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STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF THE BOARD OF SANITARY) COMMISSIONERS OF THE SANITARY) DISTRICT OF THE CITY OF EAST) CHICAGO, INDIANA, FOR AUTHORITY TO) INCREASE ITS RATES AND CHARGES) FOR WASTEWATER SERVICE, AND FOR) APPROVAL OF NEW SCHEDULES OF) WASTEWATER RATES AND CHARGES.)

CAUSE NO. 45632

Verified Direct Testimony of Jessica A. York

I. INTRODUCTION

- 2 Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.
- 3 A Jessica A. York. My business address is 16690 Swingley Ridge Road, Suite 140,
- 4 Chesterfield, MO 63017.

1

5 Q WHAT IS YOUR OCCUPATION AND BY WHOM ARE YOU EMPLOYED?

- 6 A I am a consultant in the field of public utility regulation and an Associate with the firm
- 7 of Brubaker & Associates, Inc. ("BAI"), energy, economic and regulatory consultants.

8 Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

9 A This information is included in Appendix A to my testimony.

10 Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

11 A The East Chicago Sanitary District Industrial Group ("Industrial Group" or "IG"). The 12 Industrial Group consists of industrial customers of the Sanitary District of the City of East Chicago, Indiana ("ECSD") who are reliant on ECSD for consistent, reliable and
 reasonably priced wastewater service to support their respective operations.

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3 Q HAVE YOU BEEN INVOLVED WITH PRIOR PROCEEDINGS BEFORE THE

INDIANA UTILITY REGULATORY COMMISSION ("IURC" OR "COMMISSION")?

5 A Yes. I have been involved in prior proceedings before this Commission and have
6 presented testimony in some of those proceedings.

7 Q WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

8 A My testimony will address ECSD's class cost of service study ("COSS"), and ECSD's 9 proposed allocation of its claimed revenue requirement deficiency across customer 10 classes. In addition, I will discuss ECSD's volumetric treatment rate and discuss an 11 alternative rate design.

12 Q DOES THE FACT THAT YOU DO NOT ADDRESS EVERY ISSUE RAISED IN 13 ECSD'S TESTIMONY MEAN THAT YOU AGREE WITH ECSD'S TESTIMONY ON 14 THOSE ISSUES?

A No. It merely reflects that I did not choose to address all of those issues. It should not
be construed as an endorsement of, or agreement with, ECSD's position on such
issues.

II. SUMMARY

2 Q PLEASE SUMMARIZE YOUR FINDINGS, RECOMMENDATIONS AND
3 CONCLUSIONS ON ECSD'S COSS, PROPOSED REVENUE ALLOCATION, AND
4 PROPOSED RATE DESIGN.

5 A My conclusions and recommendations are as follows:

1

- 6 1. ECSD's COSS is flawed, and cannot be relied upon to set rates in this case.
- 7 2. ECSD's COSS allocates a large portion of costs on the basis of wastewater flow, or volume, even though most costs are fixed rather than variable in nature. A larger portion of costs should be allocated on the basis of customer connections, rather than flow.
- One-third of ECSD's Pump Station costs are classified as fixed and allocated on the basis of the number of customer connections. Two-thirds of ECSD's Pump Station costs are classified as flow-related and allocated on the basis of wastewater volumes. In order to reflect the fact that approximately half of the Pump Station costs are fixed costs that do not vary with flow (e.g. Debt Service and Replacement and Improvement annual expense), I recommend adjusting the classification of these Pump Station costs to 50% fixed and 50% flow.
- 4. ECSD has not allocated any debt service costs to the Collection System functional cost category. This does not reflect the reality that a portion of the debt service is associated with funding improvements to, and the development of, the Collection System. Therefore, I recommend allocating debt service costs to all three service functions because all of the service functions, including the Collection System function, require capital investment and capital funding costs.
- 24 5. ECSD's COSS indicates that the Industrial Excess Strength surcharge rates should 25 be decreased significantly. However, this result is inaccurate, illogical, and not 26 supported by the cost of service study. ECSD has designed its rate for Excess 27 Strength Total Suspended Solids ("TSS") to reflect its average cost associated with 28 system wide TSS measured in its wastewater volume at the treatment plant. This 29 ignores the fact that additional costs are incurred to address TSS in excess of the 30 normal domestic strength. The TSS excess strength charge should not be based 31 on the system average costs and volumes, but rather should reflect the additional 32 cost incurred for specific customers that discharge effluent at TSS levels in excess 33 of the system normal TSS level. Setting the TSS excess strength charge at the 34 system average TSS cost does not send an appropriate cost based price signal to 35 customers with excess strength TSS discharges that reflect the added costs their 36 excess strength discharges impose on the system.
- 37
 6. ECSD's rate for Excess Strength Chemical Oxygen Demand ("COD") has been developed in a similar flawed manner to ECSD's proposed TSS rate, and it too should be rejected.

- 17. ECSD proposes to bring all customer classes to cost of service based on the results2of its COSS. Under ECSD's COSS, certain classes would receive significant rate3decreases in Phase I, while other classes would receive increases well above the4system average increase. However, the COSS does not accurately measure each5class's cost of service for the reasons described above, and should not be adopted6by the Commission as the basis for setting rates.
- 8. The design of ECSD's two-block volumetric treatment rate is flawed, and does not reflect its cost of service. Revising the two-block treatment rate to reflect cost of service would result in a significantly higher Tier I rate, and a significantly lower Tier I rate. However, to mitigate the increases that would result for small users under a cost-based rate design, I recommend that no class receive a rate decrease, and that the remaining revenue deficiency be spread on an equal percent basis.
- 9. The results of ECSD's COSS and my corrected COSS indicate that mitigation is appropriate. Therefore, I recommend an alternative revenue allocation, under which no class receives a decrease, and instead, the Residential, Commercial, Industrial, Public Authority, and Industrial Excess Strength classes receive an equal percent increase in Phase I, Phase II, and Phase III.

