



MSD Exhibit No. MSD 3I
2019 Rate Change Proceeding

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Direct Testimony

Metropolitan St. Louis Sewer District

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1 **Witness Background and Experience**

2 **Q1 Please state your name and business address.**

3 A. Thomas A. Beckley, 3013 Main Street, Kansas City, Missouri, 64108, (816)285-9020,
4 tbeckley@raftelis.com

5 **Q2. By whom are you employed and in what capacity.**

6 A. I am a Senior Manager with Raftelis Financial Consultants, Inc. (Raftelis). Raftelis
7 provides financial and management consulting services to municipally owned utilities
8 throughout the United States and Canada. Raftelis was established in 1993 in Charlotte,
9 North Carolina to provide environmental and management consulting services to public
10 and private sector clients. Raftelis is a national leader in the development of water,
11 wastewater, and stormwater rates and employs 80 consultants providing financial and
12 management consulting services to municipal utilities throughout the United States and
13 Canada. As Senior Manager at Raftelis I am the Office Lead of our Kansas City,
14 Missouri office and serve as project manager on engagements for clients throughout the
15 Midwest region of the United States.

16 **Q3. Please describe your educational background and work experience.**

17 A. I obtained a Bachelor of Science in Naval Architecture and Marine Engineering from
18 Webb Institute in 1995; a Master of Business Administration from the A.B. Freeman
19 School of Business in 2000; and a Master in Public Administration from the University of
20 Kansas in 2008. I joined Raftelis in 2000 and since that time have served over 100
21 clients on a variety of financial and management consulting engagements for municipal
22 water, wastewater, and stormwater utilities throughout the United States.

23

1 **Q4. Do you belong to any professional organizations or committees?**

2 A. Yes. I am a member of the American Water Works Association and the Water
3 Environment Federation.

4 **Q5. Have you previously participated in Rate Commission Proceedings of the St. Louis
5 Metropolitan Sewer District?**

6 A. Raftelis served as Consultant to the Rate Commission in the 2007, 2008, and 2011 Rate
7 Change Proceedings and Consultant to the District in the 2015 and 2018 Rate Change
8 Proceedings, and I was the Lead Consultant for Raftelis in 2007, 2008, and 2011 and
9 Project Manager for Raftelis for the 2015 and 2018 Rate Commission Proceedings.

10 **Q6. Please describe your role in this proceeding?**

11 A. The scope of my assignment in this proceeding is as Project Manager for Raftelis’
12 assistance to the District in preparing the Rate Change Proposal which recommends
13 means of financing MSD's wastewater activities for fiscal years ending June 30, 2021
14 (FY21) through June 30, 2024 (FY24). As project Director I provided leadership and
15 direction to our team of consultants engaged in this work for the District as well as
16 technical advice during the conduct of our work.

17

18 **Major Wastewater Rate Changes**

19 **Q7. What are the major wastewater rate changes contained in the Rate Change
20 Proposal?**

21 A. The District is proposing wastewater rates for FY21 that reflect the results of the cost of
22 service analysis for that year and which will be discussed later in my testimony. The
23 resultant impacts vary among the various rate and charges of the District as determined in
24 the cost of service analysis and discussed later in my testimony. Overall the Rate Change

1 Proposal does not contain any changes to the current wastewater rate structure.

2 **Q8. What are the major drivers of the rate change?**

3 A. The largest factor in the requested rate change is the District's CIRP expenditures, which
4 as discussed in the testimony of Richard Unverferth, are driven by the District's Consent
5 Decree and regulatory requirements. The District intends to fund the CIRP to the extent
6 possible with debt while maintaining coverage requirements that will maintain their
7 existing debt rating, as discussed in the testimony of Tim Snoke. To a lesser extent the
8 rate change is also a result of inflation in the O&M budget, additional O&M expense, and
9 a projected increase in both customers and contributed volumes over the period covered
10 by the Rate Change Proposal.

11

12 **Wastewater Revenue**

13 **Q9. How was wastewater revenue projected in the Rate Change Proposal?**

14 A. The projected number of customers is shown in the Rate Change Proposal in Table 4-2
15 and contributed volumes information is shown in Table 4-3, which includes projected
16 accounts by customer class, and Table 4-3, which includes projected contributed volumes
17 by customer class. Based on this information projected revenues under the District's
18 approved FY20 rates for the period of FY21 through FY24 is shown in Table 4-4 while
19 other revenues for the District are shown in Table 4-5. Table 4-5 was developed in
20 conjunction with District Staff based on past experience and projected trends of each
21 revenue line item.

