

**DEPARTMENT OF PUBLIC SERVICE REGULATION  
BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF MONTANA**

\*\*\*\*\*

**IN THE MATTER OF** the Joint Application )  
of Liberty Utilities Co., Liberty WWH, Inc., ) REGULATORY DIVISION  
Western Water Holdings, LLC, and Mountain )  
Water Company for Approval of a Sale and ) DOCKET NO. D2014.12.99  
Transfer of Stock )

**Non-Confidential Rebuttal Testimony**

**of**

**John Kappes**

**on behalf of**

**Mountain Water Company**

**and**

**Western Water Holdings**

December 10, 2015

**TABLE OF CONTENTS**

I. INTRODUCTION ..... 1

II. PURPOSE OF TESTIMONY..... 1

III. GENERAL OBSERVATIONS ..... 3

IV. SERVICE-RELATED AND SYSTEM-RELATED ISSUES ..... 6

V. MISUNDERSTANDINGS OR MISREPRESENTATIONS REGARDING THE  
TRANSACTION OR THE COMMISSION’S REGULATORY PROCESS ..... 24

VI. CONCLUSION..... 33

1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is John Kappes. My business address is 1345 W. Broadway, Missoula,  
4 Montana.

5 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN THIS**  
6 **PROCEEDING?**

7 A. Yes. I provided direct testimony in this case on behalf of Mountain Water Company  
8 (“Mountain Water”). I am providing this rebuttal testimony on behalf of Mountain Water  
9 and Western Water Holdings (“Western Water”).

10 **II. PURPOSE OF TESTIMONY**

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

12 A. I will respond to issues raised by the intervenors, specifically those raised by Dr. John W.  
13 Wilson on behalf of the Montana Consumer Counsel (“MCC”) and by Mr. Craig Close,  
14 Mr. Dale Bickell, and Mr. David L. Hayward on behalf of the City of Missoula (“City”).  
15 The intervenors’ concerns fall into three general categories: (1) concerns regarding  
16 service-related or system-related issues; (2) misunderstandings or misrepresentations  
17 regarding the transaction before the Commission or the Commission’s regulatory process;  
18 and (3) miscellaneous objections to Liberty Utilities’ (“Liberty”) acquisition of Western  
19 Water stock. The City and MCC also take issue with Liberty’s due diligence and  
20 proposed financing for the acquisition of Western Water stock; however, I believe these  
21 issues ultimately lead to inaccurate conclusions within the three categories I just  
22 described.

23 **Q. PLEASE PROVIDE AN OVERVIEW OF YOUR REBUTTAL TESTIMONY.**

1 A. As a general matter, Mountain Water and Western Water will address the intervenors'  
2 issues regarding the current and historical ownership and operation of the water system in  
3 Missoula, while Liberty will address issues regarding future ownership (*e.g.*, due  
4 diligence, ownership structure, acquisition financing). Accordingly, I will address the  
5 service-related and system-related issues raised by the intervenors, and will also correct  
6 the misunderstandings or misrepresentations regarding the sale of Western Water stock  
7 and the Commission's regulatory process.

8 **Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.**

9 A. The service-related or system-related issues raised by the intervenors are not valid or  
10 relevant to evaluating the sale of Western Water stock to Liberty. However, although I  
11 believe those issues are irrelevant to the sale, I will explain how the City's  
12 characterization of Mountain Water's service and system is flawed and completely  
13 disregards the regulatory environment that Mountain Water operates in.

14 Regarding the intervenors' misunderstandings or misrepresentations of the sale of  
15 Western Water or the Commission's regulatory process, there is no public ownership  
16 option before the Commission to evaluate or approve. The Commission has  
17 demonstrated its ability to regulate Mountain Water as a privately-owned utility over a  
18 period of decades, and there is no request to increase rates before the Commission in this  
19 proceeding.

20 Ultimately, the intervenors have not raised any legitimate reason for the  
21 Commission to reject the sale of Western Water to Liberty.

1 **Q. ARE THERE ANY OTHER WITNESSES PROVIDING REBUTTAL**  
2 **TESTIMONY ON BEHALF OF MOUNTAIN WATER AND WESTERN**  
3 **WATER?**

4 A. Yes. Mr. Leigh Jordan, Executive Vice President of Mountain Water and Park Water  
5 Company (“Park Water”), will address the intervenors’ arguments regarding “financing  
6 savings,” capital structure, merger benefits, ring fencing provisions, and ratemaking.

7 **III. GENERAL OBSERVATIONS**

8 **Q. BEFORE ADDRESSING ANY SPECIFIC ISSUES, ARE THERE ANY GENERAL**  
9 **OBSERVATIONS YOU WOULD LIKE TO MAKE REGARDING THE**  
10 **INTERVENORS’ TESTIMONY?**

11 A. Yes, there are three general observations that I believe are worth noting for the  
12 Commission.

13 **Q. WHAT IS THE FIRST GENERAL OBSERVATION YOU WOULD LIKE TO**  
14 **MAKE?**

15 A. First and foremost, none of the intervenors raised issues regarding service *adequacy*,  
16 either under the status quo or in the future after Liberty acquires Western Water’s stock.

17 **Q. BUT THE CITY DID RAISE CONCERNS REGARDING LEAKAGE AND**  
18 **MAINTENANCE OF MOUNTAIN WATER’S SYSTEM. THOSE AREN’T**  
19 **RELATED TO SERVICE ADEQUACY?**

20 A. No. There is a substantive difference between issues regarding service adequacy and  
21 service-related or system-related issues.

22 **Q. PLEASE EXPLAIN.**

23 A. Service adequacy focuses on the utility service that our customers receive *i.e.*, are our  
24 customers safely and reliably receiving the water they want when they want it? Neither  
25 the City nor the MCC alleged that Mountain Water failed to provide adequate service

1 under current ownership. Similarly, neither the City nor the MCC alleged that Mountain  
2 Water will provide inadequate service if Liberty acquires the stock in Western Water.

3 In contrast, the City did raise concerns regarding system-related and service-  
4 related issues, such as leakage or maintenance. While Mountain Water recognizes the  
5 importance of these issues as the operator of the water system in Missoula, the  
6 appropriate forum for addressing system-related or service-related issues is in rate cases  
7 where capital investment can be measured against the rate impact on our customers. The  
8 Commission recognized this fact in 2011, when it approved Carlyle's acquisition of Park  
9 Water. I will provide additional explanation on this point later in my testimony.

10 **Q. WHAT IS THE SECOND OBSERVATION YOU WOULD LIKE TO MAKE?**

11 A. I would like to make a point about the Class B Units.

12 **Q. EARLIER THIS YEAR THERE WERE ORAL ARGUMENTS BY THE CITY**  
13 **BEFORE THE PSC REGARDING THE CLASS B UNITS, AND THIS ISSUE**  
14 **HAS BEEN BROUGHT UP AGAIN IN THE CITY'S TESTIMONY. CAN YOU**  
15 **PROVIDE SOME INSIGHT AS TO HOW THOSE AFFECT YOU?**

16 A. Certainly. Mr. Jordan will address this as well. In November of 2012, Park Water  
17 executives, including operational division general managers such as myself, were granted  
18 B-unit ownership shares in Western Water. B-unit shares in Western Water are  
19 secondary to the A-unit ownership interests. Carlyle granted these shares so that we  
20 would have some ownership in the companies we were managing. The B-unit shares vest  
21 over a seven year period and are only redeemable upon Carlyle Infrastructure Fund  
22 selling Western Water. At the time of the grants, there was value in the B-unit shares that  
23 was taxable by the IRS. Western Water provided a loan, over the vesting term, at 3%  
24 interest toward the taxes owed.

1 **Q. WILL ANY DOLLARS RELATING TO THE LOANS OR FUTURE DOLLARS**  
2 **RELATING TO THE B-UNITS EVER BE REFLECTED IN MOUNTAIN**  
3 **WATER'S RATES?**

4 A. Not with the proposed transaction in front of this Commission and not while Mountain  
5 Water remains privately-owned. As long as Mountain Water is privately owned, neither  
6 the loan amounts or future payments will be included in Mountain's revenue  
7 requirements or otherwise reflected in the rates we charge our customers as a regulated  
8 utility. The dollars for the loans came from investor equity, and will be paid back by  
9 those who received the loans, with interest. The proceeds to pay for the value of the B-  
10 units will come from proceeds Western Water receives following the sale of Western  
11 Water or its subsidiaries.

12 That said, it is possible that if the City acquires Mountain Water, the dollars the  
13 City pays to acquire the system will go partially to the B-units and those acquisition costs  
14 may be passed on to Missoula ratepayers.

15 **Q. AND WHAT IS THE THIRD OBSERVATION YOU WOULD LIKE TO MAKE?**

16 A. I think it is important to note how the City argues that Mountain Water's system requires  
17 \$60 to \$90 million in capital investment *regardless of whether the system is privately- or*  
18 *publicly-owned*,<sup>1</sup> but then the City implies that Liberty's acquisition of Western Water  
19 should be rejected because Liberty may need to increase rates in the future *to recover*  
20 *new capital investments*. In my opinion, the City's argument is inconsistent and  
21 disingenuous.

---

<sup>1</sup> City's responses to MW/WWH-026(c) and MW/WWH-043(a).

1           **IV. SERVICE-RELATED AND SYSTEM-RELATED ISSUES**

2   **Q. WHAT TYPE OF SERVICE-RELATED OR SYSTEM-RELATED ISSUES WERE**  
3   **RAISED BY THE INTERVENORS?**

4   A. The City’s consultant, Mr. Close, devoted 12 pages of his testimony to discussing  
5   Mountain Water’s “system condition.” In his testimony, Mr. Close identified concerns  
6   regarding maintenance, leakage, wells, boosters, meters, service lines, dams, and storage.  
7   Mr. Close’s testimony is drawn directly from the City’s condemnation case, with  
8   citations to the transcript from that proceeding.

9   **Q. DOES THE CITY EXPLAIN HOW THE CONDITION OF MOUNTAIN**  
10   **WATER’S SYSTEM IS RELATED TO THE SALE OF WESTERN WATER**  
11   **STOCK?**

12   A. Not directly. Aside from being pulled straight from the City’s condemnation case, the  
13   testimony regarding Mountain Water’s system is implicitly used to support the position  
14   that the sale of Western Water stock should be denied because Liberty may need to  
15   increase rates to recover future capital investment. Alternatively, the City also seems to  
16   imply that the sale of Western Water stock should be denied because Liberty did not  
17   forecast as much capital investment in Mountain Water’s system as it did for Park  
18   Water’s California utilities, and thus Liberty is not serious about addressing the City’s  
19   concerns regarding leakage, maintenance, and capital investment. Consequently, the  
20   City’s testimony regarding the condition of Mountain Water’s system is used to support  
21   the City’s “heads I win, tails you lose” approach to this case.