III. CLASS COST OF SERVICE STUDY

19 Q PLEASE DESCRIBE ECSD'S COSS.

18

- 20 A As discussed in the direct testimony of Mr. Andre Riley, ECSD used the functional cost
- 21 allocation methodology promulgated by the Water Environmental Federal ("WEF") in
- its Manual of Practice No. 27 Financing and Charges for Wastewater Systems.¹
- 23 ECSD's revenue requirements are first allocated to functional cost categories, including
- 24 Treatment, Collection System, Pump Stations, Billing, Pretreatment, and
- 25 Administrative. Then, the functional revenue requirements are allocated to each
- 26 customer class based on the units of service associated with each class. This is a
- 27 widely accepted approach to wastewater cost of service studies.

28 Q WHAT ARE THE RESULTS OF ECSD'S COSS?

29 A The results of ECSD's COSS are presented below in Table 1.

¹Riley Direct Testimony at 23-24.

Т	Α	В	L	Е	1	
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		Phas	el	Phas	e II	Phase III Across the Board Increase from Phase II			
	Proforma	Increase / (De <u>Reach Cost</u>	ecrease) to <u>of Service</u>	Across the Increase fro	e Board <u>m Phase I</u>				
Customer Class	<u>Current</u> (1)	<u>Amount</u> (2)	<u>Percent</u> (3)	<u>Amount</u> (4)	<u>Percent</u> (5)	4	<u>Amount</u> (6)	Percent (7)	
Residential	\$1,212,992	\$ 304,775	25.1%	\$ 241,477	15.9%	\$	68,435	3.9%	
Commercial	943,209	278,954	29.6%	194,446	15.9%		55,106	3.9%	
Industrial	3,473,238	1,233,694	35.5%	757,897	16.1%		214,787	3.9%	
Industrial Excess Strength	1,042,820	(810,021)	-77.7%	37,038	15.9%		10,497	3.9%	
Public Authority	328,583	135,990	41.4%	73,914	15.9%		20,947	3.9%	
Pretreatment Monitoring	156,325	(50,975)	-32.6%	16,761	15.9%		4,750	3.9%	
Pretreatment Base	207,694	(23,614)	-11.4%	29,287	15.9%		8,300	3.9%	
Penalties	57,399	<u> </u>	<u>0.0</u> %		<u>0.0</u> %		-	<u>0.0</u> %	
Total	\$7,422,260	\$1,068,803	14.4%	\$1,350,820	15.9%	\$	382,822	3.9%	

As shown in the table, ECSD's COSS indicates that several classes require significant rate decreases to reach cost of service, while others require significant rate increases. Notably, ECSD's COSS indicates that a decrease of \$810,021, or 77 percent is warranted for the Industrial Excess Strength class. This result is driven by ECSD's proposal to significantly reduce excess strength rates for COD and TSS excess strength discharges, as well as a reduction in billing units for TSS.

7

Q

DOES ECSD'S PROPOSED REVENUE ALLOCATION REFLECT THE RESULTS OF

8 ITS COSS?

9 A Yes. ECSD proposes to bring all classes to cost of service based on the results of its
10 COSS in Phase I, followed by equal percent increases for all customer classes in Phase
11 II and Phase III. However, ECSD's proposed revenue allocation in Phase I should be
12 rejected, as it reflects the results of an inaccurate and unreliable COSS.

1 **Q**

WHY IS ECSD'S COSS UNREASONABLE?

2 А While ECSD's proposed COSS follows a generally accepted approach to wastewater 3 cost of service studies, there are certain aspects of ECSD's COSS that need to be 4 corrected in order to produce a more accurate measure of each customer class's cost 5 of service. Specifically, a greater portion of Pump Station costs should be classified as 6 fixed, and allocated on the basis of the number of customer connections than the 7 one-third portion recommended by ECSD. In addition, some debt service costs should 8 be allocated to the Collection System functional cost category. Further, the Excess 9 Strength TSS and COD rates should not reflect the average cost of treating total system TSS and COD. Instead, these rates should reflect the additional effort and cost 10 11 associated with treating wastewater volumes that contain TSS and COD in excess of 12 the normal domestic strength loadings. In the absence of these changes, ECSD's 13 proposed COSS does not correctly reflect each customer class's cost of service. My 14 recommendations are discussed below in greater detail.

15 III.A. ALLOCATION OF PUMP STATION COSTS

 16
 Q
 HOW HAS ECSD ALLOCATED THE COSTS ASSOCIATED WITH PUMP

 17
 STATIONS?

A ECSD's COSS includes \$2,486,698 associated with Pump Stations. One-third of this
 amount is classified as fixed, and allocated on the basis of customer connections. The
 other two-thirds is classified as being related to wastewater flow, allocated on volume.

1QHAS ECSD PROVIDED AN EXPLANATION AS TO HOW IT SELECTED ITS2PROPOSED ONE-THIRD CUSTOMER/TWO-THIRDS VOLUME ALLOCATION OF3PUMP STATION COSTS?

A In response to a discovery request, ECSD indicated that the allocation of Pump Station
costs was selected based on discussions with ECSD's management.² In addition, the
discovery response referred to the WEF manual, which explains that the stations'
purpose is to move wastewater at variable rates of flow, so costs are assigned to the
volume component.³ However, the manual also indicates that hybrid approaches can
be used, so ECSD decided to use a one-third/two-thirds split between the number of
customers, and wastewater volumes.⁴

11QISECSD'SPROPOSEDALLOCATIONOFPUMPSTATIONCOSTS12REASONABLE?

