Exhibit No.:	
Issue(s):	Normalized Usage
Witness/Type of Exhibit:	Mantle/Surrebuttal
Sponsoring Party:	Public Counsel
Case No.:	WR-2020-0344

SURREBUTTAL TESTIMONY

OF

LENA M. MANTLE

Submitted on Behalf of the Office of the Public Counsel

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2020-0344

February 9, 2021

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-2020-0344

VERIFICATION OF LENA M. MANTLE

Lena M. Mantle, under penalty of perjury, states:

1. Attached hereto and made a part hereof for all purposes is my surrebuttal testimony in the above-captioned case.

2. My answer to each question in the attached surrebuttal testimony is true and correct to the best of my knowledge, information, and belief.

*/s/Lena M. Mantle*_____
Lena M. Mantle
Senior Analyst
Office of the Public Counsel

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SURREBUTTAL TESTIMONY

OF

LENA M. MANTLE, P.E.

MISSOURI AMERICAN WATER COMPANY

CASE NO. WR-2020-0344

Q. What is your name?

A. Lena M. Mantle.

Q. Are you the same Lena M. Mantle who filed direct testimony in this case?

A. Yes, I am.

Q. Who are you responding to in this surrebuttal testimony?

A. I respond to Staff witness Jarrod Robertson and Missouri American Water Company ("MAWC") witness Gregory P. Roach regarding normalized usage to use to determine normalized revenues for the residential classes and the St. Louis County commercial class.

Q. Has your recommendation regarding the normalized usage changed since your direct testimony?

A. No. My recommended usage per customer for the residential and commercial classes remains the same as what I provided in my direct testimony.

Q. What are the recommended normalized usage per customer of OPC and the parties in this case?

A. Provided in the table below are the normalized usages for the residential and St. Louis County commercial classes recommended by the parties in this case.

Normalized Monthly Use Per Customer

	Residential		Commercial
	St. Louis County	Other	St. Louis County
OPC	6,596	4,727	42,151
MAWC	6,089	4,251	41,095
Staff	6,568	4,745	
MIEC	6,597	4,727	42,160

I could not locate the normalized usage recommended by MAWC and Staff in their testimonies. I was able to find MAWC's recommended normalized usage in its direct case workpapers.[1] Staff, in its workpapers did not calculate a normalized usage per customer. I applied Staff's recommended methodology to the usage and customer data found in its rebuttal case workpapers.[2] I was unable to locate Staff's normalized average use per customer for the St. Louis County commercial class.

Rationale for Not Updating With Data That is More Recent

Q. MAWC witness Mr. Roach provides in his rebuttal testimony that the usage data from 2020 should not be used in the normalization process.[3] Do you agree with Mr. Roach?

A. Yes.

Q. It is now February 2021. Why not update normal usage with the actual monthly average usage in 2020?

A. While it is important to use the most recent data in calculating normalized usage, it is likely that the usage data from 2020 will prove to be an outlier. In my rebuttal testimony, I discussed the impact of outlier data from the usage history of MAWC.[4]

[1] MO Res St Louis Usage Analysis - 2020RC.xlsx, MO Res Non St. Louis County Usage Analysis - 2020RC.xlsx, and MO St Louis County Com Usage Analysis - 2020RC.xlsx.
[2] WR-2020-0344 (Declining Usage Workpaper) JJR-r5.xlsx.
[3] Page 7.
[4] Page 5.

To include data for 2020 would be including probable outlier usages. Alternatively, how MAWC customers use water could be different going forward.

Q. Why do you think 2020 usage was different?

A. The COVID pandemic changed the way people lived beginning in March 2020. Quarantining and then working from home changed how many MAWC residential and commercial customers used water. Since mid-year, some businesses have opened up allowing employees to go to work and yet many others are still working at home. If, and when, people will return to their workplaces is still uncertain. Life, and subsequently how they use water, has changed for many of MAWC customers of all sizes.

Q. Will the usage for 2020 be an outlier like the usage in 2012 shows to be?

A. That is uncertain. It may instead signal a long-term shift from declining usage towards static to slightly increasing water use such as what MAWC usage data shows began in 2015. It is likely that instead of going back to the way things were before 2020, there is a new "normal." The extent of the change and the magnitude cannot be known for a few years. However, knowing that this anomaly exists, I agree with Mr. Roach that the data from 2020 should not be used to determine normalized usage in this case.