22   **Q. HAS THE COMMISSION PREVIOUSLY ADDRESSED THE RELEVANCE OF**  
23   **SYSTEM-RELATED OR SERVICE-RELATED ISSUES, SUCH AS LEAKAGE,**  
24   **WHEN EVALUATING THE SALE AND TRANSFER OF A PARENT**  
25   **COMPANY?**

1 A. Yes. In Docket No. D2011.1.8, the Commission evaluated Carlyle’s acquisition of Park  
2 Water. In that proceeding, the MCC (through Dr. Wilson) raised concerns regarding the  
3 potential for Carlyle to increase the investment in infrastructure, thereby increasing rate  
4 base.<sup>2</sup> Dr. Wilson and the MCC also noted that leaky mains were an issue in Mountain  
5 Water’s previous rate case, but that the annual cost of water loss at the time was 0.285%  
6 of the estimated cost of replacing all of Mountain Water’s water mains over 40 years  
7 old.<sup>3</sup> In approving the sale of Park Water to Carlyle, the Commission specifically noted  
8 that “[t]he rate of leakage on Mountain’s system is a service-related issue that will  
9 continue to be addressed in rate cases.”<sup>4</sup> The Commission also emphasized that “addition  
10 of infrastructure investments into rate base will be allowed only when Mountain is able to  
11 demonstrate the benefit of the investment exceeds the cost.”<sup>5</sup>

12 **Q. WHAT DO THE COMMISSION’S STATEMENTS IN ORDER NO. 7149d MEAN**  
13 **FOR THE CITY’S ARGUMENTS HERE?**

14 A. I believe the Commission has recognized that service-related or system-related issues  
15 such as leakage, maintenance, meters, service lines, and the use of wells, boosters, dams,  
16 and storage are not relevant to evaluating the sale and transfer of Mountain Water’s  
17 upstream parent company. Instead, these issues are more appropriate for rate cases where  
18 the utility’s entire cost of providing service is at issue and the impact that potential new  
19 investments will have on rates is known.

---

<sup>2</sup> Order No. 7149d at ¶ 27.

<sup>3</sup> *Id.* ((366,000/128,600,000) x 100 = 0.285%)

<sup>4</sup> Order No. 7149d at ¶ 72.

<sup>5</sup> *Id.*

1           Notably, while the City was a party in Docket No. D2011.1.8, it did not raise  
2 concerns regarding the condition of Mountain Water’s system or leakage. In fact, this  
3 proceeding is the first time the City has raised those concerns before the Commission.

4 **Q. ALTHOUGH YOU DO NOT BELIEVE THESE SYSTEM-RELATED OR**  
5 **SERVICE-RELATED ISSUES ARE RELEVANT, DO YOU HAVE A RESPONSE**  
6 **TO THE CITY’S ALLEGATIONS REGARDING THE CONDITION OF**  
7 **MOUNTAIN WATER’S SYSTEM?**

8 A. Yes, I do. I believe the City has mischaracterized the condition of Mountain Water’s  
9 system and has presented a position that completely ignores the regulatory environment  
10 in which Mountain Water operates as a privately-owned utility.

11 **Q. PLEASE EXPLAIN.**

12 A. Mountain Water is highly regulated. Our service and rates are regulated by the  
13 Commission. Our system operations and water quality are regulated by the Department  
14 of Environmental Quality (“DEQ”). Our water rights are regulated by the Department of  
15 Natural Resources and Conservation (“DNRC”). The safety of our employees and  
16 contractors is regulated by the Occupation Safety and Health Administration. Finally,  
17 our wilderness dams are regulated by the United States Forest Service. In each of these  
18 areas, Mountain Water has always met or exceeded the requirements set forth by these  
19 regulatory agencies. Mountain Water’s continued focus on proper maintenance of the  
20 water system assets, balanced with timely replacement of aged infrastructure, has  
21 consistently provided safe, reliable service at reasonable rates to our customers.

22           Mountain Water has internal and external engineers licensed in the state of  
23 Montana, along with water operators certified in the state of Montana, who have prepared  
24 and maintained Mountain Water’s asset operating and replacement plans on an ongoing

1 basis, including under Carlyle's ownership. Those same engineers and operators, offset  
2 with proper succession planning, have continued to build upon and improve Mountain's  
3 ongoing efforts.

4 The City's allegations about our system have been made through Mr. Close of  
5 HDR Engineering, who is not a Montana licensed engineer, has limited knowledge of  
6 Mountain's system and regulations within the state of Montana, and who has made  
7 numerous claims that can easily be proven to be factually incorrect. His allegations and  
8 observations were made in an effort to prove necessity in a condemnation proceeding and  
9 have never been vetted by any of our regulators. We are currently appealing to the  
10 Supreme Court the District Court's findings regarding the City's allegations.

11 **Q. MR. CLOSE TESTIFIED THAT HE DID NOT SAMPLE MOUNTAIN'S**  
12 **UNDERGROUND MAINS, IS THAT ACCURATE?**

13 A. Mr. Close is not being truthful with the Commission. He did sample mains taken from a  
14 main replacement project at the request of the City. In answering data requests from  
15 Mountain Water, Mr. Close once again was not accurate when he said there were no  
16 documents relating to the sampling of mains.

17 **Q. WHY DO YOU BELIEVE MR. CLOSE IS NOT PROVIDING THAT**  
18 **INFORMATION TO THE COMMISSION?**

19 A. I think there are two reasons. Emails were produced by HDR in the condemnation  
20 proceedings that show when HDR tested samples of our mains from a main replacement  
21 project, the results showed that the main was in good condition with little to no corrosion  
22 and better than they expected.<sup>6</sup> Those emails also show that Mr. Close has done his work

---

<sup>6</sup> Exhibit JK-1 (HDR's internal emails).

1 with a particular end or conclusion in mind. The HDR employee doing the work states in  
2 the email: “After reviewing the lab data I have a question for you and also wanted to  
3 point out how *Craig Close wants us to spin the text.*”<sup>7</sup>

4 Not mentioning the fact he actually did sample the mains appears to be the way  
5 Mr. Close decided to best spin the results of his testing in this proceeding.

6 **Q. HOW HAS MOUNTAIN WATER SPECIFICALLY DEALT WITH LEAKAGE?**

7 A. Mountain Water has had leakage in its system for decades. Factors specific to Mountain  
8 Water’s operations make it different from other systems around the state and country. In  
9 summary, the conditions relating to our porous soils, depth of our mains, service line  
10 ownership, pumping from a prolific shallow underground aquifer, and economic costs of  
11 leakage versus infrastructure replacement costs all contribute to Mountain Water’s  
12 approach to addressing leakage in its system.

13 In 2010, Mountain Water provided a financial analysis to the Commission that  
14 served as our five year plan (2010-2014) for how we would address leakage in an  
15 economic manner. That plan was wrapped into the Commission’s order approving the  
16 Carlyle transition in 2011.

17 Mountain has been following the plan as presented to the PSC relating to its main  
18 replacements and other issues surrounding leakage. In 2013, we created an initial draft  
19 five year plan (2015-2019) to present to the Commission in the next rate case. Through  
20 work identified in our 2010 plan (2010-2014), coupled with new technology and

---

<sup>7</sup> Exhibit JK-1, page 3 (emphasis added).

1 software, we have increased our knowledge as to main replacements and leakage. When  
2 we file our next rate case, that new five year plan (2015-2019) will be included.

3 **Q. WHY DOES THE CITY CRITICIZE MOUNTAIN WATER'S CAPITAL SPEND**  
4 **ON MAINS IF IT IS FOLLOWING THE 2010 PLAN?**

5 A. Again, all of the City's critique of Mountain Water was done as part of the condemnation  
6 proceeding in its attempt to prove why the City should be allowed to take the water  
7 system. In that discovery process, the City was provided not only our approved 2010 five  
8 year plan (2010-2014), but also draft plans which included a draft of our next five year  
9 plan (the draft plan created in 2013 for 2015-2019). In the 2015-2019 plan, Mountain  
10 Water will be recommending additional dollars be spent on main replacement over and  
11 above what was incorporated in the 2010 plan for 2010-2014. But again, the 2015-2019  
12 plan that was initially drafted in 2013 has not yet been presented to or approved by the  
13 Commission. Thus, the City's criticism that we are not following our "2013 plan" is  
14 entirely misplaced. We are following, to the letter, the plan that is in effect (the 2010  
15 plan for 2010-2014), as approved by the Commission. If and to the extent the  
16 Commission approves a new plan for 2015-2019, we will follow that.

17 Fast-forward to present day (the condemnation proceedings have been going on  
18 for about two years), now that Mr. Close has seen that Liberty will support Mountain's  
19 *future* capital plan, he changed his testimony from the condemnation case where he  
20 argued that the City would need to invest \$60-90 million in capital over ten years. He is  
21 now testifying to the Commission that there should be \$60-\$90 million worth of capital  
22 spent over the next ten years "*above depreciation.*" Review of Mr. Close's own financial  
23 model shows his change in philosophy; because none of his financial models under

1 private or public ownership show capital spend of anything more than \$60-90 million  
2 (including replacement of customer-owned services).

3 **Q. WHY DO YOU THINK MR. CLOSE CHANGED HIS POSITION AFTER**  
4 **SEEING LIBERTY'S FINANCIAL MODELS?**

5 A. Liberty is projecting a ten-year capital budget for Mountain Water that is over [REDACTED]  
6 [REDACTED] not including service lines owned by customers. If you look at what Mr. Close is  
7 projecting the City will need to spend, excluding proposed investments in service lines  
8 owned by the customers to compare the figures on an apples-to-apples basis, that amount  
9 is \$46-\$61 million. So Mr. Close changed his testimony in this proceeding and says his  
10 numbers are "on top of depreciation," otherwise Liberty's capital plan will more than  
11 cover all of Mr. Close's concerns. Again, it is the financial model Mr. Close developed  
12 for the condemnation proceeding, and included for this proceeding, which shows that was  
13 not his original position.

14 **Q. CAN YOU RECONCILE FOR US THE DIFFERENT RANGES BEING USED BY**  
15 **THE CITY FOR TOTAL CAPITAL SPEND AND SERVICE LINES?**

16 A. The City uses different ranges throughout their reports, testimony, financial calculations  
17 and data responses. They have ranges for total costs, then ranges for service lines, meters  
18 etc. It is confusing given the total ranges are anywhere from \$60-\$88 million to \$66 -  
19 \$95.4 million, while services and meters range anywhere from \$20-\$30 million to \$30-  
20 \$49 million. For purposes of my testimony I am using Mr. Close's total range of \$60-\$90  
21 million from his financial models. For service lines I am using \$14-\$29 million which  
22 are in Mr. Close's engineering report.

1 **Q. MR. CLOSE SAYS LIBERTY'S PLAN ONLY ADDRESSES 1.5 MILES OF MAIN**  
2 **PER YEAR WHEREAS THREE MILES PER YEAR IS CLOSER TO WHAT**  
3 **NEEDS TO BE REPLACED, IS THIS ACCURATE?**

4 A. The 1.5 miles per year is close to the amount of main we projected in our 2010 five year  
5 plan presented to the Commission. I assume Mr. Close's reference to 3 miles of main  
6 comes from the 2.7 miles of main per year from our yet-to-be-approved 2015-2019 plan,  
7 as Mr. Close did not do a long term analysis of needed main replacement. Once our plan  
8 is presented to the Commission in a rate case, and if the Commission agrees, the Liberty  
9 ten year forecast has enough dollars for us to replace up to 2.7 miles per year. If instead  
10 the Commission does not agree with the increased main replacements, then we would not  
11 need as large of capital budget.