13 A No. While it is true that pump stations move wastewater at variable rates of flow, they 14 must be designed to handle peak flows. As a result, pump station costs are significant 15 fixed, capacity related costs, that are not variable in nature. Therefore, an allocation 16 that is excessively weighted on volume does not accurately reflect cost causation on 17 the wastewater system because it understates the capital investment costs needed to 18 meet peak system capacity.

²ECSD's response to IG Data Request 2-6, included as Attachment JAY-1. ³*Id.* ⁴*Id.*

1 Q ARE YOU PROPOSING AN ALTERNATIVE ALLOCATION OF PUMP STATION 2 COSTS?

A Yes. I recommend allocating 50% of Pump Station costs on the basis of the number
customer connections, and the remaining 50% on flow.

5 Q WHAT IS THE BASIS FOR YOUR RECOMMENDED ALLOCATION OF PUMP 6 STATION COSTS?

7 А Approximately 50% of the costs associated with Pump Stations are fixed costs 8 associated with debt service and Replacements and Improvements. These costs 9 reflect funding of plant investment and do not vary with flow. For example, as shown 10 on Attachment AJR-1, page 28, the subtotal cost of Pump Stations (before the 11 allocation of administrative costs and offset for penalties) is \$2,187,741, which was 12 subject to a one-third/two-third split between customer connections and flow, respectively. This total amount includes \$820,392 for debt service and \$256,150 for 13 14 Replacements and Improvements, or a total capital cost amount of \$1,076,542. 15 Dividing the total capital cost of \$1,076,542 by the total cost of Pump Stations (\$2,187,741) shows that 49.2% of Pump Station costs do not vary and are not incurred 16 17 based on flow. Therefore, I recommend modifying the allocation of Pump Station costs 18 to reflect the fact that nearly half of these costs are fixed, rather than flow-related.

1 III.B. ALLOCATION OF COLLECTION SYSTEM COSTS

2 Q HOW HAS ECSD ALLOCATED THE COSTS ASSOCIATED WITH THE 3 COLLECTION SYSTEM?

A ECSD's COSS includes \$1,386,755 associated with the Collection System. Half of this
amount is allocated on the basis of customer connections, and the other half is
allocated on volume.

Q HAS ECSD PROVIDED AN EXPLANATION AS TO HOW IT SELECTED THE 50/50 CUSTOMER/VOLUME ALLOCATION OF COLLECTION SYSTEM COSTS?

A In response to a discovery request, ECSD indicated that the allocation of Collection
System costs was selected based on discussions with ECSD's management.⁵ In
addition, the discovery response referred to the WEF manual, which explains that the
collection system's purpose is to carry wastewater at variable rates of flow, so costs
are assigned to the volume component.⁶ However, the manual also indicates that
hybrid approaches can be used, so ECSD decided to use a 50/50 split between the
number of customers, and wastewater volumes.⁷

16 Q IS ECSD'S PROPOSED ALLOCATION OF COLLECTION SYSTEM COSTS 17 REASONABLE?

18 A I do not believe a 50/50 split is appropriate even though it recognizes that the costs of
19 the collection system are driven by both fixed and variable costs. However, I take the

⁵ECSD's response to IG Data Request 2-5, included as Attachment JAY-1. ⁶*Id.* ⁷*Id.*

weighting of variable flow rates assigned by ECSD's COSS into account when judging
 the overall reasonableness of the COSS.

Q DO YOU HAVE ANY OTHER CONCERNS WITH ECSD'S PROPOSED
 ALLOCATION OF COLLECTION SYSTEM COSTS?

A Yes. As shown on Attachment AJR-1, page 28, none of the debt service costs have
been allocated to the Collection System function. Instead, debt service costs have
been allocated only to the Treatment and Pump Stations functional cost categories.

8

Q

IS THIS REASONABLE?

9 A No. The cost of service study includes debt service for 2015 bonds, and debt service
10 for proposed 2022 bonds.⁸ These bonds have been, or will be, used to fund both Pump
11 Station rehabilitations and Combined Sewer Overflow ("CSO") Lagoon improvements.⁹
12 Since the CSO Lagoon is part of the Collection System, a portion of debt service costs
13 should be allocated to the Collection System function.

14 Q ARE YOU PROPOSING AN ALTERNATIVE ALLOCATION OF COLLECTION 15 SYSTEM COSTS?

A Yes. I propose to allocate Debt Service and Debt Service Reserve costs to the
 Treatment, Collection System, and Pump Stations functional cost categories in
 proportion to the allocation of costs associated with Replacements and Improvements
 to these cost categories. I believe this approach more accurately reflects the reality of

⁸Attachment AJR-1, page 28 of 54. ⁹Direct testimony of Mr. Riley at 10.

- how the proceeds from the bonds and cash revenue funding are being used to fund
 improvements to the wastewater system.
- 3

III.C. EXCESS STRENGTH SURCHARGES

DOES ECSD'S COSS SHOW THAT ITS COST OF TREATING EXCESS STRENGTH

4 5 Q

TSS AND COD HAVE DECREASED?

A No. There has been no indication from ECSD that its cost associated with treating
wastewater that contains TSS and COD in excess of the normal domestic strengths
has changed. Indeed, ECSD's cost study does not measure its cost of treating excess
strength TSS and COD discharges. Rather, ECSD's proposal is to set the excess
strength TSS and COD charges based on the system average cost of treating TSS and
COD.