Q. Are the usages per customer recommended by Mr. Roach forecasted?

A. The usages per customer for the residential classes and the St. Louis County commercial classes are the forecasted usage as of November 2021 consistent with MAWC's forecasted test year. MAWC used a three-year average for its other classes.[5]

[5] Direct Testimony of MAWC witness Brian W. LaGrand, page 20.

Q. Did Mr. Roach update his forecast with a change in the usage for 2020 and beyond due to the pandemic?

A. I could not find that he did. Any such adjustment would be premature because there is not enough data to know how the pandemic will effect water usage.

The Commission Should Approve the Three-Year Average Usage per Customer

Q. Staff witness Jarrod Robertson testifies in rebuttal that it is better to use a five-year average as proposed by Staff because "using the most recent five years of data provides for a reasonable determination of customers' usage habits while avoiding using data that is so stale that it doesn't reflect the current situation."[6] What is your response to Mr. Robertson?

A. Mr. Robertson is correct that using data that is more recent more accurately reflects the current situation. However, with this logic, the three-year average proposed by OPC is more accurate than Staff's five-year average.

Q. Would you explain?

A. A five-year average includes data from five years prior and puts the same weight on data from five years prior as it does to the most recent year. A three-year average includes the most recent data, and the most recent data is also more heavily weighted in a three-year average (33%) than in a five-year average (20%).

Q. Mr. Robertson also testifies that a three-year average should not be used because anomalies would have a greater impact on the normalized value.[7] How do you respond to Mr. Robertson?

A. I agree with Mr. Robertson that an anomaly has a greater impact on a three-year average than in a five-year average. This is why it is important to look at the data before and after the time period chosen and the results of each of the normalization

[6] Page 8.
[7] Page 15.

methodologies. No such anomalies exist for the three years included in my proposed average.

Q. Why should the Commission choose a three-year average instead of a five-year average?

A. There are at least two reasons.

First, according to the direct testimony of MAWC witness Grant A. Evitts, MAWC began installing advanced metering infrastructure ("AMI") on customers' meters in 2016. Mr. Evitts also testifies that as of May 2020, MAWC has equipped around 90% of the meters in St. Louis County with the new AMI.[8]

In addition, it is my understanding, that MAWC is working on moving its quarterly billed customers to being billed monthly. Both of these effect the monthly usage data.

Q. Why is this important in determining the time period over which an average usage is calculated?

A. MAWC has told its customers that AMI "streamlines meter-reading processes and will help deliver accurate water bills".[9] If this is correct, the usage recorded now is becoming more accurate as more AMI are installed. Conversely, the data recorded before 2016 and full AMI installation is presumably less accurate. If AMI reads are more accurate, there will be a change in the quality of usage data. A five-year average would include usage from before the installation of AMI began and a year or two when the percentage of AMI was low, meaning the time period includes a considerable amount of data that is of lesser quality.

Changing from quarterly bills to monthly gives customers more appropriate price signals, which in turn may result in a change in how customers use water. In the letter it sends to quarterly customers when it begins transitioning them to

[8] Page 23.
[9] Reading device upgrade letter to William Relinge provided by Mr. Relinge in Case No. WC-2021-0251.

monthly bills, MAWC described how changing to monthly billing may change how the customer uses water.

> Monthly billing helps with wise water use. With monthly billing, you will receive more frequent and timely information about water use. As a result, you can improve water wise habits and detect leaks sooner.[10]

A three-year average contains data more consistent with future usage from the AMI and the impact of changing to monthly billing than a five-year average does. The five-year average includes more of the usage that measured and billed in a manner inconsistent with the known future and therefore should not be used.

Q. What is the other reason the Commission should choose a three-year average instead of a five-year average?

A. A three-year average minimizes the potential for errors in the usage and customer count data as I described in my rebuttal testimony.

<u>Weather and Water Usage</u>

Q. In his rebuttal testimony, Mr. Roach states that you are asking the Commission to ignore that usage data is considerably influenced by weather.[11] Does your recommendation ignore the influence of weather?

A. No. It is intuitive that water usage is influenced by weather. The Commission should not approve the normalized usage of MAWC just because its methodology explicitly includes weather and the other methodologies do not. Weather is implicitly included in a three-year average usage. My rebuttal testimony provides the detail the Commission should consider regarding the data used by MAWC in its estimation process and the shortcomings of MAWC's methodology to determine normalized usage. I will not repeat those here. Suffice it to say, that just because

[10] Letter to Sarah Nangle provided by Ms. Nangle in her formal complaint Case No. WC-2021-0227.
[11] Page 4.

a model is more complex, that does not mean that its results are more reasonable or accurate.

