

EXHIBIT

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Robinett/Rebuttal

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Public Counsel

Case No.:

WR-2017-0285

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Missouri Public
Service Commission

REBUTTAL TESTIMONY

OF

JOHN A. ROBINETT

Submitted on Behalf of the Office of the Public Counsel

MISSOURI-AMERICAN WATER COMPANY

CASE NO. WR-2017-0285

January 17, 2018

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**REBUTTAL TESTIMONY
OF
JOHN A. ROBINETT
MISSOURI AMERICAN WATER COMPANY**

CASE NO. WR-2017-0285

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

2 A. John A. Robinett, PO Box 2230, Jefferson City, Missouri 65102.

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

4 A. I am employed by the Missouri Office of the Public Counsel ("OPC") as a Utility Engineering
5 Specialist.

6 **Q. Are you the same John A. Robinett that filed direct testimony on behalf of the OPC in
7 this proceeding?**

8 A. Yes.

9 **Q. What is the purpose of your rebuttal testimony?**

10 A. In this testimony, I respond to the depreciation rate recommendation of Missouri American
11 Water Company's (MAWC or Company) for the Business Transformation (BT) System.
12 Additionally, I will discuss the Company's plan to implement advanced metering
13 infrastructure for the system. I will also discuss the existence on total company and zone
14 level of negative reserves and Staff's Final Report findings related to faulty meter issue
15 and negative reserves that were issues in Case No. WR-2015-0301.

16 **Business Transformation System Depreciation**

17 **Q. What is MAWC's request for the BT system depreciation rate?**

18 A. MAWC is asking the Commission to order a 14.3 percent depreciation rate with a 7 year
19 life for the BT system. MAWC's request is a change from the currently ordered 5 percent
20 depreciation rate with a 20 year life.

21 **Q. Is MAWC's request appropriate in this case?**

22 A. No.

1 **Q. Why is MAWC's request inappropriate in this case?**

2 A. First, MAWC fails to analyze all of the plant in service accounts for potential changes, both
3 for increasing and decreasing need of depreciation expense in this case. In case number
4 WR-2015-0301, MAWC hired an outside depreciation consultant to perform a depreciation
5 study of all the water and waste water assets. This was the appropriate time to have
6 addressed a change when all accounts were studied.

7 **Q. What is the rationale for depreciation change?**

8 A. In OPC data request 8514, OPC asked for the rationale for a depreciation rate change for
9 account 391.4 BTS Initial Investment when it was not studied as part of the depreciation
10 study supplied in Case No. WR-2015-0301. MAWC's response points to Mr. Brian W.
11 LaGrand's testimony, page 28 line 17 through page 29 line 19. This section of Mr.
12 LaGrand's testimony does not address the question of why the BT system was not studied
13 as part of depreciation study in the last case. Additionally, Mr. LaGrand discusses future
14 SAP software updates and extension of mainstream maintenance until 2025 for the BT
15 applications.

16 **Q. Does Mr. LaGrand's testimony page 28 line 17 through page 29 line 19 cause any
17 concern regarding his depreciation recommendation?**

18 A. Yes. Mr. LaGrand is recommending a depreciation rate as if the asset has an average
19 service life of seven years. Mr. LaGrand's own testimony at page 29 lines 6 through 9
20 states that the BT assets were deployed in August 2012 - May 2013. The BT system
21 components will have been in service for five to six years by end of current case.

22 **Q. If Mr. LaGrand's recommendation is ordered, would MAWC collect more than the
23 original cost of the BT system?**

24 A. Yes. Based on the age of the asset, the 5 percent depreciation rate and 20 year average
25 service life currently applied to the assets, the asset is currently 25 percent accrued. Mr.
26 LaGrand's recommendation of 14.3 percent will fully recover the original cost of the asset
27 over seven years on top of the 25 percent already accrued for the asset.

1 **Q. Is the BT System no longer used and useful at the end of SAP mainstream**
2 **maintenance?**

3 A. No. However, that is the current position taken by MAWC. This 2025 date correlates to
4 the end of SAP mainstream maintenance. The end of maintenance does not mean that the
5 system no longer functions. In fact a review of the SAP website FAQ provides the
6 answers:

7 **3. SAP has committed to mainstream maintenance for SAP Business Suite 7**
8 **core products until 2025. How does this compare to SAP S/4HANA?**

9 The current releases of SAP Business Suite core application products such as SAP
10 ERP, SAP SCM, SAP CRM, and SAP SRM are committed to mainstream
11 maintenance until at least 2025. The same approach – continuous innovation until
12 at least 2025 – will also be provided for SAP S/4HANA through a series of releases.

13 **4. What happens after 2025?**

14 SAP will inform our customers in due time. The current commitment for SAP
15 Business Suite software is comparable with the current cycles for SAP S/4HANA.
16 Both offerings provide security for at least 10 years into the future.

17 **5. What happens after mainstream maintenance?**

18 Once mainstream maintenance of an SAP S/4HANA release ends, customer-
19 specific maintenance applies (for more information, see SAP Note 52505).

20 **10. What happens when the mainstream maintenance of a release of SAP**
21 **S/4HANA ends?**

22 The respective release of SAP S/4HANA will automatically enter a customer-
23 specific maintenance phase. The SAP release and maintenance policy will make
24 sure that at least one new release of SAP S/4HANA is available and in mainstream
25 maintenance at that point in time.¹

26 These FAQs from SAP illustrate that once mainstream maintenance ends, then a
27 customer specific maintenance program applies. Additionally, SAP states that security will
28 be provided for “at least 10 years into the future” beyond the 2025 date.

29 **Q. What is OPC’s recommended treatment for the BT system?**

30 A. Like Staff, OPC recommends continuation of the current ordered depreciation rates that
31 resulted out of a Stipulation and Agreement from Case No. WR-2015-0301. Specifically

¹ <https://help.sap.com/doc/fb3ee8b026b9468890aedd443afb9aae/1511%20000/en-US/ReleaseMainStratS4.pdf>

1 for the BT system account 391.4 a rate of 5 percent representing a 20-year average service
2 life.

3 **Q. Although OPC agrees with Staff's recommended treatment for the BT system, does**
4 **OPC's recommended depreciation rates differ from Staff's in other ways?**

5 A. Yes. One exception is that OPC is recommending a change to the waste-water depreciation
6 schedule due to the fact that MAWC has added leasehold equipment in a waste-water
7 account since its last rate case. In the prior case, the depreciation rate for account 390.9
8 Structures and Improvements – Leasehold was set to zero since MAWC did not have any
9 plant booked to the account at that time. Now that MAWC has booked equipment to that
10 account, the Commission should order a depreciation rate. OPC is recommending a 5%
11 depreciation rate be used for account 390.9 Structures and Improvements – Leasehold. This
12 recommended depreciation rate is consistent with the ordered rate for that MAWC waste-
13 water account in Case No. WR-2011-0337.

14 **Negative Reserves**

15 **Q. Is OPC concerned about negative reserves that existed at the district level in the last**
16 **MAWC case?**

17 A. Yes. I was the depreciation witness for Staff during the last MAWC rate case and raised
18 concern about negative reserves that existed at the district level in Case No. WR-2015-0301.
19 I testified to the following concerns:

20 **"Negative Reserve at District Level**

21 Q. Does MAWC Recommend any district level adjustments for negative
22 reserves at the district level?

23 A. No.

24 Q. Why not?

25 A. MAWC did not analyze reserve on a district level; reserve was only looked
26 at on total Missouri level and no issue is visible due to larger districts being able to
27 mask reserve issue of smaller districts.

28 Q. What adjustments are Staff recommending on a district level?

29 A. Staff recommends the transfer of reserve balances from other accounts
30 within each district to bring the reserve totals on accounts with negative balances
31 back to zero. For most districts, the general plant accounts are able to be adjusted

1 with funds from other general plant accounts, excluding Account 392 and its
2 subaccounts related to Transportation. This is not possible for Ozark Meadows,
3 which is discussed below. For all negative reserves outside of the general plant
4 accounts (for example, pumping equipment, wells, mains, customer meters,
5 customer services, and distribution piping), Staff recommends transferring funds
6 from outside of general plant (source of supply accounts, pumping accounts, or
7 transmission and distribution accounts). The sources of these funds vary by district
8 and are provided in the Staff's Accounting Schedules. The majority of these fund
9 sources are transmission and distribution piping accounts, with a smaller portion
10 from pumping accounts.

11 Q. Are there any districts where these adjustments were not sufficient?

12 A. Yes, in the Ozark Meadows district.

13 Q. What treatment does Staff recommend for Ozark Meadows?

14 A. Ozark Meadows has a negative reserve balance, which means retirements
15 have exceeded the rate of depreciation expense accrual. To correct this issue,
16 because sufficient value is not available in this district to correct the reserve by
17 transferring within the district, Staff recommends a positive \$23,555 reserve
18 adjustment to be applied to NARUC USOA Account 362, Receiving Wells. This
19 reserve adjustment will be a rate base offset.²

20 Q. Was this issue corrected in true-up from the last case?

21 A. No. As stated in my surrebuttal testimony in last case on behalf of Staff of the
22 Commission:

23 "Q. Did Mr. Spanos raise any issues with negative rate base or negative
24 reserves?

25 A. No. Mr. Spanos did not raise an issue with negative rate base or negative
26 reserves because he looked at MAWC water and sewer on a "total company basis."
27 Larger districts like St. Louis Metro, Joplin, or St. Joseph plant and reserves easily
28 covered any negative reserve or negative rate base that may have been occurring at
29 the small water facilities. However, as part of the true-up plant and reserve
30 information received, every water and sewer district has at least one account
31 carrying a negative reserve balance. Accounts 313, 322, 324, 330, 332.4, 346.2,
32 393, and 399 all carry negative balances of reserve when all districts are combined.
33 Mr. Spanos also did not analyze the district specific effects of his recommended
34 retirements, nor did MAWC, as the Company indicated in its response to Staff Data
35 Request No. 0176.³

² Case No. WR-2015-0301 Staff witness Robinett rebuttal testimony page 9 line 5 through page 10 line 10

³ Case No. WR-2015-0301 Staff witness Robinett surrebuttal testimony page 12 line 15 through page 13 line 2

1 **Q. Was an investigatory docket opened as a result of a Stipulation and Agreement in**
2 **Case No. WR-2015-0301 filed on March 16, 2016?**

3 A. Yes. In File No. WO-2017-0012, the Commission ordered an opening of an investigation
4 on July 12, 2016. The issues to be investigated were faulty water meters and the practice
5 of maintaining negative reserve balances.