12 Importantly, the ECSD COSS model does not accurately develop the per unit 13 cost of service associated with treating wastewater that contains TSS and COD in 14 excess of normal domestic strength loadings. ECSD's COSS calculates a rate of \$0.20 per pound of TSS, which represents a decrease of \$0.72 or 78 percent, relative 15 16 to the current TSS excess strength rate of \$0.92 per pound. This result is a function of 17 ECSD setting the Excess Strength TSS rate equal to the average cost associated with all TSS in the wastewater measured at the treatment plant.¹⁰ ECSD applies the same 18 method to the development of its proposed rate for Excess Strength COD.¹¹ This 19 20 method produces a proposed Excess Strength COD rate of \$0.24 per pound, which is 21 a decrease of \$0.04 or about 14% from the current rate of \$0.28 per pound.

¹⁰Total TSS cost per ECSD COSS is \$2,204,685, from Attachment AJR-1, page 34. Total TSS amounts to 11,142,489 pounds, from Attachment AJR-1, page 27. \$2,204,685 / 11,142,489 = \$0.20 per pound.

¹¹Attachment AJR-1, pages 27 and 34.

1 Q DO YOU AGREE WITH ECSD'S NORMALIZATION ADJUSTMENT TO THE 2 EXCESS TSS BILLING UNITS?

A Yes. As explained by Mr. Riley, one industrial customer, W.R. Grace, had abnormally high TSS loadings in the test year.¹² As a result, ECSD made an adjustment to normalize W.R. Grace's excess strength TSS billing units for setting rates. I do not take issue with this adjustment. However, I would note that ECSD does not appear to have normalized the total plant TSS loadings presented on Attachment AJR-1, page 27 of 54.

9 Q IS IT REASONABLE TO SET THE RATES FOR EXCESS STRENGTH TSS AND

COD EQUAL TO THE AVERAGE COST ASSOCIATED WITH TSS AND COD?

10

11 А No. The rates associated with Excess Strength surcharges should reflect the fact that 12 high-strength wastewater requires additional treatment, which results in additional cost. 13 In addition, Excess Strength surcharges should provide a price signal to customers to 14 take steps to reduce excessive TSS and COD, or at least reflect the costs they impose 15 on the system so they are incentivized to reduce those discharges. If customers with 16 excess strength TSS and COD discharge reduce TSS/COD, ECSD's cost of treating 17 the discharge will be reduced. But setting the Excess Strength TSS and COD rates 18 artificially low at a rate equal to the average cost does not provide a price signal that 19 encourages Excess Strength customers to reduce excess TSS and COD in their 20 wastewater discharge.

In addition, ECSD's proposed reduction to the rates for Excess Strength TSS and COD is not cost-justified and results in shifting additional ECSD costs to other customers, including the Residential class, via increased volumetric treatment charges.

¹²Direct testimony of Mr. Riley at 17-18, and Attachment AJR-1, page 17 of 54.

1 That is, ECSD removed the revenue for excess strength TSS and COD treatment, but 2 it did not reduce its cost of service for treating the excess strength TSS and COD 3 discharge. Rather, ECSD spread the costs to other customers who are not responsible 4 for imposing those costs on the system.

5 Q HAVE YOU DEVELOPED A COST BASED RATE FOR TSS AND COD?

6 А Yes. As shown on Attachment JAY-2, I separated the total TSS and COD loadings 7 from Attachment AJR-1, page 27, between domestic strength and excess strength. 8 This analysis showed that about 74% of total COD is related to domestic strength, and 9 26% is associated with excess strength. Therefore, 74% of the total cost allocated to 10 COD should be associated with domestic strength COD, and spread across all 11 wastewater volume. The remaining 26% of the COD cost should be recovered through 12 the excess strength COD surcharge, which would result in an excess strength COD surcharge of \$0.98 per pound,¹³ based on ECSD's COSS and proposed Phase I 13 14 revenue requirement.

A similar analysis, based on normalized TSS loadings, showed that about 50.5% of total TSS loadings are associated with excess strength TSS. As a result, 50.5% of the cost allocated to TSS should be recovered through the excess strength TSS surcharge. This would result in an excess strength TSS surcharge of \$1.60 per pound,¹⁴ based on ECSD's COSS and its normalized test year billing determinants.

¹³26% x allocated COD cost of \$1,459,078 = \$379,764. Spreading this over 388,725 pounds of excess strength COD produces a rate of \$0.98/lb.

¹⁴50.5% x allocated TSS cost of \$2,204,686 = \$1,113,425. Spreading this over 697,525 pounds of excess strength TSS produces a rate of \$1.60/lb.

III.D. INDUSTRIAL GROUP'S MODIFIED COSS

2 Q HAVE YOU MODIFIED ECSD'S COSS TO REFLECT YOUR RECOMMENDED

3 CORRECTIONS?

1

4 A Yes. The results of my modified COSS are presented below in Table 2, along with a
5 comparison to the results of ECSD's COSS.

Comparison of ECSD's to IG's COSS Results											
		ECS	D		IG						
		Phas	e l		Phase	I					
		Increase / (De	ecrease) to	Increase / (Decrease) to							
0	Proforma	Reach Cost of Service			Reach Cost of Service						
Customer Class	Current	Amount	Percent		Amount	Percen					
	(1)	(2)	(3)		(4)	(5)					
Residential	\$1,212,992	\$ 304,775	25.1%	\$	248,121	20.59					
Commercial	943,209	278,954	29.6%		111,172	11.89					
Industrial	3,473,238	1,233,694	35.5%		336,370	9.79					
Industrial Excess Strength ¹	1,042,820	(810,021)	-77.7%		341,643	32.89					
Public Authority	328,583	135,990	41.4%		106,086	32.39					
Pretreatment Monitoring	156,325	(50,975)	-32.6%		(50,975)	-32.69					
Pretreatment Base	207,694	(23,614)	-11.4%		(23,614)	-11.49					
Penalties	57,399		<u>0.0</u> %			<u>0.0</u>					
Total ¹	\$7.422.260	\$ 1.068.803	14.4%	\$	1.068.802	14.49					

¹ Reflects cost-based excess strength COD and TSS rates derived from IG's adjusted COSS.

