

IN RE: PROVIDENCE WATER SUPPLY BOARD
MULTI-YEAR RATE FILING – RATE YEAR 2
Docket No. 4994
Witness: Jason Mumm

**GREENVILLE WATER DISTRICT and LINCOLN WATER COMMISSION'S
PRE-FILED DIRECT TESTIMONY
OF
JASON MUMM**

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1 **I. Introduction**

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

3 A. My name is Jason Mumm, my business address is 1320 Pearl Street, Suite 120,
4 Boulder, Colorado 80302.

5 **Q. Who is your employer and how would you describe your position?**

6 A. I'm employed by Financial Consulting Solutions Group, Inc. (FCS GROUP) as a
7 Principal Consultant. FCS GROUP provides professional services for local
8 governments including significant expertise in developing rates for municipal
9 water utilities. FCS GROUP was founded in 1988 and is headquartered in
10 Redmond, Washington. We have offices in Redmond, Spokane, Lake Oswego,
11 and Boulder. I manage the operations of FCS GROUP's Boulder office and lead
12 multiple ongoing consulting engagements, primarily focused on water and
13 wastewater rates for local governments.

14 **Q. Please summarize your educational background and professional experience.**

15 A. I hold a Master of Business Administration from the University of Colorado as of
16 1997, and a Bachelor of Science in Finance from Colorado State University
17 earned in 1992. I was a commissioned officer in the US Army between 1992 and
18 1996 and began working in utility consulting roles starting in 1996 while I was
19 concurrently completing my MBA degree program. I've been employed in roles
20 focused on developing utility rates and charges continuously from 1996 to 2021,
21 most recently with FCS GROUP.

22 **Q. Have you previously testified in front of Rhode Island regulatory agencies on**

1 **rate related matters before?**

2 A. No. I have testified, however, in other regulatory settings, notably in Colorado,
3 Hawaii, and Nova Scotia. I have provided expert testimony in several court
4 proceedings that were not regulatory in nature.

5 **Q. Please describe your involvement in any relevant professional organizations.**

6 A. I've been a member of the American Water Works Association for 20-plus years.
7 I currently serve as the Chairman of the AWWA Rates and Charges Committee.

8

9 **II. Purpose of Testimony**

10 **Q. Please describe your role in this proceeding.**

11 A. I've been retained by legal counsel representing the cities of Lincoln and
12 Greenville to review the materials in the docket, request additional information if
13 needed, and to form my independent opinions concerning the filings by the
14 Providence Water Supply Board(Providence), especially materials related to
15 Providence's April 1, 2021 filing, referred to as the "new Cost of Service Study"
16 (New COSS).

17 **Q. Please describe the purpose of your testimony.**

18 A. My testimony describes how the New COSS results in inequitable allocations of
19 costs on both an interclass and intraclass basis. These inequities are caused by
20 inconsistent and sometimes irrational decisions in selecting the basis of allocation
21 for certain components of the system. Moreover, these inequities are contrary to
22 the Rhode Island Public Utility Commission's (the Commission) orders in this

1 Docket.

2 **Q. Could you summarize your conclusions?**

3 A. First, in dividing the wholesale class into seven separate customer classes,
4 Providence created a shift in costs from the retail and fire protection classes to the
5 group of seven wholesale customers, which I estimate at \$645,000. Second, by
6 disaggregating the transmission and distribution system (T&D system) by line
7 segment, Providence essentially allocated about a third of the test year revenue
8 requirements – the costs of the T&D system - using a totally different
9 measurement of peak demand than they used for the other two-thirds of the costs.
10 By aligning the peaking factors to those used to allocate costs of the T&D system,
11 I estimate a separate cost-shift of approximately \$1.4 million which would
12 increase the costs allocated to the retail and fire protection classes while
13 decreasing the costs to the wholesale group. The two instances of cost shifting
14 are not additive, however, because aligning the peaking factors in the latter
15 instance would eliminate the cost shifting from the former. In my opinion, the
16 Commission intended neither of these impacts and they could have been avoided.

17 **Q. Please explain how dividing the wholesale class into seven separate customer**
18 **classes resulted in a cost shift that you estimate at \$645,000.**

19 A. In its original rate filing of December 2019, Providence identified a maximum-
20 day peaking factor of 1.60 for the retail class, and 1.74 for the wholesale class.
21 Presumably, these values represented Providence's understanding of its system
22 peak demands. In the New COSS, those numbers were unchanged for the retail

1 class but increased to 1.86 for the wholesale class. The original filing showed a
2 maximum-hour peaking factor of 3.20 for the retail class and 2.16 for wholesale.
3 The New COSS shows the retail class unchanged and the wholesale class at 2.47.
4 The increase in wholesale peaking factors, all else being equal, means relatively
5 more system costs are allocated to the wholesale class in the New COSS than in
6 the original filing. In its response to questions about the increase in Greenville-
7 Lincoln data request 2-4, Providence states “the values are different because
8 Providence Water’s original filing included a peaking factor for wholesale
9 customers as one class based on daily demands of the group as a whole. The
10 NEW COSS includes a factor for each individual customer based on the daily
11 demands of that customer. If all wholesale customers peaked on the same day,
12 the total for the group would match...”. What this means is that each customer’s
13 demand is measured nonconcurrently with that of the system. When Providence
14 took the individual measurements and then added them together in the New
15 COSS, they arrived at a total noncoincident demand for the group that was higher
16 than in their initial filing. By substituting peaking factors from the New COSS
17 into Schedule-16a from Providence’s initial filing, I estimated that the increased
18 peaking factors resulted in approximately \$600,000 of additional costs to the
19 wholesale class and a corresponding decrease between the retail and fire
20 protection classes. That \$600,000 would have been applicable to the initial test
21 year in the filing, which had a revenue requirement of \$84.5 million. The revenue
22 requirement in the New COSS is \$90.9 million, an increase of approximately

1 7.6%. Assuming the same cost relationships as revised and no other changes, I
2 estimate the cost shift carried forward into the New COSS would have been
3 approximately \$645,000.

