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July 12, 2022

Via Electronic Filing

Rosemary Chiavetta, Secretary
PA Public Utility Commission
400 North Street
Harrisburg, PA 17120

Re: Implementation of Chapter 32 of the Public Utility Code RE: Pittsburgh Water
and Sewer Authority; Docket Nos. M-2018-2640802 and M-2018-2640803

Dear Secretary Chiavetta:

Consistent with Section 5.412a of the Commission's regulations, 52 Pa. Code § 5.412a, and the Order Admitting Evidence Into the Record dated July 6, 2022 in the above matter enclosed for electronic filing please find the following admitted testimony and exhibits on behalf of the Pittsburgh Water and Sewer Authority in the above matter.

Testimony	Witness	Exhibits
PWSA St. No. 1	Direct Testimony of Tony Igwe	Exhibit TI-1
PWSA St. No. 2	Direct Testimony of Keith Readling	No Exhibits
PWSA St. No. 3	Direct Testimony of Edward Barca	No Exhibits
PWSA St. No. 4	Direct Testimony of Harold J. Smith	Exhibits HJS-1 and HJS-2

All known parties and the presiding officers have been served previously with this Testimony and Exhibits. If you have any questions, please contact me.

Sincerely,



Lauren M. Burge

Enclosure

cc: Hon. Eranda Vero w/enc. (via email only)
Hon. Gail M. Chiodo w/enc. (via email only)
Certificate of Service w/out enc. (via email only)

CERTIFICATE OF SERVICE

I hereby certify that this day I served a copy of PWSA's Letter submitting Admitted Testimony and Exhibits upon the persons listed below in the manner indicated in accordance with the requirements of 52 Pa. Code Section 1.54.

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/s/ Lauren M. Burge

Lauren M. Burge, Esq.

Dated: July 12, 2022

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

TONY IGWE

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos. M-2018-2640802 & M-2018-2640803

TOPICS:

Response to TUS Second Set of Directed Questions,
Questions 7 and 8

March 22, 2022

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TABLE OF EXHIBITS

Exhibit TI-1	TUS Second Set of Directed Questions (Feb. 22, 2022) (with questions and subparts numbered for reference)
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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.**

3 A. My name is Tony Igwe. I am the Senior Group Manager, Stormwater for The Pittsburgh
4 Water and Sewer Authority (“PWSA”), a position that I assumed in January 2021. I
5 previously held this position on an interim basis beginning in September 2020.

6 **Q. WHAT ARE YOUR JOB RESPONSIBILITIES IN THAT POSITION?**

7 A. My responsibilities include planning, design, implementation, and maintenance of
8 stormwater-related projects that reduce localized flooding and combined sewer overflows
9 while improving the water quality and health of streams and waterways.

10 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
11 **RELEVANT EXPERIENCE.**

12 A. I am a civil and environmental engineer with nearly three decades of experience helping
13 municipalities and authorities solve wet weather control issues. I hold a Bachelor of
14 Science in Civil Engineering from Mississippi State University, and a Masters Degree
15 and PhD in Environmental Engineering from Wayne State University. I am also a
16 registered professional engineer in Pennsylvania and Michigan. Prior to joining PWSA, I
17 worked on projects that covered wastewater, combined sewer overflow, and stormwater
18 issues for cities such as Detroit, Michigan and Cleveland, Ohio. In 2002, I established
19 the Pittsburgh office of Wade Trim, a leading engineering firm. During my time at Wade
20 Trim, I worked with 3 Rivers Wet Weather, Inc., PWSA and the 83 municipalities and
21 municipal authorities in the Allegheny County Sanitary Authority (“ALCOSAN”) service
22 area to develop a regional flow monitoring plan and wet weather feasibility study reports.
23 I also supported PWSA as a consultant on the Four Mile Run Stormwater Improvement
24 Project.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION (“PUC” OR “COMMISSION”)?

A. Yes, I submitted written testimony in PWSA’s 2021 rate case at Docket No. R-2021-3024773, *et al.*, including direct, supplemental direct, and rebuttal testimony.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to respond to portions of the Second Set of Directed Questions issued by the Commission’s Bureau of Technical Utility Services (“TUS”) on February 22, 2022. Specifically, I am responding to Questions 7 and 8 and their various subparts, related to PWSA’s relationship with the City of Pittsburgh (“City”) and bulk stormwater agreements, respectively.

Q. ARE OTHER WITNESSES PROVIDING TESTIMONY RESPONDING TO THE SECOND SET OF DIRECTED QUESTIONS?

A. Yes. The other witnesses providing testimony on behalf of PWSA are:

- Keith Readling (PWSA St. No. 2) – Responding to Questions 1(c)-(d) and 2
- Edward Barca (PWSA St. No. 3) – Responding to Questions 1(a)-(b) and 3-6
- Harold Smith (PWSA St. No. 4) – Question 1(a)-(b).