As shown in Table 2, both COSS models indicate that significant increases are
warranted for several customer classes. Similarly, both models indicate that decreases
are warranted for the Pretreatment Monitoring, and Pretreatment Base classes.
ECSD's COSS also suggests that a decrease is necessary for the Industrial Excess
Strength customers. However, I believe this is incorrect for the reasons described

- 1 above. Separating total COD and TSS costs between domestic and excess strength
- 2 indicates that an increase is warranted for the Industrial Excess Strength class.
- 3 IV. REVENUE ALLOCATION

4 Q HAVE YOU REVIEWED ECSD'S PROPOSED ALLOCATION OF ITS CLAIMED

5 **REVENUE DEFICIENCY?**

A Yes. ECSD proposes to bring each customer class to cost of service based on the
results of its COSS.

8 Q IS ECSD'S PROPOSED REVENUE SPREAD REASONABLE?

- 9 A While I generally support the principle of cost based rates, I do not agree with ECSD's
- 10 proposed revenue spread because it is based on the results of an inaccurate and
- 11 unreliable cost of service study. In addition, the results of both ECSD's and the IG's
- 12 COSS models indicate that rate mitigation is appropriate.

13 Q ARE YOU RECOMMENDING AN ALTERNATIVE ALLOCATION OF ECSD'S

14 CLAIMED REVENUE DEFICIENCY?

A Yes. My proposed allocation of ECSD's claimed revenue deficiency is shown below
in Table 3.

TABLE 3													
Industrial Group Proposed Revenue Spread													
Customer Class	Proforma <u>Current</u> (1)	IG Pha Increase / (D <u>Reach Cost</u> <u>Amount</u> (2)	ase I ecrease) to <u>of Service</u> <u>Percent</u> (3)	IG Pha <u>Proposed I</u> <u>Amount</u> (4)	se I <u>ncrease</u> <u>Percent</u> (5)	Phase Across the <u>Increase fro</u> <u>Amount</u> (6)	e II e Board <u>m Phase I</u> <u>Percent</u> (7)	Phase Across the <u>Increase from</u> <u>Amount</u> (8)	e III 9 Board <u>n Phase II</u> <u>Percent</u> (9)				
Residential Commercial Industrial Industrial Excess Strength Public Authority Pretreatment Monitoring Pretreatment Base Penalties	\$1,212,992 943,209 3,473,238 1,042,820 328,583 156,325 207,694 57,399	\$ 248,121 111,172 336,370 341,643 106,086 (50,975) (23,614)	20.5% 11.8% 9.7% 32.8% 32.3% -32.6% -11.4% <u>0.0</u> %	\$ 185,185 143,998 530,251 159,205 50,164 - -	15.3% 15.3% 15.3% 15.3% 0.0% 0.0% <u>0.0%</u>	\$ 234,048 181,993 670,165 201,213 63,400	16.7% 16.7% 16.7% 16.7% 0.0% 0.0% <u>0.0</u> %	\$ 66,329 51,577 189,925 57,024 17,968 - -	4.1% 4.1% 4.1% 4.1% 4.1% 0.0% 0.0% 0.0%				
Total	\$7,422,260	\$ 1,068,802	14.4%	\$1,068,802	14.4%	\$ 1,350,821	15.9%	\$ 382,822	3.9%				

Because ECSD's COSS is flawed and should not be relied upon to set rates in this case, and because mitigation is appropriate under both COSS models, I recommend that no customer class receive a decrease, and that the remaining customer classes (including Industrial Excess Strength) receive an equal percent increase.

5

V. RATE DESIGN

6 Q PLEASE DESCRIBE ECSD'S RATE DESIGN.

A ECSD's rate design consists of a fixed monthly meter charge, a fixed monthly bill
charge, and a volumetric two-block treatment rate. The treatment rate is split into two
tiers, where the Tier 1 rate applies to the first 100,000 gallons of wastewater volume,
and Tier II applies to volume in excess of 100,000 gallons. The current volumetric
treatment rate for Tier II is significantly (about 66%) higher than the Tier I treatment
rate. The difference between the Tier I and Tier II rates would increase to 85% under
ECSD's proposal.

1 Q IS ECSD'S PROPOSED RATE DESIGN REASONABLE?

A No. ECSD's proposed volumetric treatment rate does not properly reflect its cost of
providing service, as in part, there are economies of scale associated with serving large
volume customers that are not reflected in ECSD's current or proposed rate design.

Q PLEASE EXPLAIN WHY YOU BELIEVE ECSD'S TWO-TIERED VOLUMETRIC TREATMENT RATE IS FLAWED.

- A ECSD's COSS allocates \$3,961,576 of flow-related costs for Treatment, Collection
 System, and Pump Stations to Tier I usage.¹⁵ However, these Tier I costs are spread
 to all volumetric billing units (including both Tier I and Tier II usage), rather than just
 Tier I billing units to develop ECSD's proposed Tier I rate.¹⁶ This is not cost based, and
 results in shifting a significant amount of Tier I costs to larger customers.
- 12 In contrast, the allocated Tier II costs (less the proposed Industrial Excess 13 Strength revenues) are only spread across the Tier II billing units to derive the per unit 14 flow-related cost for Tier II.¹⁷ As a result, ECSD's total proposed Tier II treatment rate 15 consists of both the Tier I and the Tier II costs.

16QPLEASE DISCUSS THE EXCESS STRENGTH REVENUE OFFSET TO THE17ALLOCATED TIER II COSTS USED TO DEVELOP THE PER-UNIT FLOW-18RELATED COST FOR TIER II.

