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|---|---|
| Exhibit No.: | |
| Issues: | Tank Painting Tracker Adjustment, Non-Revenue Water Adjustment, Estimated Bills, Open Positions, Valve Operating Program |
| Witness: | Greg A. Weeks |
| Exhibit Type: | Rebuttal |
| Sponsoring Party: | Missouri-American Water Company |
| Case No.: | WR-2011-0337<br>SR-2011-0338 |
| Date: | January 19, 2012 |

**MISSOURI PUBLIC SERVICE COMMISSION**

**CASE NO. WR-2011-0337**
**CASE NO. SR-2011-0338**

# REBUTTAL TESTIMONY

**OF**

**GREG A. WEEKS**

**ON BEHALF OF**

**MISSOURI-AMERICAN WATER COMPANY**

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

| | | |
|---|---|---|
| **IN THE MATTER OF MISSOURI-AMERICAN WATER COMPANY FOR AUTHORITY TO FILE TARIFFS REFLECTING INCREASED RATES FOR WATER AND SEWER SERVICE** | ) ) ) ) ) | **CASE NO. WR-2011-0337** **CASE NO. SR-2011-0338** |

## AFFIDAVIT OF GREG A. WEEKS

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

Greg A. Weeks

**State of Missouri**
**County of St. Louis**
**SUBSCRIBED and sworn to**
**Before me this** 17th **day of** January **2012.**

**Notary Public**

**My commission expires:**

**STACI A. OLSEN**
Notary Public – Notary Seal
STATE OF MISSOURI
St. Charles County
Commission Number 09519210
My commission expires March 20, 2013

**REBUTTAL TESTIMONY**
**GREG A. WEEKS**
**MISSOURI-AMERICAN WATER COMPANY**
**CASE NO. WR-2011-0337**
**SR-2011-0338**

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**REBUTTAL TESTIMONY**

**OF**

**GREG A.WEEKS**

## I. WITNESS INTRODUCTION

**Q. STATE YOUR NAME AND BUSINESS ADDRESS?**

A. Greg Weeks, 727 Craig Road, St. Louis, Missouri 63141.

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

A. I am Vice President of Operations for Missouri-American Water Company ("MAWC" or the "Company").

**Q. ARE YOU THE SAME GREG WEEKS THAT PROVIDED DIRECT TESTIMONY IN THIS CASE?**

A. Yes.

**Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

A. I will address the following issues which were raised in the Staff Report or Direct Testimony of some of the Intervenors:

- Tank Painting Tracker Adjustment;
- Non-Revenue Water Adjustment;
- Avoiding Estimated Bills;
- Open Positions; and,
- Valve Operating Program.

## II. TANK PAINTING TRACKER ADJUSTMENT

**Q. ON PAGE 54 OF THE STAFF COST OF SERVICE REPORT, STAFF RECOMMENDS THAT IF A TRUE-UP THROUGH DECEMBER 31, 2011 WERE AUTHORIZED BY THE COMMISSION, THE STAFF INTENDED TO**

**TRUE-UP COMPONENTS OF THE REVENUE REQUIREMENT. ONE SUCH COMPONENT THAT STAFF INTENDS TO TRUE-UP, IS THE TANK PAINTING TRACKER. DOES THE COMPANY AGREE WITH THIS RECOMMENDATION?**

A. Yes.

**Q. STAFF ALSO PROPOSES TO DISCONTINUE THE TANK PAINTING TRACKER THAT WAS ESTABLISHED IN CASE NO. WR-2007-0216. DOES THE COMPANY AGREE WITH THIS RECOMMENDATION?**

**A.** No. The Company believes the tank painting tracker is an appropriate mechanism to insure that the Company recovers no more and no less than its actual tank painting expense. In fact, not only does the Company propose to continue the tracker, but also to increase it from $1,000,000 to $1,600,000 annually.

**Q. PLEASE EXPLAIN WHY THE TANK PAINTING TRACKER LEVEL SHOULD BE INCREASED TO AN ANNUAL LEVEL OF $1,600,000?**

A. The Company conducted an analysis of the life expectancies of all of its interior and exterior tank coatings. This involved an analysis of coating life expectancies depending on the type of coating, whether it is an interior or exterior coating, the environments to which these coatings are exposed, the type of surface that is coated (i.e., riveted steel versus welded steel), current coating condition, whether the existing coating would be over-coated or removed or replaced and whether the coating contains lead. This analysis resulted in the assignment of a life expectancy of each coating on each tank in all of the Company's districts. Following this analysis, an estimated price to either overcoat or replace each coating was determined.

