

Exhibit No.:

Issues: UPIs Additions, Residential Usage,
Environmental Cost Adjustment
Mechanism (ECAM), Platte County
Treatment Facility Retirement
Witness: Kevin H. Dunn
Exhibit Type: Direct
Sponsoring Party: Missouri-American Water Company
Case No.: WR-2015-0301
SR-2015-0302
Date: July 31, 2015

MISSOURI PUBLIC SERVICE COMMISSION

**CASE NO. WR-2015-0301
CASE NO. SR-2015-0302**

DIRECT TESTIMONY

OF

KEVIN H. DUNN

ON BEHALF OF

MISSOURI-AMERICAN WATER COMPANY

**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) RATES FOR WATER AND SEWER) SERVICE)		CASE NO. WR-20150-0301 CASE NO. SR-2015-0302
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AFFIDAVIT OF KEVIN H. DUNN

Kevin H. Dunn, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Direct Testimony of Kevin H. Dunn"; 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.



Kevin H. Dunn

**State of Missouri
County of St. Louis
SUBSCRIBED and sworn to
Before me this 14th day of July 2015.**



Notary Public

My commission expires: July 17, 2016



**DIRECT TESTIMONY
KEVIN H. DUNN
MISSOURI-AMERICAN WATER COMPANY
CASE NO.WR-2015-0301
CASE NO.SR-2015-0302**

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DIRECT TESTIMONY

Kevin H. Dunn

1

I. INTRODUCTION

2

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

3

A. Kevin H. Dunn, 727 Craig Rd., St. Louis, MO 63141

4

5

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

6

A. I am employed by Missouri-American Water Company (“MAWC” or “Company”) as
7 Director, Engineering. MAWC.

8

9

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

10

A. The purpose of this testimony is to describe the Company’s investments in, and
11 additions to, Utility Plant in Service (“UPIS”) since the end of the true-up period of
12 MAWC’s last rate case (December 31, 2011); to describe the calculation for
13 residential usage adjustment based on the percent decline of residential base usage; to
14 describe the need for an Environmental Cost Adjustment Mechanism; to propose a
15 new rate for customer service connections; and, to describe the reasons for retiring the
16 Platte County Water Treatment Facility by May 31, 2018.

17

18

19

**Q. PLEASE DESCRIBE YOUR BUSINESS EXPERIENCE IN THE WATER
20 UTILITY INDUSTRY.**

20

21

A. In 1984, I began work with St. Louis County Water Company as a System Engineer.

1 This work included the participation in various designs and relocations and
2 installations of mains throughout St. Louis County. From 1989 to 1994, I was in
3 charge of various water treatment plant facility operations, maintenance and capital
4 projects, which led to my promotion to Superintendent for all of the water treatment
5 facilities in St. Louis County. In August of 1994, I was transferred back into
6 Engineering, first as Special Projects Engineer and, then, Superintendent of
7 Production Engineering where I oversaw or performed the project management of
8 various major water treatment facility upgrades, depreciation studies, planning studies
9 to match future growth, and maintenance studies to determine life cycle replacements.
10 After the merger of St. Louis County Water with MAWC in 1999, I performed a
11 similar role under the title of Engineering Manager and I was responsible for the
12 eastern districts in Missouri, which included St. Louis County, St. Charles, Mexico,
13 and Jefferson City. In 2002, I was promoted to Director of Engineering for Missouri
14 and became responsible for all of the capital projects and planning for all of the
15 Missouri districts. In 2004, I was promoted to a position with American Water Works
16 Service Company, Inc. (“Service Company”) as the Central Region Director,
17 Production, where I was responsible for all water and wastewater treatment facilities
18 in the Central Region. My new role mainly involved directing the treatment
19 operations and maintenance work for the American Water districts located in
20 Missouri, Illinois, Iowa, Indiana, Ohio, and Michigan. In late 2007, I was transferred
21 to my current position as Director, Engineering for MAWC.

22

23 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL**
24 **BACKGROUND?**

1 A. I received my Bachelor of Science degree in Civil Engineering from the University of
2 Missouri - Columbia in 1984. I am a registered Professional Engineer in Missouri. I
3 also have Class A and DSIII Public Water Supply Operator Certificates from the
4 Missouri Department of Natural Resources.