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. Yes. Exhibit TI-1 provides a copy of the TUS Second Set of Directed Questions and subparts which have been numbered for ease of reference throughout PWSA’s testimony.

II. RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION 7

In the Revised Stormwater CP, Section 19, Part G of Appendix 1 at Page 23, PWSA indicated that PWSA is not an “agent” of the City. On Pages 21 to 22 of PWSA Statement No. 7 at Docket No. R-2021-3024779, PWSA stated, “PWSA has taken responsibility for maintaining approximately 25,000 stormwater catch basins and inlets. [...] Right now, PWSA acts as an agent of the [City] to perform maintenance of all publicly owned catch basins.”

1 *Additionally, in Revised Stormwater CP at Section 19, Part D of Appendix 1, Pages 22 to 23,*
 2 *PWSA indicated that: (1) PWSA is not operating stormwater infrastructure without a written*
 3 *service agreement or lease, except in certain instances; (2) if PWSA performs any work or*
 4 *services on “private” stormwater infrastructure, PWSA will charge the owner for such services;*
 5 *and (3) that charging the City for PWSA services provided is set forth in the City/PWSA*
 6 *Cooperation Agreement. Parties should discuss:*

7 (a) *Whether the City/PWSA Cooperation Agreement and other agreements between the City*
 8 *and PWSA adequately address non-tariff stormwater services and costs, facility*
 9 *ownership, and facility operational control. Parties should distinguish between*
 10 *stormwater facilities that are part of PWSA’s combined sewer system and stormwater*
 11 *facilities that are part of the City’s and/or PWSA’s MS4.*

12 *Finally, in Revised Stormwater CP, Section 19, Part C of Appendix 1 at Page 22, PWSA*
 13 *indicated that, to the extent PWSA provides services to the City, such as sampling the City’s*
 14 *outfalls or maintaining City-owned catch basins, PWSA will charge the City for those services*
 15 *pursuant to the Cooperation Agreement. Parties should discuss:*

16 (b) *Whether any current non-tariff stormwater services and costs, including sampling costs*
 17 *for the City and costs for PWSA to operate and replace City-owned stormwater*
 18 *infrastructure that serves the public, should be incorporated into PWSA’s revenue*
 19 *requirement and charged as a component of PWSA’s base stormwater rates.*

21 **Q. AS A PRELIMINARY MATTER, PLEASE CLARIFY WHETHER PWSA ACTS**
 22 **AS AN “AGENT” OF THE CITY IN MAINTAINING CERTAIN STORMWATER**
 23 **INFRASTRUCTURE.**

24 A. Question 7 notes that my direct testimony in PWSA’s 2021 rate case stated that “[r]ight
 25 now, PWSA acts as an agent of the [City] to perform maintenance of all publicly owned
 26 catch basins.” (PWSA St. No. 7 at 21-22, Docket No. R-2021-3024779). To clarify, this
 27 statement was not intended to mean that PWSA is an “agent” of the City in a legal or
 28 technical sense. Rather, this statement simply meant that PWSA is currently performing
 29 maintenance of publicly owned catch basins on the City’s behalf. Under the Capital
 30 Lease Agreement between PWSA and the City, PWSA is responsible for maintaining
 31 catch basins that connect to its system.

32 **Q. QUESTION 7(A) ASKS WHETHER THE CITY/PWSA COOPERATION**
 33 **AGREEMENT AND OTHER AGREEMENTS BETWEEN THE CITY AND**
 34 **PWSA ADEQUATELY ADDRESS NON-TARIFF STORMWATER SERVICES**

**AND COSTS, FACILITY OWNERSHIP, AND FACILITY OPERATIONAL
CONTROL. PLEASE RESPOND.**

A. PWSA has a variety of agreements in place with the City that adequately address non-tariff stormwater services and costs, as well as facility ownership and operations. My testimonies on this topic in PWSA's 2021 rate case (Docket No. R-2021-3024779), PWSA St. Nos. 7, 7-SD, and 7-R, are incorporated herein by reference. While the Cooperation Agreement does not specifically discuss stormwater services and costs, it broadly establishes that the City will pay PWSA for services provided based on actual direct expenses. This applies to all services provided by PWSA, including those related to non-tariff stormwater services and costs.

