

Exhibit No.:  
Issues: Riverside Water Quality  
Witness: William Andrew Clarkson  
Exhibit Type: Rebuttal-Rate Design  
Sponsoring Party: Missouri-American Water Company  
Case No.: WR-2017-0285  
SR-2017-0286  
Date: January 24, 2018

**MISSOURI PUBLIC SERVICE COMMISSION**

**CASE NO. WR-2017-0285  
CASE NO. SR-2017-0286**

**REBUTTAL TESTIMONY  
RATE DESIGN**

**OF**

**WILLIAM ANDREW CLARKSON**

**ON BEHALF OF**

**MISSOURI-AMERICAN WATER COMPANY**

Exhibit No. 13  
Date 3/8/18 Reporter NR  
File No. WR-2017-0285

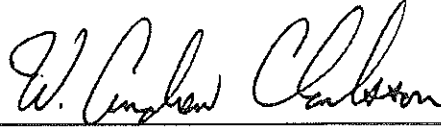
Exhibit 13  
WR-2017-0285  
Rebuttal Testimony – Rate Design of  
William Andrew Clarkson

BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MISSOURI

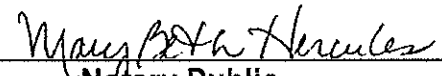
IN THE MATTER OF MISSOURI-AMERICAN )	
WATER COMPANY FOR AUTHORITY TO )	
FILE TARIFFS REFLECTING INCREASED )	CASE NO. WR-2017-0285
RATES FOR WATER AND SEWER )	CASE NO. SR-2017-0286
SERVICE )	

AFFIDAVIT OF W. ANDREW CLARKSON

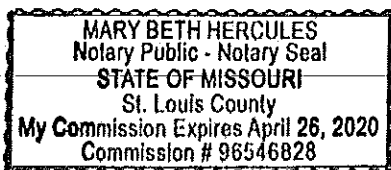
W. Andrew Clarkson, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Rebuttal Testimony Rate Design of W. Andrew Clarkson"; that said testimony and schedules were prepared by him and/or under his direction and supervision; that if inquiries were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge.

  
\_\_\_\_\_  
W. Andrew Clarkson

State of Missouri  
County of St. Louis  
SUBSCRIBED and sworn to  
Before me this 22nd day of January 2018.

  
\_\_\_\_\_  
Notary Public

My commission expires:



**REBUTTAL TESTIMONY  
RATE DESIGN  
WILLIAM ANDREW CLARKSON  
MISSOURI-AMERICAN WATER COMPANY  
CASE NO. WR-2017-0285  
CASE NO. SR-2017-0286**

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**REBUTTAL TESTIMONY  
RATE DESIGN**

**WILLIAM ANDREW CLARKSON**

**I. INTRODUCTION**

1

2 **Q. Please state your name and business address.**

3 A. My name is William Andrew Clarkson and my business address is 727 Craig Road, St.  
4 Louis, Missouri 63141

5 **Q. Are you the same William Andrew Clarkson who previously submitted direct and  
6 revenue requirement rebuttal testimony in this proceeding?**

7 A. Yes.

8 **Q. What is the purpose of your rate design rebuttal testimony in this proceeding?**

9 A. The purpose of my rate design rebuttal testimony is to address the water quality  
10 concerns raised by Mayor Kathleen L. Rose on behalf of the City of Riverside.

11

**II. RIVERSIDE WATER QUALITY**

12 **Q. Riverside Mayor Rose raises certain water quality concerns and recommends that  
13 Missouri-American Water Company (“MAWC” or the “Company”) take further  
14 action to address her concerns Do you agree that MAWC should take further  
15 action to address the City’s water quality concerns?**

16 A. No, I do not. Mayor Rose raises the same issues in this case as she did in the  
17 Company’s last rate case (Case No. WR-2015-0301). As Company witness Kevin  
18 Dunn described in his surrebuttal testimony in the last rate case, the Company has

1           undertaken a variety of efforts to address the water quality concerns in Riverside since  
2           becoming aware of them. The Company made a presentation highlighting these efforts  
3           at a community meeting on March 3, 2016. A copy of that presentation is attached  
4           hereto as Schedule WAC-1.

5   **Q.    What was the water quality issue?**

6   A.    As Company witness Dunn explained, the water quality issue was as follows:

7                                 Softening the water does cause the precipitation of  
8                                 calcium which causes the formation of “scale” in the  
9                                 water pipes. This scale builds up over time in the pipes  
10                                and can be loosened by activities such as main breaks  
11                                and flushing. Lime softening is used successfully in St.  
12                                Louis County, St. Joseph, Mexico, Jefferson City and  
13                                Brunswick to reduce hardness. Water entering homes is  
14                                not believed to contain the particles as homes with whole  
15                                house filters are not plugging unreasonably fast. We  
16                                believe that scale is forming on in-house piping and at  
17                                some point is released. We believe that the introduction  
18                                of CO2 in May 2016 will reduce the amount of scale that  
19                                could be formed on in-house piping. This should  
20                                improve the release of scale from in-house piping by  
21                                year end.