5

6 Q. **HAVE YOU PREVIOUSLY PARTICIPATED IN REGULATORY**
7 **PROCEEDINGS BEFORE THIS COMMISSION?**

8 A. Yes. I have previously presented testimony before the Missouri Public Service
9 Commission (“PSC”).

10

11

12

II. CAPITAL ADDITIONS

13 Q. **PLEASE DESCRIBE THE COMPANY’S PRACTICES FOR IDENTIFYING**
14 **CAPITAL INVESTMENT NEEDS.**

15 A. The Company performs a planning process to determine the needs of each service
16 area. This process includes a review of the condition of both above ground and below
17 ground infrastructure to determine replacement projects, review of projected customer
18 consumption to determine new utility plant requirements, review of regulatory
19 environmental requirements in the near future to determine new utility plant
20 requirements, and review of efficiency projects that reduce operating/maintenance
21 expenses or improve safety. Projects are determined for the needs of the service areas
22 and these projects are prioritized. The five year capital plan is created by reviewing
23 the prioritization of the needs along with regulatory compliance date, and available
24 Company capital funding. The five year capital plan projects fall into a Recurring

1 Project List (projects that are normally less than \$250,000 for all assets other than
2 water main projects that have a limit of \$1,000,000) or an Investment Project List
3 (projects that are a level of spend greater than the above noted limits).

4 **Q. WHAT INVESTMENTS IN PLANT IN SERVICE WILL MAWC HAVE**
5 **COMPLETED BETWEEN JANUARY 1, 2012 AND JANUARY 31, 2016?**

6 A. The investments in capital additions by service area from January 2012 through
7 January 2016 are identified in the table below:

8

**Investments from January 2012 thru
January 2016**

Brunswick	\$ 137,271
Jefferson City	\$ 7,155,335
Joplin	\$ 12,008,331
Mexico	\$ 3,539,378
Platte County	\$ 6,153,074
St. Joseph	\$ 16,220,868
St. Louis Metro	\$ 379,734,893
Warrensburg	\$ 3,458,944
Cedar Hill WW	\$ 211,567
Parkville WW	\$ 13,798
Warren County WW	\$ 460,652
Stonebridge Water	\$ 1,542,145
Jefferson City WW	\$ 1,820,313
Rankin Acres	\$ 6,595
Spring Valley	\$ 20,846
Lake Taneycomo	\$ 537,481
Ozark Meadow WW	\$ 6,690
Maplewood WW	\$ 457,189
White Branch	\$ 35,718
Stonebridge WW	\$ 168,964
Meramec WW	\$ 428,563
Saddlebrook Water	\$ 115,976
Saddlebrook WW	\$ 23,996
TriStates	\$ 1,491,251
Emerald Pointe Water	\$ 175,718
Emerald Pointe WW	\$ 102,705
Anna Meadows Water	\$ 16,556
Anna Meadows WW	\$ 37,150
Arnold WW	\$ 76,761
Redfield Water	\$ 7,389
	\$ 436,166,117

1 **Q. PLEASE LIST THE SIGNIFICANT CAPITAL PROJECTS THAT ARE**
2 **INCLUDED IN YOUR LIST OF INVESTMENTS.**

3 A. Significant individual projects at each service area are as follows:

4 Brunswick:

- 5 • Replace Water Treatment Plan Roof
- 6 • Install Solar Panels
- 7 • Replace 20 fluorescent lights with more efficient lights
- 8 • Install Generator transfer switch

9 Jefferson City:

- 10 • Install 1.5 million gallon Elevated Tank
- 11 • Replace clearwell #1 with a 500,000 gal clearwell
- 12 • Install 5000 ft of 20" main on Industrial Drive
- 13 • Install 3000 ft of 20" main from Industrial Drive to Elevated Tank
- 14 • Relocate 1252' of 6" & 1105' of 16" on Lafayette
- 15 • Replace 510' of 4" CI with 8" DI on Jefferson St
- 16 • Replace 670' of 6" CI with 8" DI on Wicker Ln

17 Joplin:

- 18 • Rebuild Service Center Bldg. repair WTP facilities, and T&D after tornado
- 19 • Construct Gateway Zone booster station along with 4600' of 12" DI and 550'
20 of 16" DI
- 21 • Replace 15th St booster station
- 22 • Relocate 2650' of 12" on Indiana Ave
- 23 • Install 1400' of 12" DI on 20th St

- 1 • Replace 2500' of 8" on 26th St City Widening project
- 2 • Replace hypochlorite tanks at Water Treatment Plant
- 3 • Replace 32nd St Generator

4 Mexico:

- 5 • Relocate 1900' of 6" CI with 8" PVC on Breckinridge
- 6 • Replace 1220' of 6" AC with 6" PVC on Dorcas St
- 7 • Replace 1425' of 2" with 8" PVC on Margaretta
- 8 • Replace Well #7 pump and column piping
- 9 • Upgrade Water Treatment Plant SCADA System

10 Platte County:

- 11 • Install 6002' of 24" DI in Riverside at Horizons Parkway
- 12 • Replace 12" main at the BNSF RR Bridge Demolition
- 13 • Relocate 1956' of 12" main on Mattox Rd
- 14 • Relocate 132' of 6" & 413.5' of 12" on 72nd St
- 15 • Replace filter media
- 16 • Replace 16" Control Valve at Water Treatment Facility