A As shown on Attachment AJR-1, page 33, ECSD allocates \$2,466,078 of flow-related
 costs to Tier II. This amount is offset by proposed Industrial Excess Strength revenues
 of \$232,799, and then spread to Tier II volumetric billing units. However, these Excess

¹⁵Attachment AJR-1, page 33 of 54. ¹⁶*Id.* ¹⁷*Id.*

Strength revenues are significantly understated, because they are based on ECSD's
 unreasonably low excess strength TSS and COD surcharge rates.

For the reasons described earlier in my testimony, these revenues should be
 based on my corrected cost-based excess strength TSS and COD rates. Applying the
 cost-based rates for Excess Strength TSS and COD to the normalized billing units
 would produce total Excess Strength revenues of \$1,493,189.¹⁸

7

8

Q HOW COULD THE TWO-TIERED VOLUMETRIC TREATMENT RATES BE CORRECTED TO BETTER ALIGN WITH COST OF SERVICE?

9 А The Tier I rate should be designed to recover the costs assigned to Tier I usage, plus 10 a share of the costs associated with domestic strength TSS and COD. Specifically, 11 ECSD's COSS allocates \$1,617,776 of Treatment, Collection System, and Pump 12 Station flow-related costs to Tier I.¹⁹ Spreading this amount over Tier I billing units of 13 481,464 thousand gallons produces a per unit cost of \$3.36 per thousand gallons. As 14 described earlier in my testimony, 74% or \$1,079,314 of allocated COD cost is for 15 domestic strength COD. Spreading this over all volumetric billing units results in a 16 domestic strength COD rate of \$0.74 per thousand gallons. In addition, 49.5%, or 17 \$1,091,261 of allocated TSS cost is for domestic strength TSS. Spreading this amount 18 to all volumetric billing units produces a domestic strength TSS rate of \$0.75 per 19 thousand gallons. Therefore, a more accurate and reasonable rate design would show 20 a Tier 1 volumetric rate of 4.86 per thousand gallons (i.e. 3.36 + 0.74 + 0.75).

21 The flow-related portion of Treatment, Collection System, and Pump Station 22 costs allocated to Tier II in ECSD's COSS is \$1,146,116.²⁰ Spreading this over Tier II

 $^{^{18}}$ COD rate of \$0.98 per pound x 388,725 pounds. TSS rate of \$0.1.60/pound x 697,525 pounds. 19 Attachment AJR-1, page 32 of 54. 20 *ld*.

billing units of 968,276 thousand gallons produces a per-unit cost of \$1.18 per thousand
 gallons. Adding the domestic strength COD and TSS rates results in a total Tier II rate
 of \$2.68 per thousand gallons.

As explained earlier in this testimony, cost based rates for excess strength COD
and TSS would be \$0.98 per pound, and \$1.60 per pound, respectively, based on
ECSD's proposed COSS and revenue requirement.

A summary of this corrected rate design for Phase I, compared to ECSD's
proposed Phase I rate design is presented below in Table 4.

TABLE 4												
Treatment and Excess Strength Surcharge Rate Design												
Description	Billing <u>Units</u> (1)	_ <u>ECSE</u> <u>Rate</u> (2)	<u>) Phase I</u> <u>Revenue</u> (3)	<u>IG</u> <u>Rate</u> (4)	<u>Phase I</u> <u>Revenue</u> (5)							
Treatment Tier I (kgal)	481,464	\$2.73	\$1,314,397	\$4.86	\$2,338,632							
Excess Strength	908,270	\$0.04	\$4,880,111	\$2.08	\$2,595,830							
TSS (lbs)	388,725 697,525	\$0.24 \$0.20	\$93,294 <u>\$139,505</u>	\$0.98 \$1.60	\$379,764 <u>\$1,113,425</u>							
Total			\$6,427,307		\$6,427,657							

9 Q ARE YOU RECOMMENDING THE COMMISSION ADOPT THIS ALTERNATIVE,

10 COST-BASED RATE DESIGN?

11 A My preference would be for the Commission to adopt a rate design that more accurately 12 reflects ECSD's cost of providing service, and also reflects the economies of scale 13 associated with providing service to large volume customers. However, both ECSD's 14 and my revised COSS models show that rate mitigation is appropriate. Therefore, I

15 recommend that that no class receive a rate decrease. I recommend an equal percent

increase across the Residential, Commercial, Industrial, Industrial Excess Strength,
 and Public Authority classes.

3 At the cost-based Excess Strength TSS and COD rates described above, 4 revenue from the Excess Strength Industrial class would be \$1,493,189, which is 5 \$450,369 or 43% greater than the pro forma revenues at current rates of \$1,042,820. 6 Therefore, an equal percent increase is appropriate for this class as well. These 7 increased excess strength revenues should be used to offset ECSD's proposed 8 volumetric treatment charges. My proposed excess strength surcharges for TSS and 9 COD are shown below in Table 5. These rates are based on ECSD's proposed 10 revenue requirement.

TABLE 5												
IG Proposed Rate Design												
Current IG Proposed Rates												
Description	<u>Rate</u>	Phase I	Phase II	Phase III								
	(1)	(2)	(3)	(4)								
Industrial Excess												
Strength (\$/lb)												
COD	\$0.28	\$0.79	\$0.92	\$0.96								
TSS	\$0.92	\$1.28	\$1.50	\$1.56								

11 Q DOES THIS CONCLUDE YOUR VERIFIED DIRECT TESTIMONY?

12 A Yes, it does.

1

Qualifications of Jessica A. York

2 Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

3 A Jessica York. My business address is 16690 Swingley Ridge Road, Suite 140,
4 Chesterfield, MO 63017.

5 Q PLEASE STATE YOUR OCCUPATION.

A I am a consultant in the field of public utility regulation and an Associate with the firm
of Brubaker & Associates, Inc. ("BAI"), energy, economic and regulatory consultants.