4 **Q. Is the cost shifting you identified a necessary result of implementing the**
5 **Commission’s order to disaggregate the wholesale class from one combined**
6 **class to seven separate ones?**

7 A. No. The use of noncoincidental peaks in the New COSS is curious considering the
8 results of the Pare analysis, which I will discuss later in my testimony, but even
9 without the Pare analysis Providence could have implemented the Commission’s
10 order without invoking the cost shifting I’ve identified.

11
12 Given the historical context where the wholesale class’ demands had been
13 measured in aggregate, and to avoid interclass cost shifting, Providence could
14 have done for the wholesale classes the same thing it had already done with
15 respect to its retail classes. For the retail classes, Providence measured all retail
16 peak and then apportioned it among the residential, commercial, and industrial
17 classes in a way that balanced the individual peaks with the total for the retail
18 group. In its initial filing and in the New COSS, Providence shows a maximum-
19 day retail peaking factor of 1.60 at Schedule HJS-16a resulting in a total
20 maximum-day of 55,353 HCF/day. The 55,353 HCF/day is then apportioned to
21 individual classes: 35,958 to residential, 18,644 to commercial, and 741 to
22 industrial. Individual class peaking factors are then calculated based on the

1 apportioned peak demands resulting in different peaking factors for each class.

2 Providence uses the same approach with respect to maximum-hour demand.

3

4 Despite using the above approach for its retail customers, Providence departs
5 from it with respect to the wholesale class. Instead, Providence simply summed
6 the nonconcurrent peaks and did not make any effort to balance the results with
7 the aggregate system peak demand. The result was a net increase in the implied
8 systemwide peak demand in the New COSS with 100 percent of the increase
9 attributed to wholesale customers.

10 **Q. Did the Commission intend for Providence to shift costs from its retail and**
11 **fire protection classes to the wholesale classes?**

12 A. No. My reading of the Commission’s order with respect to the disaggregation of
13 the wholesale class suggests the intention was to reallocate costs within the group
14 of wholesale customers to reflect each customer’s beneficial use of the system
15 more accurately.

16 **Q. Did Providence achieve the Commission’s intent with respect to reallocation**
17 **of costs within the wholesale classes?**

18 A. Costs within the group of seven wholesale customers are certainly reallocated
19 differently in the New COSS than in the initial filing. However, I think there are
20 serious questions about how Providence chose to perform those allocations.
21 Specifically, Providence’s approach in allocating wholesale costs introduces new
22 inequities on both an interclass and intraclass level, both of which appear to be

1 inconsistent with the Commission’s intent.

2 **Q. What are the interclass inequities you identified?**

3 A. First of all, I should explain that the term “inequity” in ratemaking refers to a
4 misallocation of costs rather than any other use of the term. A rate could be
5 considered “equitable” when it reflects a rational and consistent allocation of
6 system costs among the various classes of service. When costs are allocated
7 inconsistently or irrationally, one could describe the allocation as “inequitable.”
8 An interclass inequity is one where the allocation of costs between different
9 classes is in some way inconsistent or irrational. The allocation of costs in
10 Providence’s New COSS produces interclass inequities because it applies an
11 irrational approach using two totally different measures of peak demand that
12 contradict each other, and because their approach applies these measurements
13 inconsistently.

14
15 Subsequent to the Commission’s order from its December 2019 filing, Providence
16 conducted a detailed analysis of its T&D system using hydraulic modeling
17 performed by Pare Corporation. A key finding from that analysis was that the
18 usage of individual segments of pipelines could be quantified based in part on the
19 draw rates measured for each wholesale customer and the whole retail class. The
20 draw rate is individual demand measured concurrently with that of the system.
21 The Pare analysis results in very different peaking factors for each customer
22 compared to Providence's values at Schedule HJS-16a in the New COSS. I have

1 included Pare’s summary as Exhibit 1 attached to my testimony, and I’ve
2 summarized the relevant peaking factors as Exhibit 2.

3
4 Providence used two different peaking factors in the same cost-of-service study:
5 one to allocate the T&D costs and another to allocate all other costs. On the one
6 hand, Providence asserts that the “draw rate” used by Pare Corporation is more
7 precise. On the other hand, Providence uses the less precise values measured in a
8 totally different manner – using noncoincidental peaks – to allocate the remaining
9 approximately two-thirds of the system’s costs. I’ve included a direct comparison
10 of the peaking factors from the New COSS and the Pare analysis as Exhibit 3,
11 attached to my testimony. I estimate that a consistent application of Pare’s more
12 precise peaking factors for all allocations results in a reduction of approximately
13 \$1.4 million to the wholesale class and a corresponding increase in costs to the
14 retail and fire protection classes. The reason for the large swing in interclass
15 allocations is because the coincidental peaking factors resulting from the Pare
16 analysis are significantly lower in aggregate for wholesale customers and
17 significantly higher for retail with respect to maximum-day demands. With
18 respect to maximum-hour demands, the peaking factors are much lower for both
19 retail and wholesale customers, but retail customers have much higher peaking
20 factor relative to wholesale.

21
22 Providence’s decision to use coincidental peaks to allocate some costs and

1 noncoincidental to allocate others is both irrational and inconsistent. On the one
2 hand, choosing to measure demand using totally different measurements of peak
3 demand is irrational. Customers don't have two different demands in a given test
4 year. For example, Greenville's peaking factor from the Pare analysis suggests it
5 presents a maximum-daily demand peak factor of 1.61 while Providence lists its
6 noncoincident peak factor in HJS-16a as 2.01, a reduction of 20%. On the other
7 hand, the approach is also inconsistent because Providence chose to apply one
8 measure of demand to allocate parts of the system costs – the T&D system – and
9 another measure for allocating the rest of the costs.