17 St. Joseph:

- 18 • Replace Randolph Booster Station
- 19 • Replace Office and Service Center
- 20 • Purchase 8 Pickup Trucks & 1 truck crane and liftgate
- 21 • Install 1437' of 8" main on South 4th St
- 22 • Relocate 538' of 16" main for the Whitehead Creek Storm Sewer Project

23 St. Louis Metro:

- 1 • Complete several Main Relocations resulting from Public Works
- 2 Improvements
- 3 • Replace mains as part of the obsolete main replacement program, some of the
- 4 projects are:
 - 5 ○ Replace 4000' of 8" main on Charbonier Rd
 - 6 ○ Replace 1779' of 4", 12", & 16" main on Hoffmiester Ave
 - 7 ○ Replace 1632' of 8" main on Broadview Dr
 - 8 ○ Replace 2430' of 8" main on McKnight Rd
 - 9 ○ Replace 1328' of 8" main on Hillard Rd
 - 10 ○ Replace 3215' of 8" main on Benton St
 - 11 ○ Replace 162' of 36" main on Hog Hollow Rd
 - 12 ○ Replace 1920' of 16" main on Watson Rd
 - 13 ○ Replace 500' of 12" main on Hwy 70 (Directional Drill)
 - 14 ○ Replace 2524' of 8" main on Manchester Rd Phase 1
 - 15 ○ Replace 1442' of 12" main on Manchester Rd Phase 2
 - 16 ○ Replace 1576' of 12" main on Manchester Rd Phase 3
 - 17 ○ Replace 2534' of 12" main on Manchester Rd Phase 4
 - 18 ○ Replace 2066' of 16" main on Watson Rd
- 19 • Replace South Plant North Basin Softening Unit
- 20 • Install an equalization lagoon at Meramec Plant to allow plant effluent to meet
- 21 National Pollutant Discharge Elimination System (NPDES) permit
- 22 requirements
- 23 • Construct distributed reporting center in the south area of St. Louis County to
- 24 increase customer service

- 1 • Replace 26 backhoes
- 2 • Replace North Plant East Basin High Service Switchgear
- 3 • Install chemical feed system to reduce chlorine residual to meet the NPDES
- 4 limits set at Central Plant
- 5 • Replace one-half of the Central Plant 3B Incoming Switchgear
- 6 • Improve Service Center HVAC system
- 7 • Replace Central Plant High Service Low Pump Station (Electric Station) – 45
- 8 MGD
- 9 • Replace chemical feed systems at North Plant
- 10 • Replace carbon feed system at both Meramec Plant and South Plant
- 11 • Replace 6 synchronous motors in Filter Plant 2 at Central Plant
- 12 • Replace Meramec Plant A basin softener drive
- 13 • Replace 86 Toughbook computers
- 14 • Install ADT security system at Central Plant

15 Warrensburg:

- 16 • Replace 510' of 6" main & 100' of 8" main on Pine St
- 17 • Replace soft start on well #9
- 18 • Replace fluorescent lights to increase efficiency
- 19 • Replace 2600 sq ft of asphalt parking lot

20 Cedar Hill Waste Water:

- 21 • Purchase sewer camera system
- 22 • Replace 252' of 8" clay pipe at Lake Tamarac
- 23 • Replace lagoon aerator

1 Warren County Waste Water:

- 2 • Replace VFD's & pH probes damaged by lightning
- 3 • Replace influent grinder pumps
- 4 • Install automated blower system with DO instrumentation
- 5 • Modify existing waste water plants

6 Stonebridge Water:

- 7 • Install SCADA start system
- 8 • Install Tonka HMO radiation removal system at Riverside Estates
- 9 • Install autodialer system at Maplewood lagoon

10 Jefferson City Waste Water:

- 11 • Install Waste Water Mechanical Treatment Plant at Lee St lagoon site
- 12 • Install Waste Water Mechanical Treatment Plant at Lehman Acres lagoon site
- 13 • Upgrade Monticello Lagoon to meet NPDES limits & disinfection
- 14 • Construct pole barn to store sludge trucks
- 15 • Install Waste Water Mechanical Treatment Plant at Briar Village
- 16 • Install Waste Water Mechanical Treatment Plant at Evergreen Acres lagoon
- 17 site

18 Rankin Acres:

- 19 • Replace small section of main
- 20 • Replace fire hydrant

21 Spring Valley:

- 22 • Replace Spring Valley Booster #1 pump and motor
- 23 • Replace small section of main