22                               (Dunn Sur., p. 12-13)

23   **Q.    What steps has the Company completed since the March 2016 community**  
24           **meeting?**

25   A.    MAWC installed CO2 feeding equipment in May 2016, to further stabilize the water  
26           composition and to reduce the potential of scaling in the distribution system.

27   **Q.    Did this process appear to have an impact on water quality?**

28   A.    Yes. After several months of fine-tuning the dosage of CO2, new water quality  
29           complaints slowed. In 2015, prior to the installation of CO2 equipment, the Company  
30           received a total of 51 calls in the Parkville/Riverside system. During the transition

1 year, 2016, the Company received 35 calls. In 2017, just 10 Parkville/Riverside water  
2 quality calls were received in the entire year. It should be noted that these are inclusive  
3 of all calls mentioning particles, which would include, but not be limited to, water main  
4 breaks, service line replacements, and hydrant usage. They are not necessarily  
5 indicative of calcium scaling.

6 **Q. Were other steps taken to assess and remedy the issues?**

7 A. Yes. As requested by Mayor Rose, a brief phone survey of its Platte County customers  
8 was performed to determine the scope of the water quality issue. We shared the results  
9 of that survey with our customers via direct mail during May 2016, a copy of which is  
10 attached hereto as Schedule WAC-2.

11 Also in 2016, the Company broke ground on the construction of a new water treatment  
12 plant in Platte County. MAWC completed construction of that \$30 million water  
13 treatment plant in December 2017. The new plant was designed and built to optimize  
14 the treatment of the raw water conditions for the Parkville/Riverside system. The CO2  
15 equipment that was originally installed at the old plant in May 2016, was relocated to  
16 the new plant in 2017. This new plant, with better monitoring and treatment equipment,  
17 provides tighter control of the treatment process, including the ability to minimize the  
18 scaling potential in the water.

19 Lastly, MAWC continues to conduct water quality tests each year in compliance with  
20 United States Environmental Protection Agency (“EPA”) and Missouri Department of  
21 Natural Resources (“MO DNR”) regulations. Since the purchase of the original Platte  
22 County water treatment plant by the Company in 1993, the water delivered has met and  
23 continues to meet all state and federal guidelines for drinking water. With the

1 construction of the new water treatment plant, the particle issue should be further  
2 minimized going forward. A Consumer Confidence Report that describes the water  
3 quality conditions for the system is made available to each MAWC customer in  
4 Parkville/Riverside every year.

5 MAWC believes that it has taken the action necessary to address the water quality  
6 concerns for the Parkville/Riverside system, and therefore, no further action is required.

7 **Q. Mayor Rose further recommends that the Commission shift away from district  
8 specific rate-making. Do you agree?**

9 A. Yes. In this case, the Company is proposing to consolidate its three district tariffs into  
10 a single tariff. Please see the direct and rate design rebuttal testimony of James Jenkins  
11 in support of consolidated tariff pricing.

12 **Q. Does this conclude your rate design rebuttal testimony?**

13 A. Yes, it does.



# **Platte County Water System Serving Parkville, Riverside, Platte Woods and Wholesale Customers Lake Waukomis and District #6**

**Particle Issue**

**Timeline of Events and Actions Taken**





## Platte County Water System

- Water system acquired by Missouri American Water in 1993 when MAW purchased the Avatar Properties (also included Mexico, Warrensburg, St. Charles and Brunswick)
- Supply comes from 4 deep wells with capacity of 3.5 million gallons per day.
- About 100 miles of water main with 821 fire hydrants
- Water is purchased from Kansas City if needed during times of peak pumpage.
- Water in Platte County has been softened by the same method since the acquisition in 1993.



## Water Quality

- Since the purchase of the Platte County Treatment Plant by Missouri American Water in 1993, the water delivered has met and continues to meet all state and federal guidelines for drinking water.
- The particle issue is aesthetic in nature and does not impact the safety of the drinking water.
- Water is generally classified as either corrosive or scale forming by the regulatory agencies. Unlike the current corrosive water situation in Flint, MI, some of Missouri American Water's operations including Platte County, are considered scale forming.
- The corrosive water in Flint, MI. has resulted in lead leaching from the aging water pipes into the water supply.