10
11 Providence could address these issues by choosing one method of calculating
12 peak demand and then applying it the same way throughout the cost allocation
13 process, much like it had done in its original filing. However, it would have been
14 more appropriate for Providence to align all peaking factors with the Pare analysis
15 seeing as how Providence claimed in its May 4, 2021 presentation to the
16 Commission that "understanding how each customer draws its water through
17 Providence Water's pipe network allows us to be more precise in our analysis of
18 the pipe infrastructure that each customer utilizes." It would only make sense that
19 Providence would use what it believed was the more precise measurements than
20 any less precise ones. However, Providence chose to ignore the more precise
21 Pare analysis with respect to allocating anything other than the T&D system,
22 exempting approximately two-thirds of the system costs from the benefit Pare's

1 work. The reason for the disparity is not sufficiently explained, if at all.

2

3 Aligning the peaking factors to reflect the findings from the Pare analysis results
4 in an interclass cost-shift of approximately \$1.4 million. Specifically, the
5 wholesale class is allocated \$1.4 million less in that scenario with a corresponding
6 increase to the retail and fire protection classes. I made my estimate by replacing
7 the peaking factors in Schedule HJS-16a with the findings from the Pare analysis.
8 For the retail class, I apportioned the revised peak demands using the percentages
9 Providence had used already in its filing. I've provided a summary of my
10 substitutions in Exhibit 3; a summary of the cost-of-service outcomes are
11 provided at Exhibit 4.

12 **Q. Will you explain your opinions regarding the intraclass inequities you**
13 **identified?**

14 A. Yes. To recap, an intraclass inequity exists when the allocation of costs within a
15 class are in some way irrational or inconsistent leading to a misallocation of costs
16 favoring one member of the class over another. Interclass inequities concern the
17 allocation of costs between or among different classes, whereas intraclass
18 inequities relate to the allocation of costs within a single class. For the purposes
19 of my testimony, I am describing the intraclass inequities as those among the
20 different wholesale customers. Even though the New COSS describes each
21 wholesale customer as its own class, the fact that all of them were once combined
22 into a single class makes the allocations among them in the New COSS more of

1 an intraclass issue.

2

3 Separately from my findings regarding interclass cost-shifting, it seems worth
4 asking whether the Commission’s desire for greater equitability in the allocation
5 of system costs among wholesale customers is fulfilled with the New COSS. In
6 my opinion, there are reasons to believe it was not. An overly strict application of
7 the used-and-useful principle, as is the case with the “inch-mile” analysis,
8 constrains cost recovery only to the extent the hydraulic model can demonstrate a
9 customer’s use of individual segments of lines during normal operations. The
10 assumptions Pare made to simulate what they defined as the “normal operations”
11 were also problematic as described in the testimony of Dr. Ivor R. Ellul.
12 Moreover, there is no consideration given, at least none described in testimony
13 supporting the filing of the New COSS, for the inherent resiliency and
14 redundancy that such a complex system of pipelines provides not only to
15 individual customers but to all customers. In other words, the instant use of a
16 thing is often not the full extent of its usefulness: the benefits of the network
17 extend beyond its instantaneous use.

18

19 When parts of the network are down due to whatever circumstances, customers
20 can most often still receive water through the alternate paths that the network
21 provides and, as Dr. Ellul describes in his testimony, pipe networks work
22 dynamically by design. This network effect is why transmission and distribution

1 networks are most often functionalized in ratemaking as single assemblies of
2 assets with the costs shared by those customers who use those networks.
3 Nevertheless, it is sometimes important to recognize sub-functions of these
4 networks. For example, wholesale customers typically own and operate their own
5 distribution networks and it is customary and appropriate to exclude those costs
6 from the wholesale rates. In some cases, networks work only within certain
7 pressure zones, and it may be appropriate to separate the network into such zones
8 and allocate costs only to those customers within each zone. In any case, the use
9 of sub-functions to allocate the cost of a network of assets is sometimes
10 appropriate where the question of the sub-function's use and usefulness is
11 obvious. Otherwise, customers benefit in general from the network effects and
12 share together in the network costs. In summary, notwithstanding certain obvious
13 exceptions, customers are connected to a network and not to individual pipes
14 within it.

15
16 In Providence's case, Pare essentially created hundreds if not thousands of sub-
17 functions within the T&D system defined as individual segments of pipe. The
18 hydraulic model determines which customers use each segment, and they share in
19 its costs based on the draw rates Pare established as part of their analysis. That
20 analysis is based entirely on who uses each segment under normal conditions
21 assuming a steady rather than a dynamic state and does not include those
22 customers who benefit from the pipe segment even if they may not use it

1 normally. This in turn likely results in the costs of a given segment being shared
2 by fewer customers than it would have had Providence employed more customary
3 approaches. The disproportionate outcome is then multiplied by the number of
4 segments in Pare’s hydraulic model. The use of so many sub-functions – the
5 individual line segments - in the New COSS can only result in a misallocation of
6 the benefits of the network assets identified as “CTA – Transmission and
7 Distribution.” I was unable to estimate the individual impacts, however, owing to
8 the complexity involved in Pare’s work, but there is little chance that the costs
9 and benefits of the T&D system have not been misallocated among the wholesale
10 customers.