12 **Q. YOU SAID YOUR VIEW AS TO NUMBER OF MILES OF MAIN TO REPLACE**  
13 **HAS CHANGED SINCE THE 2010 PLAN. IS THERE ANY CONCERN THAT**  
14 **WAITING FOR THE COMMISSION AND NOT MAKING THOSE CHANGES**  
15 **TODAY COULD CAUSE LEAKAGE OR SYSTEM RELIABILITY TO**  
16 **DEGRADE?**

17 A. No. The main difference in our analysis in the draft 2015-2019 plan is that we take a  
18 long-term statistical look as to how much of our water main needs to be replaced year-  
19 over-year to maintain a long term sustainable plan for main replacement. This was  
20 beyond the scope of the 2010 initial plan. Waiting for a few years to implement this new  
21 plan will not increase the leakage rate or cause the system to be less reliable.

22 **Q. THE CITY CLAIMS YOU HAVE WITHHELD INFORMATION ABOUT YOUR**  
23 **LEAKAGE FROM THE COMMISSION, IS THAT ACCURATE?**

24 A. No. The 2015-2019 plan is still in draft form and has not yet been formally presented to  
25 the Commission for approval. However, in February 2014 I presented an update to the  
26 Commissioners and MCC staff on Mountain Water's operations and results so far with

1 our leakage efforts. In that informal presentation I included information pertaining to the  
2 new five year plan and indicated we would be presenting that new plan to the  
3 Commission in the near future.

4 **Q. THE CITY ARGUES THAT THE AMERICAN WATER WORKS ASSOCIATION**  
5 **(“AWWA”) INFRASTRUCTURE LEAKAGE INDEX (“ILI”) FOR MOUNTAIN**  
6 **WATER CALLS FOR “IMMEDIATE ACTION” TO ADDRESS INEFFICIENT**  
7 **WATER USAGE. PLEASE RESPOND.**

8 A. Mountain Water is now using a free software program provided by the AWWA to help  
9 Mountain Water understand where its revenue and non-revenue water is going. While  
10 that information is helpful to Mountain Water, it is simply an indicator and not a  
11 thorough economic analysis of the costs and benefits of additional investment in reducing  
12 leakage. The City’s testimony greatly exaggerates the relevance of that information and  
13 mischaracterizes the ILI Index as a survey of similar water systems across the country for  
14 which leakage rates are compared.

15 First of all, the purpose of the free software is to allow utilities to better  
16 understand where their non-revenue and revenue water is going, and define different  
17 types of categories for each of these areas. For example, not all of a system’s water loss  
18 is through leakage. Water loss can also occur from inaccuracies in production meters and  
19 consumption meters. By entering data into the software a utility can begin to estimate on  
20 an annual basis where their water production goes. As such, the software does produce a  
21 measurement called the ILI but Mountain Water does not believe ILI is even relevant.  
22 Indeed, the AWWA itself specifically explains that while the ILI table “offers an  
23 approximate guideline for leakage reduction target setting. The best means of setting

1 such targets include performing an economic assessment.”<sup>8</sup> The table Mr. Close is  
2 referencing is only useful when a full economic analysis has *not* been done.<sup>9</sup>

3 Mountain Water believes the best evidence of the appropriate short term cost-  
4 benefit balance to strike between leakage, new investments, and rates is the 2010-2014  
5 investment plan approved by the Commission based on a specific economic analysis of  
6 the Mountain Water system. Mountain Water also believes that long term economic  
7 considerations and infrastructure replacement needs dictate a higher level of investment  
8 as embodied in the draft 2015-2019 plan.

9 Second, it should be noted that the 24 water systems in the survey Mr. Close  
10 references were “self-selected” into the analysis by providing the results from their use of  
11 the free software. This is anything but a statistical sampling of the some 155,000 water  
12 systems across the country. It is also not necessarily representative of the operating  
13 factors faced by Mountain Water.

14 This software is helping Mountain Water better understand its water production  
15 and is a useful tool that will provide Mountain Water and the Commission trending  
16 information over time. But the City is greatly exaggerating the relevance of this  
17 information, and the City’s testimony about the data from other water companies is very  
18 misleading because of the rather small sample size and the fact that only data from  
19 companies that self-report their results are included.

20 **Q. HAVE MOUNTAIN WATER’S EFFORTS REDUCED LEAKAGE?**

---

<sup>8</sup> Exhibit JK-2.

<sup>9</sup> Exhibit JK-2.

1 A. Yes. Due to investment, maintenance and implementation of new technologies since  
2 2009, leakage as measured by gallons per minute has been reduced by approximately  
3 19%, down from about 8,900 gpm to 7,500 gpm.

4 **Q. WHAT IS THE BEST WAY TO MEASURE LEAKAGE EFFORTS?**

5 A. Both Mountain Water and the AWWA (the author of the free software mentioned  
6 previously) believe that calculating leakage as a percentage of total water production is a  
7 poor indicator of leakage. Instead, Mountain Water believes leakage should be discussed  
8 in terms of a total leakage rate in gallons per minute. This method avoids the impact of  
9 changes to overall usage on the calculation of leakage. The actual measured gallons per  
10 minute leakage can be calculated in the Mountain Water system using what is referred to  
11 as a reservoir fall study. This allows Mountain to be able to trend an exact quantity of  
12 leakage as opposed to an overall percentage of leakage.

13 The AWWA states that “although percentage indicators – typically the ratio of  
14 authorized customer consumption to distribution system input – still exist in the industry,  
15 AWWA discourages use of percentage indicators, such as the “unaccounted-for” water  
16 percentage. Using percentage indicators to assess water loss in distribution systems gives  
17 a misleading and unreliable measure of utility performance...”<sup>10</sup>

18 For a leakage percentage, the leakage is in both the numerator and the  
19 denominator and the denominator also includes consumption. So it’s easy to see if you  
20 trend percentages you don’t necessarily know what changed in relation to your leakage or

---

<sup>10</sup> Exhibit JK-3 – “Best Practice in Water Loss Control”

1 your consumption. To focus on the net change in the numerator gives you the best  
2 indicator of what your numerator (leakage) is doing.

3 The leakage as a percentage of total production changes throughout the year. A  
4 water system feeds its leaks first and then water is pumped to the customers. The system  
5 leaks at a fairly constant gallons per minute rate regardless of usage. Thus, if no one was  
6 to use water (zero customer usage) we would have 100% leakage to keep water available  
7 in the pipes. That leakage percentage would decrease as consumption increased because  
8 the rate of leakage in gallons per minute does not increase.

9 With Mountain Water, our customers use a lot more water in the summer months  
10 than in the winter months, so with the exact same leakage rate, percentage of leakage is  
11 greater in the winter than in the summer. This is why gallons per minute is a better  
12 measurement of leakage rather than the overall leakage percentage rate.

13 The other important measure is the economic impacts to the customers.  
14 Importantly, Mountain Water's capital investment programs have been developed and  
15 implemented while considering the rate impact on our customers. Mountain Water has  
16 remained mindful of the Commission's requirement that Mountain Water must  
17 demonstrate the benefit of the investment exceeds the cost in order for new investment to  
18 be added to rate base.

19 **Q. THE CITY CLAIMS LEAKAGE CAN LEAD TO CONTAMINATION OF THE**  
20 **AQUIFER. IS THIS A CONCERN OF MOUNTAIN WATER'S?**

21 A. First of all, Mountain Water is one of the biggest advocates of protecting the quality of  
22 the aquifer we pump from, so aquifer protection is one of, if not, our greatest concern and  
23 focus. This argument from the City was once again derived from its condemnation case.

1 It needs to be made clear that the water we leak is of the same high quality as the water  
2 our customers drink every day. There is no way our water can contaminate the aquifer.

3 The City claims that our water could carry contaminates in the soil down into the  
4 aquifer. To date, we have not seen any degradation of the water quality in the aquifer and  
5 we routinely test the water quality. However, if there were an issue it is frankly more  
6 likely to have been caused by the City. This is because their storm water drainage system  
7 goes directly into the soils through 6,000 plus storm drains located on almost every street  
8 corner in Missoula. Not only is the water coming off the streets and out of gutters not  
9 potable, it is much more likely to carry other contaminants lying near the ground surface  
10 into the aquifer than water leaking from our mains. If the City really wanted to protect  
11 the aquifer, they would take the millions of dollars being used to condemn Mountain  
12 Water and instead develop a storm water utility as all other large cities in Montana have  
13 done.

14 **Q. IS THE CITY'S CLAIM THAT MOUNTAIN WATER OVERESTIMATES HOW**  
15 **MUCH WATER IS LEAKING FROM THE CUSTOMER'S SERVICE LINES**  
16 **ACCURATE?**

17 **A.** Mountain Water's estimate on what leaks through service lines is based on our operators'  
18 and engineers' experience in dealing with leaks in our system over decades. We estimate  
19 that at least half of our leakage is on the customers' service lines. Our assumption is  
20 consistent with the AWWA, which has stated that worldwide the majority of water utility  
21 leakage occurs on service lines.<sup>11</sup> Mr. Close's claim to the contrary is based on a lack of  
22 understanding of the operating factors of our water system. First, he claims that leaks

---

<sup>11</sup> Exhibit JK-4, page 2.

1 from service lines would come to the surface. This completely ignores the fact that the  
2 soil types and burial depth for service lines is the same as for our mains. Therefore, if  
3 main leaks aren't surfacing, neither would service line leaks. Second, Mr. Close argues  
4 that to have half our leakage come from service lines, each service line on average would  
5 have to leak over 100,000 gallons per year. He concludes that is unrealistic. But the  
6 reality is a leakage rate of this magnitude could be achieved with a leak on each service  
7 line of only 0.2 gallons per minute, which is essentially a hole the size of a pin prick. In  
8 our experience, we have seen leaks of over 50 gallons per minute stay underground.

9 There are approximately as many miles of service lines in Missoula as there are  
10 water mains in the Mountain Water system. For a small diameter hole in a main or  
11 service line (1/4 inch or less), the volume of water leaking from the main or service  
12 would be identical. Given the fact that all of the old service lines are galvanized pipe,  
13 which is known to corrode more rapidly than the materials Mountain Water's mains are  
14 constructed of, it is very likely that there are more leaks on service lines than on mains.

15 It would only take 700 service lines leaking five gallons per minute (less than a single  
16 3/16 inch hole in the entire length of a service line) to make up half of the total system  
17 leakage. And those 700 service lines would comprise only 4% of the total of the  
18 galvanized service lines over 40 years old. In reality, a leak of five gallons per minute  
19 would likely not impact the adequacy of a customer's service and would rarely surface,  
20 thus the customer would typically never know of the leak.