- 1 Lake Taney Como:
- 2 • Replace booster pump
- 3 • Replace pump at well #1 at Ozark Mountain
- 4 Ozark Meadow Waste Water:
- 5 • Replace blower motor
- 6 • Replace small sections of main
- 7 Maplewood Waste Water:
- 8 • Install lagoon aeration system
- 9 • Install UV disinfection system
- 10 White Branch:
- 11 • Install autodialer system at Well #1
- 12 Stonebridge Waste Water:
- 13 • Replace 8 grinder pumps
- 14 Meramec Waste Water:
- 15 • Replace 20' of PVC sewer and one manhole
- 16 • Replace blower #1
- 17 • Install diffuser system to bring system into compliance with the ammonia
- 18 limits
- 19 • Install water service to the waste water treatment plant
- 20 Saddlebrook Water:
- 21 • Install fence at tank site
- 22 • Replace well pump
- 23 Saddlebrook Waste Water:
- 24 • Small section of main replaced

1 TriStates:

- 2 • Renovate existing office building to accommodate vehicles and a water
- 3 quality lab
- 4 • Purchase leak detection equipment
- 5 • Replace Well #4 booster pump
- 6 • Replace Well #5 pump

7 Emerald Pointe Water:

- 8 • Well house improvements

9 Emerald Pointe Waste Water:

- 10 • Replace lateral and grinder pumps

11 Corporate:

- 12 • SAP Business Application Software

13

14 **Q. PLEASE FURTHER DESCRIBE THE MAJOR CAPITAL PROJECTS.**

15 A. The major capital projects throughout the state include State Wide
16 Replacement/Relocations of Mains, St. Louis Service Area Central Plant HSL Pump
17 Station Replacement, St. Louis Service Area North Plant Chemical Feed Building
18 Replacements, St. Louis Service Area National Pollutant Discharge Elimination
19 System (NPDES) required improvements, Joplin Service Area Tornado Service
20 Building replacements, Jefferson City Service Area Elevated Tank, Jefferson City
21 Service Area Clearwell replacement, and the Riverside Radiation Compliance project.

22 Main Replacement

23 The Company is very cognizant of the deterioration of its underground utility plant.

24 The Infrastructure Systems Replacement Surcharge is important to the replacement

1 efforts in St. Louis County. Across the State MAWC has expended over \$ 282 million
2 in replacing or relocating main in our systems since the rate case timing. Nearly 215
3 miles of main have been installed in that period of time. In St. Louis County, the
4 Company has expended \$ 221 million and installed nearly 170 miles of main. The
5 above listing of Significant Capital Projects mentions some of the main
6 replacement/relocation projects in this category.

7 Central Plant High Service Low Pump Station

8 A new 45 million gallons per day (mgd) pump station was built to replace the 1930's
9 edition at the St. Louis County Central Plant. The original station, commonly called
10 the Electric Station as it was the first pump station at Central Plant that use electrical
11 power to drive the pumps, had reached its expected life, the five pumps required
12 replacement, the electrical gear no longer had replacement parts available, and the
13 station itself need upgrading to meet the seismic requirements for the area. The new
14 station consists of four vertical turbine pumps installed in a new wet well connected
15 to the existing tunnel to meet the high service low pressures headed to the Stratmann
16 Tanks. One of the new pumps has a variable frequency drive that along with the
17 higher efficient pumps allowed the Company to receive approximately \$176,000 from
18 Ameren for reducing electrical usage by approximately 2.5 megawatts. Total capital
19 expenditure is approximately \$11 million.

20 North Plant Chemical Feed Replacement

21 The existing lime, ferric sulfate, polymer, fluoride, and phosphate feed systems at the
22 St. Louis County North County Plant service areas are unreliable and experience
23 heavy amounts of maintenance. The new system will move all the chemical feeds
24 except for lime from the basement of North Plant into new locations in the building or

1 into new buildings. All the chemical fees will be flow paced for automated feed. This
2 project includes replacing the existing drainage system at the northeast portion of the
3 basin to collect water running down the hill towards the west basin and divert the
4 flow past around the basin. Total capital expenditure is approximately \$9 million.

5 Central Plant National Pollutant Discharge Elimination System Project

6 The Central Plant received new permit requirements to allow the plant to continue to
7 discharge its waste streams to the Missouri River. To be in compliance the total
8 residual chlorine will need to be reduced to 0.2 mg/l and the pH will need to be at a
9 level lower than 10.5. A sodium bisulfite feed system has been installed to reduce the
10 chlorine residual to the acceptable level. To meet the pH requirements a new lime
11 slaking feed system that ages the lime slurry prior to pumping the dosage to the basin
12 was installed. Also, a water diversion system utilizing river water mixing and a
13 carbon dioxide feed system will help to be in compliance with pH. Total capital
14 expenditure is \$7 million.

15 Joplin Service Building Replacement

16 On May 22, 2011 a tornado swept through the City of Joplin and laid waste to a large
17 swath of the City. The Company's Joplin Service Center was destroyed during this
18 event and required full replacement. Other water treatment plant replacements and
19 T&D replacements occurred. Total capital expenditure is approximately \$3 million.

20 Jefferson City Elevated Tank

21 Prior to the installation of this elevated tank the Jefferson City system did not have
22 storage that would gravity feed fire flow. It was determined that a 1.5 million gallon
23 tank should be installed. The project includes installation of 1,900 ft. of 20" main to
24 fill the tank from the distribution system. Total capital expenditure is \$4 million.