The Company utilized this information to calculate the average interior and exterior coating life expectancies and replacement cost. The Company next calculated the average number of interior and exterior painting projects to determine average annual tank painting expense.

**Q. ON PAGE 33 OF THE STAFF REPORT, THE STAFF STATES, "AS OF DECEMBER 31, 2010 THE TRACKER HAS PRODUCED A REGULATORY ASSET OF $968,123." IS THIS AN INDICATOR THAT $1,000,000 IS TOO LOW OF AN ANNUAL LEVEL FOR THE TRACKER?**

A. Yes. Although $83,333 is accrued monthly ($1,000,000 divided by 12 months), tank painting is a seasonal effort with work primarily done in the spring and fall. The fact that the tracker created a regulatory asset indicates that actual expenses are greater than the current tracker and it should be increased.

**Q. ON PAGE 54 OF THE STAFF REPORT, THE STAFF INDICATES THAT THE ANNUALIZED LEVEL OF TANK PAINTING EXPENSE IS $1,370,136. DOES THIS ACCURATELY REFLECT THE COSTS INCURRED IN 2007 THROUGH 2010?**

A. Yes. However, as explained previously, this confirms why a tracker is important. Over time it will require approximately $1,600,000 per year to keep the tank painting on schedule. The three years noted included a number of MAWC's smaller tanks and thus understated the required annual cost. In fact, in 2009, MAWC expended $1,606,000 and in 2010 it expended $1,400,000. This is indicative of the variability in costs from year to year.

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**Q. HOW DOES THE TRACKER MECHANISM OPERATE?**

A. The tracker was established in order to provide adequate funds for MAWC to undertake the extensive tank painting program I have discussed. To the extent MAWC spends less than the amount of the tracker included in rates (proposed at $1,600,000), the customer is protected by setting up a regulatory liability that will flow back to customers over time. This provides assurance that the Company will utilize those funds for the tank painting program. If the Company spends more than the authorized tracker amount, a regulatory asset is established that should be recovered by the Company over time.

**Q. WHY IS A TRACKER MECHANISM APPROPRIATE?**

**A.** The seasonal timing of tank painting and variability from year to year of the tanks to be painted makes the tracker a good mechanism to establish average annual expenditures that may not be accurately captured in a calendar or test year. With tanks ranging in capacity from 11,000,000 gallons to 50,000 gallons, there can be wide swings in the cost from one year to the next. In addition, in terms of scheduling, tank painting needs to be completed in the spring and fall when weather and water delivery to MAWC's customers allows the work to be done. An extended hot and dry fall, for instance, could delay fall tank painting and push it into the following year. Conversely, a cold and wet summer could allow work to proceed deeper into summer. The flexibility required to accommodate these operational constraints can move costs from month to month and thus could impact test year or calendar year analysis.

**Q. WHY IS IT IMPORTANT THEN THAT THE AUTHORIZED AMOUNT OF THE TRACKER BE COMMENSURATE WITH THE ANNUAL LEVEL OF EXPENDITURES?**

A. The existence of the tracker is important as a protection for both the customer and MAWC. It is intended to act as a balancing mechanism to insure that the costs of the tank painting program and only the costs of that program, are appropriately recovered. However, if the tracker is set substantially below the level of actual, annual expenditures, the regulatory asset will continue to grow from year to year and future customers will be expected to pay for costs that should be borne by existing customers. The converse would be true if actual tank painting were below the tracker level on an ongoing basis. In this case, we know that both current and future expenditure will exceed the existing tracker base amount of $1,000,000.

**Q. WHAT IS THE LEVEL OF TANK PAINTING EXPENSE THE COMPANY HAS INCURRED IN 2011?**

A. The Company has incurred approximately $1,300,000 of tank painting expense in 2011.

**Q. WHERE DOES THIS FALL WITH RESPECT TO THE CURRENT ANNUAL LEVEL OF THE TANK PAINTING TRACKER?**

A. The Company has incurred tank painting expense in 2011, which exceeds the current annual tracker by $300,000.

**Q. WHAT DOES THE LEVEL OF TANK PAINTING EXPENSE INCURRED BY THE COMPANY IN 2007 THROUGH 2011, COMBINED WITH THE RESULTS OF THE TANK PAINTING ANALYSIS CONDUCTED BY THE COMPANY, INDICATE?**

A. The fact that the Company spent between $1,000,000 and $1,600,000 on tank painting in these years, coupled with its analysis that an optimal level of annual tank painting expense in the future is $1,600,000, provides a strong indication that the Company will conduct tank painting at an annual level of expense equal to the annual level of the proposed tracker (i.e., $1,600,000).