## Water Treatment Process Includes Lime Softening

- Prior to softening, hardness level exceeds 300 parts per million, which is considered to be very hard on a water hardness scale.
- According to the American Water Works Association, more than 85% of the United States has hard water.
- Hardness level after softening is approximately 165 parts per million.
- Softening the water does cause the precipitation of calcium which causes the formation of “scale” in the water pipes.
- This scale builds up over time in the pipes and can be loosened by activities such as main breaks and flushing.
- Lime softening is used in multiple locations including St. Louis, St. Joseph, Mexico, Jefferson City and Brunswick to reduce hardness.



## Particle Issues Timeline

- Minimal particle complaints through February 2010.
- Between 11/01/11 and 1/23/12 MAW received a total of 10 complaints all in the Thousand Oaks Subdivision.
- Water system flushing – both neighborhood specific and entire water system:
  - November 2011                      January 2012                      July 2015
  - March 2013                              October 2013
  - September 2014                      September 2015
- Phosphate feed point moved July 2012.
- Verified no treatment compatibility issues exist with Kansas City Water in January 2013 and again in May 2013.
- Repeated consultations with phosphate vendor.



## Timeline Continued

- **Water sample collection and testing both in customer homes and in the water system:**
  - July, October, December 2012      February, September and December 2013
  - February and September 2014      June and September 2015
- **American Water labs in Belleville, IL and Delran, PA have tested samples obtained from customer homes.**
- **Phosphate level increased twice in August 2012 and July 2015.**
- **Water treatment plant filters replaced in June 2012 and June 2015.**
- **Fill rate for water storage tank at Thousand Oaks reduced in August 2015.**
- **PEX test loops installed in customer homes in February 2013 and evaluated in May 2014.**



## Timeline Continued

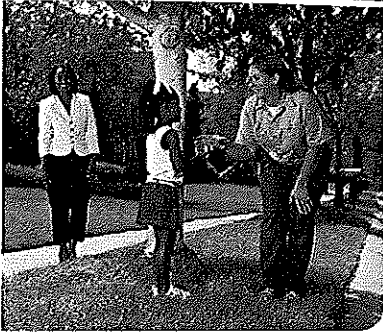
- In-home filtration systems installed in customer homes to evaluate particle build-up.
- Have worked with the Missouri Department of Natural Resources throughout the process.
- Visual inspection of two water tanks, including the Thousand Oaks Tank in 2013.
- First known issue with particles outside of Thousand Oaks surfaced in Riss Lake in 2015 and additionally there have been complaints in Montebella.
- Issues continue to be sporadic with some improvement.
- To date there have not been any water quality complaints addressing particles made by the wholesale customers, top ten largest water users or industry.



## Next Steps

- Pilot testing for scale buildup on different pipe materials including copper, PVC and PEX in place as of Wednesday, Feb. 25 with evaluation to take place monthly over a period of months.
- Installation of a Carbon Dioxide system at the water treatment plant scheduled to be on-line by the middle of May.
- Results of changes to the water will not be instantaneous but will take several months to see in the water system.
- Ground breaking for new water treatment plant in 2016.
- Brief phone survey of MAW Platte County customers recently conducted to determine how widespread the issue with particles is in the system.
- Results will be shared with customers via direct mail later this month.

# Survey Says...



In March 2016, we surveyed 418 Missouri American Water customers\* in the Parkville District about their water quality and service. Here's what they had to say.

## **The Majority of Respondents are Satisfied with their Current Level of Service**

- ◆ 69% of respondents are satisfied with the level of service they are receiving from Missouri American Water

### **When it Comes to Water Quality:**

- ◆ 46% of respondents are satisfied with the quality of their drinking water
- ◆ 33% of respondents are not satisfied with the quality of their drinking water
- ◆ 20% were unsure

Respondents that were not satisfied with the quality of their drinking water were asked to identify the issue they were experiencing with their water.

- ◆ Odor – 6%
- ◆ Appearance – 8%
- ◆ Taste – 29%
- ◆ Other – 57%

Of the 16 respondents indicating appearance, 10 stated particles as the issue. One respondent chose color and five respondents chose other.

\*This number represents the number of respondents who took the survey through question 3, which asked about satisfaction with the quality of their drinking water.



**Future Steps to Address Customer Concerns Include:**

- ◆ CO<sub>2</sub> system scheduled to go on-line in late May
- ◆ Completion of new water treatment plant on schedule for December 2017

In a world where everything we touch frequently changes, water is our constant. We've never stopped needing it to drink, to cook, to clean, to live. We'll always need it for sanitation, fire protection, watering our lawns and washing our cars.

It's easy to take water for granted. And because so many do, we don't.

We are scientists, environmentalists, innovators, and protectors. We are also residents and employees in the communities we serve. We understand how important, how precious, and how critical water is to daily life.



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