1 Jefferson City Clearwell #1 Replacement

2 The existing million gallon clearwell was installed in the 1800's and has developed
3 leaks that cannot be repaired. This clearwell will be replaced with a 0.45 million
4 gallon ground storage tank. The remaining capacity of the existing clearwell was
5 installed in the system as the elevated tank. Total capital expenditure is \$1.6 million.

6 Riverside Radiation Compliance Project

7 The Company acquired the Riverside system with the acquisition of the Aqua
8 systems. The operating permit for the system required that the wells be tested for
9 Radium 226, Radium 228, and Gross Alpha. Sampling is required on a quarterly basis
10 and the maximum contaminant level (MCL) is based on an annual running average.
11 The gross alpha measurements were above the MCL and required a treatment system.
12 A Tonka HMO system was piloted at the site and once approved by Missouri
13 Department of Natural Resources the full size system was installed on site to treat the
14 well water. The waste stream discharge from backwash of the unit will be sent to City
15 of Hollister for treatment. Total capital expenditure \$1 million.

16
17
18 **III. RESIDENTIAL CUSTOMER WATER USAGE**

19 **Q. PLEASE DISCUSS THE IMPACT OF WEATHER AND CONSUMPTION**
20 **TRENDS ON RESIDENTIAL WATER USAGE?**

21 A. Weather creates fluctuations in usage, resulting in costs and revenues that are outside
22 the utility's control. As a general rule, usage is increased by hot, dry weather and
23 reduced by cool, wet weather, primarily in the summer months, although the variation
24 is regionally influenced, as well. The Company has no effective way of managing or

1 controlling this factor under traditional ratemaking channels. Although the
2 ratemaking process has historically tried to take this into consideration by basing rates
3 on “normal” weather conditions, as a practical matter, normal weather is never really
4 achieved. In fact, “weather” is difficult to even define in a statistical sense, and
5 establishing “normal” weather is even more difficult. A mechanism that mitigates
6 the adverse effect of weather variability on revenues recognizes that normal weather
7 is a condition that will likely never be achieved and effectively reduces the adverse
8 impacts of weather variability for both the Company and its customers.¹ Weather
9 extremes, drought or above normal rainfall, will increase or decrease customers’
10 usage. In addition, the Company has observed a significant and continuing residential
11 declining usage trend that should be taken into account.

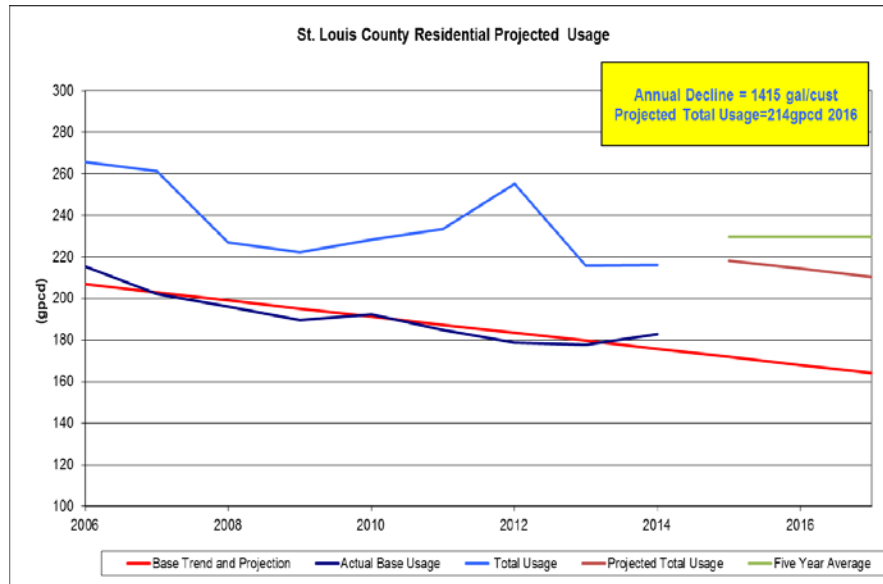
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15 **Q. WHY NOT USE A SIMPLE AVERAGE RESIDENTIAL CUSTOMER USE**
16 **BASED ON ANNUAL RESIDENTIAL CUSTOMER USAGE OVER A**
17 **PERIOD OF TIME?**

18 A. An annual average does not take into account the significant and continuing
19 residential declining usage trend that we have observed. This trend is common
20 throughout the United States and will be discussed further in the Direct Testimony of
21 MAWC witness Gregory P. Roach. Because an average of historical data cannot
22 account for this anticipated decline, an average of annual averages would calculate a

¹ With respect to the variability in weather, there has never been a consistent definition of “weather” that has been adopted for weather normalization purposes in the water industry. There has never been a generally accepted weather normalization adjustment methodology in the water industry. The result is that water companies receive either too little or too much revenue due to the vagaries of weather.