**Q. IN LIGHT OF THE ABOVE DISCUSSION, WHAT IS YOUR RECOMMENDATION FOR THE LEVEL OF THE TANK PAINTING TRACKER?**

A. I recommend that the tank painting tracker be continued and adjusted to an annual amount of $1,600,000.

## III. NON-REVENUE WATER ADJUSTMENT

**Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY ON THIS ISSUE?**

A. The purpose of this section of my rebuttal testimony is to:

1. Respond to the statements in the Direct Testimony of MIEC witness Brian Collins regarding MIEC's pro forma chemical, power, and

purchased water expense as they relate to MIEC's pro forma adjustment of system delivery for non-revenue (or lost) water;

2. Introduce and describe what is a far more thoughtful, relevant and consistent approach to conducting such evaluations; and,

3. Apply the approach in item 2 above to the Company's districts and show that these districts all have acceptable water volumes entering the distribution systems in relation to that which reaches customers.

**Q. HOW DOES THE COMPANY PROPOSE TO DETERMINE AN APPROPRIATE LEVEL OF NON-REVENUE WATER (NRW)?**

A. In this case, the Company applied its districts' test year NRW percent values to their pro forma sales volumes to arrive at pro forma system delivery volumes and production expense levels. This yields an NRW of 19.7% for St. Louis County.

**Q. HOW DOES MIEC WITNESS COLLINS PROPOSE THIS ISSUE BE ADDRESSED?**

A. MIEC applied an arbitrary NRW percent of 15% to its sales volume to arrive at pro forma system delivery volume and production expense level.

**Q. DO YOU BELEIVE THIS IS THE BEST WAY FOR THIS ISSUE BE ADDRESSED?**

A. A. No. The Company recommends the application of the Infrastructure Leakage Index (ILI) performance indicator. This performance indicator is an output of the International Water Association/American Waterworks Association (IWA/AWWA) best practice water audit methodology developed during the period 1997 – 2000. This methodology is also recommended as a best management practice by the AWWA Water Loss Committee and is detailed in the AWWA publication "M36 - Water Audits and Loss Control Programs," 3rd Edition. ILI features robust performance indicators that allow for an objective gauging of loss levels. The development of this methodology drew on the best practices of the various water auditing approaches used

around the world and crafted them into a single, standard best management practice methodology that could be applied across the differing system characteristics. This method advances the concept that all water should be quantified, via measurement or estimate, as either authorized consumption or losses. Hence, no water is “unaccounted-for”. The performance indicators, ILI being of primary focus, included in this methodology give a reliable assessment of water loss standing from operational, financial, and water resource management perspectives. They are effective in evaluating current standing, benchmarking with other utilities and loss reduction target setting. Accordingly, as long as the ILI method indicates each district is in an acceptable range, the Company would recommend that the actual system delivery should be used rather than using sales volumes and NRW to calculate system delivery.

**Q. WHAT FACTORS ARE TAKEN INTO CONSIDERATION WHEN DETERMINING THE TARGET ILI RANGE?**

A. Attached as Rebuttal Schedule GAW-1 is a description of the guidelines that are taken into account.

**Q. HAS THE COMPANY COMPLETED WATER AUDITS OF ITS DISTRIBUTION SYSTEMS?**

A. Yes. A water audit was completed for each of the Company’s systems based on 2010 data. Completing these audits also required the Company to develop a water volume accounting spreadsheet that allowed for the quantification of these various volumes by month for each district. From these water volume accounting spreadsheets and the audits, the Company was able to calculate each district’s ILI performance indicator.

