JARROD J. ROBERTSON

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW JARROD J. ROBERTSON and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Rebuttal Testimony of Jarrod J. Robertson*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.

JARROD J. ROBERTSON

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 11th day of January 2023.

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

D Suzie Mankin
Notary Public

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