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

SUR-REBUTTAL TESTIMONY

OF

JASON MUMM

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I. Introduction

Q. Please state your name and business address.

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

Q. Are you the same Jason Mumm who submitted direct testimony in these proceedings?

A. Yes.

Q. Have you reviewed the rebuttal testimony of Harold Smith and Greg Giasson?

A. Yes.

Q. Are there elements in the rebuttal testimony of Greg Giasson you wish to address today?

A. No.

Q. Are there elements in the rebuttal testimony of Harold Smith that you wish to address today?

A. Yes. Mr. Smith's rebuttal testimony doesn't adequately explain why Providence used the "draw rate" derived from the Pare analysis to allocate the T&D system, and the base extra-capacity demands used to allocate the other components of the water system. Mr. Smith describes the two as being fundamentally different such that the "draw rate" can only describe the demands in the T&D system and cannot be used to describe demand on the treatment or source of supply systems. With respect to the peak demands, the two are indeed different, but only because they are being measured in a fundamentally different way: the draw rate being measured concurrent with systemwide demand, and the rest being measured nonconcurrently. Either could be used to describe customer demand, but using both in the same cost-of-service allocation suggests that customers have two different demands on the system at the same time, which is simply not the case.

Q. Could you explain your understanding of the draw rate?

A. We should start with what the hydraulic analysis does and what we were given as its outputs. Based on the documents in the administrative record, the Pare analysis gives us the demand in the T&D system, measured concurrently, for three steady state scenarios defined as the average day, the maximum day, and the peak hour. We know that the demands are measured concurrently because Pare describes in its March 4, 2021 memo that the pipe segments are shared among customers based on their demands measured during the three hydraulic modeling scenarios. We can also deduce that the scenarios themselves represent the maximum day and peak hour for the entire system, because Pare says in its memo that the scenarios came from "using recent SCADA data from days when Providence Water's system demand closely matched their ADD, MDD, and PH demands." In other words, the maximum day and peak hour scenarios measure coincidental peaking: the rate of demand for each customer measured during the system's peak events as modeled by Pare.

The results of the analysis were summarized in Table 1 of Pare's memorandum that Mr. Smith included in his direct testimony. The values in Table 1 provide the demand for each wholesale customer for each of the scenarios. Left out of Table 1, however, were the same values for the retail customers; these can be found in the file named "Wholesale Eval Summary v8.xlsm," which is included in the administrative record and is also summarized in my direct testimony as Exhibit 2. Pare never calculated the peaking factors shown in my Exhibit 2. However, all the information needed to determine the peaking factors is included Pare's Table 1. Pare provides the ADD, MDD, and PH demand in millions of gallons per day (MGD) for each customer from which the peaking factors are easily calculated. These peaking factors are the coincidental peak demands for the customers listed on Exhibit 2, which is to say it represents their demands at the points of interconnection – where Providence's system meets the customer's – during the system-wide peak events.

Q. How is the draw rate different from the base extra-capacity demands referred to in Mr. Smith's rebuttal testimony?

A. If one references HJS-16a from Providence's New COSS filing, there are peaking factors listed for the MDD and PH for all customer classes; these are the base extra-capacity demands to which Mr. Smith is referring. Those peaking factors are measured using nonconcurrent, or non-coincidental, values. Whereas the coincidental peak represents a customer's demand at the same time as the system's peaks, the non-coincidental peak represents each customer's peak demand regardless of the system's peaks. The difference can and often is material, as is the case here. We know the demands shown on HJS-16a are non-coincidental because in its response to Greenville-Lincoln 2-4, Providence states: "The New COSS includes a [peaking] factor for each individual customer based on the daily demands of that customer."

Q. Is it reasonable to use two different measurements of demand to allocate system costs as Mr. Smith describes in his rebuttal testimony?

A. Mr. Smith argues that the draw rate and its coincidental demands are appropriate for the inch-mile analysis used to allocate the T&D system while the non-coincidental peaking factors are appropriate for other portions of the system like treatment and source of supply. However, customers present one load profile on the water system, not two. They have one average day demand, one maximum day demand, and one peak hour demand, not two.