Q. What measures of weather did Mr. Roach use in his analysis of the average monthly usage?

A. His model used a sum of the cooling degree days ("CDD") [12] for the entire year and the amount of precipitation in July through November as his chosen measures of weather. Yet he chose in his rebuttal testimony, to discredit the three-year average, to present to the Commission two measures he did not use in his own analysis - precipitation in June through October and number of days with a temperature above 90º F.

Q. Mr. Roach provides testimony regarding weather conditions during the 36 months averaged by OPC and MIEC versus the 10-year period MAWC normalized.[13] What is your response to this testimony?

A. Mr. Roach testifies that the 36 monthly values in my normalization process experienced weather conditions that were drier and warmer than the 10-year period he used. To support of his testimony, Mr. Roach provided table GPR-2R that compared, not the 36 months of data to the 10 years of weather data but the averages for the months of June through September, even though this time period did not correspond to either of the measures of weather he used in his own analysis. Portions of his table are replicated in the table below along with the measures of weather of CDD and precipitation for the entire year.

[12] CDD is a measure of how warm it is. It is calculated as the difference between the mean daily temperature and 65 when the mean daily temperature is greater than 65. The mean daily temperature is calculated as the daily high temperature plus the daily low temperature divided by 2.
[13] Pages 4-5.

	Jun-Sep CDD	Jun-Sep Precipitation	Annual CDD	Annual Precipitation	Days over 90º F
10-yr Avg	1,627	16	1,944	44	58
3-yr Avg	1,628	13	1,971	44	60
% Diff	0.05%	-20.53%	1.39%	0.27%	4.20%

This table shows that, over the time period shown in Mr. Roach's rebuttal testimony of June through September, the CDD, which is a measure of how warm the time period was, is virtually the same for the average of the ten years used by MAWC and the average of three years OPC used.

Q. Mr. Roach said that it was 4% hotter in the three-year period.[14] Does the difference in CDD in June through September equate to 4%?

A. No. The CDD difference is actually 0.05%. Mr. Roach used a different measure of weather to come up with the 4%. He used a count of the number of days in the year where the temperature got above 90º F. The last column of the table above shows this measure. The average number of days with a temperature above 90º F over the ten-year period was 58. Over the three-year period it was 60.

Q. Does the number of days that had a temperature greater than 90º F **indicate that the three-year time period was warmer than the ten-year period average?**

A. No, it does not. It just indicates there were, on average, <u>two</u> more days above 90º F in each year in the three-year period than there was in the average of the ten years. By itself, it is not indicative of how much warmer one time period was over the other. It just provides how many days were above 90º F. Two days does not indicate one time period was "warmer" than the other.

[14] Page 5.

Q. Is there a better measure to compare how warm one time period was to another time period?

A. Yes. CDD is a better measure of how warm a time period was. The average annual CDD of the ten years and as compared to the three years shows almost no difference in how warm it was on average for the ten years and the three.

Q. How do you respond to Mr. Roach's assertion that it was 21% drier in the three years versus the ten years?

A. In his rebuttal testimony, Mr. Roach compared the average inches of precipitation in the months of June through September as a measure of dryness. He is correct that the amount of rain in June through September of the three-year average of 13 inches is 20.5% less than the 16 inches of the ten-year average. However, the average of the annual amount of precipitation for the ten years (44 inches) is the same as the average precipitation of the three years. When looking at a different time period, the annual measurement of how "dry" it was is the same for the ten- and three-year average.

Q. What should the Commission conclude regarding the weather in the three year time period you used to calculate normalized usage per customer?

A. That on an annual basis, the weather implicitly averaged over the three years of 2017 through 2019 was comparable to the average over the ten years of 2010 through 2019. Averaging the more recent three years of data excludes usage amounts that are outdated and likely not representative of MAWC's customer patterns, while continuing to account for Missouri's weather fluctuations just as well as a ten-year average.

Q. Would the result of ordering a normalized usage calculated without performing a weather normalization analysis lead to overstatement of both residential and commercial usage as Mr. Roach contends in his rebuttal testimony?[15]

A. No. The weather in the three years of usage is comparable to the average of the ten years of data used by Mr. Roach.

Q. Mr. Roach also testifies that there is a very limited probability of the weather in these three years occurring again.[16] Is this correct?

A. The probability of the weather in the three years occurring again is as limited as the weather averaged over the ten years used by Mr. Roach. Weather is anything but predictable in Missouri. Having more years of data in an average of weather measures does not equate to a greater probability that the average weather ever occurs.