6 **Q. Did you author any of the Staff report in File No. WO-2017-0012?**

7 A. No. I accepted a job position with the Missouri Office of the Public Counsel with a start date
8 of August 16, 2016. Staff's report was finalized and filed on March 31, 2017. The
9 Memorandum from Mr. Kofi Boateng of the auditing department and Mr. Scott Glasgow from
10 the Consumer and Management Analysis largely focused on the faulty meter issue.

11 **Q. Did Staff analyze the negative reserve issue that existed and was described in its**
12 **testimony in Case No. WR-2015-0301?**

13 A. No. The Staff report failed to look into the causes of the negative reserves on the district
14 level that existed in Case No. WR-2015-0301. Attached to this testimony as Schedule JAR-
15 R-1 is Staff's Final Report from the faulty meter and negative reserve investigation in File
16 No. WO-2017-0012. As indicated on page 12 of the Staff Final Report:

17 "Staff has reviewed all of MAWC depreciation reserve balances related to
18 meter accounts. Even though MAWC retired meter investment very early in the
19 depreciable life of those assets, the recorded retirements have not created negative
20 reserve balances in those metering accounts in aggregate following water district
21 consolidations completed during the last rate case. During MAWC's last rate case,
22 No. WR-2015-0301, Staff observed a number of negative depreciation reserve
23 balances for certain MAWC water districts; however, those negative balances were
24 combined with positive reserve balances that existed in other districts. During the
25 last rate case approximately 19 water districts were combined into three water
26 districts. Staff will continue to monitor depreciation reserve balances for all
27 MAWC property accounts as part of its next rate case and will address any concerns
28 in the context of that proceeding." (Emphasis added)

29 **Q. Were your concerns addressed?**

30 A. No. This section of the Staff report confirms concerns that I had as a member of Staff. The
31 decision to consolidate into three zones has masked the underlying reserve issues that were
32 occurring at the district level. It appears Staff did not seek any information related to the

1 negative reserve issues from Case No. WR-2015-0301 since “the recorded retirements have
2 not created negative reserve balances in those metering accounts in aggregate following
3 water district consolidations completed during the last rate case.” Staff appears to not have
4 gotten answers as to how the negative reserves were occurring or being created since they
5 do not exist after the consolidation.

6 **Q. Do negative reserves still exist even in a consolidated basis to the three zones for water
7 and two zones for sewer for MAWC?**

8 **A.** Yes. Based on my review of the Staff Accounting runs filed with the Cost of Service report,
9 negative reserves exist even at the consolidated total water and total sewer levels. Staff’s
10 accounting runs show negative reserve for total water run in account 324 Steam Pumping
11 Equipment, account 393 Stores Equipment, and account 399 Other Tangible Equipment.
12 The “Zone One” Staff accounting run has negative reserves in account 312 Collecting &
13 Impounding Reservoirs, account 327 Hydraulic Pumping Equipment, account 393 Stores
14 Equipment, and account 399 Other Tangible Equipment. “Zone Two” has negative reserves
15 on the Staff accounting schedules for account 313 Lakes, River and Other Intakes, account
16 390.1 Office Structures, account 390.9 Structures & Improvements-Leasehold, account
17 391.26 Personal Computer Software, account 392.1 Transportation Equipment-Light
18 Trucks, account 392.2 Transportation Equipment-Heavy trucks, and account 397.2
19 Telephone Equipment. “Zone 3” has negative reserves on the Staff accounting schedules
20 for account 324 Steam Pumping Equipment, account 326 Diesel Pumping Equipment,
21 account 333 Water Treatment-Other, account 391.2 Computer Hardware & Software, and
22 account 391.3 Other Office Equipment.

23 Staff’s Total Sewer accounting run has negative reserves for account 356 Other
24 Collection Equipment, account 374 Outfall Sewer Lines, account 390.1 Office Structures,
25 and account 390.9 Structures & Improvements- Leasehold. Sewer District A has negative
26 reserve on Staff’s accounting schedules in account 351 Structures & Improvements,
27 account 363 Electric Pumping Equipment, account 390.1 Office Structures, account 390.9
28 Structures & Improvements-Leasehold, and account 397 Communication Equipment.
29 Sewer District B has negative reserve on Staff’s accounting schedules in account 356 Other

1 Collection Equipment, account 374 Outfall Sewer Lines, account 390.1 Office Structures,
2 and account 390.9 Structures & Improvements-Leasehold.

3 **Q. Has OPC issued any discovery related to negative reserves?**

4 A. As of the time of this testimony, OPC has not issued discovery but intends to seek
5 clarification from both Staff and the Company.

6 **Q. Does OPC have a recommendation for the Commission related to the continuance of
7 negative reserves even at the consolidated zone and total company level?**

8 A. I believe that the Commission should issue an order requesting MAWC to file a report
9 related to the ongoing negative reserves that continue even after the consolidation of rate
10 districts. The report should include what the driving cause is, not just a general statement
11 that says company retired more dollars from plant in service than were in plant reserves.
12 The Staff investigation did not yield answers as desired and given that there are negative
13 reserve balances in this case, potentially, the best recommendation would be for an external
14 independent audit to determine what transactions or practices are causing the continued
15 existence of negative reserves.

16 **Q. Did Staff as a result of their investigation determine a cause for the negative reserves?**

17 A. No. The true cause of negative reserves that existed in 2015 are now masked since the
18 consolidation took place. There are no answers on if the allocation process to the multiple
19 districts prior to the consolidation for MAWC caused issues or if the negative reserves were
20 directly tied to certain early asset retirements at each district.

21 **Q. Did Staff examine the depreciation reserves as part of their direct case?**

22 A. In part. Staff discussed at page 49 of Cost of Service report land accounts that had
23 depreciation reserve and recommended removal of reserve for those accounts. However,
24 Staff did not as it stated it would in the Staff Final Report in Case No. WO-2017-0012:
25 Staff will also continue to monitor depreciation reserve balances for negative reserve
26 balance situations and address them as needed.

1 **Q. Why is the negative reserve issue a problem and concern for OPC?**

2 A. Negative reserve is a significant indicator that the depreciation rates applied to specific
3 accounts may not be sufficient. The common drivers of negative reserve are
4 catastrophic/early failure, early retirements of assets, or insufficient depreciation rates.

5 **Q. What MAWC proposal causes OPC concern for reemergence of negative
6 reserves now in the three consolidated zones?**

7 A. First, MAWC is recommending a conversion of their metering system from Advanced
8 Meter Reading (AMR) and manual reads to Advanced Meter Infrastructure (AMI). The
9 second concern relates to MAWC's request in Case No. WU-2017-0296 to replace lead
10 service lines.

11 **Q. Why are these two proposals concerns for OPC?**

12 A. Both of these proposals potentially involve the retirement of assets that may not have
13 reached the vintage equal to the average service life of the respective accounts. Specifically
14 related to the meter conversion based on MAWC's response to OPC data request 8508
15 which discusses the potential for 478,005 meters to be retired prematurely for the
16 conversion to AMI. OPC understands that the conversion will occur over time, but based
17 on the Staff Accounting Schedules filed in their cost of service report plant in service for
18 meters account is \$122,200,695 with a reserve balance of \$11,895,165. This account is
19 only 9.7 percent accrued according to Staff Accounting Schedules, and if a massive
20 replacement program is implemented it is easy to predict that the meter account will
21 quickly show a negative reserve balance.

22 **Q. What is the current plant in service and reserve balance for service lines?**

23 A. Based on Staff Accounting schedules filed with Staff Cost of Service Report, the plant in
24 service value for services is \$47,267,988 with a reserve balance of \$11,933,184.

25 **Q. What is OPC's concern with the lead service line replacement potentially creating
26 negative reserve?**

27 A. OPC's concern is two-fold related to the lead service line replacement program. OPC's first
28 concern is that when retirements are made for the retired service line the potential is present

1 to add additional footage of actual removed material. The concern is that MAWC accumulated
2 depreciation reserve may become understated due to accounting for the retirement more plant
3 than was owned. OPC's second concern is related to the general plan of a potentially
4 expansive replacement of lead service line program that could retire enough original cost of
5 service lines to drive the reserve negative.

6 **Advanced Metering Infrastructure**

7 **Q. Does OPC have any concerns with MAWC's meter upgrade presentation on their**
8 **website?**

9 A. Yes. Attached as Schedule JAR-R-2 is the Overview and Benefits that MAWC portrays
10 to its customers related to the AMI meter change out program. On the website, MAWC
11 claims "There is no direct charge to customers for this meter upgrade."

12 **Q. Will customers be paying for replacement AMI meters?**

13 A. Yes. Although a separate charge for the replacement meter may not be identified on the
14 customer's bill, to the extent that AMI have been prudently placed in service as part of this
15 case, customers will pay for the meters that are in service as part of the revenue
16 requirement.

17 **Q. What are the primary drivers for MAWC's AMI deployment over AMR technology?**

18 A. At page 21 of MAWC witness Mr. Clarkson's testimony, he discusses the transitioning of
19 quarterly billing customers to monthly billing.

20 **Q. Did OPC ask why AMI instead of AMR should be deployed to transition St. Louis**
21 **County customers to monthly billing?**

22 A. Yes. OPC asked data request 8507 to which MAWC responded that both AMR and AMI
23 are capable of switching customers to monthly billing.

24 **Q. Who benefits from the deployment of AMI technology?**

25 A. Based on the testimony of Mr. Clarkson and MAWC's response to OPC data request 8506,
26 the company benefits the most from this deployment. However, MAWC states that the
27 transition from quarterly to monthly billing will make it easier for customers to manage

1 household budgets and then customers could have the option of budget billing. What MAWC
2 fails to state is that the company will in effect receive their money for service faster. At page
3 23 of Mr. Clarkson's testimony, he explains that the deployment of AMI will virtually
4 eliminate the need for manual meter reading in St. Louis County. The deployment of AMR
5 technology will accomplish the same goal. Rate payers will only receive benefit once
6 reduction in costs are accounted for in a future rate case procedure. Until that time, MAWC
7 will receive the benefits of any reduction of costs from the resultant expenses of this rate case.