Other agreements between PWSA and the City address the division of responsibilities related to stormwater facilities. PWSA recently finalized an agreement with the City regarding Municipal Separate Storm Sewer System ("MS4") obligations. This agreement was filed with the Commission under Section 507 of the Public Utility Code on January 11, 2022 (Docket No. U-2022-3030418). The MS4 Agreement provides, for example, that PWSA will sample City outfalls and will charge the City for these services.

PWSA is currently in the process of re-starting discussions with the City and the new administration to develop a Memorandum of Understanding ("MOU") regarding overall stormwater responsibilities. PWSA anticipates finalizing the Stormwater MOU by the end of 2022.

In addition to these overarching agreements, PWSA also enters into agreements with the City on a project-specific basis regarding costs, services, and facility ownership

and maintenance. For example, these agreements may relate to individual green infrastructure projects or stormwater projects within City parks.

Taken together, these agreements adequately address stormwater services, costs and facilities.

Q. QUESTION 7(B) ASKS WHETHER ANY CURRENT NON-TARIFF STORMWATER SERVICES AND COSTS, INCLUDING SAMPLING COSTS FOR THE CITY AND COSTS FOR PWSA TO OPERATE AND REPLACE CITY-OWNED STORMWATER INFRASTRUCTURE THAT SERVES THE PUBLIC, SHOULD BE INCORPORATED INTO PWSA'S REVENUE REQUIREMENT AND CHARGED AS A COMPONENT OF PWSA'S BASE STORMWATER RATES. DO YOU AGREE WITH THIS SUGGESTION?

A. No, non-tariffed stormwater services and costs should not be incorporated into PWSA's stormwater revenue requirement. As I previously explained, under the Cooperation Agreement, PWSA charges the City for services provided, including stormwater services. PWSA is already being directly compensated for these non-tariff stormwater services and costs and it is not necessary to include the costs in stormwater base rates.

III. RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION 8

In the Revised Stormwater CP, Section 20 of Appendix 1 at Page 25, PWSA indicated that it did not propose any charges for contributing municipality service as part of the Stormwater Rate Case for two major reasons. One reason is that stormwater from these municipalities flows into a combined sewer system that the City of Pittsburgh developed decades ago. Parties should discuss:

(a) Whether PWSA should enter into Bulk Service Agreements with contributing municipalities for the conveyance and treatment of these flows or maintain the practice of charging PWSA's wastewater and stormwater ratepayers located in the City for these costs.

(b) Whether PWSA should develop a stormwater cost of service study for contributing municipalities within PWSA's sewershed areas to be filed prior to its next stormwater base rate case.

(c) Whether any existing arrangements between PWSA and contributing municipalities impact PWSA's ability to earn a reasonable amount of funding for stormwater operations or create a burden on PWSA customers located in the City.

Q. SHOULD PWSA ENTER INTO BULK SERVICE AGREEMENTS WITH CONTRIBUTING MUNICIPALITIES FOR THE CONVEYANCE AND TREATMENT OF [STORMWATER] FLOWS OR MAINTAIN THE PRACTICE OF CHARGING PWSA’S WASTEWATER AND STORMWATER RATEPAYERS LOCATED IN THE CITY FOR THESE COSTS?

A. PWSA does not believe that the stormwater “flows” emanating from areas outside of PWSA’s service territory are the responsibility of those municipalities. As the Authority set forth in its initial Stormwater Compliance Filing, “[i]n determining whether an occurrence ...is a reportable accident related to stormwater, such as flooding associated with a severe storm, PWSA will only consider damage related to stormwater that has entered PWSA’s system”¹ Accordingly, all flows from upstream municipalities that enter into PWSA’s system are the responsibility of PWSA to mitigate. Any stormwater abatement or control that PWSA undertakes in those upstream communities is conducted in order to mitigate flows that will ultimately become the responsibility of PWSA. As such, it would not be reasonable to attempt to “charge upstream municipalities for such flows.” I am also informed by counsel that any attempt to charge upstream municipalities (absent their cooperation and agreement) for stormwater flows into PWSA’s system would be on questionable legal footing, as PWSA’s approved Stormwater Tariff lists the Authority’s service territory as “The City of Pittsburgh.” Moreover, PWSA had previously pointed out that, in many cases, the flows that now enter its stormwater management system had previously flowed into open streams that the City of Pittsburgh had determined to cover. Those coverings formed a portion of PWSA’s combined sewer or stormwater system. PWSA has inherited responsibility for

¹ PWSA Stormwater Compliance Plan at 18.

such coverings and it and its customers therefore continue to be responsible for costs of maintaining these facilities as well as mitigating flows into these facilities. My testimonies on contributing municipality service in PWSA's 2021 rate case (Docket No. R-2021-3024779), PWSA St. Nos. 7, 7-SD, and 7-R, are incorporated herein by reference.