22 **Q10. What is your opinion of the forecast of customers and contributed volumes?**

23 A. Based on my past experience with the District, my experience with other urban utilities
24 throughout the United States, and general trends in wastewater flows throughout the

1 United States, I believe the forecasts are reasonable.

2

3 **Wastewater Revenue Requirements**

4 **Q11. What are the components of the District’s wastewater revenue requirements?**

5 A. The District’s wastewater revenue requirements arise from three basic needs: O&M
6 expense, capital expense, and funding of reserves. Capital expense can further be broken
7 down between debt service requirements (which is the payment of debt used to fund
8 capital projects) and use of internally generated funds or cash funded capital (which is
9 also sometimes referred to as PAYGO capital, short for Pay As You Go).

10 **Q12. Do the wastewater expenses included any costs that should be allocated to**
11 **stormwater?**

12 A. No, the revenue requirements for wastewater are net of the stormwater expenses as
13 reflected in the 2018 Stormwater Rate Proceedings.

14 **Q13. How are wastewater O&M expenses projected over the period of the Rate Change**
15 **Proposal?**

16 A. The District Finance Staff under the direction of Marion Gee identified appropriate
17 inflation factors for the various items in their budget. Appendix 7.1.1 provides a
18 discussion of the major assumptions and how they were determined for inflation.
19 Applying these inflation rates to the District's adopted FY19 budget results in the
20 projected wastewater O&M expense shown in Table 4-6 of the Rate Change Proposal. In
21 addition, the District provided forecasts of additional O&M required beyond inflationary
22 increases, which is shown on Line 22 of Table 4-6. The Capital Funded in the O&M
23 Budget and Capitalized Internal Labor were provided by District Staff.

24

1 **Q14. How are the District’s wastewater CIRP requirements projected over the period of**
2 **the Rate Change Proposal?**

3 A. The District provided wastewater CIRP requirements to be included in the financial
4 planning and rate model. The figures provided by the District include adjustments for the
5 timing of the actual cash needs as discussed in Appendix 7.1.2. The amount of the CIRP
6 is inflated in FY21 through FY24 based on an analysis of regional Engineering News
7 Record construction cost index data. The resultant cash requirements for the CIRP are
8 shown in Table 4-7 of the Rate Change Proposal while additional detail on the District’s
9 overall CIRP can be found in Appendices 7.2.2, 7.2.3, and 7.2.4.

10 **Q15. How does the District propose to fund the wastewater CIRP over the period of the**
11 **Rate Change Proposal?**

12 A. The District and its financial advisor, PFM, provided a financing plan for the District’s
13 wastewater CIRP. A summary of the overall mix of debt and cash is shown in Table 4-8
14 of the Rate Change Proposal.

15 **Q16. How are the District’s wastewater debt service requirements determined in the Rate**
16 **Change Proposal?**

17 A. Wastewater debt service requirements for all existing and proposed debt were provided
18 by the District’s financial advisor, PFM.

19 **Q17. How are the District’s wastewater reserve requirements determined in the Rate**
20 **Change Proposal?**

21 A. The District has a minimum operating reserve target equal to 60 days of annual operating
22 expenses. The existing revenue bond covenants require the District to maintain a
23 minimum balance equal to 45 days of operation and maintenance expense. The District
24 has determined that it is prudent to target a 60-day minimum which provides a buffer to

1 allow for potential timing issues involved with funding requirements, provide increased
2 operational flexibility, and helps support future bond ratings.

3

4 **Wastewater Financial Plan**

5 **Q18. How are the overall wastewater revenue increases necessary over the Rate Change**
6 **Proposal period determined?**

7 A. Based on the projected revenues under existing rates and the District’s revenue
8 requirements the financial planning and rate model can be used to determine the level of
9 wastewater revenue increases needed to meet the District’s financial objectives. Based
10 on discussions with District Staff as well as the District’s Financial Advisor it was
11 established that the driving factor in determining rate increases is the District’s desire to
12 maintain a Total Debt Coverage level of 1.8, as discussed in the Testimony of Tim
13 Snoke. Based on this goal and the desire to provide relatively consistent rate increases
14 over the Rate Change Proposal period the proposed rate increases are necessary to meet
15 the forecasted revenue requirements. The District’s Wastewater Financial Plan is shown
16 on Table 4-10. As can be seen in Table 4-10 the District’s total debt coverage level
17 declines to 1.81 in FY24 with the proposed revenue increases.