**Q. WHAT WERE THE 2010 ILI VALUES CALCULATED FOR EACH OF THE COMPANY’S DISTRICTS?**

A. The Company’s 2010 ILI values are listed below.

1. St. Louis County 3.14

| | | | |
|---|---|---|---|
| 2. | St. Joseph | 3.16 |
| 3. | Parkville Water | 1.65 |
| 4. | Warrensburg | 2.37 |
| 5. | Brunswick | 1.29 |
| 6. | Mexico | 3.45 |
| 7. | Joplin | 4.21 |
| 8. | Jefferson City | 2.27 |
| 9. | Warren County Water | 1.29 |

**Q. WHAT CAN BE CONCLUDED REGARDING THE ACCEPTABILITY OF EACH DISTRICT'S LEVELS OF 2010 ANNUAL REAL LOSSES FROM THE ILI VALUES LISTED ABOVE?**

A. Every district has a current ILI value that either falls within or is below (better than) the target range appropriate for it, based on the Company's evaluation of the conditions of each of its districts in the context of the categories of considerations found in the AWWA Water Loss Committee – Leakage Management Target-Setting Guidelines table.

## IV. ESTIMATED BILLS

**Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY AS TO ESTIMATED BILLS?**

A. My rebuttal testimony will address statements in the Staff Report – Cost of Service related to billing issues/concerns.

**Q. WHAT ISSUES DO YOU WANT TO ADDRESS?**

A. On page 67 of the Staff Report – Cost of Service, nine items are delineated as issues discovered in billing concerning the recent acquisitions of Aqua Missouri and ROARK. Seven of those are alleged to be violations of Chapter 13 rules. I will address these nine items.

**Q. WHAT IS YOUR RESPONSE TO ITEMS 8 AND 9?**

A. These 2 issues involve bar charts of historical use and comparisons to previous month's use. As these were new acquisitions, the historical data was not available readily in our Customer Information System and, in some cases, MAWC changed meters and systems that were read in gallons were changed to cubic feet, thus making comparisons difficult. The change in units was done to put the new system on the same basis as the existing MAWC district that it was operated under in order to minimize the opportunity for errors going forward. As indicated by Staff, neither of these issues are alleged to be violations of Chapter 13.

**Q. WHAT IS YOUR RESPONSE TO ITEMS 2 THROUGH 7?**

A. I admit MAWC had billing errors on a small percentage of the Aqua bills during the first month after conversion, and to an even smaller extent on the second set of bills. These errors were caused by tariff rate details in the predecessor company's tariffs that were unusual in the context of MAWC's systems. Despite bill checking and testing, some errors appeared on bills. MAWC has worked with Staff, and we believe all of these issues have been resolved.

**Q. CAN INTIAL BILLING ERRORS BE A COMMON CONSEQUENCE OF UTILITY ACQUISITIONS?**

A. Yes.

**Q. WHY?**

A. The acquired systems can have tariffs, operating rules, and practices far different than those in place in the acquiring company. Despite efforts to test all scenarios in billing it is always possible that some bills will be in error.

**Q. WHAT IS YOUR RESPONSE TO ITEM 1?**

A. This issue goes to MAWC's process of checking meter reads at several levels and, if there are anomalies, correcting the bill before it is generated and sent

to the customer. When following this process, a small percentage of bills (less than 1%) end up with billing periods longer than the 35 days allowed in Chapter 13 for a normal billing period.

**Q. HOW OFTEN DOES AN ACCOUNT FALL OUTSIDE THE WINDOW IN THESE CHECKS?**

A. All accounts are read in the allowed timeline due to having a rigid meter reading schedule to which all operations must adhere. Of these meter readings, approximately 92% are billed as read.

**Q. WHAT HAPPENS TO THE OTHER 8%?**

A. These are accounts that are reviewed either at the local operation level using the meter reading edit report and / or with the Billing group using the bill edit report.

**Q. HOW OFTEN DOES AN ACCOUNT THAT MUST BE CHECKED IN THE FIELD WITH A SERVICE ORDER FALL OUTSIDE A 35 DAY WINDOW?**

A. Only in very limited circumstances. First, the Company reviews a meter reading edit report that is run locally in the districts to find inactive accounts that show usage, active accounts with zero reads, and active accounts with usage outside of reasonable parameters. All of these can cause a field service order to be generated. In the case of active accounts, where the process requires a visit to the field, there may be a delay generating a bill. However, the primary goal is that the bills reflect a corrected read from the service order. Once an account goes through the bill calculation, a check is run to assure the billed dollar amount falls in a reasonable range. This process dramatically reduces the bills that go out to customers with estimated reads. Even so, 75% of the accounts that go through this process of correcting the bill go out within 35 days. Overall, approximately 99% of accounts are billed within 35 days.