11 **Q. Without the inch-mile allocation, would Providence still be able to comply**
12 **with the Commission’s order regarding the allocation of the T&D system?**

13 A. The Commission’s order regarding the T&D system was that the New COSS
14 “must address these allocations with data that firmly supports the allocators
15 chosen.” Providence’s proposed solution to the question of supportable allocators
16 was the Pare analysis, resulting in the inch-mile allocation of the T&D system.
17 As I’ve stated earlier, the overly strict application of the used-and-useful principle
18 in the Pare analysis almost certainly misallocates the costs of the T&D network.
19 However, the Pare analysis was not the only solution proposed by Providence. To
20 address the allocation of pumping costs, Providence created a new cost-sharing
21 group called “High Service & Retail” with the direct and indirect costs of
22 pumping shared among those users in the group. It also created group called

1 “CTA – Supply, Treatment & Low Service” in order to distinguish these
2 “common-to-all” costs from the T&D system. Rather than allocate the T&D
3 network using the inch-mile analysis, Providence could have created cost-sharing
4 groups to recognize obvious used-and-useful characteristics in the same way it did
5 with the pumping and treatment components.

6
7 One relatively simple distinction relates to the difference between the
8 transmission and distribution functions of the pipe network. Providence could
9 have used the Pare analysis to identify those portions of the network used only to
10 distribute water to retail customers to create separate transmission and distribution
11 cost functions. From there, they could have created a cost-sharing group called
12 “CTA – Transmission” for the transmission functions while assigning the rest of
13 the network – the distribution function - to “Retail Only.” This would have been
14 similar to the method used in Providence’s initial filing where they separated the
15 two functions, the transmission function including all lines larger than 12-inches,
16 except the New COSS has the Pare analysis to support what Providence believed
17 to a more precise debarkation between the two networks. The network of lines
18 making up the transmission function would then have been easily allocated
19 among all customers based on their total demands rather than the inch-mile
20 analysis.

21
22 This approach of creating additional functional components and allocating costs

1 on the basis of demand characteristics with specific cost-sharing groups would
2 have resulted in all customers sharing in the costs of the transmission function
3 proportionately with their demands while recognizing that the transmission
4 system is indeed a network of lines that benefits all users connected to it. In my
5 opinion, using this approach would have substantially complied with the
6 Commission's orders without creating unintended inequities discussed previously
7 in my testimony.

8 **Q. The Commission's orders extended to five specific issues including the**
9 **allocations of T&D labor, the Central Operations Facility, Non-Revenue**
10 **Water, Pumping Costs, and Unidirectional Flushing. Your testimony has**
11 **included substantial comments about the T&D costs, but can you summarize**
12 **your opinions regarding the remaining issues?**

13 A. I mentioned Pumping costs earlier, citing it as an example of how Providence
14 separated the costs by functionalization and distributing them only to those
15 customers who can use the pumping systems. However, the allocation of costs
16 within the pumping function would suffer from using the less precise,
17 noncoincidental peaking factors I described earlier in my testimony. Substituting
18 the peaking factors from those in Pare's findings would have resulted in a
19 different outcome with relatively more costs allocated to retail customers. My
20 estimate of a shift of \$1.4 million as shown in Exhibit 4 includes the reallocation
21 of Pumping costs.

22

1 The allocation of Non-Revenue Water is intertwined with the inch-mile analysis
2 inasmuch as it uses the same data to determine the users of various line segments
3 and then allocates real losses and main flushing accordingly. Again, in my
4 opinion, the inch-mile analysis neglects the benefit of network effects and the
5 allocation of Non-Revenue Water suffers here for the same reasons I described
6 earlier with respect to the T&D system. If the benefits are ascribed to the network
7 rather than individual lengths of pipe and shared by all connected to the network,
8 then the losses in the network are also rightfully shared in the same manner.

9
10 The issue of Unidirectional Flushing is not specifically discussed in the testimony
11 of Harold Smith. It wasn't clear to me exactly how the issue was addressed based
12 on my review of the cost allocation model and in reading the testimony.

13 However, main flushing is mentioned prominently in the allocation of Non-
14 Revenue Water. If Unidirectional Flushing was addressed along with Non-
15 Revenue Water, then it too would contain the same weaknesses related to the use
16 of the inch-mile analysis.

17
18 Providence allocated the Central Operations Facility based on billing cycles,
19 which appears to be an appropriate approach with respect to the benefits the
20 facility provides – namely billing support. In my opinion, Providence has fulfilled
21 the Commission's order with respect to the COF.

22

1 **III. Conclusion**

2 **Q. Does this conclude your testimony?**

3 **A. Yes, it does.**

Exhibit 1 - Summary of Findings from Pare Analysis [1]

Testimony of Jason Murnm

Docket #4994

SUMMARY															
WHOLESALER	ADD (gpm)	ADD (MGD)	Total Inch Miles	Wholesale Inch Miles	% Total Inch Miles	MDD (gpm)	MDD (MGD)	Total Inch Miles	Wholesale Inch Miles	% Total Inch Miles	PH DEMAND (gpm)	PH (MGD)	Total Inch Miles	Wholesale Inch Miles	% Total Inch Miles
BCWA	2229.17	3.21	1998.96	284.01	14%	3843.7	5.53	1966.07	341.53	17%	4444.44	6.40	1994.12	327.32	16%
EP	6458.33	9.30	1410.01	357.58	25%	6458.33	9.30	871.96	251.42	29%	6458.33	9.30	1410.01	241.73	17%
GREENVILLE	1166.67	1.68	833.22	114.54	14%	1875.00	2.70	873.11	111.66	13%	1875.00	2.70	822.80	55.09	7%
KCWA	4722.22	6.80	134.18	29.10	22%	5902.78	8.5	134.18	24.67	18%	8194.44	11.80	134.18	30.38	23%
LWC	2166.67	3.12	2206.48	304.87	14%	3166.67	4.56	1099.91	239.36	22%	3166.67	4.56	2178.07	137.96	6%
SMITHFIELD	937.50	1.35	2147.02	134.65	6%	1388.89	2.00	3135.85	187.91	6%	1388.89	2.00	2068.97	199.48	10%
WARWICK NATICK	4134.26	5.95	1033.33	184.90	18%	6857.80	9.88	1002.87	208.03	21%	9166.67	13.20	1033.33	252.97	24%
WARWICK PETTACONSETT	1916.67	2.76				2978.40	4.29				4861.11	7.00			
RETAIL	22229.17	32.01	10759.86	9363.51	87%	41576.39	59.87	10736.65	9444.48	88%	58577.36	84.35	10760.55	9528.54	89%