1 higher residential usage rate. Chart 1 below displays a graph of St. Louis County’s
 2 quarterly residential customers actual last ten years of annual customer usage along
 3 with projected normalized annual usage from 2015 – 2017; as well as a projection
 4 using the five year average. This data illustrates that the average of annual averages
 5 projects higher usage than has been experienced.



6
 7 **Chart 1**

8 **Q. HAVE YOU PERFORMED AN ANALYSIS ON BEHALF OF MAWC?**

9 A. I have performed a residential baseline usage analysis.

10
 11 **Q. PLEASE DESCRIBE YOUR RESIDENTIAL BASELINE USAGE ANALYSIS.**

12 A. An analysis of each district’s non-weather months for the last 10 years was
 13 performed. This analysis determined a baseline usage period by taking the average of
 14 three consecutive non-weather months of usage to calculate a district annual usage in
 15 gallons per customer per day (“GPCD”). A linear regression analysis was then
 16 performed on the 10 years of data to create the trend line for each district (see Chart 1

1 for St. Louis County). A calculation from the trend line formula then provides the
2 baseline usage for 2016.

3

4 **Q. WHY DOES THE BASELINE PERIOD INCLUDE THREE CONSECUTIVE**
5 **MONTHS?**

6 A. Some customers are billed monthly and some are billed quarterly, by including three
7 consecutive non-weather months of quarterly cycle usage, the analysis accounts for
8 the usage variability of all customers in all of the districts. If the model only used one
9 month as the non-weather usage indicator, the one month billing of a quarterly cycle
10 would only account for about one third of the total residential customers. Three
11 consecutive months of quarterly customers represent all customers and their usage
12 patterns. Thus, using a three consecutive month period allows for the total usage for
13 all customers in all districts no matter the billing cycle. Moreover, in some years
14 during which American Water was under prior ownership, accounting information
15 was reported based on cycles of four weeks, four weeks and five weeks rather than
16 using the standard monthly reporting cycles utilized by most domestic corporations.
17 Not only does averaging three consecutive months better represent the usage of all
18 customers in a quarterly billing cycle but it also eliminates the need for adjustments
19 due to the different reporting cycles previously used by the Company. Therefore, all
20 customers in each district are considered and all years can be analyzed.

21

22 **Q. WHAT THREE MONTHS WERE USED IN THE STUDY?**

23 A. This study uses bills issued during the period February through April for the three
24 consecutive months of data, except for the Brunswick service area (no significant

1 discretionary factor was found in the Brunswick district. Consequently, the whole
2 year was considered as the baseline period). The February – April range represents
3 the lowest three consecutive month period of residential customer usage on which the
4 baseline is calculated. Limited outdoor water usage occurs during this period and thus
5 it represents the best estimate of the baseline indoor usage that residential customers
6 would use throughout the year.

7

8 **Q. WHAT IS THE ANTICIPATED RESIDENTIAL CUSTOMER USAGE FOR**
9 **CALENDAR YEAR 2016?**

10 A. When determining the residential customer use per day, it is important to consider the
11 date at which rates will become effective as a result of the rate case. The timing of the
12 filing of this case suggests that rates will not be effective until 2016 and thus
13 customer usage levels in 2016 will dictate the revenue generated. It is only reasonable
14 that the 2016 projected baseline usage be considered for the calculation of normal
15 usage. This will allow for consideration of the continued decline in customer usage at
16 the time new rates are likely to become effective.

17

18 **Q. WHAT IS THE PROJECTED ANNUAL USAGE DECLINE FOR EACH**
19 **DISTRICT?**

20 A. The analysis of the Missouri districts calculates an annual decline in usage from a low
21 of 508 gallons/customer in St. Joseph to a high of 1,424 gallons/customer in
22 Brunswick:

23

District	Annual Decline (gallons/cust)
Brunswick	1,424
Mexico	736
Platte County	1,316
Warrensburg	586
Jeff City	731
St. Joseph	508
Joplin	1,078
St. Louis Metro	1,276

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Several key factors appear to cause this decline - increasing prevalence of low flow (water efficient) plumbing fixtures, conservation efforts of the customers, and price elasticity. These factors are more thoroughly discussed in the Direct Testimony of MAWC witness Gregory P. Roach

Q. DO YOU EXPECT THE DECLINING USAGE TO CONTINUE?

A. Yes. MAWC customers live in well developed communities and it appears they will continue to conserve water and replace plumbing fixtures and less efficient water using appliances with newer water efficient fixtures and appliances for an extended period. It is important to note that the decline in usage could possibly accelerate if customers embrace greater conservation efforts, especially as the price of water increases.