8 **Q. Was MAWC able to quantify benefits from the deployment of AMI technology for**
9 **customers?**

10 A. No. As indicated in response to OPC data request 8506, the Company states: Although there
11 is a monetary value to all of these customer benefits, we are not able to specifically quantify
12 the total monetary value of AMI implementation.

13 **Q. In OPC's opinion, why was MAWC not able to quantify benefits from the deployment**
14 **of AMI technology for customers?**

15 A. The first item that jumps off the page is that there will truly not be a reduction in workforce
16 due to the deployment of AMI. MAWC states that they will be able to redeploy most of
17 the full time equivalent positions to improve other areas of operation, including leak
18 detection, valve operation, hydrant maintenance and flushing, as well as an enhanced
19 training and safety program.⁴ AMI deployment should not create enhanced training and
20 safety programs because those are things that MAWC should already be performing.
21 Another potential savings for a customer that MAWC identified "Monthly billing makes it
22 easier for customers to manage household budgets and detect leaks sooner (potentially
23 reducing high bills and costly damage to customers' homes)." However, as stated
24 previously, the same could be done with AMR technology already widely used throughout
25 Missouri American Water Company.

⁴ MAWC Witness Clarkson Direct Testimony p. 23 lines 5-8

1 **Q. Does the deployment of AMI technology for customers help identify leaks on MAWC's**
2 **system?**

3 A. OPC understands how water use data could eventually help identify leaks of the customer
4 owned service lines after individual customer base usage is determined. OPC struggles with
5 how AMI technology would identify leaks on MAWC's side of the meters of the Company
6 owned mains and service lines.

7 **Q. Does the deployment of AMI technology build rate base?**

8 A. Yes, if prudently incurred. OPC agrees with the Company that the AMR system, which is
9 currently widely deployed on the MAWC system, is already capable of meeting the needs of
10 the Company to switch St. Louis County residents to monthly billing.

11 **Q. Does OPC support the deployment of AMI technology for MAWC customers?**

12 A. No. OPC is concerned that customers are going to be asked to pay for their existing meter
13 being prematurely retired in favor of MAWC's desire to move to AMI technology and then
14 paying for new AMI that replaced their AMR meter. OPC is concerned that this program may,
15 and likely will, create negative reserve for meter accounts not only at the consolidated zone
16 level but on total company level. The Company provided at very best speculative potential
17 savings for customers that will only be recognized in some future rate case if MAWC truly
18 sees expense reductions caused by the AMI deployment.

19 **Q. Does this conclude your rebuttal testimony?**

20 A. Yes, it does.

EXHIBIT

WR-2017-0285
Rebuttal Testimony
of
John A. Robinett

Public Version
of
Schedule JAR-R-1

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of an Investigation of Missouri-American)
Water Company with Respect to Certain Issues) File No. WO-2017-0012
Disclosed During the rate case WR-2016-0064)

STAFF'S FINAL REPORT

COMES NOW the Staff of the Missouri Public Service Commission ("Staff"), by and through the undersigned counsel, and for its *Report of Staff's Findings into Faulty Meters and Negative Reserve Balances (Final Report)*, states:

1. On July 7, 2016, Staff and Missouri-American Water Company (MAWC or Company) filed a Joint Motion to Open Investigation (*Joint Motion*) as a result of the *Stipulation and Agreement* filed in Case No. WR-2015-0301, the most recent MAWC general rate case.

2. On July 12, 2016, the Commission issued its *Order Opening an Investigation (Order)*. The *Order* identified that:

This is only a fact-finding investigation and is not a contested case. The Commission will not take any action regarding Missouri-American's practices within the confines of this investigation. If the investigation reveals that any such action is appropriate, Staff may file a formal complaint or other appropriate pleading within a new file to institute contested case procedures.¹

The *Order* directed Staff to "undertake an investigation of Missouri-American Water Company regarding faulty water meters and the practice of maintaining negative reserve balances" and directed Staff to file a progress report by September 12, 2016.

3. Staff filed Status Reports on September 12, 2016, December 19, 2016, and February 15, 2017. In its most recent Status Report, Staff stated it anticipated filing either a *Final Report* or a last status update.

¹ Case No. WO-2017-0012, EFIS Item 2, *Order*, p. 1.

4. Staff's investigation is completed. On March 28, 2017, Staff provided a copy of the draft report to the Company for its review and comment. Staff also provided a copy of the draft report to the Office of Public Counsel. Attached to this pleading is Staff received comments regarding the draft report from the Company on March 30, 2017. Staff's *Final Report* is attached.

5. Staff notes that MAWC has been cooperative and responsive throughout the investigation process.

6. As directed by the *Order*, the Final Report is fact-finding only. The *Final Report* does identify certain issues, determined as the result of its investigation, which Staff may raise in a subsequent rate case with the Company.

WHEREFORE, Staff prays that the Commission will accept its *Final Report*.

Respectfully submitted,

/s/ Jacob T. Westen

Jacob T. Westen
Deputy Counsel
Missouri Bar No. 65265

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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing have been mailed or hand-delivered, transmitted by facsimile or electronically mailed to all parties and or their counsel of record on this 31st day of March, 2017.

/s/ Jacob T. Westen

MEMORANDUM

TO: Missouri Public Service Commission Official Case File Case No. WO-2017-0012
Missouri-American Water Company

FROM: Kofi Boateng, Auditing Department
Scott Glasgow, Consumer and Management Analysis

/s/ Mark L. Oligschlaeger 03/31/17
Auditing Department / Date

/s/ Lisa Kremer 03/31/17
Consumer & Mgmt. Analysis / Date

/s/ James Busch 03/31/17
Commission Staff Division / Date

/s/ Jacob Westen 03/31/17
Staff Counsel's Office / Date

SUBJECT: Staff Report Regarding the Investigation of Missouri-American Water Company ("MAWC") with Respect to MAWC's Faulty Water Meter and Negative Reserve Balance Issues as Disclosed during Rate Case No. WR-2015-0301

DATE: March 31, 2017

On July 12, 2016, the Missouri Public Service Commission ("Commission" or "MPSC") authorized the Staff of the Commission ("Staff") to open an investigation into certain matters related to Missouri-American Water Company's ("MAWC") faulty metering and negative reserve balances issues that first came to light in the course of MAWC's previous general rate request Case No. WR-2015-0301. A joint motion filed by the Commission's Staff and MAWC, resulting from an approved stipulation and agreement in that case initiated this proceeding. The Commission issued an Order opening this investigation into MAWC's faulty water meters and the practice of maintaining negative reserve balances. In approving the opening of the investigation concerning these matters, the Commission stated as follows:

The Commission will open this case to facilitate that investigation. In addition, an open case will afford Staff an opportunity to report to the Commission as appropriate. This is only a fact-finding investigation and is not a contested case. The Commission will not take any action regarding Missouri-American's practices within the confines of this investigation. If the investigation reveals that any such action is appropriate, Staff may file a formal complaint or other appropriate pleading within a new file to institute contested case procedures.

As part of this investigation, Staff had several discussions with MAWC personnel in-person and over the phone, with follow ups through emails. Staff met with MAWC personnel at its office in St. Louis on two separate occasions and also met at the Commission's Governor Office Building in Jefferson City. Staff submitted data requests to gain a clear understanding of the issues. Staff also reviewed informal complaints submitted against MAWC in the Commission's Electronic Filing Information System. MAWC cooperated fully with Staff and provided adequate information to discovery questionnaires.

Executive Summary

Beginning in 2012 until summer 2015, MAWC installed Mueller Systems LLC ("Mueller") water meters that, unknown to MAWC, were potentially defective. Some of the defective meters were quickly identified by Mueller or American Water Works Company Inc. ("AWW") subsidiaries, and quickly addressed. The remaining meters otherwise appeared to function as well as past water meters previously used by AWW subsidiaries and MAWC. However, beginning in August 2015 continuing through December 2015, MAWC, along with other AWW subsidiaries, determined that problems with Mueller water meters were more extensive than first realized, with the meters failing due to several different kinds of defects. All of the defects prevented the meter from accurately reading the amount of water flow passing through the meter. Over the course of August 2015 to December 2015, MAWC replaced 23,833 meters.

As explained more fully throughout this report, Staff is of the opinion that MAWC: (1) should have provided the Commission notice of the ongoing problem during its previous rate case, and (2) should address this matter in direct testimony in the next rate case; and, Staff (3) will propose ratemaking adjustments as necessary in the next rate case to address any concerns related to the metering issues experienced by MAWC and its customers.

Background From MAWC Case No. WR-2015-0301

During February 2016, in meetings to discuss a material increase in costs that MAWC had experienced for overtime and use of outside contractors primarily during October 2015, Staff first learned about a significant metering problem that MAWC had been experiencing. During those meetings, MAWC representatives informed both Staff and The Office of Public Counsel ("OPC") of, as described by both MAWC and Staff, a potentially significant and widespread problem with regard to premature failure rates associated with approximately 99,500 meters that it had acquired from Mueller Systems LLC ("Mueller"). The American Water Service Company, Inc. ("Service Company") had an agreement with Mueller to purchase meters and related equipment, and MAWC was listed as a designated purchaser of the goods, which allowed MAWC to purchase directly from Mueller affording it the benefit of volume discounts that the agreement provides. Mueller provided water meters for installation in most of MAWC's water districts over a period of time ranging from 2012 through very early 2015. Depending upon the district, either MAWC employees or its contractors installed the Mueller water meters that are

the subject of this investigation. MAWC explained to Staff and OPC that some of the Mueller water meters had either a defective magnetic design or problems with other components of the meter. This resulted in many occurrences of either no recorded usage by the meter or lower than actual usage meter readings. Upon learning about this situation, Staff expressed concerns regarding MAWC's delay in notifying Staff about the significant problems MAWC was experiencing with some of its water meters.¹

In instances where MAWC had customers with no recorded usage, it billed the customers based upon a prior year's measurement of same period usage.² Based on Staff's review, MAWC did not attempt to adjust customer bills for meter readings that produced lower than actual usages. At the February 2016 meeting, MAWC explained that an estimated level of 22,000 meters were replaced during the period covering August 2015 through January 2016, with the most significant number of replacements occurring during October 2015. Further, MAWC stated that it was storing the Mueller defective meters that had been replaced. In Case No. WR-2015-0301, all the costs such as overtime and outside contractor costs that were incurred to replace these meters were excluded from the revenue requirement calculations that were used to determine customer rates.