18

19 **Wastewater Cost of Service**

20 **Q19. What is a cost of service analysis?**

21 A. The basic principle in a cost of service analysis is to achieve general fairness in the
22 recovery of costs from various classes of customers. The approach used in this Study is
23 based on the principles endorsed by the Water Environment Federation (WEF), which
24 allows the District to demonstrate rates have not been set in an arbitrary manner and one

1 class of customer is not subsidizing another to an unjustifiable extent, or in a manner that
2 is not approved and supported by the District.

3 **Q20. What period was analyzed for the cost of service analysis?**

4 A. A cost of service analysis typically identifies a single test year to be used as the basis of
5 the analysis. For this analysis the projected expenses for the first year of the Rate Change
6 Proposal period (FY21) are used. It is common for non-regulated utilities to use a
7 projected test year, as compared to regulated utilities which are often required by the
8 applicable regulatory body to use an historical test year with allowances for known and
9 measurable changes.

10 **Q21. How are O&M costs assigned or distributed to functions in the cost of service
11 analysis?**

12 A. The O&M costs were assigned or distributed to functional categories based on factors
13 developed with available data, District Staff, and generally accepted industry practices,
14 and were then reviewed to ensure the appropriate factors were applied. For example,
15 operating costs for the customer service center were assigned to customer service and
16 billing; costs for operating the treatment plants were assigned to treatment; and collection
17 costs were assigned and distributed between collection and conveyance. General and
18 administrative cost elements are allocated based on the weighted average allocation of the
19 direct costs. A summary of the functionalized O&M costs is shown in Table 4-11 of the
20 Rate Change Proposal.

21 **Q22. How are capital costs assigned or distributed to functions in the cost of service
22 analysis?**

23 A. Capital costs (debt service requirements and rate-funded capital) are assigned or
24 distributed based on an analysis of the District’s fixed assets. The estimated test year

1 FY21 plant investment consists of plant in service as of June 30, 2018, and the estimated
2 costs of proposed capital improvements to be placed in service through the FY21 test
3 year. Total plant investment, on an original cost less accumulated depreciation basis, is
4 assigned to functional cost components reflecting the function of the assets. The
5 functionalization of total plant investment is also used as the basis to allocate total routine
6 capital improvements. A summary of the functionalized capital costs is shown in Table
7 4-11 of the Rate Change Proposal.

8 **Q23. How are the functionalized costs then used in the cost of service analysis?**

9 A. The functionalized costs are next allocated to their cost components in accordance with
10 how the facilities are designed. In this step of the cost of service process, costs are
11 apportioned to the functional cost drivers of:

12 • Volume - costs related to the volume of wastewater flow received by the
13 wastewater system such as the portion of the collection and conveyance systems
14 necessary to handle average volumes of the wastewater system.

15 • Capacity - costs related to the peak flow of the system, in other words facilities
16 sized not just to meet typical volumes, but peak volumes, including preliminary treatment
17 at the wastewater treatment plants as well as the portion of the collection and conveyance
18 systems necessary to meet peak flows.

19 • Compliance - Cost associated with compliance for the District's pretreatment
20 program for non-residential customers, specifically a portion of the costs of the
21 Environmental Compliance Division of the Engineering Department.

22 • Wastewater strength - Costs associated with treatment of the strength components
23 of wastewater flow, including primary and secondary treatment at the wastewater
24 treatment plants.

1 • Customer and billing - Costs associated with providing service to customers
2 regardless of their flows or other demands, including customer service and some
3 regulatory services.

4 The separation of costs into functional cost components provides a means for distributing
5 such costs to the various cost drivers on the basis of respective responsibilities for each
6 particular type of service. A summary of this analysis is shown in Table 4-12 of the Rate
7 Change Proposal.

8 **Q24. How are the costs allocated to customer classes?**

9 A. The total cost responsibility for each customer class is determined by developing
10 wastewater system unit costs of service for each cost component and applying these unit
11 costs to the respective service requirements of each customer class. In accomplishing this,
12 each customer class is allocated the share of volume, capacity, compliance, strength, and
13 customer costs for which it is responsible.