**Q. WHAT IS THE ALTERNATIVE TO THIS PROCESS?**

A. Any account that has an anomaly in the meter reading could be sent out as an estimated bill.

**Q. WHAT IS THE RESULT OF ESTIMATING ACCOUNTS?**

A. Estimated accounts often result in customer satisfaction issues, Commission complaints, and calls to the Company. All of these not only generate dissatisfaction, but also costs to both the Call Center and the operating districts. Handling calls, especially ones that often result in field service work on a reactive basis, is a cost that can be reduced by proactively completing MAWC's meter reading checks. This process also results in more accurate and correct billing. In addition, usage data is often provided to the cities MAWC serves, so they can properly bill for municipal sewer service. Estimated bills, especially during the "winter average" period, cause the cities to experience billing and customer service issues as well.

**Q. WHAT IS YOUR RECOMMENDATION IN REGARD TO BILL PERIOD?**

A. I believe MAWC should continue the current process. First, by checking the reads and working service orders, we are correcting bills prior to them being sent to the customer. Under Chapter 13, it is permissible to send corrected bills outside the 35 day window. Second, this process is effective in reducing estimated or out of range bills, which likewise results in a reduction in calls and reactive service orders. Thus, the process presently in place has a positive impact on customer satisfaction and on reducing costs.

## V. <u>OPEN POSTIONS</u>

**Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY ON THIS ISSUE?**

A. My rebuttal testimony will address statements found in the Direct Testimony of Alan Ratermann, of Local 335 of the Utility Workers Union of America, in regard to vacant positions.

**Q. WHAT ARE THE CURRRENT OPEN POSITIONS IN LOCAL 335?**

A. As of December 31, 2011, there are 31 bargaining unit positions on the MAWC organization chart that are vacant in the St. Louis district. Of those, 23 are distribution workers (Distribution Field Worker, Distribution Field Worker – Lead Person, Distribution field Worker – Equipment Operator), 3 are meter tester/repairers, and 5 are in other positions (Assistant Operator, Utility Worker, Janitor).

**Q. WHAT ROLE DO THE DISTRIBUTION WORKERS FILL AT MAWC?**

A. This group of positions is primarily tasked with water main installation/construction and water main repair.

**Q. CAN MAWC OPERATE EFFECTIVELY WITH 23 VACANCIES IN THIS GROUP?**

A. Yes. The installation of new mains is capital investment work that is variable based on a number of factors, including budgets; relocation needs driven by state, county and local road work; and, work driven by developers. The staffing level required to meet these needs is currently adequate and so vacancies do not need to be filled. In addition, the size of maintenance crews required to repair water mains has been reduced by one position for typical types of main breaks, which resulted in that employee being available for construction.

**Q. WHAT ABOUT THE METER TESTER / REPAIRERS?**

A. Meter testing is work that MAWC is beginning to outsource, so those positions do not need to be filled at this time. This reduction in headcount is driving cost savings for the business. The work is being done by a contractor at lower cost.

**Q. HOW WAS IT DETERMINED THAT OUTSOURCING WOULD YIELD A COST SAVINGS?**

A. All operating districts outside of St. Louis already outsource this work due to its specialized nature and irregular workload. An evaluation of the cost of outsourcing the work in St. Louis indicated that it would also be cost effective.

**Q. DOES MAWC PLAN TO FILL THE VACANT POSITIONS?**

A. Not at this time, for the reasons noted above. However, filling or holding positions is reviewed on a going forward basis and will depend on the changing needs of the business.

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## VI. VALVE OPERATING PROGRAM

**Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY ON THIS ISSUE?**

A. My rebuttal testimony will address statements in the Direct Testimony of Alan Ratermann with Local 335 of the Utility Workers Union of America in regard to a valve operating program.

**Q. IS THERE A COMMISSION REGULATION REQUIRING A VALVE OPERATING PROGRAM?**

A. No.

**Q. IS THERE AN AMERICAN WATER COMPANY RECOMMENDED PRACTICE FOR A VALVE PROGRAM?**

A. Yes. American Water has developed a recommended operating practice for valve exercising. Although this program is recommended and serves as guidance, there is no requirement that any subsidiary adopt the practice, and MAWC is free to adopt all or part of the practice to meet its needs. The benefit and cost of such a program is important in considering how to best maintain a program.