Decision by MAWC and AWW to Purchase Meters from Mueller

In 2012, MAWC through AWW, awarded a contract to Mueller Systems to supply all of MAWC's residential water meters. AWW's contract with Mueller also included AMR (automatic meter reading) meter reading transmitters and receiving equipment. At the same time, AWW awarded a contract to another meter manufacturer, Sensus to supply all AWW subsidiaries with commercial and industrial meters. Sensus meters were equipped with Mueller AMR transmitters. AWW selected Mueller Systems after a lengthy selection process that included both internal and third-party testing and reference checks. AWW selected Mueller meters and equipment for MAWC for several reasons. First, it was the lowest cost supplier. Second, Mueller's composite meters are lead free and also could withstand higher static pressures than equivalent bronze meters.³ Third, laboratory testing of Mueller meters indicated accuracy levels that were at least as good as other meter supply options. Finally, AWW chose to purchase Mueller equipment because there was opportunity for AWW to open Mueller System's AMR equipment architecture to efficiently allow AWW and its subsidiaries to read meters from multiple manufacturers as part of a single AMR installation.⁴

¹ MAWC Case No. WR-2015-0301, Busch Surrebuttal testimony, pages 6-8; Cassidy Surrebuttal testimony, pages 7-8.

² MAWC's response to Staff Data Request No. 1.E

³ Standard meter regulations allow for a weighted average of no more than 0.25% lead content in meters. Reduction of Lead in Drinking Water Act, effective January 4, 2014.

⁴ MAWC's response to Staff Data Request No. 8

According to MAWC, shortly after AWW began to purchase water meters from Mueller Systems, Mueller was made aware of some defective magnets received from its supplier used in the Mueller meters. Mueller contacted AWW in the summer of 2012 to inform them of the issue and of a corrective action Mueller was implementing to prevent a recurrence of the issue.⁵ Beginning with this issue and continuing to the present, AWW worked with Mueller to understand and correct the sources of the premature failure of Mueller meters.

In May 2013, AWW implemented a new business systems software program (SAP) for customer service, billing, and field service activities.⁶ This new system also allowed AWW to track meter related data in much more detail than the previous software system. With the help of the SAP tracking, from August 2012 through August 2015, MAWC determined the failure rate of new Mueller meters being placed into service was only slightly higher than historical experience with the Neptune Technologies (“Neptune”) meters that had previously been used.⁷ AWW continued to work with Mueller to improve meter quality.

Chronological Recap of Faulty Metering Issues

In summer of 2012, Mueller became aware of an increasing number of fracturing magnets when assembled to the engagement arm of the water meters. The fracturing occurred during the assembly of the magnet to the engagement arm within the meter. According to Mueller, the magnet fracturing prevents the meter from recording any water consumption at all. Mueller stopped using the component that it suspected of causing the magnet fracturing in the meter and designed a new magnet. Mueller notified AWW and subsequently MAWC of possible meter problems and corrective measures on August 3, 2012. Mueller identified meters that it suspected to have the defective magnets in its communication with AWW.

In September 2014, Mueller provided AWW with a report that identified some meter problems relating to engagement arm fracturing and discussed corrective measures that it was taking to resolve the problems and also improve meter quality.

Another issue arose involving “sticking” dials in 2015. The resolution to this second issue was to start using digital registers as the measuring device.⁸ Then in August 2015, MAWC became aware that potential wide-spread meter issues existed, due to meters recording no customer usage (“dying” or “dead” meters) or under-registering (“reading slow”) meters, at levels much greater than normal. These problems primarily involved meters obtained from Mueller.

⁵ The corrective action Mueller proposed would encase the defective magnet in a plastic “basket,” to avoid damage to the magnetic device. AWW had to return the meter to Mueller for the repair.

⁶ MAWC’s response to Staff Data Request No. 8.

⁷ MAWC’s response to Staff Data Request No. 8

⁸ While initiated to solve a quality concern, the use of the digital registers was also an important step toward use of AMI (advanced meter infrastructure), as these registers provided the necessary higher precision to support hourly reads in an AMI environment.

These problems were also highlighted during pre-installation testing by Indiana-American Water that indicated two new issues. First, a shipment of bronze body meters was found to have a high number of failures during low flow testing. Second, one of the first shipments of meters with digital registers was tested and several meters were found to reset to zero during testing.⁹ Both of those issues were immediately reported to Mueller and a “stop ship” was implemented to prevent shipment of any additional defective meters until the problem could be resolved.

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Each of these issues prevented the correct amount of an affected customer’s water consumption to be accurately recorded. By this time, MAWC had purchased approximately 99,500 new meters for use in its service districts. At the direction of the senior Missouri Leadership team and based on an analysis performed by Mr. Tom Deters, then-Director of Business Performance, the team identified the possibility that meters were prematurely dying and possibly under-registering. Mr. Frank Kartmann, then-President of Missouri-American Water Company, and Mr. Phil Wood, then-Vice President, Operations, ultimately made the decision to start a change-out of meters that had a higher potential of being defective.¹⁰

During the period covering September 2015 through December 2015, Missouri-American Water Company removed about 23,833 Mueller water meters that it had installed on its systems over the period of time ranging from early 2012 through the middle of 2015. The removals were due to possible imperfections, including magnet design defects and engagement arm fracturing, bronze body failures, and SSR resetting that in many situations prevented water consumption

⁹ This brought the total number of major problems with defective meters to four: (1) Magnet fracturing, (2) engagement arm fracturing, (3) bronze body accuracy failures, and (4) SSR resetting. All issues prevented an accurate measurement of water flow.

¹⁰ MAWC’s response to Staff DR No. 2

from being recorded correctly. According to MAWC, these meters had been in service as little as few months or as long as three (3) years before they were removed from service.

MAWC Meter Replacement Program

According to MAWC, other than the criteria set out in the Sections (37) and (38) of the Commission Rule 4 CSR 240-10.030 Standards of Quality, MAWC does not have a written policy regarding when meters are to be changed, replaced, or rebuilt. However, for all districts other than the St. Louis district, the practice is that 5/8" meters are changed or replaced on a ten-year program. St. Louis district replaces 5/8" meters on a fifteen-year program. For all sizes other than 5/8", meters are changed or rebuilt as prescribed in 4 CSR 240-10.

Criteria Relied Upon to Determine Whether or Not a Meter Was "Dead" or "Reading Slow"

To determine whether or not a meter was "dead" and not registering any water usage, MAWC compared the prior readings of the meter with the current reading at the time of the meter removal to determine if there was any significant reduction of registered water flow. If significant reduction was noted, then a new meter is installed and if the newly installed meter is noted as registering as water passes through it, then the old meter is identified as a dead meter. Based upon MAWC's current processes, only meters removed from service and coded as "dead" go through a billing review process to determine if a back bill should be issued.¹¹

In the case of determining whether a meter is reading slowly, MAWC field service representatives would have to carry out what it terms as "bench testing" of the meters, which involves removing the meter from service to run a number of tests in the meter shop. MAWC indicated that a sample of meters that were tested in the Fall of 2015 in the St. Louis and St. Joseph water districts reflected a percentage of meters that registered slow to low, medium and/or high flow rates. According to MAWC, its meters are tested at the high flow (10 gallons per minute or gpm) and medium flow (2 gpm) and are considered accurate if the results are 98.5% to 101.5%. The low flow (1/4 gpm) results are considered accurate if the results are between 95% - 101%. MAWC states that the medium flow test is the controlling test.¹² No back billings were issued to customers whose meters that were noted as reading slow.

The Commission's rules provide that a meter should not be allowed in service when it "shows an error in the measurement in excess of 5% when registering water at stream flow equivalent to approximately one-tenth (1/10) and full normal rating under the average service pressure." Regulation 4 CSR 240-10.030 (37) Standards of Quality.

The period between meter reads, according to MAWC, is one (1) month for districts other than St. Louis and three (3) months for the majority of the St. Louis customers. Given the time period

¹¹ MAWC response to Staff Data Request No. 1.I

¹² MAWC's response to Staff Data Request No. 1

between reads, MAWC asserts that it is not possible to determine the exact date that a meter began to fail. The assumption is that the meters were registering correctly before the meter died or started reading slowly, but there is no way to definitively prove the exact time period of the default.

Reasons Why Slow Meters Did Not Receive Back Bills

MAWC indicated that it did not issue back bills to customers served by slow read meters. MAWC states that it is not able to verify that any meters are running slowly until they are pulled and bench tested. MAWC further indicated that it was impossible for them to know exactly when the meter began to run slowly; therefore, it was not possible to provide the customer with an accurate back bill.¹³ Ultimately, since the meter would have registered less usage than was actual used by the customer, the decision not to back-bill would only negatively impact the Company.

How MAWC Issued Estimated Meter Reads and Quantifies the Number of Estimated Reads

Generally, the meter reading obtained by the field resources for purposes of cycle billing is used for billing customers unless the reading / meter is suspected to be incorrect, or because data discrepancies exist, and the situation cannot be validated or corrected in a timely manner for billing. Reasons why the meter reading obtained may not be used for billing include: (1) meter installed backwards, (2) truncated meter reading (too few or too many digits in the reading), (3) meter suspected to have been changed in the field, but new meter information is not yet in the billing system, (4) extremely high usage indicated and service order results are inconclusive, and (5) technical anomalies with sending the meter reading results to the Fathom software¹⁴ which renders it unusable for billing purposes.

If a meter is coded as being “stopped” in the field, MAWC’s practice is for its Billing Department to review the historical reads. If prior readings were the same as the reading at the time of removal, and the new meter was noted as registering as water passed through it, then the old meter was identified as a dead meter and a back bill was created. When MAWC discovered in early 2015 that it had not been back-billing its customers with stopped meters, it immediately began an effort in May of 2015 to back-bill customers for usage not previously billed due to a stopped meter. Meters that were identified as being dead were back-billed for the amount of time the meter was suspected to be dead up to a period of 12 months. In May 2015, MAWC issued about 1,208 back-bills to customers, mostly for dead meter related issues. Estimated usage was based on a similar period of time when the meter was registering and a daily average from that period was applied to the period the meter was dead. See Schedule KAB-1, *SAP*

¹³ MAWC’s response to Staff Data Request No. 35.1

¹⁴ Fathom is MAWC’s meter data system software for billing purposes. Source: MAWC’s response to Staff DR No. 4

Estimation Logic, provided by MAWC in response to Staff Data Request No. 4, for a detailed explanation of the billing estimation procedures utilized by MAWC Call Center.