The example given by Mr. Smith in his rebuttal testimony suggests it is common to use different measurements for different parts of the system. He illustrates the point by demonstrating how customer related costs are allocated based on account numbers while other parts of the system are allocated based on usage factors. The illustration is not germane to the issues of peak demand, however. Perhaps a better example is Providence's response to Greenville-Lincoln 2-6. In their response, Providence describes how East Providence actually receives delivery of its water. In summary, East Providence takes the water into its storage tank at a "relatively fixed rate" and this fact is borne out in Pare's analysis, which shows a peaking factor for East Providence of 1.0 for both MDD and PH, indicating East Providence presents no coincidental peak load on the system. Nevertheless, HJS-16a shows a MDD peak factor of 1.67 for East Providence, and a PH factor of 2.76. The implication is that East Providence is allocated relatively fewer inch miles of the T&D system in the absence of any peak demand, but a substantially greater amount of peaking costs in the portions of the system leading up to the T&D system. HJS-13c, for instance, shows East Providence is allocated 2.3% of the inch miles in the Maximum Day scenario, whereas HJS-16a shows East Providence's MDD at 7.1% of the system (8,317 HCF/day divided by the 116,182 HCF/day system total).

The above example related to East Providence is not unique. I summarized the disparities between the Pare findings and the peaking factors used in HJS-16a in my direct testimony at Exhibit 3.

Q. Which peaking factors should Providence Water use to allocate the T&D system and all other system components?

A. Providence could use either the base extra-capacity values as shown in HJS-16a or the coincidental peaking factors from the Pare analysis, but not both. I agree with Providence's statements that the Pare analysis is the more accurate of the two for the reasons I described in my direct testimony, and it follows that using the peaking factors derived from Pare's analysis should be the preferred approach.

Q. Are there any other elements of Mr. Smith's rebuttal testimony you wish to address?

A. Yes. Mr. Smith argues that the use of the inch-mile analysis to allocate the T&D system is more precise and accurate in part because the analysis assigns costs only to those segments that customers use. In contrast, the previous method used in Providence's original filing, assigned all pipelines 12-inches or less to the distribution function and all pipelines larger than this to the transmission function. The old method, Mr. Smith argues, caused customers to pay for pipelines they never used while avoiding the costs of others.

I don't dispute the degree of precision the inch-mile analysis represents. Moreover, I understand the inch-mile analysis was Providence's best effort to comply with the Commission's earlier orders in this case. My concern with the inch-mile analysis is that the pursuit of precision has led to an outcome where the question of an asset's usefulness is reduced to the number of molecules of water moving through the pipes under artificially static modeling conditions. As I described in my direct testimony, the usefulness of a thing is not strictly defined by its instantaneous use. What the inch-mile analysis gives us is the conclusion that if a pipe is not used during one of the three scenarios Pare modeled, then it is also not useful in any way and therefore excludable from a given customer's costs of service. However, T&D networks offer benefits to all those connected to them in terms of resiliency and redundancy – not to mention that these networks are what allow water utilities to deliver services at optimal economies of scale – benefits that Pare's modeling scenarios could not take into account. Pare never examined the degree to which individual line segments might be used under alternative scenarios – like those scenarios involving various modes of outages. Therefore, the extent to which the pipe segments deemed unused in the three modeling scenarios might still be *capable* of providing services remains unknown. In other words, Pare did not identify segments that were useful to individual customers irrespective of their modeled usage.

The inch-mile analysis may have been well intentioned, but it ultimately fails the test of reasonableness. The logical extension of the analysis is to identify every individual line segment used to serve not only the wholesale customers, but also every single service address in the system, including all retail customers. If such a proposal sounds absurd, it's because water systems are not designed to provide service through a discrete pathway of individual line segments. Instead, water systems are networks interconnected in such a way as to provide service at scale, as reliably as possible, to thousands of service connections at a time. Customers receive services from networks, not individual segments within it. Nevertheless, there are cases where the delivery of service is more discrete. Some of those exceptions were identified in earlier testimony in this case, but rather than address those specific exceptions, Providence opted for the inch-mile analysis as a blanket solution. In my opinion, the inch-mile analysis introduces more problems than it solves and almost certainly leads to a misallocation of the network costs.

II. Conclusion

Q. Does this conclude your testimony?

A. Yes, it does.