21 **Q. IS THE CITY RIGHT THAT SERVICE LINES NEED TO BE REPLACED AT A**  
22 **COST OF \$14-\$29 MILLION?**

1 A. No. As we've stated, and the City knows, those lines are owned by the customers. Just  
2 as with all leakage, the economics need to be determined for any solution. Older service  
3 lines should be replaced by the customer prior to reduction in service or a complete  
4 failure, but the cost of leakage alone will not justify replacement. A service line can cost  
5 \$5,000 to \$10,000 to replace. Yet at our retail price of water and the City's assumption  
6 of 100,000 gallons leaked per year per service line, the estimated retail cost of leakage  
7 would be \$271 per year per service line. The variable cost is approximately 10% of that.  
8 With leaks on service lines happening before the meter, the cost of service line leaks is  
9 the same variable cost as mains. So it is clear that there isn't a cost-benefit case to be  
10 made for such a massive investment just to reduce service line leakage.

11 We believe the City for condemnation purposes took a broad brush solution to  
12 service lines in order to show how their plan would differ from ours to support their claim  
13 of necessity. We don't believe the City has details that support this as a reasonable  
14 solution to the actual service line leakage.

15 **Q. THE CITY CLAIMS MOUNTAIN WATER HAS TWICE AS MANY WELLS IN**  
16 **RATE BASE THAN IS NEEDED TO COVER ITS LEAKAGE RATES. IS THIS**  
17 **TRUE?**

18 A. Again, this is an argument created by an engineer who is not licensed in Montana to help  
19 the City make a necessity argument in the condemnation proceeding. Mr. Close admits  
20 he did no hydraulic modeling to support his conclusion. He performed very simple math  
21 without considering the requirements the Montana DEQ puts on Mountain Water for  
22 system design. Mr. Close's simple math says that if you eliminate the leakage you could  
23 eliminate half of your wells. However, because leakage accounts for approximately half

1 of the “average day production,” the other half of the wells would only meet the “average  
2 day demands” of the customer. If the system were designed as suggested by Mr. Close, it  
3 would run out of water approximately half of the time because his simple math ignores  
4 design requirements for “peak hour usage,” among other required design criteria.

5 Furthermore, Mountain Water must meet its “peak hour usage” *concurrent* with  
6 “fire flows” *and* its “largest pump out of service” in order to comply with DEQ  
7 requirements. Under that scenario, Mountain Water’s leakage percentage would be  
8 approximately 15% of the total “peak hour plus fire flow.” In practice, Mountain Water  
9 analyzes each pressure zone individually to determine if we have any excess pumping  
10 facilities. Our work shows that at most we could only reduce our system by one well, *if*  
11 we had zero leakage on our mains.

12 Mr. Close’s analysis becomes even more inept when he then states Mountain  
13 Water would need an additional 20-25 million gallons of storage if it didn’t rely on its  
14 wells. This would completely undermine the system reliability that Mountain Water has  
15 by using the storage underground in the aquifer and pumping from that storage to its  
16 operational storage tanks. If instead we put more storage on the surrounding hillsides and  
17 reduced our pumping capacity, not only would that be more costly for our customers, we  
18 would lose our emergency preparedness capabilities. Storage on the hillsides would, at  
19 best, provide water for an average day. Storage underground with backup power  
20 generation, as Mountain Water is doing, will provide continuous days of water during  
21 emergencies including complete community power outage.

1           Our pumping capacity in the wells also makes the community's marginal cost for  
2 new water much less than if we didn't have the facilities with the water rights that we  
3 have today. This was submitted to the Commission in a 2008 report by Mountain Water,  
4 at the Commission's request, when we performed a marginal cost of water supply. This  
5 2008 report was prepared for Mountain Water by HDR Engineering under the direction  
6 of Tom Gould. Presumably Mr. Close, who also works for HDR, wouldn't challenge the  
7 validity of his company's own report.

8 **Q. MR. CLOSE HAS PROVIDED TESTIMONY AND DATA RESPONSES TO THE**  
9 **COMMISSION INDICATING MOUNTAIN WATER IS INAPPROPRIATELY**  
10 **CAPITALIZING AND DEPRECIATING ASSETS, DO YOU AGREE WITH HIS**  
11 **ASSESSMENTS?**

12 **A.** Absolutely not. Mountain Water follows the National Association of Regulatory Utility  
13 Commissioners ("NARUC") 1976 Uniform System of Accounts (USOA) for Class A and  
14 B Water Utilities. We capitalize and expense costs pursuant to the USOA. In accordance  
15 with the USOA, it is suggested that items with short life spans and of value less than \$50  
16 should be expensed. Mountain Water's current policy for capitalization is that costs for  
17 tangibles with a value greater than \$100 and a life of more than one year are  
18 capitalized. This follows General Acceptable Accounting Principles as well.

19           As Mr. Close is not an accountant, he may be excused for his incorrect description  
20 of cost of removal being charged to the depreciation account and then expensed. This is  
21 a clear misunderstanding of accounting principles. The accounting entries for cost of  
22 removal do not affect the income statement. The correct entry is to charge the balance  
23 sheet account of Accumulated Depreciation with the cost of removal, essentially reducing  
24 Accumulated Depreciation, and, in turn, increasing net assets. Because cost of removals,

1 when accounted for appropriately, increase our net assets, we account for them as part of  
2 our capital program because those costs impact our rate base the same way as a capital  
3 spend.

4 Mr. Close cannot be excused, however, for insinuating we should have a cost of  
5 removal for every capital replacement. The example he uses, our “Hillview Main  
6 Replacement,” is a perfect example. We did replace the main, but we installed the new  
7 main at least a hundred yards away from where the existing main was. The existing main  
8 was abandoned in place and remains in the ground today out of service. There was no  
9 cost of removal nor salvage value because *it's still there*. As an engineer, Mr. Close  
10 should know better.

11 In his response to Commission data requests, Mr. Close describes depreciation  
12 expense for private utilities and compares it to the fact that public utilities have  
13 accumulated depreciation. This comparison is nonsensical. Private utilities also have  
14 accumulated depreciation which decreases rate base over time. If a utility were to not  
15 spend its total annual depreciation expense on capital projects the rate base would  
16 decrease by that amount because accumulated depreciation increases. Mr. Jordan will  
17 testify further as to Mr. Close’s inaccurate statements referring to depreciation as  
18 “profit.”

19 **Q. MR. BICKELL STATES THAT MOUNTAIN RATEPAYERS HAVE FUNDED**  
20 **INCREASED DEBT SERVICE BECAUSE OF CAPITAL SPENDING IN THE**  
21 **CALIFORNIA OPERATIONS, DO YOU AGREE?**

22 A. The rates Mountain Water customers pay for water in Missoula is based on the capital  
23 spent in Montana, which is based on the needs of the system in Montana. The capital

1 spent by the California operations is paid for by the ratepayers in California, not the  
2 ratepayers in Missoula.

3 **Q. MR. BICKELL STATES IN RESPONSE TO DATA REQUEST MW/WWH-009**  
4 **THAT THE ADMINISTRATIVE SERVICES FESS CHARGED TO MOUNTAIN**  
5 **WATER PROVIDE A MECHANISM FOR INCREASED INVESTMENT IN**  
6 **CALIFORNIA AT THE EXPENSE OF MONTANA RATEPAYERS. DO YOU**  
7 **AGREE?**

8 A. No. He is confusing income statement expenses with balance sheet capital  
9 improvements. The administrative services agreement costs are for services that Park  
10 Water provides to Mountain Water. These costs of services have been audited over the  
11 decades by both this Commission and the MCC, as well as the California Public Utilities  
12 Commission. Costs for work performed by Park Water directly for the operations are  
13 charged directly, other shared costs are allocated to the operations based on a ratio of four  
14 factors; Operating Expense, Net Plant, Payroll Expense; and Customers.

15 In fact, if capital spend is greater in California than in Montana, and expense and  
16 customer numbers stay the same, the Montana ratepayer will benefit by have a lower  
17 allocation of the shared services costs, because net plant as compared to the other systems  
18 would be less.

19 **V. MISUNDERSTANDINGS OR MISREPRESENTATIONS REGARDING THE**  
20 **TRANSACTION OR THE COMMISSION'S REGULATORY PROCESS**

21 **Q. BASED ON YOUR REVIEW OF THE INTERVENORS' TESTIMONY, WHAT**  
22 **MISUNDERSTANDINGS OR MISREPRESENTATIONS REGARDING THE**  
23 **TRANSACTION OR THE COMMISSION'S REGULATORY PROCESS HAVE**  
24 **YOU OBSERVED?**

25 A. I believe there are two categories of misunderstandings or misrepresentations that should  
26 be addressed. First, the intervenors have either misunderstood or misrepresented the

1 transaction before the Commission—namely, the sale of Western Water stock to Liberty.  
2 On this point, the City has advocated for public ownership of Mountain Water, despite  
3 the fact there is no public ownership option before the Commission in this proceeding.  
4 The City has also raised the possibility of future rate increases as a potential harm to  
5 consumers, despite the fact that no rate case has been requested in this proceeding.  
6 Additionally, the MCC raised issues regarding capital structure, ignoring the fact that the  
7 organizational structure of Park Water and financing for Mountain Water will not change  
8 due to the sale and transfer of Western Water stock.

9 Second, the intervenors have either misunderstood or misrepresented the  
10 Commission’s regulatory process. Specifically, the City ignores the Commission’s long  
11 history of regulating Mountain Water’s rates, and the well-developed policies and  
12 practices for ensuring appropriate regulatory oversight for privately-owned water utilities  
13 in Montana.

14 **Q. PLEASE EXPLAIN WHY THE CITY’S ARGUMENTS REGARDING PUBLIC**  
15 **OWNERSHIP ARE MISPLACED.**

16 A. The City has clearly used this proceeding as an opportunity to continue advocating for  
17 public ownership of Mountain Water’s water system.<sup>12</sup> The City advances its  
18 condemnation agenda here, despite the fact the City plainly recognizes that the  
19 Commission does not have the authority to require Mountain Water to become a  
20 municipal utility, or to even “consider the benefits of private ownership compared to  
21 public ownership.”<sup>13</sup> Accordingly, even the City recognizes that its arguments in favor of

---

<sup>12</sup> See e.g., Direct Testimony of Craig Close, page 14 through page 19; Direct Testimony of David Hayward, page 4, lines 16-17.

<sup>13</sup> City’s Response/Objection to MW/WWH-002.

1 public ownership are misplaced and irrelevant to evaluating the sale of Western Water  
2 stock to Liberty. There simply is no public ownership option before the Commission in  
3 this proceeding.