While MAWC indicated that it does not usually track the amount of back-bills related to stop meters, it provided to Staff that the average amount of back-bill was \$289, based upon its manual computation. It is important to note that back-billing was issued to all meters that were determined dead irrespective of the manufacturer of the meter. And MAWC estimates that roughly 5,685 accounts received back-bills over a period of twelve months for dead or stopped meters. MAWC has stated that it offered payment plans with extended payment terms to all of the affected customers.

Regarding MAWCs zero usage meters, Staff has concerns regarding the length of time it took MAWC to rectify this problem. The following chart was provided to Staff from MAWC's Brian LaGrand representing the breakdown of the 1,208 back-billed customers in May 2015. The chart represents the length of the back-bill and the breakdown of quarterly and monthly billed customers. Of the 1,208 customer bills, 363 (311 quarterly billed customers and 52 monthly billed customers) received zero usage for over a year. (See row one of the graph on the following page):

Back-bill Days		Total Customers	Frequency		Percentage	
From	To		Quarterly	Monthly	Quarterly	Monthly
365		363	311	52	86%	14%
330	364	43	24	19	56%	44%
300	329	114	90	24	79%	21%
270	299	372	351	21	94%	6%
240	269	22	11	11	50%	50%
210	239	24	18	6	75%	25%
180	209	42	29	13	69%	31%
150	179	20	4	16	20%	80%
120	149	29	4	25	14%	86%
90	119	144	35	109	24%	76%
60	89	23	0	23	0%	100%
30	59	12	0	12	0%	100%
Totals		1,208	877	331	73%	27%

Staff asked MAWC to explain the process for addressing zero usage meters. MAWC responded with a description of the following process:

- If a meter read is the same for three consecutive billing periods, a BPEM (Business Process Exception Management) is generated. MAWC asserted that it is very difficult to assume that a meter is stopped during the first or even second period. (Before January 2016, it took four consecutive identical billing period meter read results for a BPEM to be generated.)
- If the meter is inside, a letter is sent to the customer to arrange a time to inspect the meter.
- If a meter is outside, a service representative will inspect the meter.
- If the meter is not accessible, the customer must be contacted for correction.

- Zero consumption meters are worked depending on workload. If workload does not permit inspection of zero consumption meters, the inspection may be pushed to the next billing period.

MAWC also stated that zero consumption meters are sometimes not inspected for reasons beyond MAWC's control:

- After a letter is sent to the customer, many times the customer never responds and the situation extends into the next period.
- Many customers leave their homes for months or sometimes years without closing their account in order to have access to water upon their return. It is not uncommon for inspections completed after multiple consecutive periods of zero usage to result in a meter that is functioning properly.

As a result of the BPEM process in St. Louis County, some customers received estimated bills for a period up to and over one year due to zero usage meter readings and MAWC processes that were in place. MAWC has asserted that as of September 22, 2016, "zero usage" orders were being worked once they were generated, resulting in most accounts not reaching 12 months of zero usage.

Initial Remedy as Proposed by Mueller

As a general practice, when a meter stops working early within the warranty period, that meter is returned to the meter vendor for a replacement. MAWC had entered into meter return transactions of this nature previously with Mueller Systems and Neptune. Upon identifying the defective magnet issues as well as other issues, Mueller instructed AWW and its operating subsidiaries to return all of the defective meters that they held in stock based on a list of serial number ranges determined to have the problems. For the problems that occurred in the summer of 2012 related to the magnet fracturing, the initial remedy by Mueller was to stop shipment of those meters that had the defective magnets. Mueller also redesigned the defective magnets to prevent recurrence. The problem with the engagement arm fracturing as identified by Mueller was resolved on September 1, 2014. In the case of the bronze meter accuracy failure, on September 16, 2015, Mueller's remedy included halting production and shipment of model 420 bronze meters with plastic bottoms, rebuilding of new chambers with new designs, returning meters to Mueller. Finally, on September 2, 2015, in the case of SSR resetting, Mueller stopping production and shipment of SSR, and requested AWW to return all SSR meters to Mueller.

MAWC replaced defective Mueller meters primarily with Neptune meters. Additionally, MAWC, via AWW, entered into a contract with Badger meters to install some meters on a limited basis in MAWC's St. Louis district.¹⁵ The exchange and replacement of the defective Mueller meters continued for several months during 2015 before AWW reached a decision to negotiate a complete settlement with Mueller Systems. The settlement, discussed later in this report, focused on addressing not only the replacement of the defective meters in the applicable serial number ranges, but also to receive compensation for the cost of removing and replacing all the meters.

How the Different States Handled the Defects

According to MAWC, the guidance initially provided from AWW supply chain to all of the states on how to handle the Mueller faulty water meters was to immediately return all defective Mueller meters to Mueller Systems, regardless of the defect.¹⁶ Once the Bronze Body and SSR defects were identified in August 2015, AWW provided guidance to all states to immediately return all Bronze Body (5/8") and all SSR meters to Mueller Systems, to help Mueller determine the extent of condition of the issues. On September 16, 2015, Mueller Systems provided to AWW an initial range of serial numbers for the meters suspected to have the bronze meter and SSR resetting issues. AWW then provided guidance to all of the states to take this range of serial numbers concerning the bronze body and SSR defects into consideration when running reports in SAP and looking for specific conditions that would be indicative of a failed meter. This list of likely failed meters (in the range of Mueller's provided potentially affected serial numbers) was identified as a logical group of meters to visit in the field and troubleshoot and replace as necessary.

All of the states received the same instructions regarding how to handle the defective Mueller meters, however, the actual actions taken in each state was at the discretion of that individual state subsidiary. This is because each state subsidiary of AWW operates independently from the others. The AWW subsidiaries shared ideas to find the best solutions in dealing with the faulty water meters; however, those ideas were not binding on the affected states. MAWC undertook a more aggressive replacement program than proposed by some of the other American Water subsidiaries.¹⁷

Accounting for Meter Installations and Retirements

In the course of the investigation, Staff learned that MAWC's recording the installation of replacement water meters and the retirement of defective water meters was not a consistent

¹⁵ Neptune and Badgers meters were selected as reliable replacements for the defective Mueller meters based upon thorough selection procedures and recommendations described above.

¹⁶ MAWC's response to Staff Data Request No. 36.

¹⁷ MAWC's responses to Staff Data Request No. 39

practice. In some instances, MAWC recorded removed meters as a retirement during the month that the meter was taken out of service and in other instances the retirement was not recorded until months later. However, in all instances MAWC did not record new replacement meters as a plant addition until months after the retirement date. Ideally, the retirement of the old meter and the addition of the new meter would be recorded at the same time and during the same month that the replacement occurred. By delaying the recording of the replacement meter on its books, MAWC also delayed the recording of depreciation reserve for the meter during the time that water meter was actually in-service, but not recorded on its property records.¹⁸ This delay inappropriately distorts the accumulated depreciation that should have been recorded on the property for the time that it was in service.

MAWC created separate work orders referred to as “Work Breakdown Structure” (WBS) that specifically tracked all costs related to the Mueller faulty meter removals (“retirements”) and new meter installation (“additions”). MAWC further explained to Staff that it recorded all the Mueller meter retirements and installations in batches and not on individual basis. The installation and retirements were all tracked in MAWC’s Power Plant database by USOA account, by district, by month, and by amount. This was done to avoid commingling the costs of retirements and installations with other projects being undertaken by MAWC.

Based on the data¹⁹ reviewed by Staff, MAWC recorded approximately \$6.9 million of new meter investment across its Missouri operating districts during January 2016. However, the vast majority of that metering investment actually went into service during August 2015 through December 2015. Moreover, MAWC indicated that it has only recorded \$452,322 of retirements associated with the meters that it has replaced and most of the retirements (\$416,901 of the total \$452,322) occurred during March 2016. MAWC recorded these retirements after the time that it recorded the meter replacement additions. The total retirement values appear low in comparison with the \$6.9 million replaced meter amount.

Staff has reviewed all of MAWC depreciation reserve balances related to meter accounts. Even though MAWC retired meter investment very early in the depreciable life of those assets, the recorded retirements have not created negative reserve balances in those metering accounts in aggregate following water district consolidations completed during the last rate case. During MAWC’s last rate case, No. WR-2015-0301, Staff observed a number of negative depreciation

¹⁸ Depreciation refers to the decline in asset’s value as it is used up in the business’ operations. In each of the time periods that constitute the asset’s useful lifespan, a portion of its value is deducted as depreciation expense to represent this loss, and those losses are put together as that asset’s accumulated depreciation or reserve. Accumulated depreciation or reserve represents the total portion of the asset’s value that has been lost due to its usage. It is possible for accumulated depreciation or reserve to possess this negative value, which simply indicates that the asset has been used long enough to start incurring depreciation expense and has started to lose its value through usage. The book value of an asset as recorded on the accounts minus its accumulated depreciation or reserve balance should equal to its remaining value.

¹⁹ MAWC response to Staff Data Request No. 40

reserve balances for certain MAWC water districts; however, those negative balances were combined with positive reserve balances that existed in other districts. During the last rate case approximately 19 water districts were combined into three water districts. Staff will continue to monitor depreciation reserve balances for all MAWC property accounts as part of its next rate case and will address any concerns in the context of that proceeding.

As a result of MAWC's approach to record-keeping practices and recording retirements and additions, Staff may propose, in the next rate case, record-keeping changes, as well as propose adjustments to more accurately reflect the actual in service dates for the replacement meters and the retirement of the meters that were replaced.