8 Q PLEASE IDENTIFY THE JURISDICTIONS IN WHICH YOU HAVE PREVIOUSLY

9 SPONSORED TESTIMONY.

A I have sponsored expert testimony in front of the Illinois Commerce Commission, the
 Indiana Utility Regulatory Commission, the Michigan Public Service Commission, the
 Missouri Public Service Commission, and the Public Utilities Commission of Nevada.

13 Q PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL

14 **EMPLOYMENT EXPERIENCE**.

- A I graduated from Truman State University in 2008 where I received my Bachelor of
 Science Degree in Mathematics with minors in Statistics and Actuarial Science. I
 earned my Master of Business Administration Degree with a concentration in Finance
 from the University of Missouri-St. Louis in 2014.
- 19 I joined BAI in 2011 as an analyst. Then, in March 2015, I joined the consulting
 20 team of BAI.
- I have worked in various electric, natural gas and water and wastewater
 regulatory proceedings addressing cost of capital, sales revenue forecasts, revenue

1 requirement assessments, class cost of service studies, rate design, and various policy 2 issues. I have also conducted competitive power and natural gas solicitations on behalf 3 of large electric and natural gas users, have assisted those large power and natural 4 gas users in developing procurement plans and strategies, assisted in competitive 5 contract negotiations, and power and natural gas contract supply administration. In the 6 regulated arena, I have evaluated cost of service studies and rate designs proffered by 7 other parties in cases for various utilities, including in Wisconsin, Illinois, Indiana, 8 Kansas, and others. I have conducted bill audits, rate forecasts and tariff rate 9 optimization studies.

I have also provided support to clients with facilities in deregulated markets,
 including drafting supply requests for proposals, evaluating supply bids, and auditing
 competitive supply bills. I have also prepared and presented to clients reports that
 monitor the electric market and recommend strategic hedging transactions.

BAI was formed in April 1995. BAI and its predecessor firm have participated
in more than 700 regulatory proceedings in forty states and Canada.

BAI provides consulting services in the economic, technical, accounting, and financial aspects of public utility rates and in the acquisition of utility and energy services through RFPs and negotiations, in both regulated and unregulated markets. Our clients include large industrial and institutional customers, some utilities and, on occasion, state regulatory agencies. We also prepare special studies and reports, forecasts, surveys and siting studies, and present seminars on utility-related issues.

In general, we are engaged in energy and regulatory consulting, economicanalysis and contract negotiation.

In addition to our main office in St. Louis, the firm also has branch offices in
 Corpus Christi, Texas; Detroit, Michigan; Louisville, Kentucky and Phoenix, Arizona.

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF THE BOARD OF SANITARY COMMISSIONERS OF THE SANITARY DISTRICT OF THE CITY OF EAST CHICAGO, INDIANA, FOR AUTHORITY TO **INCREASE ITS RATES AND CHARGES** FOR WASTEWATER SERVICE, AND FOR APPROVAL OF NEW SCHEDULES OF WASTEWATER RATES AND CHARGES.

CAUSE NO. 45632

Verification

I, Jessica A. York, an Associate of Brubaker & Associates, Inc., affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Jussier O. Jum-Jessica A. York

February 9, 2022

429792

Brubaker & Associates, Inc.

Q-2-2: Please describe, in detail, what ECSD is doing to reduce I/I.

- A-2-2: ECSD seeks to reduce I/I through a number of ongoing repair and replacement projects. As road reconstruction is done, a video inspection of the underlying sewer lines is undertaken and a decision is made as to whether to re-line or replace those affected lines. One particular instance involves the re-lining of the main along Roxana, as to which a contract has been granted and work is expected to begin in February 2022. Likewise, manholes are repaired or replaced concurrent with engineering improvements. While sewer separations are also considered for various ongoing projects, the general conclusion is that total sewer separation is not cost-effective, and the District is primarily addressing the issue through incremental improvements in the integrity of the system.
- Q-2-3: Please confirm that in the COSS, 50% of I/I is allocated on the number of connections, and 50% is allocated on flow.
- A-2-3: Yes, in the COSS, 50% of I/I is allocated based on the number of connections, and 50% is allocated based on flow.
- Q-2-4: With respect to ECSD's response to 2-3, please identify the basis for the 50%/50% classification and allocation of I/I. Please include all documents/studies relied upon by ECSD to reach the conclusion that 50%/50% split is appropriate.
- A-2-4: The 50/50 allocation is based on discussions with Management and guidance offered in the Water Environment Federation (WEF) Financing and Charges for Wastewater Systems, Manual of Practice No. 27. The allocation of I/I is referenced on pages 130 132 of the WEF manual. As described on page 130, the 1972 Water Pollution Control Act and subsequent amendments offered guidance on allocating I/I. The guidance states "I/I costs shall be allocated and recovered using one or a combination of approaches that are identified. These approaches include recovery of I/I costs from customers in proportion to the following: Contributed Wastewater Volume; Number of Connections; Land Area; and Property Value of Users, the system has approval for user charges based on ad valorem taxes. None of these methods fully captures the extent of I/I in the system, but each has a relationship to the quantity of I/I. The most common approaches have been to use contributed wastewater flow, the number of connections (or customers), or a combination of the two to allocate I/I related costs." Based on discussions with management and the WEF guidance, a 50%/50% allocation between contributed wastewater flow and the number of connections have been to cost.
- Q-2-5: With respect to collection system costs, please identify the basis for the classification of 50% of Collection System costs as flow-related, and 50% as connections-related. Please include all documents/studies relied upon by ECSD to reach the conclusion that 50%/50% split is appropriate.
- A-2-5: Page 111 of the WEF manual, as referenced in 2-4 above, offers guidance on the allocation of collection sewers. The manual reads, "The mains' purpose is to carry

wastewater at variable rates of flow, so costs are assigned to the 'volume' cost component. In the case of hybrid approaches, these costs may be assigned to both a volume and capacity component." Based on discussions with management regarding the Petitioner's system, it was determined this approach would be used and an allocation of 50%/50% would be used for the COSS.