[1] Table extracted from filename: "wholesale eval summary v8.xlsx" prepared by Pare Corporation

Exhibit 2 - Summary of Maximum-Day and Maximum-Hour Peaking Factors from Pare Analysis

Testimony of Jason Mumm

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Customer Class	Avg. Day Demand (MGD)	Max-Day Demand (MGD)	Max-Day Peaking Factor	Max-Hour Demand (MGD)	Max-Hour Peaking Factor
Bristol County	3.21	5.53	1.72	6.40	1.99
East Providence	9.30	9.30	1.00	9.30	1.00
Greenville	1.68	2.70	1.61	2.70	1.61
Kent County	6.80	8.50	1.25	11.80	1.74
Lincoln	3.12	4.56	1.46	4.56	1.46
Smithfield	1.35	2.00	1.48	2.00	1.48
Warwick [1]	8.71	14.16	1.63	20.2	2.32
Retail	32.01	59.87	1.87	84.35	2.64

[1] Warwick is the sum of "Warwick Natick" and "Warwick Pettaconsett" shown in Exhibit 1

Exhibit 3 - Difference in Peaking Factors from New COSS and Pare Analysis

Testimony of Jason Mumm

Docket #4994

Customer Class	MD Peaking Factor from New COSS	MD Peaking Factor from Pare Findings	% Difference in MD Peaking Factors	MH Peaking Factor from New COSS	MH Peaking Factor from Pare Findings	% Difference in MH Peaking Factors
Bristol County	1.51	1.72	14%	1.81	1.99	10%
East Providence	1.67	1.00	-40%	2.76	1.00	-64%
Greenville	2.01	1.61	-20%	3.05	1.61	-47%
Kent County	1.42	1.25	-12%	2.18	1.74	-20%
Lincoln	1.90	1.46	-23%	2.23	1.46	-35%
Smithfield	2.17	1.48	-32%	2.56	1.48	-42%
Warwick	2.40	1.63	-32%	2.81	2.32	-17%
Retail	1.60	1.87	17%	3.20	2.64	-18%

Exhibit 4 - Summary of Interclass Cost-Shifting

Testimony of Jason Mumm

Docket #4994

Customer Class	Total Cost of Service from New COSS / HJS-18	Total Cost of Service with Revised Peaking Factors	Variance	Interclass Cost Shift
Bristol County	\$2,535,089	\$2,667,132	\$132,043	
East Providence	2,935,817	2,559,323	(376,494)	
Greenville	828,554	781,910	(46,644)	
Kent County	3,202,650	3,085,294	(117,356)	(\$1,433,534)
Lincoln	1,993,476	1,886,132	(107,344)	
Smithfield	1,005,224	897,848	(107,377)	
Warwick	5,627,916	4,817,552	(810,364)	
Retail	63,801,908	65,315,206	1,513,298	1,433,534
Fire Protection	9,173,714	9,093,950	(79,764)	
Total [1]	\$91,104,347	\$91,104,347	\$0	\$0

[1] Providence's filing included a total cost of service of \$90,994,148. in my review, I noted several places in the model that had formulas deleted leading to imbalances. I repaired these errors to arrive at the corrected total shown here.

Jason Mumm
Principal



FCS GROUP

Jason Mumm is an FCS GROUP principal with 25 years of experience providing financial and rate development services in a variety of capacities for water, sewer, reclaimed water, stormwater and solid waste utilities. Experience highlights include:

- Performed hundreds of individual studies for water/wastewater utilities primarily for local governments in the United States.
- Prepared expert witness testimony in regulatory proceedings in Canada and the United States. Testimony also provided in numerous other court, administrative, and alternative dispute resolution cases.
- Admitted as an expert witness in Colorado, California, Nova Scotia, Texas, Oregon, and Hawaii in matters involving utility finances, rates, and/or cost sharing.
- Developed utility business model training for local elected officials.
- Held elected office on a water/sewer board in his local community.
- Author of over 80 published articles in the water/wastewater industry press.

Jason has also contributed to the advancement of industry thinking in the field of finance and economics in the following areas:

Affordability – Developed new methods for measuring financial burden in EPA regulatory enforcement cases and his work has been promoted and advanced by the US Conference of Mayors

Cost of Capital – Advanced the industry in understanding the cost of capital to local government utilities, especially the cost inherent in raising equity capital through retained earnings.

Wholesale Rates – Primary author of the most recent edition of the AWWA Manual M1 on the

EDUCATION

- MBA, Business, University of Colorado
- BS, Finance and Economics, Colorado State University

CAREER SUMMARY

- 25 years professional municipal rate and fee consulting experience (since 1996)
- Joined FCS GROUP in 2017
- Previous experience with Stantec, MWH Global, StepWise Utility Advisors, Brown and Caldwell

EXPERTISE

- Utility Enterprise Financial Planning
- EPA Affordability Analyses
- Bond Due Diligence Support
- Utility Ratemaking
- Cost-of-Service Studies
- Valuations and Opinions of Value
- Rate Design
- Impact/ Development Fee Studies and Other
- Related Services

PROFESSIONAL AFFILIATIONS

- Chair; AWWA Rates and Charges Committee
- American Water Works Association (AWWA)
- Water Environment Federation (WEF)
- Rocky Mountain Sections of the AWWA and WEF

CONTACT

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topic of calculating wholesale rates. The manual is AWWA’s primary set of guidelines for water providers in determining their user charges with cost-of-service methods.

Regionalization – Led several studies on regionalizing local utilities and published a number of industry papers on the subject describing the conditions that need to exist in order for regionalization to work as a means of reducing costs.