Analysis of Mueller Meters Purchased and Allocated to MAWC

Between early 2012 through mid-2015, MAWC purchased a total of 99,572 Mueller meters of which 8,733 were identified to be on the list of serial numbers that had the various defective manufacturing designs and components. As indicated earlier, 23,833 of these Mueller meters that had already been installed on MAWC's operating districts were removed from operations as part of the "holistic" approach adopted by MAWC in responding to the faulty meter issues. Among the meters removed by MAWC were 1,016 meters identified to be on the defective serial number list. MAWC also removed a total of 22,817 meters from its systems for varied reasons other than being on the list of defective serial number range.²⁰ MAWC states that, although these meters were not on the serial number list, it determined that the meters had either stopped working or were not recording any water usage at all. MAWC states further that no meters were removed for "reading slow." A total of 850 Mueller meters were returned by MAWC to Mueller Systems. As of March 2016, MAWC reported that 8,460 Mueller meters remained in stock and presumed those to be accurate. MAWC states that it has installed some of the remaining Mueller meters that were on hand and to date it is not aware of any failures of these newly installed Mueller meters. See the table, on the following page, which shows the number of Mueller meters purchased and those removed, replaced and returned by district:

²⁰ These reasons were the previously stated major defects of fracturing bronze body meters and defective SSR, and further included older meters.

Location	District	No. of Mueller Meters Purchased	No. of Meters Removed	On Serial No. List Removed	Removed But Not on S. No. List	On Defect List		
						Magnet	SSR	Bronze
1702	St. Louis	58,406	11,151	708	10,443	3,561	40	4,040
1703	St Joseph	11,861	1,821	2	1,819		160	
1704	Parkville	1,781	200		200			
1706	Warrensburg	2,611	794	2	792	6		
1708	Brunswick	154	134	5	129	6		
1709	St. Charles	7,683	992	3	989			
1710	Mexico	2,875	985		985			
1711	Joplin	10,952	7027	271	6,756	507	4	
1712	Jefferson City	1,376	532	24	508		409	
1722	Ozark Mountain	1,210						
1728	Stonebridge	352						
1733	Tri-States	300	197	1	196			
	Total	99,572	23,833	1,016	22,817	4,080	613	4,040

Mueller Meters Purchased, Removed and Returned (Table 3)

Number of Hours of Overtime Expended on the Mueller Faulty Meter Project

By close of February 2016, MAWC estimated that it had incurred a total of 10,399 in-house man hours of overtime in addressing the Mueller project during the period of September 2015 through December 2015, with 6,068 of those hours spent in October 2015 alone. MAWC's St. Louis district had the major share of the incurred overtime hours at 8,577 as of the end of February 2016. Additionally, MAWC utilized outside service contractors to undertake some of the removal and installation of the new meters on the systems and as a result incurred additional contract labor costs. None of these costs were included in the determination of customer rates in MAWC's most recent rate case, Case No. WR-2015-0301.

PAGE 15 OF

STAFF'S MEMORANDUM

HAS BEEN DEEMED

PROPRIETARY

IN ITS ENTIRETY

The following journal entry shows how MAWC's share of the refund was recorded on its books:

	<u>Debit</u>	<u>Credit</u>
40 Refund from Mueller Systems	\$101,520.91	
Lost Revenue Credit		\$48,013.19
Replacement and Testing Credit		\$21,886.72
Return Meter Credit		\$31,621.00

These credits were later reallocated to the various MAWC districts impacted by the defects.

Staff's Overall Assessment of MAWC's Handling of the Mueller Faulty Meters

For many years, MAWC has used Mueller meters that are acquired through its parent company AWW and service company AWWSC after a thorough competitive bidding process. In the summer of 2015, when MAWC became aware that there were some problems with Mueller bronze body meters and the digital registers, it had at the time purchased 99,572 of those types of meters from Mueller. A majority of those meters had already been installed on MAWC system while the rest were sitting in inventory. Mueller's initial response to the problem was to stop shipping any of the defective meters until the problem could be fixed. Mueller also gave further guidance to AWW state subsidiaries to return certain range of meters that were noted to have the defects for replacement. MAWC leadership at the time intensified its effort to reach out to the other subsidiaries of AWW to find common and permanent solution to the meter problems. While the leadership of some of the AWW subsidiaries shared ideas on the issue, no one solution was proffered for resolving the issue by the subsidiaries as they operate independently from the other. Some AWW subsidiaries adopted a "wait-and-see" posture in dealing with the issue, while MAWC took a more aggressive approach by removing more of the installed Mueller meters beyond the number range on the list of defective serial numbers.

In summary, in Staff's opinion, MAWC should have notified both the Staff and the Commission upon learning about the extensive nature of the meter defect problem. MAWC was aware of certain metering problems at the time it filed its application to increase rates as part of its previous rate case, Case No. WR-2015-0301, and became aware of the dead/dying meter problems shortly after its filing, but remained silent about the problems in all of its testimony filings during the rate case. It is important for MAWC to be forthcoming with any such related issues that it may encounter in the future. Staff also suggests that MAWC should offer additional explanation in direct testimony regarding this issue in its next rate proceeding and discuss any plans that it may have for installing advanced metering technology in relation to this issue. At this time, based upon the information provided by MAWC during this investigation Staff has found that the vast majority of defective meters have been removed and replaced by MAWC.

Staff will examine MAWC's record keeping processes in the next rate case and recommends that MAWC establish practices and procedures for addressing the replacement and retirement of water meters to ensure a consistent record keeping treatment going forward. As part of MAWC's next rate case Staff may propose ratemaking adjustments to water meter related depreciation reserve balances to correct any unnecessary delays in recording the replacement water meters on its property records. Staff may also propose adjustments to address the value and timing of retirements that were recorded on MAWC's books. Staff will also continue to monitor depreciation reserve balances for negative reserve balance situations and address them as needed.

In addition, to the extent that MAWC experienced unusual or unnecessary costs in connection with addressing this faulty metering issue, Staff reserves its right to propose other adjustments to address those concerns in MAWC's next rate case.

Finally this issue has impacted customer usages by some undeterminable amount. Staff points out that during the time frame of the defective metering issue meter problems have reduced actual customer usage amounts by some unknown degree. MAWC disagrees with Staff's conclusion on this point. Staff reserves the right to use the information learned throughout this investigation and described in this report to argue that any future proposal from MAWC that relies upon customer usage data from the time period where the defective Mueller meters were in use by MAWC customers may be faulty and therefore unreliable.

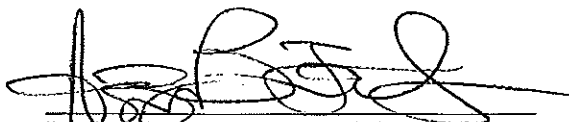
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of an Investigation of Missouri-American)
Water Company with Respect to Certain Issues) Case No. WO-2017-0012
Disclosed During the Recent Rate Case)

AFFIDAVIT OF KOFI A. BOATENG, CPA, CIA


STATE OF MISSOURI)
) ss
CITY OF ST. LOUIS)

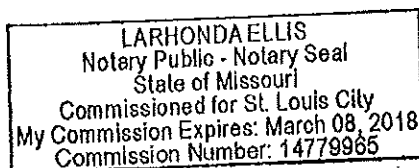
COMES NOW Kofi A. Boateng, CPA, CIA, of lawful age, on his oath states: (1) that he is a Utility Regulatory Auditor IV of the Auditing Department, St. Louis Office, of the Missouri Public Service Commission; (2) that he participated in the preparation of the foregoing *Investigation Report*; (3) that information in *the Investigation Report* was provided by him; (4) that he has knowledge of matters set forth in *Investigation Report*; and (5) that such matters set forth in *the Investigation Report* are true and correct to the best of his knowledge, information and belief.


Kofi A. Boateng, CPA, CIA

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the City of St. Louis, State of Missouri, at my office in St. Louis, on this 30th day of March, 2017.


Notary Public



SAP ESTIMATION LOGIC

No meter reading is obtained for meter reading on 10/11/12. The system will go to the same period of the prior year and check for actual consumption.

For the period of 7/14/11 to 10/12/11, we find actual consumption of 8 units.

The system will then determine if the period of 7/14/11 to 10/12/11 is a representative period. The current billing period is 91 days. The current period is multiplied by 60% to determine the required number of days for the representative period. $91 * .60 = 54.6$.

Since the same period of the prior year is a billing period of 90 days it is considered a representative period.

The system divides the 8 units by the number of days in the representative period to arrive at a per day average. $8 / 90 = .09$ units per day.

The .09 units per day from the representative period is multiplied by the number of days in the current period. $91 * .09 = 8.19$ (rounded to 8.) The 8 units of estimated consumption is added to the previous read of 0111 to arrive at the current estimated reading of 0119.

A feature of SAP allows for use of 'control' reads in the estimation process. Control reads are defined as plausible readings (passed validation) from service orders (as example) that are not used to calculate the cycle billing.

The expected consumption value is used during the billing process to determine if the read provided during cycle billing is billable. Essentially the estimation routine logic runs to determine based on prior history what the expected consumption value is for the current period. As long as the current meter reading is within a configurable % of expected consumption, the actual read is considered as plausible and used for billing.

This same estimation logic applies in the event a meter reading isn't obtained for a 'move out' service order. Once the reading is obtained for the new customer of record, adjustment will be made to the prior customer of record if warranted (over-estimated.)

In our above example, if the consumption billed during the same period of the prior year had been estimated or the billing period was not for enough days to be considered as a representative period, the system would have checked for active consumption in the prior billing period. In this case, we would have looked for actual consumption in the period of 4/13/12 to 7/13/12. Had consumption for this period been based on estimated consumption the system would have gone back an additional billing period to check for actual consumption and a representative number of days.

4/13/12 to 7/13/12 Actual Consumption: No Representative Period: Yes

1/13/12 to 4/13/12 Actual Consumption: Yes Representative Period: Yes

The period of 1/13/12 to 4/13/12 would have been used to calculate the current estimated meter reading.

$9 \text{ units} / 91 \text{ days} = .098$ (rounded to .1)

$91 * .1 = 9.1$ (rounded to 9)

Prior read of 0111 + 9 units = 0120 for estimated consumption of 9 units for the current billing period.

The system will go backward looking at each meter reading recorded (for up to 1 year) in an attempt to find actual consumption and a representative period.

Should the system not find comparable consumption through the above methods, it will use the expected period consumption value assigned to the meter. This value is calculated dynamically by the system at the point the meter is set by averaging the annual consumption for all customers of the same bill class and rate schedule within the same meter reading route.

If the opening bill needs to be estimated, the system will use the expected period consumption value to determine the estimated meter reading.

Note: if an estimate is needed and not system calculated, the billing representative will follow the same basic steps in order to determine the estimated consumption and meter reading. These are referred to as "office estimates."