Given the life expectancy of appliances, along with the mandated water efficient washing machines and dishwashers, it is likely that the replacement of existing appliances, and the corresponding reduction in water used, will continue to occur for years to come.

1 **Q. HOW IS THE DISCRETIONARY RESIDENTIAL CUSTOMER USAGE**
 2 **CALCULATED?**

3 A. Once the baseline usage and the 2016 decline are determined, the analysis then
 4 reviews the yearly discretionary usage per day. This figure is calculated by
 5 subtracting the yearly baseline usage from that year’s average daily usage. Wet
 6 summers will have a discretionary usage that are 5-25% of the annual average usage.
 7 In hot and dry summers the discretionary usage could be as high as 35% of the annual
 8 average usage. With ten years of data, an average of discretionary usage can be used
 9 to calculate the portion of discretionary usage to be added to the baseline projection
 10 and determine the projected usage. The 2016 projected baseline, discretionary, and
 11 total usage per service area are:

Service Area	2016 Projections		
	Baseline (GPCD)	Discretionary (GPCD)	Total (GPCD)
Brunswick	81.07	0.00	81.07
Mexico	112.36	8.09	120.45
Platte County	137.51	76.76	214.27
Warrensburg	124.40	20.17	144.57
Jeff City	116.05	20.56	136.62
St. Joseph	130.63	15.97	146.61
Joplin	121.46	34.78	156.25
St. Louis Metro	166.87	51.53	218.39

13
 14 **Q. WHAT ARE SOME OF THE IMPACTS OF THE VARIABILITY OF**
 15 **WEATHER AND DECLINING RESIDENTIAL CUSTOMER WATER USE**
 16 **ON MAWC’S CAPITAL PROGRAM?**

17 A. MAWC has a multi-decade-long investment need that is funded up front by
 18 shareholders and lenders and recovered from customers over a 40 year plus time

1 frame. As MAWC's capital plan demonstrates, the nature of water utility investment
2 has shifted from plant needed to serve new customers to infrastructure replacement
3 and repair, and environmental compliance. While, as MAWC witness Jeanne Tinsley
4 explains in her Direct Testimony, most of MAWC's revenues are from variable,
5 volumetric sales in this declining use, no growth business environment. But the need
6 to fund these significant, non-revenue producing investments doesn't vary with usage.
7 Revenue stability would support more consistent planning and deployment of the
8 most efficient resources - least-cost investments. Revenue stability will allow MAWC
9 to be more efficient by supporting stability in investments and also will support long
10 lasting and stable jobs in Missouri.

11

12 **IV. ENVIRONMENTAL COST ADJUSTMENT MECHANISM (ECAM)**

13 **Q. WHY IS THE COMPANY PROPOSING AN ECAM?**

14 A. The ECAM is a mechanism that will allow periodic rate adjustments that reflect net
15 increases or decreases in qualified environmental cost. MAWC would be allowed to
16 recover prudently incurred capital and expense costs outside of a rate case whereby
17 the costs incurred are a result of MAWC being in compliance with federal, state, or
18 local environmental law, regulations, or rules.

19

20 **Q. PLEASE PROVIDE EXAMPLES OF PROJECTS OR PROCESSES THAT**
21 **WOULD BE PRUDENT COSTS OF AN ECAM?**

22 A. A recent project that would have met the requirement of an ECAM is the Central
23 Plant National Pollutant Discharge Elimination System (NPDES) project whereby
24 Missouri Department of Natural Resources in the permitting process set in action for

1 the reduction of total chlorine and pH in the discharge to the Missouri River. This
2 required MAWC to install a de-chlorinating chemical system, which includes bulk
3 tanks, day tanks, feed pumps, storage structure, etc., and to incur additional operating
4 expenses to feed the chemical to the discharge going to the Missouri River.

5 MAWC is currently working on new NPDES permits for the North Plant, Jefferson
6 City Plant, and Platte County Plant. These permits will at minimum have a low total
7 chlorine limit that will require both the capital for chemical feed equipment as well as
8 the increase in operating expenses.

9 **Q. IS THE ECAM DESIGNED TO PROVIDE MAWC WITH A SUFFICIENT**
10 **OPPORTUNITY TO EARN A FAIR RETURN ON EQUITY?**

11 A. Yes. MAWC provides a product that is ingested by its customers. As such, MAWC
12 follows strict statutes and regulations created by the United States Environmental
13 Protection Agency and Missouri Department of Natural Resources — statutes and
14 regulations that help to provide high-quality drinking water. These rules are beyond
15 the control of MAWC and require significant investment. Timely recovery of costs
16 of compliance with these regulations and other environmental requirements provides
17 MAWC with a reasonable opportunity to earn a fair return on equity and is in the
18 public interest.