Colorado

ARAPAHOE COUNTY WATER & WASTEWATER AUTHORITY

- Water/Sewer Rate Studies
- Local Improvement District Setup
- Utility Development Fees

AURORA

- Water and Wastewater Enterprise Financial Planning
- On-Call Utility Financial Services
- Comprehensive Water/Wastewater/Stormwater Rate Studies

BANCROFT-CLOVER WATER DISTRICT

- Water/Sewer Rate Studies

BRUSH

- Wastewater Rate Study
- Bond/Debt Feasibility Study

CASTLE PINES NORTH METROPOLITAN DISTRICT

- Water Supply Business Case Evaluation
- Water/Sewer Rate Studies

CASTLE ROCK

- Water/Sewer Rate Study
- Development Fee Study
- Wheeling Agreement Review
- Wholesale Cost Sharing Evaluation

COLORADO SPRINGS UTILITIES

- Water Supply Pricing Analysis

CONSOLIDATED MUTUAL WATER COMPANY

- Water Connection Fee Study

DENVER WATER

- Water Supply Pricing Analysis / Regionalization

EL PASO COUNTY

- Groundwater Depletions Study

EVANS

- Water/Sewer Rate Studies
- Sewer Revenue Requirement and Tap Fee

FEDERAL HEIGHTS

- Wholesale Water Rate Analysis

FIRESTONE

- Stormwater Rate Study

FORT COLLINS LOVELAND WATER DISTRICT

- Utility Development Fees
- Water/Sewer Rate Studies

FRUITA

- Utility Development Fees

GRANBY

- Regional Consolidation Study
- Water/Sewer Rate Study

INVERNESS WATER & SANITATION DISTRICT

- Wastewater Rate Study
- Litigation Support

LOVELAND

- Water and Wastewater Cost of Service Analysis and Rate Study
- Big Thompson River Stormwater Financial Plan

METRO WASTEWATER RECLAMATION DISTRICT

- Business Case Evaluation for Capital Project Planning
- Sewer Connection Charge Methodology Review

MONTEZUMA VALLEY IRRIGATION DISTRICT

- Water Rate Study

PALMER LAKE

- Water Rate Study

PARKER WATER & SANITATION DISTRICT

- Water/Sewer Rate Studies

- Utility Development Fees
- Regional Consolidation Study

RANGEVIEW METROPOLITAN DISTRICT

- Water/Sewer Utility Startup

SOUTHGATE WATER AND SANITATION DISTRICTS

- Financial Advisory Services

SOUTH METRO WATER SUPPLY AUTHORITY

- Water Supply Pricing / Regionalization
- Wheeling Rate Analysis and Financial Services

ST. CHARLES MESA WATER DISTRICT

- Water/Sewer Rate Study

STONEGATE VALLEY METROPOLITAN DISTRICT

- Regional Consolidation

TELLURIDE

- Wastewater Financial Analysis and Rate Study

WINTER PARK RANCH WATER AND SEWER DISTRICT

- Asset Management and Rate Study

New Mexico

LAS CRUCES

- Water and Sewer Rate Study

SANTA FE

- Water, Wastewater and Solid Waste Cost of Service Rate Studies
- Financial Services
- Asset Management Study

Idaho

BOISE

- Wastewater Cost of Service Analysis and Rate Study

Montana

BILLINGS

- Litigation Support / Wholesale Water Rates

Iowa

CEDAR RAPIDS

- Wastewater Rate Study

DES MOINES WATER WORKS

- Regionalization Retail Rate Analysis
- Central Iowa Regional Water Facilitation
- Facilitating Regionalization of Water Production
- Supplemental Facilitation Services

Nevada

LAS VEGAS

- Sewer Rate Study

DOUGLAS COUNTY

- Water Consolidation
- Sewer Rate Study

Washington

BREMERTON

- Engineering Group Workload Study

OCEAN SHORES

- Water/Sewer Rate Study

PIERCE COUNTY

- Wastewater Rate Study
- Bond/Debt Feasibility Study

SPOKANE

- Outside City Rate Litigation and Expert Witness Services
- Comprehensive Water/Sewer/Stormwater Rate Study