Missouri Public Service Commission

Respond Data Request

Data Request No.	0002
Company Name	Missouri-American Water Company-(Water)
Case/Tracking No.	WO-2017-0012
Date Requested	7/15/2016
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeanne Tinsley
Requested By	Kevin Thompson
Brief Description	Provide narrative description with timeline about meter quality (HC)
Description	- See Attachment - Data Request submitted by: Kofi Boateng (kofi.boateng@psc.mo.gov).
Response	<p>1. a) For a narrative description, please see MoPSC 008 subpart 2) relating to 5/8" Mueller composite meters b) Expected life in service is 10 to 15 years. Meters in question have been in place as little as a few months or as long as three years. c) Beginning in 2012 through mid-2015 d) Manufacturing issues. This includes issues with meter magnets and engagement arms that called into question the meters' accuracy. e) Dead meters that did not register any usage resulted in bills without any usage charges. When it dead meters were discovered at a higher than normal rate, it required us to back bill customers as they were discovered. Meters discovered to be registering slow (rather than not at all) did not result in MAWC issuing a back bill. f) Neptune meters are the primary meters replacing the Mueller meters. The Company also has a contract with Badger meters which have been installed on a limited basis in the St Louis district. g) Please refer to MoPSC 0008. h) Please refer to MoPSC 0008. i) There was no one person that determined there was an issue with the meters. At the direction of the senior Missouri Leadership team and based on analysis led by Tom Deters, the team identified the possibility that meters were prematurely dying and possibly under-registering. Frank Kartmann, President of Missouri American, and Phil Wood, Vice President, Operations, ultimately made the decision to start changing meters that had a higher potential of being defective. j) Other information: 1. Meters in serial # range 11415000-12444999, 12507000-12569999, 12697000-12914999 had a higher likelihood of failure due to a defective magnet. 2. Meters in serial # range 14406618-14407999 and 93000000-93039999 had a higher likelihood of failure due to a defective engagement arm. Both of these issues could result in failure of the meter or slow registration. 2. Missouri became aware by mid-2015 that there were potential meter issues such as dying or under- registering meters that appeared to be at rates greater than historical levels. All districts began changing meters by the end of September 2015 and ceased in early December 2015. These meters were installed beginning in 2012. 3. See MoPSC 0002_Attachment 1 for quantity of meters changed during the period September to Decemeber 2015. See MoPSC 0002_Attachment 2 for cost associated with the meters changed during this period. 4. See MoPSC</p>

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0002_Attachment 2 for the amount of hours by district by employee ID which can be summarized by month. Dollars can be calculated by taking the true up labor file containing labor rates by employee ID and associating these rates with the hours provided in this attachment. 5. See MoPSC 0002_Attachment 2 for contractor costs by district. 6. Other than early meter exchanges that occurred prior to 2015, to date there have been no credits or exchanges by Mueller. Please refer to MoPSC 0008 for additional details. Person primarily responsible for response: Tom Deters

Objections

NA

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Security : Public
Rationale : NA

Missouri Public Service Commission

Respond Data Request

Data Request No.	0008
Company Name	Missouri-American Water Company-(Water)
Case/Tracking No.	WO-2017-0012
Date Requested	7/15/2016
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Jeanne Tinsley
Requested By	Kevin Thompson
Brief Description	Provide reasons for the selection of Mueller meters by MAWC and American Water
Description	1) Provide a complete list and summarization for all reasons that MAWC and the American Water Works Service Company considered before making the decision to buy and install the Mueller meters that now have been determined to be defective or susceptible to early failures. Also provide a copy of all supporting documents MAWC and the American Water Works Service Company management relied upon in reaching this decision. Identify the name and job title of the ultimate decision maker who decided to purchase the meters in question from Mueller. 2) Provide a complete explanation of all actions MAWC and the American Water Works Service Company have taken and intend to take in the future with regard to the Mueller meters that have been determined to be defective or susceptible to early failure and a timeline for when results from that action will be completed. Update as information becomes available throughout 2016. Data Request submitted by: Kofi Boateng (kofi.boateng@psc.mo.gov).
Response	Some of the information requested is deemed highly confidential in accordance with commission rules as it is "market-specific information relating to goods or services purchased or acquired for use by a company for providing services to customers".

Objections NA

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Security : Highly Confidential
Rationale : Some of the information requested is deemed highly confidential in accordance with commission rules as it is "market-specific information relating to goods or services purchased or acquired for use by a company for providing services to customers".

Missouri Public Service Commission

Respond Data Request

Data Request No.	0035
Company Name	Missouri-American Water Company-(Water)
Case/Tracking No.	WO-2017-0012
Date Requested	11/21/2016
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Donald Petry
Requested By	Kevin Thompson
Brief Description	Follow up questions from the meeting on October 21, 2016. Questions 9 to 14, on the list.
Description	1. Why didn't slow reads receive a back bill? 2. Provide details about the Mueller refund & accounting treatment - DR #2. How much was the reimbursement from Mueller in total and how was each state's share calculated? 3. DR 2 attachment 1 - how many were Mueller change outs? 4. DR 1 attachment 2, can we add the number of meters to capex data? Please match the number of Mueller meters to the cost to show how much of the cost was for Mueller meter replacement 5. Set up time to show PSC how PowerPlant works. 6. Schedule a call with Greg Roach to discuss MoPSC 001_Attachment #5. Requested by: Kofi Boateng (kofi.boateng@psc.mo.gov).
Response	1. MAWC will not be aware of any meters that are running slow until they are pulled and tested. It's impossible to know exactly when the meter began running slow, therefore it is not possible to provide the customer with an accurate back bill, so the decision was made to not issue back bills for slow meters. 2. Please see MoPSC 0035_Attachment 1 for details of the Mueller refund. The total reimbursement from Mueller Systems to American Water, for all meters returned to date per the Serial Number list, is \$706,634. The total reimbursement from Mueller Systems to Missouri American Water, for all meters returned to date per the Serial Number list, is \$101,521. There were three categories of defects covered in the Agreement with Mueller. These included: Magnet, Bronze Body, and SSR. Each state's share was calculated by evaluating the number of Mueller meters returned by that state for each category of defect, that were on the list of Serial Numbers provided in the agreement. Based on the specific defect, different dollar amounts were applied to the credit based on material credit (in lieu of receiving a replacement meter), lost revenue, and labor costs associated with responding to the defect. That is, each state's share of the overall credit was directly proportional to the number of defective meters purchased by that state. Please see MoPSC 0035_Attachment 2 for the journal entry specifics, with Missouri (company 1017) highlighted in yellow. Please see MoPSC 0035_Attachment 3 for evidence of the credit applied to MAWC's Mueller bill for Missouri's share of the refund. 3. All items in DR 2 attachment 1 are Mueller meters. Mueller meters can also show up as Hersey meters. Please see MoPSC 0035_Attachment 4 for the details. 4. Please see MoPSC 0035_Attachment 5. The "Mueller Repl Capex \$" tab shows the quantity of Mueller meters. 5. PSC Staff has requested meeting the week of December 12. Brian LaGrand will coordinate with

John Cassidy. 6. MAWC met with Staff and OPC in Jefferson City on December 5th and Greg Roach answered questions related to MoPSC 001_Attachment 5.

Objections

NA

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Security : Public
Rationale : NA

Missouri Public Service Commission

Respond Data Request

Data Request No.	0036
Company Name	Missouri-American Water Company-(Water)
Case/Tracking No.	WO-2017-0012
Date Requested	11/21/2016
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Donald Petry
Requested By	Kevin Thompson
Brief Description	Follow up questions from the meeting on October 21, 2016. Questions 15 to 18, on the list.
Description	1. DR 20.1 – For the back billed customers with dead meters for over 12 months; please indicate how many were quarterly customers. Please provide a breakdown of quarterly customers of the 411 customers who were back billed in May 2015 and the 21 customer accounts that have been back billed since then. Please provide the names and addresses of customers who had dead meters for over 12 months. 2. How many states were impacted by the Mueller meter issue? 3. Provide the total number of meters obtained from Mueller by state. 4. How did other states change out meters, by serial number range? Include approximate total number of defective meters by state. Requested by: Kofi Boateng (kofi.boateng@psc.mo.gov).
Response	1. MAWC will provide this as soon as possible and it will be called MoPSC 0036_Attachment 1. 2. Ten states of American Water received credit as a result of the Mueller Agreement. These are: Indiana, Iowa, Kentucky, California, Missouri, New Jersey, Pennsylvania, Illinois, Tennessee and West Virginia. 3. Please see MoPSC 0036_Attachment 2. 4. The guidance was initially provided to all of the states to immediately return all defective Mueller meters to Mueller Systems, regardless of the defect. Once the Bronze Body and SSR defects were identified, the guidance was given to all states to immediately return all Bronze Body (5/8") and all SSR meters to Mueller Systems, to help Mueller determine the extent of condition of the issues. An initial range of Serial Numbers was provided by Mueller Systems for the magnet issue. Guidance was provided to all of the states to take this range of Serial Numbers into consideration when running reports in SAP, looking for specific conditions that would be indicative of a failed meter. This list of likely failed meters (in the range of potentially affected Serial Numbers) was identified as a logical group of meters to visit in the field and troubleshoot and replace as necessary. Please see MoPSC 0036_Attachment 2 for the number of defective meters by state.
Objections	NA

The attached information provided to Missouri Public Service Commission Staff in response to the above data information request is accurate and complete, and contains no material misrepresentations or omissions, based upon present facts of which the undersigned has knowledge, information or belief. The undersigned agrees to immediately inform the Missouri Public Service Commission if, during the pendency of Case No. WO-2017-0012 before the Commission, any matters are discovered which

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would materially affect the accuracy or completeness of the attached information. If these data are voluminous, please (1) identify the relevant documents and their location (2) make arrangements with requestor to have documents available for inspection in the **Missouri-American Water Company-(Water)** office, or other location mutually agreeable. Where identification of a document is requested, briefly describe the document (e.g. book, letter, memorandum, report) and state the following information as applicable for the particular document: name, title number, author, date of publication and publisher, addresses, date written, and the name and address of the person(s) having possession of the document. As used in this data request the term "document(s)" includes publication of any format, workpapers, letters, memoranda, notes, reports, analyses, computer analyses, test results, studies or data, recordings, transcriptions and printed, typed or written materials of every kind in your possession, custody or control or within your knowledge. The pronoun "you" or "your" refers to **Missouri-American Water Company-(Water)** and its employees, contractors, agents or others employed by or acting in its behalf.