Q. Will MAWC be in a position of chronic under recovery if the Commission adopts the three-year average usages as Mr. Roach opines?[17]

A. No. If the Commission adopts the three-year average, MAWC will be positioned to have an opportunity to collect the revenues used to determine rates.

Q. Will MAWC be in a position of chronic over recovery if the Commission adopts the forecasted average usages as Mr. Roach recommends?

A. Yes. Using these artificially low average usages will result in higher rates being charged customers. MAWC will recover in excess of the revenues used to determine rates and customers will pay more than the revenue requirement set in this case by the Commission.

[15] Page 5.
[16] *Id*.
[17] *Id.*

Difference Between a Widget Maker's Customers and MAWC Customers

Q. MAWC witness Roach explains why it is important to normalize usage that are applied as billing determinants to determine new rates with an example of the impact on a widget maker if it inaccurately forecasts its sales.[18] His testimony is that this example mirrors the water utility industry. Do you agree?

A. No. While Mr. Roach did narrow his example to a widget maker serving a specific market with limited market competition, the widget maker's customers have a choice. MAWC's customers effectively cannot move their homes or offices if they do not like the price of water charged by MAWC. They are captive customers with no choice as to where they can purchase water.

If the widget maker prices his widget high, the customers can choose not to purchase the widget from this widget maker and look for a lower cost source of widgets. MAWC customers do not have this option. Customers are stuck paying the rates of the water company if they want water.

Another big difference is that the widget maker takes the risk of inaccurate forecasting of how many widgets he can sell, not his customers. If he underprices his widgets, not covering costs, then the widget maker can raise the price it charges for a widget. A water utility, the size of MAWC, has little to no risk of not meeting its expenses. I am not aware of any instance when MAWC has come to the Commission because it is not covering expenses. It comes in because it is not earning the return that it believes it is entitled. Mr. Roach's widget maker example does not mirror MAWC.

[18] Page 2.

Q. Are you testifying that it is not important to normalize the test year usage used as billing determinants to determine new rate levels for MAWC?

A. No. It is very important to have billing determinants that reflect normal usage. Accurate billing determinants are essential. If they are too high, MAWC cannot cover its costs. If the billing determinants are too low, customers are charged more than the revenue requirement.

A simple example should help clarify. The revenue requirement is set at $100. There are two recommended billing units. Party A recommends 400 gallons that would result in a rate of $0.25 per gallon (Rate A). Party B recommends 500 gallons that would result in a rate of $0.20 per gallon (Rate B).

If actual usage is 400 gallons, the revenues from Rate A would be $100 just as set and the customers received the correct price signal for their usage. The revenue from Rate B would be $80 leaving the company $20 short of its revenue requirement and customers would pay less than the cost to serve them.

If actual usage is 500 gallons, the revenue from Rate A would be $125 making increasing the company's earnings above the revenue requirement and requiring the customers to overpay. The revenues from Rate B would be $100 enabling the company to recover its revenue requirement and providing customers the correct price signal for their usage.

Q. You previously, in this testimony, provided the normal usage per customer recommended by the parties to this case. MAWC's recommended usage is much less than the other parties. Why should the Commission choose OPC and MIEC's recommended usages?

A. I provided considerable rebuttal testimony regarding the problems with MAWC's methodology. I will not repeat that testimony here. In addition to the problems with the methodology, MAWC's recommendation is a forecasted usage that assumes a continuous decline in usage even though recent data shows that this decline no longer exists. It also assumes that we will go back to life the way it was

before the pandemic. These assumptions result in MAWC's recommended normalized usages per customer being much lower than the other parties' recommendations.

Given a set revenue requirement, the rates calculated using MAWC's normalized usage would be higher than the rates calculated using the normalized usage of any of the other parties. If the Commission chooses to use MAWC's normalized usage, the rates would be higher than if the Commission chose any of the other parties recommended usage. The ultimate result would be that MAWC will bill its customers for more revenues if the Commission chooses MAWC's normalized usage.

Q. Would the Solomonic method of splitting the baby, i.e. averaging the recommended usages, be a good solution for the Commission?

A. Not if it includes MAWC's recommended usages for the residential classes and the St. Louis County commercial class. These usages are forecasted usages. The other recommendations are normalized usages at a historical point in time. The inclusion of forecasted usage in an average with the normalized usages would result in inaccurate rates that collect more than the revenue requirement set by the Commission at a detriment to the customers.

For these reasons, the Commission should use a three-year normalized usage for the residential and St. Louis County commercial classes.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.