WHITWORTH WATER DISTRICT

- Water Rate Study

Oregon

WEST SLOPE WATER DISTRICT

- Wholesale Water Agreement

WILLAMETTE WATER SUPPLY PROGRAM

- Regional Water Supply Pricing / Regionalization

PORTLAND LARGE WHOLESALE USER GROUP

- Wholesale Contract Development
- Cost-of-Service Study

PORTLAND WATER BUREAU

- Wholesale Water Rate Audit
- Wholesale Modeling and Agreement Preparation

TUALATIN VALLEY WATER DISTRICT

- SDC Update

Wyoming**CHEYENNE**

- Water and Sewer Rate Study

GILLETTE

- Water and Sewer Rate Study
- Development Fees

SHERIDAN

- Water and Sewer Rate Study
- Development Fees

PINEDALE

- Water Rate Study

California**CENTRAL BASIN MUNICIPAL WATER DISTRICT**

- Water Rate Study

LINCOLN

- Water Connection Fee and Water System Connection Fee Nexus Study

OTAY WATER DISTRICT

- Water Cost of Service Analysis Third Party Review

ROSS VALLEY SANITARY DISTRICT NO. 1

- Regional Consolidation Study

SOQUEL CREEK WATER DISTRICT

- Water Rate Study

WEST BASIN MUNICIPAL WATER DISTRICT

- Water Rate Study

Alabama**MOBILE AREA WATER AND SEWER SYSTEM**

- Long-Range Financial Planning
- Board Strategy

Texas**BEXAR METROPOLITAN WATER DISTRICT**

- Bond Feasibility Study
- Water Rate Study

Hawaii**WEST HAWAII UTILITY COMPANY**

- Litigation Study
- Private Utility Rate Case

Indiana**MUNCIE**

- Wastewater Rate Study
- Affordability Analysis

Rhode Island**NARRAGANSETT BAY COMMISSION**

- Financial Capability Assessment
- Affordability Analysis

Massachusetts**SPRINGFIELD WATER & SEWER COMMISSION**

- Financial Capability Assessment
- Affordability Analysis

Maryland**BALTIMORE**

- Financial Capability Analysis
- Affordability Analysis

Nebraska**OMAHA**

- 20-Year Sewer Financial Plan
- Affordability Analysis

- Wastewater Rate Study

Ohio

AKRON

- Financial Capability Assessment
- Affordability Analysis

NORTHEAST OHIO REGIONAL SEWER DISTRICT

- Cost of Service Rate Study
- Affordability Analysis

Arizona

PEORIA

- Water, Wastewater and Solid Waste Rate Study

PUBLICATIONS / SEMINARS / SPEAKING ENGAGEMENTS

- *Best Practices in Utility Rate Setting*, Colorado Government Finance Officers Association, November 2020
- *Getting Started: Consolidation, Regionalization, Privatization: The Cost-Benefit Question*, Water Finance Conference, September 2020
- *Affordability and the Value of Services*, Washington Finance Officers Association, September 2019
- *Improving the Narrative on Affordability and the Measurements We Need to Take Us There*, Journal American Water Works Association, Vol 109, No. 7, May 2017.
- *How to MURV Water Utility Plans into Action and Success*, Journal American Water Works Association. Vol. 107 , No. 1, January 2015.
- *The Equity Option: How to Make the Most of Your Debt*, Journal American Water Works Association. Vol. 104, No. 11., Nov 2012.
- *Managing Financial and Water Supply Challenges with Regional Partnerships*. Journal American Water Works Association. Vol. 104, No. 7., July 2012.
- *Regionalization as a Solution for Affordability*, Presented at the American Water Works Association Annual Conference and Exposition. Dallas, TX. June, 2012.
- *Accepting the Affordability Challenge*, Journal American Water Works Association. Vol. 104, No. 5. May 2012.
- *Fair Water Pricing*. Water & Wastes Digest, April 2012.
- *Water Infrastructure Financing: Will the Future be Different?* Presented at the 3rd Annual CLE International Water Marketing Conference; Denver, CO. December 2011.
- *Water Industry Trends: Threat or Opportunity?* Presented at the 103rd Annual Meeting of the Water and Wastewater Manufacturer's Association. St. Petersburg, FL. November, 2011.
- *Financial Aspects of Water Utility Service*, presented at The Colorado Law Institute's Second Annual Water Marketing Conference; Beaver Creek, CO, December 2010.
- *Over the Top: Limits and Pitfalls of Conservation Pricing*, presented at the 2009 annual conference of the American Water Works Association, San Diego, CA. Co-presented with Greg Baird, CFO for Aurora Water.
- *Adapting GASB 34 for Water Utility Ratemaking*, for the Journal of the American Water Works Association, January 2004.
- Regional Publications and Presentations
- *You Are Here*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, March 2014.
- *EPA Considering New Affordability Guidelines, and None Too Soon*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, January 2014.
- *Lessons in Excellence*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, November 2013.
- *Cheap Debt: Is it Really so Cheap?* published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, September 2013.
- *Where's the Value*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, July 2013.
- *Fast Forward*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, May 2013.
- *Death, Taxes, and Certainty*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, March 2013.
- *Tales from ACE 2012: The Future is Now*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, September 2012.
- *Having Trouble Getting Rates Approved? Focus on Consequences*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, July 2012.
- *Rate Fail*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, May 2012
- *Losing Ground: A Trend in the Affordability of Utility*

- *Bills*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, January 2012
- *Denver Metro Wastewater Reclamation District's Triumph of Strategy and Vision at 50*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, November 2011
- *When 2 and 2 Is 3: Why Economies of Scale Benefit Consumers*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, September 2011
- *Just Because It's Measured Doesn't Mean It Matters*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, July 2011.
- *From Great to Good: Why Depreciation Isn't the Answer for Infrastructure Pains*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, May 2011.
- *Public Drinking Water: Less Efficient But Better Value?*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, March 2011.
- *The Challenge of Deflation*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, January 2011.
- *Colorado's Proposed Amendment 61 – Restricting Capital When It's Needed Most*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, November 2010.
- *Reaching the Summit*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, July 2010.
- *Price of Regional Partnership*, presented at the 2011 Joint Utility Management Conference of AWWA and WEF (Denver, CO).
- *Fiscal Responsibility is Knowing What Not to Cut*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, May 2010.
- *Social Media and You*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, March 2010.
- *Ratemaking for the Elected Official*, presented at the annual convention of the Colorado Rural Water Association; Colorado Springs, CO, February 2010.
- *Private Utilities: Show Me the Efficiencies*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, January 2010
- *Corporate Mentality*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, November 2009
- *Are You an Ambassador?*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, September 2009
- *Paul's Conundrum: The American Recovery and Reinvestment Act and the Lessons of TARP*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, July 2009
- *Refocusing the Value of Service*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, May 2009
- *Dude, Where's My Tap Fee?*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, March 2009
- *A New, New Deal*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, January 2009
- *Mastering the Not-So-Obvious*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, November, 2008.
- *Take 3: Hitting the Fast Forward Button on the Sub-Prime Mess*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, September, 2008.
- *Our Sleepy Infrastructure Assets*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, July, 2008.
- *Private Equity: Panacea or More Private Sector Hooyey?*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, May, 2008.
- *Bubble? What Bubble?*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, March, 2008.
- *The Not-So-New-But-Still-Approaching Affordability Crisis*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, November, 2007.
- *In Defense of #9*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, September, 2007.
- *Utilities as a Business*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, July, 2007.
- *Betting on Water: What We Can Learn from the Stock Market*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, May, 2007.
- *The State of the States*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, March, 2007.
- *Rise to Vote Sir!*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the