19

20 **V. PLATTE COUNTY WATER TREATMENT FACILITY RETIREMENT**

21 **Q. PLEASE DESCRIBE THE PLATTE COUNTY WATER TREATMENT**
22 **FACILITY (PCWTF).**

23 A. The Platte County Water Treatment Facility is a ground water iron-manganese
24 removal and lime softening plant that fits tightly on the existing property. The oldest

1 parts of this plant date back to 1898. Major improvements at the plant occurred in
2 1942, 1954, and 1976. Other equipment replacements and repairs have occurred
3 throughout the life of the plant. The major items that date to 1898 are the 150,400
4 gallon clearwell and the 23,000 gallon backwash holding basin. The clearwell has a
5 concrete wall interior with a stone revetment support as foundation.

6

7 **Q. WHY MUST THE PLATTE COUNTY WATER TREATMENT FACILITY**
8 **(PCWTF) BE RETIRED BY MAY 31, 2018?**

9 A. Renovations to the plant will be required in order to operate it beyond that date and it
10 is not practical or advisable to make those renovations at this site.

11 The concrete and stone for the clearwell show signs of cracking. In addition, the
12 stone has missing sections of grout. This clearwell is a vital part of the treatment
13 facility and further deterioration could lead to contamination from groundwater or
14 possible infiltration of insects and rodents. The clearwell needs to be replaced to
15 prevent contamination. The existing site does not have sufficient space to place a new
16 clearwell of equal or greater size while keeping the existing clearwell in service.
17 Therefore, in order to use the existing site, additional property adjacent to the
18 PCWTF will need to be purchased. Limited land around the plant site is available for
19 this construction and what may be possible for purchase would be subject to flooding.

20 The current plant and office site has been subjected to floods and remains vulnerable.
21 In 1993 (flood of record), the existing plant site was flooded and there was
22 approximately seven feet of river water on the main floor of the operating building.
23 The wetted portion of the clearwell was below the height of the flood waters by
24 approximately four inches.

1 The clearwell could be designed to be replaced where it is currently located but that
2 would require major portions of the existing office and garage to be removed. The
3 demolition and construction would require a significant outage of the plant during the
4 construction phase of the replacement.

5 A more limited outage occurred in 1995 when the clearwell roof had to be replaced.
6 During this outage, water was purchased from the City of Kansas City (at a higher
7 cost than producing water from the plant) to supply water to Platte County. The
8 project was scheduled during the lower customer demand period. The demolition and
9 construction of a new clearwell would require the plant to be out of service for a
10 longer period.

11 Therefore, replacing the clearwell on site would not be advisable as the major
12 portions of the plant would remain susceptible to flooding.

13

14 **Q. IS THE CLEARWELL REPLACEMENT THE ONLY REASON FOR**
15 **RETIRING THE PCWTF?**

16 A. Replacing the clearwell in the near future to prevent failure or exposure to
17 contamination is the major reason for retiring the plant, but other structural and
18 building façade deterioration exists. Steel roof support beams over both sets of filters
19 have extensive corrosion due to being in the moist atmosphere. These beams could
20 fail in a similar manner as what occurred in the winter of 2009 – 2010, when the
21 portion of the plant roof over the operator area collapsed. Also, the brick façade of the
22 PCWTF shows signs of stress and bricks have cracked and popped out in various
23 sections of the exterior walls. Concrete spalling and other metal corrosion on the
24 filters and settling basin are also occurring and will require repair/replacement in the

1 near future. Overall, repairing or replacing the existing structures in place would be
2 more expensive than building a plant on a new site. Furthermore, a new site would
3 not be subject to the flooding of the current site.
4

5 **Q. WHY IS THE RETIREMENT DATE MAY 31, 2018?**

6 A. MAWC has considered the retirement of this plant for some time. In Burns &
7 McDonnell's 2000 Report "Final Draft of the Water Demand Projections and Capital
8 Improvement Options Study for Platte County District"; they state "The remaining
9 useful life of the existing Water Treatment Plant has been estimated in about 10
10 years. Operation of the plant beyond this period of time is anticipated to be
11 uneconomical. Therefore, retirement of the existing Water Treatment Plant is
12 assumed to occur in year 2010." MAWC continued to monitor the plant condition
13 from this point and in 2008 conducted an in-house study prior to agreeing with the
14 City of Kansas City for an additional connection at Briarcliff. This study concluded
15 that the Water Treatment Facility would need to be replaced within 10 years, which is
16 the year 2018.

17 The above conditions indicate a continuation of disintegration of the plant. The
18 building of a new water treatment plant is in our current Capital Investment Plan and
19 has construction starting in 2017 with completion by the end of May 2018. The May
20 date was selected to meet projected summer demand.
21

22 **Q. WHAT SIGNIFICANCE DOES THE MAY 31, 2018, RETIREMENT DATE**
23 **HAVE FOR THIS CASE?**

1 A. MAWC witness Spanos uses this date as the basis for his recommendation to revise
2 the depreciation rates associated with the PCWTF.

3

4 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

5 A. Yes it does.