- Q-2-6: With respect to pump station costs, please identify the basis for the classification of 33% of Pump Stations costs as connections-related, and 67% as flow-related. Please include all documents/studies relied upon by ECSD to reach the conclusion that this one-third/two-thirds split is appropriate.
- A-2-6: Page 111 of the WEF manual, as referenced in 2-4 above, offers guidance on the allocation of lift and pumping stations. The manual reads, "The stations' purpose is to move wastewater at variable rates of flow, so costs are assigned to the 'volume' cost component. In the case of hybrid approaches, these costs may be assigned to both a volume and capacity component." Based on discussions with management on the Petitioner's system it was determined this approach would be used and an allocation of 33%/67% would be used for the COSS.
- Q-2-7: Please provide a schedule of billing determinants for the twelve months ending December 31, 2020 and December 31, 2021.
- A-2-7: Petitioner objects to this request as unduly burdensome and disproportionate in benefit. Petitioner has not compiled the information for the 2021 time period requested and could only do so at considerable time and expense, which should not be required in this proceeding.
- Q-2-8: For the 2019 test year, 2020, and 2021, please provide a breakout of Tier II billing determinants for under 1M gallons and over 1M gallons.
- A-2-8: Petitioner objects to this request as unduly burdensome and disproportionate in benefit. Petitioner has not compiled the information for the 2020 and 2021 time period requested and could only do so at considerable time and expense, which should not be required in this proceeding. The information for 2019 is provided in the cost-of-service study AJR-1 at pg. 16 of 54.
- Q-2-9: Please provide a detailed explanation of the TSS loading adjustments 5 and 6 identified in Exhibit AJR-1, page 17 of 54. Please provide all correspondence related to this adjustment, including the referenced utility management email dated 10/21/2020.
- A-2-9: Adjustment 5 normalizes the excessive strength loadings as shown in the Petitioner's billing data compared to the recorded amount based on the financials. Adjustment 5 increases the excessive strength loadings by \$292,254. Adjustment 6 normalizes the excessive strength loadings to account for an abnormally high amount of TSS pounds recorded in the test year from the Petitioner's industrial customer W.R. Grace. The

EAST CHICAGO SANITARY DISTRICT (Wastewater Division)

SCHEDULE OF PLANT FLOWS AND WASTEWATER STRENGTH CONSTITUENTS (Based on the twelve months ended December 31, 2019)

<u>Month</u>	Raw Sewage (MG)	Average CBOD (mg/l)	Average COD (mg/l) (1)	Average TSS (mg/l)	Pounds <u>CBOD</u> (2)	Pounds <u>COD</u> (2)	Pounds TSS (2)	Domestic Strength COD <u>100 mg/l</u>	Excess Strength COD <u>>100mg/I</u>	Total <u>COD</u>	Domestic Strength TSS <u>100 mg/l</u>	Excess Strength TSS <u>>100mg/l</u>	Total <u>TSS</u>	Normalize Excess TSS <u>for W.R. Grace</u> (3)	Normalized Excess <u>TSS</u>	Total Normalized <u>TSS</u>
January 2019	429.6	27	131	337	96,737	469,355	1,207,425	358,286	111,069	469,355	358,286	849,139	1,207,425			
February	424.0	28	136	126	99,012	480,918	445,556	353,616	127,302	480,918	353,616	91,940	445,556			
March	425.5	37	180	217	131,301	638,761	770,061	354,867	283,894	638,761	354,867	415,194	770,061			
April	459.1	30	146	269	114,867	559,019	1,029,972	382,889	176,129	559,019	382,889	647,083	1,029,972			
May	606.4	23	112	199	116,320	566,426	1,006,418	505,738	60,689	566,426	505,738	500,680	1,006,418			
June	516.1	24	117	180	103,303	503,600	774,769	430,427	73,173	503,600	430,427	344,342	774,769			
July	471.2	29	141	216	113,964	554,103	848,839	392,981	161,122	554,103	392,981	455,858	848,839			
August	389.6	30	146	299	97,478	474,393	971,530	324,926	149,466	474,393	324,926	646,604	971,530			
September	362.9	27	131	255	81,718	396,483	771,779	302,659	93,824	396,483	302,659	469,121	771,779			
October	475.2	19	92	224	75,300	364,611	887,750	364,611	0	364,611	396,317	491,433	887,750			
November	432.1	26	126	331	93,697	454,068	1,192,829	360,371	93,697	454,068	360,371	832,458	1,192,829			
December	371.3	36	175	399	111,479	541,912	1,235,560	309,664	232,248	541,912	309,664	925,896	1,235,560			
Totals	5,363.0	336	1,633	3,052	1,235,176	6,003,648	11,142,489	4,441,037	1,562,612	6,003,648	4,472,742	6,669,747	11,142,489	(2,106,162)	4,563,586	9,036,328
						P	ercent of Total	74.0%	26.0%	100.0%	49.5%				50.5%	100.0%

(1) COD strength is assumed at 4.86 times the CBOD strength based on the historical correlation between CBOD and COD, per

utility management (email 11/9/20).

(2) Calculated as follows:

Formula = MG x 8.34 x Average mg/l

(3) Scaled down excess TSS to be consistent with ECSD's adjustment related to W.R. Grace. Excess TSS were reduced by about 30% between the test year and pro forma billing units (i.e. 697,525 lbs / 1,019,443 lbs = -31.6%)