14 The unit cost of service represents the cost of providing a unit of each cost component,
15 volume, capacity, compliance, strength, and customer and billing, to each customer
16 regardless of their other characteristics. Each customer class pays the same for each
17 service they receive, though they may receive different amounts of each service, which is
18 the basis for different costs by customer classes. In other words, differences in costs
19 between customers is based on a fair and equitable determination of the cost of providing
20 specific services and those differences in cost are a result of different levels of service
21 and not different pricing for the same service levels.

22 Customers are divided into customer classes that represent a particular type of service
23 requirement or load on the system. The residential customer class includes residents
24 living in single family and multi-family dwellings. The non-residential class includes all

1 customers not included in the residential class such as commercial, government,
2 industrial, etc. Wastewater strengths in excess of the normal wastewater strength
3 thresholds, which are contributed by a portion of the non-residential class, are segregated
4 into a separate surcharge customer group.

5 The determination of customer class responsibility for costs of service requires that the
6 customer classes be allocated a portion of the volume, capacity, compliance, strength, and
7 customer costs of service according to their respective service requirements. Service
8 requirements or units of service for the respective customer classes are shown in Table 4-
9 15 of the Rate Change Proposal.

10 **Q25. How do the District’s existing rates compare to the cost of service analysis?**

11 A. The results of the cost of service analysis are summarized in Table 4-17 and show the
12 amount by which each class as a whole is being under-recovered relative to the District’s
13 revenue requirements for FY21. While there are varying impacts among customer
14 classes, they do not vary significantly from the overall proposed rate increase, which
15 indicates that on the whole there should not be significant differential impacts to
16 customers from the cost of service rate adjustments.

17

18 **Wastewater Rate Adjustments**

19 **Q26. How are the cost of service rate adjustments determined?**

20 A. Based on the unit costs calculated in the cost of service analysis as shown on Table 4-15
21 of the Rate Change Proposal, the District can develop proposed rates that are cost of
22 service based and will provide an equitable recovery of costs from the District’s customer
23 classes. These rates are presented in Table 4-18 of the Rate Change Proposal.

24 **Q27. Why are the wastewater strength surcharges for biochemical oxygen demand**

1 **(BOD), chemical oxygen demand (COD), and total suspended solids (TSS)**
 2 **increasing greater than the overall rate increases?**

3 A. The cost of service analysis indicates a significant increase in the surcharge rates for
 4 BOD, COD, and TSS. This increase is caused by several factors, most significant is that
 5 the capital cost allocated to these functional categories increased by approximately 70%
 6 from FY 2017 to the test year of FY 2021 while units of service for BOD and COD
 7 decreased by 7% and TSS decreased by 5% over the same time period. In total, these
 8 factors result in the increase in the rates that is larger than other rate components.

9 A comparison of both the units of service and total allocated costs for both operating and
 10 maintenance costs and capital costs allocated to strength is shown in the table on the next
 11 page for the 2017 Test Year contained in the previous proposal and the 2021 Test Year
 12 contained in this rate proposal.

	2015 Rate Proposal 2017 Test Year		2019 Rate Proposal 2021 Test Year	
	TSS	BOD	TSS	BOD
Total pounds of strength	165,506,255	101,046,703	174,346,785	95,566,403
Operating Costs allocated to Strength	\$ 13,895,929	\$ 20,979,645	\$ 14,220,557	\$ 22,424,147
Capital Costs allocated to Strength	\$ 7,777,870	\$ 12,178,903	\$ 13,107,315	\$ 20,464,046
Total Costs	\$ 21,673,799	\$ 33,158,548	\$ 27,327,873	\$ 42,888,193
Unit Cost per pound	\$ 0.1310	\$ 0.3282	\$ 0.1567	\$ 0.4488
Rate per 2000 lbs (ton)	\$ 262.00	\$ 658.00	\$ 314.00	\$ 898.00

13
 14 **Q28. Are these proposed rates fair and equitable?**

15 A. Yes. A comparison of the revenues generated under the proposed rates to the calculated
 16 cost of service is shown in Table 4-20 of the Rate Change Proposal, and as is indicated by
 17 the percent difference in the far right column, the proposed rates over- or under-recover
 18 the allocated costs of each customer class by a relatively small amount, which is a strong

1 indication that they will yield a fair and equitable recovery of the District's revenue
2 requirements from the various customer classes. .

3 **Q29. Does this conclude your direct testimony in this matter?**

4 A. Yes it does.