4 **Q. DOES THE CITY RAISE OTHER ISSUES THAT ARE NOT PROPERLY**  
5 **BEFORE THE COMMISSION IN THIS CASE?**

6 A. Yes. In addition to advocating for public ownership, the City also raises the prospect of  
7 future rate cases as a reason to deny the sale and transfer of Western Water stock to  
8 Liberty. However, as the joint applicants have made abundantly clear, there is no rate  
9 increase being requested in this proceeding, and the Commission has the authority to  
10 approve, deny, or modify any future increases in rates. If the Commission accepted the  
11 City's advocacy for more capital investment, that would create a need for more frequent  
12 rate cases in the future while Mountain Water remains privately-owned, but even those  
13 issues would be raised in *future* proceedings *not this* proceeding. But, even the City  
14 recognizes rates will not increase as a result of the sale and transfer of Western Water  
15 stock alone.<sup>14</sup>

16 **Q. YOU MENTIONED THAT THE CITY'S FINANCIAL MODEL PROVIDES**  
17 **INFORMATION AS TO CAPITAL SPEND UNDER PRIVATE AND PUBLIC**  
18 **OWNERSHIP. IN YOUR REVIEW OF THAT INFORMATION DO YOU HAVE**  
19 **ANY ADDITIONAL OBSERVATIONS?**

20 A. Yes. The financial model was developed by Mr. Close for use in the City's  
21 condemnation proceedings. Notably, although Mr. Close presents HDR's modeling of  
22 "four different modeling scenarios, including three private ownership options and one  
23 city (public) option,"<sup>15</sup> two of the "private ownership" scenarios reflect an acquisition

---

<sup>14</sup> City's Responses to MW/WWH-043 and MW/WWH-089.

<sup>15</sup> Direct Testimony of Craig Close, page 14, lines 16-18

1 premium in rate base.<sup>16</sup> However, Liberty has consistently and repeatedly stated that it  
2 *will not* seek to recover an acquisition premium or rate base adjustment to recover the  
3 purchase price through rates.<sup>17</sup> Thus, as it relates to the transaction before the  
4 Commission, the analysis in Mr. Close's testimony really provides two different  
5 scenarios (public ownership versus private ownership), and is not a comparison of the  
6 current or proposed private ownership of Western Water.

7 **Q. WHAT OTHER OBSERVATIONS DO YOU HAVE FROM REVIEWING THE**  
8 **CITY'S FINANCIAL MODEL?**

9 A. There are numerous errors in the calculations and assumptions relating to how rates  
10 would be set in Montana under Commission regulation. One that I will point out is the  
11 way Mr. Close amortizes the hypothetical acquisition adjustment to rate base.

12 Instead of including the full acquisition adjustment in rate base and then  
13 amortizing it out of rate base over an amortization period, Mr. Close amortizes the  
14 acquisition adjustment into rate base over an amortization period. This has the effect of  
15 eventually getting the full acquisition adjustment added onto the rate base and then  
16 earning return on that adjustment indefinitely. Although there is no acquisition  
17 adjustment being proposed in this transaction, Mr. Close's methodology in his  
18 calculations is completely backwards for how an acquisition adjustment would be made.

19 In addition to the errors in assumptions and calculations under private ownership,  
20 Mr. Close's comparison between the private and public scenarios are designed such that  
21 the public scenario always wins. First of all, the private scenario assumes an acquisition

---

<sup>16</sup> Direct Testimony of Craig Close, page 17, lines 12-20.

<sup>17</sup> "As stated in its application, Liberty Utilities will not seek an acquisition adjustment or rate base adjustment to cover or reflect the purchase price in water rates." Direct Testimony of David Pasioka, page 5, lines 8-10.

1 cost of \$100 million while the public scenario assumes an acquisition cost of only \$50  
2 million. Also, the public scenario has payroll and benefits for Mountain Water's  
3 employees reduced by over 30% as compared to the private scenario. This assumption  
4 creates savings of more than \$1.5 million per year under public ownership. The public  
5 scenario also has a reduction in property taxes which is a savings of \$1.5 million per year.  
6 And the public scenario shows savings of over \$600,000 per year by assuming the City  
7 does not pay developers back for their advances.

8 **Q. DO THE SAVINGS MR. CLOSE SHOWS UNDER THE PUBLIC SCENARIO**  
9 **AFFECT THE OVERALL RATE INCREASES HE COMPUTES FOR THE**  
10 **PUBLIC SCENARIO?**

11 A. Absolutely. The rates for water service for the public scenario do not have to increase to  
12 the same degree as the private scenarios, given more than \$3.6 million per year in his  
13 annual savings assumptions under the public scenario. However, this savings is due to  
14 the City financing its acquisition on the backs of the Mountain Water employees,  
15 Missoula taxpayers, and Missoula's developers.

16 **Q. PLEASE EXPLAIN HOW THE EMPLOYEES, TAXPAYERS, AND**  
17 **DEVELOPERS ARE FINANCING THE CITY'S ACQUISITION?**

18 A. Under the public scenario, the employees will receive \$1.5 million dollars per year less  
19 than what they receive under all the private scenarios. Also, Missoula county taxpayers  
20 will have to make up \$1.5 million worth of tax dollars paid by the private utility every  
21 year, which will no longer be paid under public ownership. And furthermore, under City  
22 ownership the developers will no longer receive refunds on facilities they have paid to  
23 have installed under Commission-approved tariffs. By having the employees, taxpayers,

1 and developers no longer receive funds from the water system, the City is using those  
2 additional savings to cover its costs to acquire the system.

3 **Q. DIDN'T THE CITY COMMIT TO PAYMENTS IN LIEU OF PROPERTY TAXES**  
4 **AS WELL AS MAINTAINING EMPLOYEES WAGES AND BENEFITS?**

5 A. There was testimony in the condemnation proceeding stating the City may provide  
6 payments in lieu of taxes in a declining amount over a five year period. However, the  
7 projections of the City's own expert, Mr. Close, shows they have no intention of making  
8 such payments as no such costs were included in his projections. Also, through  
9 testimony in the condemnation case the City made it clear they *would not* maintain wages  
10 and benefits. Mr. Close's financial projections show to what extent they will cut total  
11 payroll costs.

12 **Q. WHY DIDN'T THE CONDEMNATION COURT TAKE THE HARM TO**  
13 **EMPLOYEES, TAXPAYERS AND DEVELOPERS INTO CONSIDERATION?**

14 A. This financial report created by Mr. Close was for rebuttal testimony of Mountain  
15 Water's valuation experts. The City objected to and the court upheld not allowing  
16 valuation testimony into the court, so as a result no testimony was allowed on financial  
17 impacts to employees, taxpayers, ratepayers, or developers based on the City's potential  
18 acquisition costs. Mr. Close's financial projections were never introduced into evidence  
19 in the condemnation trial the way he has put them into evidence here. Mountain Water  
20 and the employees are appealing this to the Supreme Court.

21 **Q. YOU STATE THAT THE CITY'S PUBLIC OWNERSHIP ARGUMENTS ARE**  
22 **MISPLACED, SO WHY SHOULD THE COMMISSION CONSIDER FINANCIAL**  
23 **RAMIFICATIONS TO EMPLOYEES, TAXPAYERS, AND DEVELOPERS?**

1 A. It is important for the Commission to understand that, under the proposed Liberty  
2 transaction, the ratepayers are not going to see their rates increase as a result of the sale of  
3 Western Water and there will not be a negative impact to the employees, taxpayers, or  
4 developers.

5 **Q. WHAT ISSUE DOES THE MCC RAISE THAT DEMONSTRATES A**  
6 **MISUNDERSTANDING OF THE TRANSACTION BEFORE THE**  
7 **COMMISSION?**

8 A. Dr. Wilson argues that there will be substantial cost savings as a result of the terms of  
9 Liberty's financing for the acquisition of Western Water stock. This argument ignores  
10 the fact that the stock in Mountain Water's and Park Water's parent company (Western  
11 Water) is being sold, which has no impact on the existing financing for Mountain Water's  
12 utility operations. This issue is explained further by Mr. Jordan.

13 **Q. AND HOW HAS THE CITY MISUNDERSTOOD OR MISREPRESENTED THE**  
14 **COMMISSION'S REGULATORY PROCESS?**

15 A. This issue stems from Mr. Hayward's testimony, where he essentially argues that the  
16 Commission is unable to effectively regulate Mountain Water.

17 **Q. DO YOU DISAGREE WITH MR. HAYWARD'S POSITION THAT THE**  
18 **COMMISSION'S RESOURCES, POLICIES, AND PRACTICES ARE**  
19 **INADEQUATE TO EFFECTIVELY REGULATE MOUNTAIN WATER AS A**  
20 **PRIVATELY-OWNED UTILITY?**

21 A. I absolutely disagree. As an initial matter, it is important to note that Mr. Hayward  
22 believes that the Commission's resources, policies, and practices are inadequate for the  
23 Commission to effectively regulate Mountain Water "under the current or proposed  
24 ownership structure...."<sup>18</sup> In other words, Mr. Hayward's testimony is not specifically  
25 related to the sale of Western Water stock to Liberty, but instead falls into the City's

---

<sup>18</sup> Direct Testimony of David Hayward, page 19, lines 15-17.

1 overall argument that public ownership of Mountain Water is preferable to continued  
2 private ownership. As I noted above, the City agrees that public ownership is not at issue  
3 in this proceeding.

4 However, Mr. Hayward's testimony also demonstrates a lack of experience with  
5 the Commission's regulatory process. The Commission has a long history of regulating  
6 Mountain Water's rates and ensuring that our customers receive adequate service at just  
7 and reasonable rates. This history also shows how the Commission has proven that it is  
8 qualified to continue regulating all privately-owned public utilities in Montana, including  
9 water utilities. The Commission's regulatory expertise extends to evaluating changes in  
10 upstream ownership for utilities, which the Commission has reviewed under its implicit  
11 authority.

12 **Q. ARE THERE ANY EXAMPLES THAT MR. HAYWARD USES TO**  
13 **DEMONSTRATE THE COMMISSION'S INADEQUACIES THAT ACTUALLY**  
14 **SHOW MR. HAYWARD'S INEXPERIENCE WITH THE COMMISSION'S**  
15 **PROCESS?**

16 A. Yes. First, Mr. Hayward claims that when Carlyle acquired Park Water, one of the  
17 expected benefits was "a lower cost of capital."<sup>19</sup> However, as Mr. Jordan will explain,  
18 this was not one of the benefits that the Commission identified when Carlyle's  
19 acquisition was approved. In fact, this issue was raised by the MCC, and rejected by the  
20 Commission, in Mountain Water's last rate case.

21 Second, Mr. Hayward claims that the Commission's annual reports fail to provide  
22 an appropriate level of transparency into Mountain Water's operations, and suggests that  
23 reporting requirements similar to those required by the Securities and Exchange

---

<sup>19</sup> Direct Testimony of David Hayward, page 21, lines 5-7.

1 Commission should be required instead. Setting aside the fact that this is not a  
2 rulemaking proceeding and the Commission's annual reports are wholly unrelated to the  
3 sale of Western Water stock, Mr. Hayward's position ignores the purpose of the annual  
4 reports. As the Commission recognized earlier in 2015, one of the purposes of the annual  
5 reports is to provide information regarding whether a utility's expenses are increasing or  
6 decreasing "*after a rate case.*"<sup>20</sup> Consistent with this approach, more transparency into  
7 Mountain Water's cost of service (including expenses) is provided through rate cases,  
8 where rate increases are actually at issue.

9 For the City to provide this type of testimony attacking financial reporting  
10 through their expert is completely disingenuous. The City is in violation of its own  
11 Financial Management Policy for reporting its finances of all of its operations. Per  
12 Resolution 7914 they are to prepare monthly reports showing their actual revenues and  
13 expenditures compared to their budget, and then post this information to the City's  
14 website. As of the preparation of this testimony, the City has yet to post any monthly  
15 financials since May of this year.