Security : Public
Rationale : NA

Missouri Public Service Commission

Respond Data Request

Data Request No.	0039
Company Name	Missouri-American Water Company-(Water)
Case/Tracking No.	WO-2017-0012
Date Requested	12/21/2016
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Donald Petry
Requested By	Kevin Thompson
Brief Description	Follow up Questions to MAWC Response to Staff DR 38
Description	Refer to MAWC response to Staff DR 38: Relating to the copies of Mueller's written Memos attached to DR 38 that explains the root cause of the meter failures and extent of condition, please provide: 1. Please provide a copy of all cover letters and correspondence that came along with the Memos provided in response to Staff DR 38. 2. Please list all American Water Inc., American Water Service Company and Missouri- American Water Company employees that received the Mueller Memos, cover letters and correspondence and provide names, job title and the entity that employed each individual listed. 3. How was this information communicated from the American Water Inc. and American Water Service Company to Missouri- American Water Company and each of the other American Water subsidiaries? 4. Provide a complete copy of all letters and correspondence that accompanied the Mueller's Memos that were delivered from American Water Inc. and American Water Service Company to Missouri-American Water Company and each of the other subsidiaries. 5. Please provide a copy of all communications relating to directions and instructions given by American Water Inc. and American Water Service Company to Missouri-American Water Company and each of the other subsidiaries to address the faulty water meter issues. 6. Were all the American Water subsidiaries given the same specific directions, instructions and guidance relating to how each and every one of the subsidiaries should address the issues as communicated to them by Mueller? If not explain why different subsidiaries received different instructions. 7. List all employees by name and job title from American Water Inc. and American Water Service Company that provided the directions, instructions and guidance to Missouri-American Water Company and each of the other subsidiaries? 8. If there was no directions, instructions and guidance provided from American Water Inc. and American Water Service Company to Missouri-American Water Company and each of the other American Water subsidiaries on how to address the removal of Mueller meters, please explain why each subsidiary was required to address the meter problem on its own. 9. Did Missouri-American Water Company employees communicate with the other American Water subsidiaries to share information, knowledge, ideas and recommended practices and approaches to best address the faulty meter concerns? If yes, provide copy of all communication. If not in writing provide a written synopsis of the verbal communications that took place. Indicate if MAWC accepted or rejected advice from other American Water

Response

subsidiaries. . Requested by: Kofi Boateng
(kofi.boateng@psc.mo.gov).

This response is proprietary in accordance with Section
386.480 RSMo.

Objections

NA

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Security :

Proprietary

Rationale :

This response is proprietary in accordance with Section 386.480 RSMo.

Missouri Public Service Commission

Respond Data Request

Data Request No.	0040
Company Name	Missouri-American Water Company-(Water)
Case/Tracking No.	WO-2017-0012
Date Requested	12/22/2016
Issue	General Information & Miscellaneous - Other General Info & Misc.
Requested From	Donald Petry
Requested By	Jacob Westen
Brief Description	Refer to MAWC response to Staff DR 3, MoPSC 0003_Attachment 1
Description	Data Request Information Refer to MAWC response to Staff DR 3, MoPSC 0003_Attachment 1: For all Mueller meters that were replaced provide the following: A. By month, by date, by rate district, by amount all USOA journal entries used to record the retirement of all Mueller meters that were removed. B. By month, by date, rate district, by amount all USOA journal entries used to record the installation of replacement meters. C. Please indicate whether or not the retirements and installation of the replaced meters were both recorded in the same month simultaneously on MAWC financial reporting system. If not, please provide detailed explanation why retirements and replacement meters were recorded in differing months and indicate the length of time that passed between recording retirement of meters and recording of new replacement meters. D. By rate district, by month upon the completion of the last journal entry to record both the retired meters and the installation of replacement meters please indicate whether or not any districts meter and meter related accounts reflected a negative reserve balance. If yes, provide a quantification of the negative reserve balance and indicate the month that the negative reserve balance first occurred. E. With regard to item D above, by district please indicate if negative reserve balances still exist today. If yes, indicate the current negative reserve balance by rate district. If no by rate district indicate the month and year that the negative reserve balance returned to a positive reserve balance again. F. Please contact the Staff with any questions regarding this data request. . Requested by: Kofi Boateng (kofi.boateng@psc.mo.gov).
Response	A. Please see MoPSC 0040_Attachment 1 for the retirements by district, by month. Please note that the retirements included here are only ones that were specifically recorded on the work orders (WBS) that were created for the Mueller project. Any retirements recorded in the blanket retirements cannot be segregated out from other "non-Mueller" retirements. All activity is recorded as batches, so specific journal entries for individual meters are not available. B. Please see MoPSC 0040_Attachment 1 for the additions by district, by month. Additionally, MoPSC 0040_Attachment 1 shows the general ledger additions for new meters in plant in service in SAP. All activity is recorded as batches, so specific journal entries for individual meters are not available. C. In general, retirements are recorded within three months of the replacement asset going into service. This is primarily due to the fact that while

plant additions are recorded in batches, each retirement must be manually recorded and that retirements are not recorded until the as-built is approved. D. Please see MoPSC 0040_Attachment 2 for detailed depreciation reserve balances by district for all meter related accounts from September 2015 through December 2016. E. Please see MoPSC 0040_Attachment 2. As of December 2016, there are no negative reserve balances in any district for meter related accounts.

Objections NA

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Security : Public
Rationale : NA

EXHIBIT

WR-2017-0285
Rebuttal Testimony
of
John A. Robinett

Schedule JAR-R-2



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ADVANCED METERING INFRASTRUCTURE

Overview and Benefits

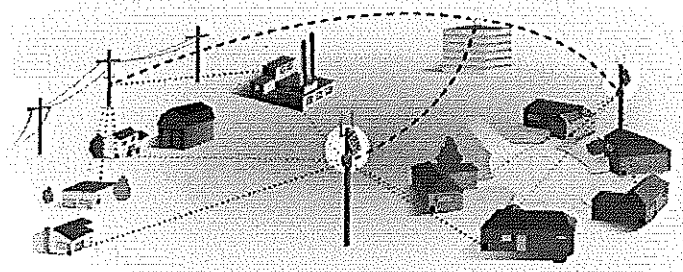
Missouri American Water is upgrading our water meter system in St. Louis County as part of our efforts to continually improve our water system.

Starting in June 2016, we will begin to transition from a manual water meter reading process to an Advanced Metering Infrastructure (AMI) system. We will be installing new AMI reading devices on St. Louis County water meters over the next five years. These new devices use radio signals to wirelessly transmit water usage information over a dedicated communication channel, eliminating the need for manual meter reading. **This new technology offers great potential customer benefits as well.**

<https://amwater.com/moaw/meterupgrade/new-wireless-technology>

Accurate and efficient, this smart meter upgrade:

- Lays the groundwork for better information about water usage patterns across the County. The information will help enhance our ability to engineer and update our water system. Ultimately, data will become available to customers to help improve their ability to manage their water usage.
- Sustains and enhances our ability to accurately measure water usage, regardless of weather conditions.
- Operates more efficiently, eliminating the need to visit more than 340,000 homes and businesses to read meters.
- Taking vehicles off the road helps reduce our community's carbon footprint.



The AMI system uses a small radio device to periodically transmit low-power radio signals from the water meters to receivers mounted on water tanks or utility poles.

The AMI system is working well in several cities across the U.S., and we are looking forward to installing this technology across St. Louis County. When the system is fully installed, our goal is to make the water usage information generated by this AMI technology available to help customers manage their water usage.

There is no direct charge to customers for this water meter upgrade.

The AMI upgrade process

The initial implementation of the program will begin in summer 2016. We will continue the installation process across St. Louis County over the next five years. We will send letters to customers prior to the meter upgrades.

The installation process takes about an hour and your home water service will not be interrupted. Our crews and our contractor partners will install these meter upgrades. Crews from Scope Services, our installation contractor, will have Missouri American Water badges and logos on their trucks. They will leave a doorhanger when the job is complete.

If your home has an indoor water meter. You will receive a letter from us asking you to call our AMI Customer Service Center to schedule an appointment for your meter upgrade. Indoor meters are typically located in basements and our contractor will need access to your home to complete the work.

We are offering a wide range of appointment times, with time slots available from 8:00 a.m. to 8:00 p.m. on weekdays, and Saturdays from 8:00 a.m. to 4:00 p.m. It's important to schedule your appointments promptly. This range of time options will help you schedule a time that works for your household. The Scope Services crew member will complete the upgrade in about an hour.

If your home has an outdoor water meter. Customers with outdoor water meters will also receive a letter prior to the meter upgrade. You will not need to set an appointment. The Scope Services crew member will knock on the door to let you know that the work is beginning. If no one answers, they will complete the upgrade and leave a doorhanger. The outdoor meter is located in a box, so there will be very little disruption to your yard.

Schedule JAR-R-2

If your meter is scheduled for replacement, Missouri American Water also has an ongoing program to replace residential water meters every fifteen years. As we replace these old meters with new ones, we will also add AMI devices. Customers with Indoor water meters scheduled for replacement also receive letters from Missouri American Water asking them to set an appointment time for the replacement process. Missouri American Water crews are available to do this work from 8:30 a.m. – 6:00 p.m. Monday through Friday and on Saturday from 8:30 a.m. – 3:30 p.m.

When the installation is complete

You will not notice any changes to your water service once the installation is complete.

We will contact some customers by phone to check your satisfaction with the process. Our goal is to make this transition as smooth as possible for our customers.

If you have questions about the AMI system, please see our [AMI FAQs](#)

(<https://dnnh3qht4.blob.core.windows.net/portals/10/PDFs/AMI%20FAQs.pdf?sr=b&si=DNNFileManagerPolicy&sig=P3HRhxnYN5InyEmSogqoAg0ZCflyLqgFW7aIL%2BXyQ88%3D>) or email

our project team at stlmeterupgrade@amwater.com (<mailto:stlmeterupgrade@amwater.com>). You may also contact the Missouri American Water Customer Service Center at 866-430-0820. Customer Service Representatives are available from 7:00 a.m. to 7:00 p.m. to answer your questions.