**Q. WHAT KIND OF VALVE OPERATING PROGRAM EXISTS IN ST. LOUIS AT THIS TIME?**

A. MAWC performs valve maintenance on several fronts. The most common form of valve maintenance occurs because valves are operated in response to the thousands of main breaks that occur annually in St. Louis. Each break may require anywhere from 2 to over 4 valves to be operated in order to shut down the leak. Valve maintenance also occurs because valves are operated during obsolete main replacement and relocation projects when connections are made. MAWC also assigns valve maintenance work as fill in work for crews when main breaks are at low levels. Although records are not kept specifically to track the number of valves operated, I estimate it is likely that up to 10,000 valves are operated annually, the bulk of which would be in shutting down mains to 2,500 to 3,000 breaks per year at 2 or more valves each and main replacement (obsolete and relocation) that can often involve multiple valves.

**Q. WHY WOULD ST. LOUIS OPERATE DIFFERENTLY THAN THE AMERICAN WATER RECOMMENDED PROGRAM?**

A. The program was designed based on a large number of systems across the American Water operations. None of the other individual systems are as large as St. Louis, and the manpower needs and cost to implement this program in St. Louis would be significant. In addition, with the large number of breaks and obsolete main replacement projects in St. Louis, numerous valves are operated annually in the normal course of business, which would not be the case in other parts of the American Water system.

**Q. WHAT IS YOUR RECOMMENDATION FOR A VALVE PROGRAM FOR ST. LOUIS?**

A. I recommend that MAWC continue to perform valve maintenance as it does presently in St. Louis. There has been no indication of service issues associated with the valve operation process, there is no regulatory

requirement to operate valves, and the cost to implement a full scale program would be significant.

**Q. WHAT IS YOUR ESTIMATE OF THE LEVEL OF ADDITIONAL STAFFING REQUIRED TO FOLLOW THE PRACTICE AS DETAILED?**

A. MAWC has reviewed this for our St. Louis operation and it is estimated that an additional nine field workers and one office worker would be required to implement the program as detailed in the practice. To support these additional resources we would also have to add five vehicles and additional valve turning equipment.

**Q. WOULD THERE BE OTHER COSTS IN ADDITION TO THE PEOPLE AND EQUIPMENT?**

A. Yes, at least during the first cycle through the program I anticipate we would incur additional maintenance and capital costs from repairing or replacing valves that were damaged during the operation of them.

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

A. Yes.

**Table 5.2 AWWA Water Loss Control Committee – Leakage Management Target-setting Guidelines[3]**

| **Guidelines for Use of the Level Infrastructure Leakage Index as a Preliminary Leakage Target-setting Tool (In lieu of having a determination of the system-specific Economic Level of Leakage)** | | | |
|---|---|---|---|
| Target ILI Range | Water Resources Considerations | Operational Considerations | Financial Considerations |
| 1.0 – 3.0 | Available resources are greatly limited and are very difficult and/or environmentally unsound to develop | Operating with system leakage above this level would require expansion of existing infrastructure and/or additional water resources to meet the demand | Water resources are costly to develop or purchase<br>Ability to increase revenues via water rates is greatly limited due to regulation or low ratepayer affordability |
| 3.0 – 5.0 | Water resources are believed to be sufficient to meet long-term needs, but demand management interventions (leakage management, water conservation) are included in the long-term planning | Existing water supply infrastructure capability is sufficient to meet long-term demand as long as reasonable leakage management controls are in place | Water resources can be developed or purchased at reasonable expense<br>Periodic water rate increases can be feasibly effected and are tolerated by the customer population |
| 5.0 – 8.0 | Water resources are plentiful, reliable and easily extracted | Superior reliability, capacity and integrity of the water supply infrastructure make it relatively immune to supply shortages | Cost to purchase or obtain/treat water is low, as are rates charged to customers |
| Greater than 8.0 | While operational and financial considerations may allow a long-term ILI greater than 8.0, such a level of leakage is not an effective utilization of water as a resource. Setting a target level greater than 8.0 – other than as an incremental goal to a smaller long-term target – is discouraged. | | |
| Less than 1.0 | In theory, an ILI value less than 1.0 is not possible. If the calculated Infrastructure Leakage Index (ILI) is just under 1.0, world class leakage control is indicated. If the water utility is consistently applying comprehensive leakage management controls then this ILI value validates the program's effectiveness. However, if strict leakage management controls are not in place, the low ILI value might be attributed to a flaw in a portion of the water audit data, which is causing the real losses to be understated. If the calculated ILI value is less than 1.0 and only cursory leakage management controls are utilized, then the low ILI value should be considered preliminary until it is validated by field measurements via the bottom-up approach. | | |