16 Finally, Mr. Hayward argues that water is so unique that it should not be privately  
17 owned.<sup>21</sup> Once again, Mr. Hayward's testimony regarding the special characteristics of  
18 water ignores the fact that public ownership is not at issue in this proceeding. Mr.  
19 Hayward also neglects to recognize that the Commission does not regulate the water  
20 rights in Montana, but instead water rights are tightly regulated by the DNRC. In fact, all  
21 water within the borders of Montana is "the property of the state for the use of its

---

<sup>20</sup> Docket No. N2014.2.21, Order No. 7385b at ¶ 26.

<sup>21</sup> Direct Testimony of David Hayward, page 33, lines 14-15.

1 people.”<sup>22</sup> Furthermore, Mr. Hayward’s testimony fails to recognize that Montana law  
2 treats privately-owned water companies as public utilities, just like gas or electric  
3 utilities.<sup>23</sup> And despite recognizing the special characteristics of water, Mr. Hayward  
4 does not claim that Mountain Water failed to provide adequate water service while being  
5 regulated by the Commission.

6 **VI. CONCLUSION**

7 **Q. DO YOU BELIEVE THE INTERVENORS HAVE RAISED ANY LEGITIMATE**  
8 **REASON FOR THE COMMISSION TO REJECT THE SALE AND TRANSFER**  
9 **OF WESTERN WATER STOCK TO LIBERTY?**

10 A. No, I do not. The intervenors have not shown that Mountain Water’s customers will be  
11 harmed in any way if Western Water stock is sold and transferred to Liberty. Rates will  
12 remain the same following the sale of Western Water stock, and will only increase as  
13 authorized by the Commission in the future. We will continue to improve our water  
14 system while being mindful of the impact on our rates. We will continue to employ a  
15 committed, dedicated, and knowledgeable workforce, the same one that currently has  
16 over 600 years of combined service at Mountain Water. We will continue to be a  
17 taxpaying entity contributing to the governmental needs throughout Missoula county.  
18 We will continue to refund past advances to developers. Our customers will continue to  
19 receive the same safe, reliable, and adequate water service after Liberty acquires Western  
20 Water stock that they are receiving today.

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

22 A. Yes.

---

<sup>22</sup> See Mont. Const. Art. IX, Section 3(3).

<sup>23</sup> See Mont. Code. Ann. § 69-3-101.

Rebuttal Testimony of

John Kappes

**Exhibit JK-1**

<Craig.Close@hdrinc.com<mailto:Craig.Close@hdrinc.com>> wrote:

>>

>> Tasha - What is the status of getting the pieces of pipe shipped to our Claremont CA lab?

>>

>> Craig A. Close, PE, BCEE

>> Senior Vice President

>> Director - Utility Management Services HDR

>> 8690 Balboa Avenue, Suite 200

>> San Diego, CA 92123-1502

>> M 858.712.8400 C 858.740.1032

>> Craig.Close@hdrinc.com<mailto:Craig.Close@hdrinc.com>

>>

>> [hdrinc.com/follow-us](http://hdrinc.com/follow-us)<<http://hdrinc.com/follow-us>>

>>

---

**From:** Akhoondan, Mersedeh  
**To:** Pena, Jose  
**CC:** Bell, Graham  
**Sent:** 12/19/2014 9:31:15 AM  
**Subject:** RE: MWC Hilda Pipe-question and brainstorming

Thanks Jose for detailed information.

I will add these details while waiting for Kathryn to get back to us in regards to Dr. Bell's questions. Dr. Bell also verified that the samples are in pretty good condition and the leaks could be the result of joint failure. I have sent you the draft report in current stage few min ago. So If you have time to take a look and give me any feedback, it would be great. (I will revise the thickness information per your email below).

Thanks

**Mersedeh Akhoondan**, PhD  
*Corrosion EIT*

**HDR**  
8690 Balboa Avenue, Suite 200  
San Diego, CA 92123-1502  
D 858.712.8309 M 909.303.0641  
mersedeh.akhoondan@hdrinc.com

HDR | SCHIFF

---

**From:** Pena, Jose  
**Sent:** Friday, December 19, 2014 9:25 AM  
**To:** Akhoondan, Mersedeh  
**Cc:** Bell, Graham  
**Subject:** RE: MWC Hilda Pipe-question and brainstorming

Good morning Mersedeh,

Late last night I copied a few more photos of all three samples after more careful analysis of their respective outer and inner surfaces. I saved on in the same folders but under yesterday's date. Let me know if you have any trouble finding them.

Per our discussion at the end of the day yesterday, the North and West pipe samples do not show any signs of metal loss. As for the South pipe sample, there is a small amount of uniform corrosion and pitting in some areas but overall the pipe is in good condition.

The average wall thickness of the South sample ranged from 0.25 to 0.27 inches when measured with a caliper and a UT gauge. To answer your question below, the North side did have a thinner average wall thickness of 0.22 to 0.23 but this is probably the due to the process used to make these pipes back in the 1920s but not due to corrosion.

Although pitting is visible up to an approximate depth of 0.09 inches, more than 50% of the pipe wall is still in good condition. Please keep in mind that this is an evaluation of a small area in a 2 foot section of a 15 mile pipeline.

Let me know if you have any questions about the new photos or if you would like to discuss this further.

**Jose Peña**  
D 909.962.5476 M 323.356.1933

[hdrinc.com/follow-us](http://hdrinc.com/follow-us)

---

**From:** Akhoondan, Mersedeh  
**Sent:** Thursday, December 18, 2014 1:10 PM

**To:** Pena, Jose  
**Cc:** Bell, Graham  
**Subject:** RE: MWC Hilda Pipe-question and brainstorming

Thanks Jose,

After reviewing the lab data I have a question for you and also wanted to point out how Craig Close wants us to spin the text. Knowing that, you may be able to highlight some photos or measurements to help me.

Questions:

I look at the wall thickness measurements. Based on our visual observations, the south side was most corroded; however, if you notice this sample has the largest wall thickness (assuming north and south with the same diameter had the same original thickness). This could be because you are measuring the corrosion built up on the surface which won't help. So maybe we should just present the measurements after pipe was cleaned. The fact that min thickness of south is also larger than the others, kind of bothers me (please see the draft at current stage). I am trying to indicate there is some chance of pitting corrosion- I explained why I need to say that.

Since this pipe is not a typical material, I still have to find a specified wall thickness to compare with your values. (I am scratching my head for that)

Craig's idea:

"HDR has already indicated to the City of Missoula, that all of this piping should be replaced over the next 10 years. The question we want to confirm by comparison to this sample is whether all of the 15 miles of Kalamein piping has already exceeded its expected useful life to support our recommendation and if the piping needs to be replaced even sooner. Based on the data received from MWC, all of the Kalamein pipe was installed in the 1910s or 1920s,"

Based on the similitude analysis that I have done the uniform corrosion rates is negligible. The soil is non-corrosive (very little chloride)- however I indicated that we only tested one soil sample. The pitting corrosion may have resulted in their significant leakage (see the introduction of report based on craig's email).

Please let me know what you think

I am still in process of inserting more photos and details.

Mersedeh

-----Original Message-----

From: Pena, Jose  
Sent: Thursday, December 18, 2014 9:52 AM  
To: Akhoondan, Mersedeh  
Cc: Bell, Graham  
Subject: RE: MWC Hilda Pipe-please advise

Mersedeh,

I have copied the initial inspection photos and wall thickness measurements for the Hilda pipe samples to your shared folder under the following folder: Missoula Project - Samples.

I will continue to work on them today by identifying, cleaning, and measuring any localized corrosion on all samples. Based on the initial inspection, only the Hilda South sample showed significant signs of corrosion and the other two samples didn't have any rusting or areas of metal loss but I will follow the same procedure as well.

Let me know if you have any questions.

Jose Peña  
D 909.962.5476 M 323.356.1933

[hdrinc.com/follow-us](http://hdrinc.com/follow-us)

-----Original Message-----

From: Akhoondan, Mersedeh  
Sent: Thursday, December 18, 2014 8:31 AM  
To: Bell, Graham  
Cc: Pena, Jose  
Subject: RE: MWC Hilda Pipe-please advise

Thanks Dr. Bell,

As soon as I receive the lab data, I will wrap it up and send it your way.  
Client agreed on original Monday deadline.

Thanks

Mersedeh Akhoondan, PhD  
Corrosion EIT

HDR  
8690 Balboa Avenue, Suite 200  
San Diego, CA 92123-1502  
D 858.712.8309 M 909.303.0641  
[mersedeh.akhoondan@hdrinc.com](mailto:mersedeh.akhoondan@hdrinc.com)  
HDR | SCHIFF

-----Original Message-----

From: Bell, Graham  
Sent: Thursday, December 18, 2014 7:12 AM  
To: Akhoondan, Mersedeh  
Cc: Pena, Jose  
Subject: Re: MWC Hilda Pipe-please advise

I will be in the office this afternoon to go over the findings. The report will be short and to the point.

Sent from my iPhone  
909-841-6729

> On Dec 17, 2014, at 12:22 PM, "Akhoondan, Mersedeh" <[Mersedeh.Akhoondan@hdrinc.com](mailto:Mersedeh.Akhoondan@hdrinc.com)> wrote:

>  
> Yes,  
> Thank you  
>  
> Mersedeh  
>  
>

> -----Original Message-----

> From: Bell, Graham  
> Sent: Wednesday, December 17, 2014 12:21 PM  
> To: Akhoondan, Mersedeh  
> Cc: Pena, Jose  
> Subject: RE: MWC Hilda Pipe-please advise

>  
> Stick to our original schedule. We have been delayed at every turn. Sometimes, you just have to say No and stick to it

>  
> -----Original Message-----

> From: Akhoondan, Mersedeh  
> Sent: Wednesday, December 17, 2014 11:55 AM  
> To: Bell, Graham  
> Cc: Pena, Jose  
> Subject: FW: MWC Hilda Pipe-please advise

>  
> Dr. Bell,

>  
> The client is making the deadline shorter and shorter (our set deadline was 22nd and we were going to submit our report to Kathryn on Friday); we just received the sample yesterday afternoon (Jose is working on ti). Kathryn just sent an email that the client wants the report this week!!!

> I don't mind staying after hours and finishing the report, but I am getting concerned about the quality (as this is a litigation project).

>  
> Please advise

>  
> Thanks

>  
> Mersedeh Akhoondan, PhD  
> Corrosion EIT

>  
> HDR  
> 8690 Balboa Avenue, Suite 200  
> San Diego, CA 92123-1502  
> D 858.712.8309 M 909.303.0641  
> [mersedeh.akhoondan@hdrinc.com](mailto:mersedeh.akhoondan@hdrinc.com)  
> HDR | SCHIFF

>  
>  
> -----Original Message-----

> From: Jones, Kathryn  
> Sent: Wednesday, December 17, 2014 11:46 AM  
> To: Akhoondan, Mersedeh  
> Subject: RE: MWC Hilda Pipe

>  
> Mersedeh,

>  
> Ok. I will assume that we will not complete the mechanical/chemical testing.