- AWWA and WEA, January, 2007.
- *The Cost of Neglect*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, November, 2006.
 - *The Cost of Money. Part II*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, September, 2006.
 - *The Cost of Money*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, July, 2006.
 - *Too Many Jobs? Too Few Workers?*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, May, 2006.
 - *What Infrastructure Funding Gap?*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, March, 2006.
 - *Water or Sewer; Sewer or Water?*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, January, 2006.
 - *I'm not a Lawyer but...*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, November, 2005.
 - *Small System Financial Planning and Ratemaking*, Best Practices for Colorado Rural Water Association Members, presented to the Colorado Rural Water Association, September, 2005.
 - *Blood, Sweat and Tears, or Water Waster Blues*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, September, 2005.
 - *Who Owns Your Utility?*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA. July, 2005.
 - *The Misunderstood Consumer*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, May, 2005.
 - *This Golden Age of Ours*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, March, 2005.
 - *A Shadow of Drought*, published in Rumbles, the bimonthly publication of the Rocky Mountain Sections of the AWWA and WEA, January, 2005.
 - *Planning for Successful Funding*, for the Colorado Rural Water Association 2004 Fall Conference, Grand Junction, CO, November 17, 2004.
 - *Impact Fees In Colorado: Meeting the New Legal Requirements*, by Jason G. Mumm and Travis Smith, in the Colorado Special Districts Association Newsletter, 2004.
 - *Impact Fees in Colorado: Meeting the New Legal Requirements*, by Jason G. Mumm and Travis Smith, in the Colorado Rural Water Association Newsletter, 1st Edition 2004
 - *Financial Planning and Ratemaking for Small Utilities*, for the Colorado Rural Water Association, February 18, 2004.
 - *Conservation Based Water Utility Rates*, by Jason Mumm (moderator), Charles Krogh, Webb Jones, Rich Hayes. and Robert Mall; for the Annual Conference of the Special District Association of Colorado, Keystone, Colorado, September 26, 2003.
 - *Water Rate Making in the Face of Drought*, for the American Water Resources Association Colorado Section, Genesee, Colorado, April 4, 2003.
 - *Rate Setting for Small Water and Wastewater Systems*, by Kees Corssmit, Ph.D., Carol F. Malesky, and Jason G. Mumm, presented at NARUC annual meeting in Rapid City, SD, October 2002.
 - *Impact Fees and Colorado's Water and Wastewater Utilities*, with Carol Malesky, presented at the annual conference of the Rocky Mountain Sections of the American Water Works Association and Water Environment Association; Steamboat Springs, CO. September 2002.
 - *The City of Santa Fe: A Case Study*, with Kathryn Raveling, Annual Conference of the American Water Works Association, New Orleans, Louisiana, June 16, 2002.
 - *GASB 34: Separating Myth from Reality*, in Rumbles (a quarterly publication of the Rocky Mountain Section of the American Water Works Association and the Rocky Mountain Water Environment Association), May 2002.
 - *GASB 34: Separating Myth from Reality*, in the Colorado Special Districts Association Newsletter, April 2002.
 - *Wastewater Impact Fees: A Significant Legal Ruling*, by C. (Kees) W. Corssmit, Ph.D., Carol F. Malesky, and Jason G. Mumm, WEFTEC 2002 National Convention, September 29, 2002, Chicago, Illinois (scheduled).
 - *The Breckenridge Sanitation District Impact Fee Study: A Case Study*, with Andy Carlberg. Gene Riordan, and Kees Corssmit, Annual Conference Special District Association of Colorado, Steamboat Springs, Colorado, September 21, 2001.

EXPERT WINESS ASSIGNMENTS

- Petition of the Cities of Garland, Mesquite, Plano and Richardson Appealing the Decision by North Texas Municipal Water District Affecting Wholesale Rates (Texas PUC Docket No. 46662) and subsequent mediation effort.
- Mark Coziahr v. Otay Water District (Superior Court of California, County of San Diego, Case No. 37-2015-0040000-CU-MC-CTL)

- Otay Water District v. City of San Diego (Superior Court of California, County of Riverside, Case No. RIC 1804278)
- John. E Durgan vs. City of Spokane (Superior Court of Washington, County of Spokane, Case No. 17-2-02507-5 and 17-2-02120-7)
- Milan E. Timm Revocable Living Trust v. Fort Collins-Loveland Water District and South Fort Collins Sanitation District (Colorado District Court, No. 2015CV030658)
- Pure Cycle Corporation and Rangeview Metropolitan District vs. the State of Colorado (Case No. 2011-CV-8565, 2121-CV-1246, Division 424)
- Castle Pines North Metropolitan District and Castle Pines Metropolitan District (Colorado District Court, Case No.'s 04CW292 and 04CW308).
- West Hawaii Utility Company (PUC Docket #2006-0409), Waikoloa, Hawaii
- Halifax Regional Water Commission; Application for a

Schedule of Rates and Charges before the Nova Scotia Utility and Review Board (W-HRWC-R-10)

- Cascade Pacific Pulp, LLC v. Georgia-Pacific Consumer Products, LP, Linn County Circuit Court Case No. 091549
- Bruce Hotze and Paul Bettencourt v. City of Houston (Nos 3-10-0423-CV).
- Tom Barenberg vs. Louviers Mutual Service Company, Colorado (PUC Docket #07F-036W)
- Montezuma Water Company, Dolores, Colorado
- Brunswick County, North Carolina
- City of Santa Fe, New Mexico
- Colorado Renaissance Festival, Douglas County District Court Case No. 05CV1146
- Sol Vista/Silver Creek/Granby Exclusions & Inclusion Proceedings