>  
> In a conversation we had with the client today, they stated that they want the report as soon as possible. They are requiring our reports by end of Friday, if possible. I can double-check with them on this report, as this is one piece of our submittal.

>  
> Call me to discuss further, if that's helpful.

>  
>  
> Kathryn Jones, PE, ENV SP  
> Project Manager  
> HDR  
> 701 Xenia Avenue South, Suite 600  
> Minneapolis, MN 55416  
> D 763.278.5917 C 763.276.6423  
> [kathryn.jones@hdrinc.com](mailto:kathryn.jones@hdrinc.com)  
> [hdrinc.com/follow-us](http://hdrinc.com/follow-us)

>  
>  
>  
> -kabby  
>  
> -----Original Message-----  
> From: Akhoondan, Mersedeh  
> Sent: Wednesday, December 17, 2014 1:22 PM  
> To: Jones, Kathryn  
> Cc: Pena, Jose; Bell, Graham  
> Subject: RE: MWC Hilda Pipe  
>  
> Kathryn,  
>  
> Given that we received the sample yesterday afternoon, we will likely won't have time to do the mechanical/chemical testing (a third party lab).  
> We are currently conducting our examinations, and trying our best to have the report ready for you by Friday CoB.  
>  
> Per your initial emails, I understood that you need the report from us by 19th and the actual deadline is on 22nd. Is this still the case?  
>  
> Thanks  
>  
>  
> Mersedeh Akhoondan, PhD  
> Corrosion EIT  
>  
> HDR  
> 8690 Balboa Avenue, Suite 200  
> San Diego, CA 92123-1502  
> D 858.712.8309 M 909.303.0641  
> [mersedeh.akhoondan@hdrinc.com](mailto:mersedeh.akhoondan@hdrinc.com)  
> HDR | SCHIFF  
>  
> -----Original Message-----  
> From: Jones, Kathryn  
> Sent: Wednesday, December 17, 2014 11:10 AM  
> To: Akhoondan, Mersedeh  
> Subject: RE: MWC Hilda Pipe  
>  
> Is it possible to do the mechanical/chemical analysis given the shortened timeframe? Is it critical to the results? The client requires our report this week, if that factors into the determination.  
>  
> -----Original Message-----  
> From: Akhoondan, Mersedeh  
> Sent: Monday, December 15, 2014 4:16 PM  
> To: Jones, Kathryn  
> Cc: Bell, Graham; Bell, Julie L  
> Subject: RE: MWC Hilda Pipe  
>  
> Hi Kathryn,  
>  
> \$25K is still an accurate estimate for soil/pipe analysis (including mechanical/chemical testing) and the TM.  
>  
> If we couldn't manage the mechanical/chemical testing within a day or two (due to our short deadline) then the estimated cost is about \$15K -\$17K .  
>  
> Thanks  
>  
>  
>  
> Mersedeh Akhoondan, PhD  
> Corrosion EIT

>  
> HDR  
> 8690 Balboa Avenue, Suite 200  
> San Diego, CA 92123-1502  
> D 858.712.8309 M 909.303.0641  
> [merseleh.akhoondan@hdrinc.com](mailto:merseleh.akhoondan@hdrinc.com)  
> HDR | SCHIFF

> -----Original Message-----

> From: Pena, Jose  
> Sent: Monday, December 15, 2014 11:15 AM  
> To: Jones, Kathryn  
> Cc: Akhoondan, Mersedeh; Bell, Graham; Bell, Julie L  
> Subject: RE: MWC Hilda Pipe

> Kathryn,

> Attached is the signed Protective Order form.

> Let me know if you need anything else.

> Regards,

> Jose Peña  
> D 909.962.5476 M 323.356.1933

> [hdrinc.com/follow-us](http://hdrinc.com/follow-us)

> -----Original Message-----

> From: Akhoondan, Mersedeh  
> Sent: Monday, December 15, 2014 11:00 AM  
> To: Pena, Jose; Bell, Julie L  
> Subject: FW: MWC Hilda Pipe  
> Importance: High

> Hi Jose/Julie,

> Please sign the Protective Order form for this project asap.

> Jose, you won't be able to conduct any measurements unless you submit this form to Kathryn (please see email below and attached).

> Jose, please also let me and Kathryn know as soon as the pipe arrives ( we should receive it today).

> I checking few things for mechanical testing and see if we can do it within our timeline ( I will be coordinating with you on that).

> Our deadline is this Friday 19th so I will be working in parallel with you to wrap up the report (so we need to set up a shared folder that I can access to your data as soon as you have them including any photos or measurements).

> Thanks

> Mersedeh Akhoondan, PhD  
> Corrosion EIT

> HDR  
> 8690 Balboa Avenue, Suite 200  
> San Diego, CA 92123-1502  
> D 858.712.8309 M 909.303.0641  
> [merseleh.akhoondan@hdrinc.com](mailto:merseleh.akhoondan@hdrinc.com)

> HDR | SCHIFF

>

>

> -----Original Message-----

> From: Bell, Graham

> Sent: Monday, December 15, 2014 10:40 AM

> To: Jones, Kathryn

> Cc: Akhoondan, Mersedeh; Close, Craig

> Subject: RE: MWC Hilda Pipe

>

> See below in All CAPS

>

> Graham Bell, PhD, PE

> (AK, AZ, CA, CO, NV, OH, OR, TN)

> Senior Vice President and Business Class Director HDR

> 431 West Baseline Road

> Claremont, CA 91711

> D 909.962.5466 M 909.841.6729

> [graham.bell@hdrinc.com](mailto:graham.bell@hdrinc.com)

> [hdrinc.com/follow-us](http://hdrinc.com/follow-us)

>

> -----Original Message-----

> From: Jones, Kathryn

> Sent: Monday, December 15, 2014 10:24 AM

> To: Bell, Graham

> Cc: Akhoondan, Mersedeh; Close, Craig

> Subject: RE: MWC Hilda Pipe

>

> Dr. Bell,

>

> I spoke earlier with Mersedeh regarding the analysis for the Kalamein Pipe sample from Hilda Avenue in Missoula, Montana for the Expert Witness Contract (HDR project number 839560).

>

> A few issues and requests related to the analysis:

>

> 1. We need all HDR staff to read and sign the Protective Order before working on the project. We have signed documents from Akhoondan, Clark, G. Bell, and Keegan. Please have any other staff complete the protective order requirements (Pena, J. Bell). Let me know if you need a copy. PENA and J BELL WILL NEED TO SIGN TOO. PLEASE CONTACT THEM DIRECTLY REGARDING THIS.

>

> 2. Please send me a verification when the pipe sample is received. My understanding is that it should be delivered to the lab in Claremont today. MERSEDEH WILL TAKE CARE OF THIS

>

> 3. We are amending our contract to include this analysis in the scope. It appears from previous correspondence (see below) that an estimate of \$25k has been proposed, including soil sample analysis, pipe analysis and destructive/mechanical pipe testing. Is this still an appropriate estimate? Please verify or provide an updated estimate. MERSEDEH WILL HANDL THIS

>

> 4. We need to deliver a fully QC'd report on the analysis to the client no later than Monday 12/21. Is it possible to complete the laboratory analysis and reporting required to meet the schedule? YES, DESPITE THE DELAYS IN RECEIVING THE SAMPLE, WE ARE PLANNING TO COMPLETE ON THIS SCHEDULE.

>

> Thank you for your prompt reply.

>

> -kabby

>

>

> Kathryn Jones, PE, ENV SP

> Project Manager

> HDR

> 701 Xenia Avenue South, Suite 600

> Minneapolis, MN 55416

> D 763.278.5917 C 763.276.6423

>

> [hdrinc.com/follow-us](http://hdrinc.com/follow-us)

>  
>  
>

> -----Original Message-----

> From: Bell, Graham  
> Sent: Thursday, November 13, 2014 7:39 PM  
> To: Close, Craig  
> Cc: Jones, Kathryn; Bell, Julie L; Clark, Brien  
> Subject: Re: MWC Hilda Pipe

>  
>

> Yes  
> Sent from my iPhone  
> 909-841-6729

>> On Nov 13, 2014, at 6:20 PM, "Close, Craig" <[Craig.Close@hdrinc.com](mailto:Craig.Close@hdrinc.com)> wrote:  
>>

>> FYI - Indicated to the City that the estimated fee for doing this work is \$10k-\$15k for doing the pipe corrosion inspection and soil analysis and that the destructive testing, if needed, would be an additional \$10k. Are these estimates correct?

>>

>> Craig A. Close, PE, BCEE  
>> Senior Vice President  
>> Director - Utility Management Services HDR  
>> 8690 Balboa Avenue, Suite 200  
>> San Diego, CA 92123-1502  
>> M 858.712.8400 C 858.740.1032  
>> [Craig.Close@hdrinc.com](mailto:Craig.Close@hdrinc.com)

>>

>> [hdrinc.com/follow-us](http://hdrinc.com/follow-us)

>>

>> -----Original Message-----

>> From: Tasha Jones [<mailto:npjones@boonekarlberg.com>]  
>> Sent: Monday, November 10, 2014 7:13 PM  
>> To: Close, Craig  
>> Subject: Re: MWC Hilda Pipe

>>

>> On hold till the court rules.

>>

>> Sent from my iPhone

>>

>> On Nov 10, 2014, at 5:34 PM, "Close, Craig" <[Craig.Close@hdrinc.com](mailto:Craig.Close@hdrinc.com)<<mailto:Craig.Close@hdrinc.com>>> wrote:

>>

>> Tasha - What is the status of getting the pieces of pipe shipped to our Claremont CA lab?

>>

>> Craig A. Close, PE, BCEE  
>> Senior Vice President  
>> Director - Utility Management Services HDR  
>> 8690 Balboa Avenue, Suite 200  
>> San Diego, CA 92123-1502  
>> M 858.712.8400 C 858.740.1032  
>> [Craig.Close@hdrinc.com](mailto:Craig.Close@hdrinc.com)<<mailto:Craig.Close@hdrinc.com>>

>>

>> [hdrinc.com/follow-us](http://hdrinc.com/follow-us)<<http://hdrinc.com/follow-us>>

>>

Rebuttal Testimony of

John Kappes

Exhibit JK-2

Once data have been entered into the Reporting Worksheet, the performance indicators are automatically calculated. How does a water utility operator know how well his or her system is performing? The AWWA Water Loss Control Committee provided the following table to assist water utilities in gauging an approximate Infrastructure Leakage Index (ILI) that is appropriate for their water system and local conditions. The lower the amount of leakage and real losses that exist in the system, then the lower the ILI value will be.

**Note:** this table offers an approximate guideline for leakage reduction target-setting. The best means of setting such targets include performing an economic assessment of various loss control methods. However, this table is useful if such an assessment is not possible.

**General Guidelines for Setting a Target ILI  
(without doing a full economic analysis of leakage control options)**

Target ILI Range	Financial Considerations	Operational Considerations	Water Resources Considerations
<b>1.0 - 3.0</b>	Water resources are costly to develop or purchase; ability to increase revenues via water rates is greatly limited because of regulation or low ratepayer affordability.	Operating with system leakage above this level would require expansion of existing infrastructure and/or additional water resources to meet the demand.	Available resources are greatly limited and are very difficult and/or environmentally unsound to develop.
<b>&gt;3.0 -5.0</b>	Water resources can be developed or purchased at reasonable expense; periodic water rate increases can be feasibly imposed and are tolerated by the customer population.	Existing water supply infrastructure capability is sufficient to meet long-term demand as long as reasonable leakage management controls are in place.	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
<b>&gt;5.0 - 8.0</b>	Cost to purchase or obtain/treat water is low, as are rates charged to customers.	Superior reliability, capacity and integrity of the water supply infrastructure make it relatively immune to supply shortages.	Water resources are plentiful, reliable, and easily extracted.
<b>Greater than 8.0</b>	Although 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.		
<b>Less than 1.0</b>	If the calculated Infrastructure Leakage Index (ILI) value for your system is 1.0 or less, two possibilities exist. a) you are maintaining your leakage at low levels in a class with the top worldwide performers in leakage control. b) A portion of your data may be flawed, causing your losses to be greatly understated. This is likely if you calculate a low ILI value but do not employ extensive leakage control practices in your operations. In such cases it is beneficial to validate the data by performing field measurements to confirm the accuracy of production and customer meters, or to identify any other potential sources of error in the data.		

Rebuttal Testimony of

John Kappes

Exhibit JK-3



## Best Practice in Water Loss Control: Improved Concepts for 21st Century Water Management

In 2003 the American Water Works Association (AWWA) adopted improved best practice methods for defining and measuring water loss in water distribution systems. This transition into a new era of effective water management marked a departure from previous terms and practices no longer useful to the industry. The following explains this departure from obsolete practices and articulates key points and best practices in water loss control today.

### Improved Terminology: Non-revenue Water

In 2003 AWWA abandoned use of the term “unaccounted-for” water (UFW) because all volumes of water supplied within a distribution system go toward either beneficial consumption or wasteful loss. *All water sent into the distribution system can be accounted for.* Today, the industry term favored by AWWA and its Water Loss Control Committee when quantifying water loss is “non-revenue” water (NRW).

**NRW is specifically defined to include the sum of specific types of water loss and any authorized, unbilled consumption that occurs within water distribution systems.**

### Enhanced Performance Indicators to Measure Progress

Although percentage indicators—typically the ratio of authorized customer consumption to distribution system input—still exist in the industry, AWWA discourages use of percentage indicators, such as the “unaccounted-for” water percentage. Using percentage indicators to assess water loss in distribution systems gives a misleading and unreliable measure of utility performance because a percentage indicator

- › is greatly affected by changing levels of customer consumption
- › cannot distinguish among the specific components of non-revenue water occurring in a distribution system
- › reveals nothing about water volumes and associated costs (the two most important factors in assessing water waste within a distribution system).

Today, the industry best practice for water loss auditing created by the International Water Association (IWA) and AWWA now quantifies several key performance indicators, which provide vastly superior means for assessing water loss performance in distribution systems, while recognizing that contributing factors and potential corrective measures are specific to each water utility.



**American Water Works  
Association**

*Dedicated to the World's Most Important Resource™*

The following table provides a guide to the most up-to-date industry best practices and water loss control terminology.

Editorial Guide for Use of Up-to-Date Water Loss Control Terminology		
INCORRECT	CORRECT	WHY
Unaccounted-for water (UFW)	Non-revenue water (NRW)	All water entering a distribution system can be defined as a component of either authorized consumption or water loss
% of system input volume to measure water loss performance	Suite of key performance indicators for water loss as outlined in IWA/AWWA audit method (As an example: gal/service connection/day)	A %-based expression obscures the underlying causes of water loss and impedes realistic solutions based on system specifics

It is important to understand that all water utility distribution systems incur leakage (real losses). Similarly, all water utilities fail to recover revenue from all of the water that is (or should be) billed to customers (apparent losses). Although every system is unique, all water utilities should employ leakage control and revenue recovery programs that strive to keep losses contained to appropriate, economically justified levels. AWWA's Manual: *Water Audits and Loss Control Programs* (M36) and the [AWWA FREE Water Audit Software](#) provide a robust pathway for utilities to develop data-driven programs to cost-effectively manage all water loss components (apparent and real) in distribution systems, as shown below in the IWA/AWWA Water Balance.

The IWA/AWWA Water Balance						
Volume From Own Sources (corrected for known errors)	System Input Volume	Water Exported (corrected for known errors)	Billed Water Exported			Revenue Water
		Water Supplied	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption	Revenue Water
Water Losses	Real Losses			Unbilled Authorized Consumption	Billed Unmetered Consumption	
		Real Losses	Real Losses	Apparent Losses	Unbilled Metered Consumption	Non-revenue Water
Real Losses	Real Losses			Unauthorized Consumption		
				Real Losses	Real Losses	
Real Losses	Real Losses	Leakage on Transmission and Distribution Mains				
		Real Losses	Real Losses	Leakage and Overflows at Utility's Storage Tanks		
Real Losses	Real Losses			Leakage on Service Connections up to the Point of Customer Metering		

NOTE: All data in volume for the period of reference, typically one year.

Rebuttal Testimony of

John Kappes

Exhibit JK-4

# Water Audits and Loss Control Programs

---

**AWWA MANUAL M36**  
*Third Edition*



**American Water Works  
Association**

or all of, their service connection piping. Such policies have been found to be inefficient leakage control mechanisms because many customers respond slowly in arranging for such repairs. Water utilities that conduct repairs on customer service connections or have programs to handle repairs can keep repair time at a reasonable level, perhaps on the order of several days. For those systems that rely on customer arranged repairs, the repair time can extend for weeks or months, with the unwanted consequence of mounting volumes of leakage losses, even after leaks have been identified and pinpointed.

Efficient computer spreadsheet models have been developed by various consultants to model the leakage components occurring in water utilities and provide data to the water audit. Information can be input regarding whether or not the system operates a leak survey program; average repair times for different kinds of leaks, including customer service connection piping leaks; the number and types of leaks; and other information. From this analysis, predictions can be made to estimate the volume of leakage loss reduction that can be gained by refined ALR policies. Component analysis, discussed in greater detail in Chapter 5, is one of the powerful innovations developed to assist leakage management planning.

## A FURTHER WORD ON CUSTOMER SERVICE CONNECTION PIPING LEAKAGE

---

Worldwide, the majority of leakage events and the majority of leakage volume losses occur on customer service connection piping, not on the water main piping of the distribution system. Several reasons exist for this. Distribution system piping often tends to be relatively uniform in its materials, design, and construction. Customer service pipes and the connections to the distribution mains have many more fittings, threads, and pieces, which can fail and are often found to be much more variable in materials and installation practices. Different piping types have been employed over the years, from lead and galvanized iron in the past to copper and plastic pipes currently. Many service pipe materials, such as galvanized iron and polybutylene pipe, are prone to failure well before their water main material counterparts. Many utilities require work on distribution piping to be performed only by their personnel or a construction contractor selected and inspected by them. Conversely, they allow customers to hire independent contractors to install and repair service connection piping. The quality of materials and caliber of workmanship can become suspect in such arrangements as it is difficult to oversee the activities of a large number of independent contractors. Drinking water utilities can reduce the risk of customer service connection piping failures by establishing uniform quality standards for this piping, as well as sound installation and quality assurance procedures.

The primary factor for customer service connection piping leakage, however, is the type of repair policy employed by the water utility. It is common for many North American water utilities to require customers to not only own their service connection piping but to conduct repairs of leaks found on at least a portion of their pipes. During severe drought in the United Kingdom in 1995–1996, the government regulator imposed a precedent-setting requirement on several water companies that were in the throes of water shortages, requiring them to execute repairs on known private customer service piping leaks that were running continuously while awaiting repair by the customer. By implementing speedy repairs, the reduction in leakage losses was so dramatic that the regulator implemented a permanent requirement for all water companies in England and Wales to institute a policy for utility-implemented repairs of private service piping leaks. The result was to greatly reduce the run time of leaks that had already been detected and pinpointed. This major policy shift was notable by

the fact that, after an initial backlog of leaks was addressed, the rate of occurrence of new leaks was found to be manageable for the companies, demonstrating that a proactive approach actually saves water and money for the utility as compared to the more reactive approach of customer-implemented repairs.

## WATER PRESSURE AND LEAKAGE

---

Worldwide many drinking water utilities operate with pressures greatly exceeding that necessary to meet their service obligations to customers and communities. This has a cost in terms of lost water from elevated leakage rates, as well as higher energy demands to pump water to higher pressures. Moreover, water pressure levels often are not monitored closely by water utilities across the extent of their distribution systems.

It is logical that the level of water pressure has bearing on the amount of water escaping from a leak in a pressurized pipe. Simply put, the higher the pressure, the greater the rate of flow of water out of the leak. Yet, until relatively recently, pressure was not commonly analyzed for its effect on leakage in water distribution systems. The list of operational causes of leakage—excessive pressure, filling pipelines too rapidly, closing valves too rapidly, water hammer—are all associated with operating pressure, either directly or indirectly.<sup>4</sup>

Operating pressures not only have a major effect on the amount of water escaping from active leaks but also a surprisingly large influence on the rate of generation of new leaks. Water main break and service leak frequency increases rapidly when high pressure is encountered, either as pressure surges or when operated at continuous high pressure. Operating the distribution system at a steady level of pressure sufficient to sustain the desired level of service to customers, but not at excessive levels, can garner savings from leakage reduction and results in less stress on distribution system infrastructure. A study by the International Water Association's Water Loss Task Force of 110 water systems from 10 countries showed significant reductions in numbers of leaks and breaks, as have two of the case studies detailed in Appendix D<sup>5</sup>. Reducing pressure also will result in less damage caused by the main break to adjacent property and infrastructure.

The FAVAD theory of *fixed and variable area discharge paths* was developed in 1994 and has greatly advanced the understanding of pressure-leakage relationships for water distribution systems.<sup>6</sup> Prior to this theory, it was assumed that the amount of leakage through a fixed hole in a pipe varied according to the square root power of the pressure, implying that a 10 percent change in pressure will produce only a 5 percent change in the velocity of water leaving the leak. The FAVAD theory takes into account the fact that certain types of leaks, such as holes in metal pipes, will follow this fixed path model and demonstrate the square root, or 0.5 power, relationship in the pressure-leakage calculation. Certain other types of leaks, however, follow variable leakage paths (e.g., cracks in plastic pipe, whereby the size of the crack also increases with pressure). The pressure-leakage relationship varies up to a power of 2.5 in such cases. Background leakage typically has a FAVAD exponent of 1.5. Many distribution systems have a variety of leakage types occurring, and it is now common to assume a power of 1.0 rather than 0.5 for most systems. Numerous field tests using the FAVAD theory since the mid-1990s have confirmed that the influence of pressure on the volume of leakage and frequency of new leaks is far greater than estimated previously. The exponent variable is referred to as the *N1 exponent*.

In recognizing this relationship and by developing a means to calculate it for individual distribution systems, *advanced pressure management* has become a distinct tool in the control of leakage losses. Particularly in addressing background losses that are, by definition, undetectable by traditional acoustic means, pressure management has