Q. SHOULD PWSA DEVELOP A STORMWATER COST OF SERVICE STUDY FOR CONTRIBUTING MUNICIPALITIES WITHIN PWSA'S SEWERSHED AREAS TO BE FILED PRIOR TO ITS NEXT STORMWATER BASE RATE CASE?

A. PWSA does not believe that such a cost of service study would be appropriate. As noted in the answer to the prior question, PWSA considers the stormwater that finds its way into its system as its responsibility. Any stormwater mitigation efforts conducted in those upstream areas are undertaken to mitigate the stormwater flows into PWSA's system, which in turn mitigates the costs that PWSA and its customers must deal with. Moreover, it would, in PWSA's view, be virtually impossible to separately identify the "cost" of mitigating stormwater flows that emanated from upstream communities as opposed to costs created by stormwater originating in PWSA's service territory.

It is important to note, however, that PWSA has not ruled out discussions with upstream municipalities to potentially address stormwater flows entering our system that *can* be specifically identified as coming from a particular municipality, or which have increased due to a municipality's specific policy or action. In that case, PWSA could work collaboratively with that upstream municipality to finance and construct additional stormwater mitigation measures designed to address these added flows as they affect both PWSA and the municipality at issue. No such opportunities have arisen to date.

1 **Q. DO ANY EXISTING ARRANGEMENTS BETWEEN PWSA AND**
2 **CONTRIBUTING MUNICIPALITIES IMPACT PWSA’S ABILITY TO EARN A**
3 **REASONABLE AMOUNT OF FUNDING FOR STORMWATER OPERATIONS**
4 **OR CREATE A BURDEN ON PWSA CUSTOMERS LOCATED IN THE CITY?**

5 A. No, not as far as we can identify. PWSA has not entered into any existing agreements
6 that “impact PWSA’s ability to earn a reasonable amount of funding for stormwater
7 operations.”

8
9 **IV. CONCLUSION**

10 **Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?**

11 A. Yes.

PWSA EXH. TI-1

**Pa. Public Utility Commission Directed Questions, Stage 2, Set 2 – Stormwater,
dated February 22, 2022 (with Questions and Subparts Numbered for Reference)**

1. 52 Pa. Code § 53.53 – Information to be furnished with proposed general rate increase filings in excess of \$1 million

Certain PWSA responses to filing requirements included with PWSA’s 2021 Rate Case do not appear to include separate and distinct data for each operating division (*i.e.*, water, wastewater, and stormwater). For example, PWSA provided a consolidated income statement, rather than separate and distinct income statements for each operating division, in response to Filing Requirements I.2 & I.3. Parties should discuss:

- (a) Whether PWSA should provide separate and distinct data for each operating division.
- (b) The potential steps and associated time frame for Filing Requirement I.3.

Additionally, certain filing requirements include terms like “consumption,” “usage,” “gallons,” “water,” and “wastewater.” Parties should discuss:

- (c) Whether such terms are applicable for stormwater purposes and whether such terms provide necessary data.
- (d) Whether PWSA’s responses should include similar stormwater billing units (*i.e.*, impervious area) or other data and/or metrics where the terms “consumption,” “usage,” and “gallons” are used.

2. 52 Pa. Code §§ 65.8 – Meters & 65.14 - Measurement

In the Revised Stormwater CP, Section 6, Part C of Appendix 1 at Page 6, PWSA indicated that, throughout the impervious area data development process, there was no “allowable error.” Further, PWSA indicated that the minimum mapping unit for all features is 100 square feet, or less, if the feature is visible in the imagery and could be appropriately collected. It appears, based upon the minimum mapping unit, that features less than 100 square feet or not visible may have reasonably induced errors for certain customers. Parties should discuss:

- (a) The registration error tolerance of no more than 2% for water meters established by the Commission at 52 Pa. Code § 65.8.
- (b) The level, amount, or percentage, if any, at which a reasonable error tolerance should be established for Geographical Information Systems (GIS) based stormwater mapping of impervious areas.

- (c) The utilization of equivalent residential units (ERUs) in PWSA's Storm Water Tariff Tiers based upon impervious area measured in square feet.

Additionally, in Section 6, Part E of Appendix 1, PWSA indicated that it will update stormwater billing source data in response to customer inquiries, "event triggers" indicating new or changed developments, and "as needed" following new releases of aerial imagery. Parties should discuss:

- (d) The tariff language for billing unit adjustments included in Pages 38-39 of PWSA's stormwater tariff.
- (e) Sources that PWSA may or must use to determine stormwater billing unit data, and whether PWSA should be permitted to use any sources or change between sources at its discretion, even when sources have not been identified in a rate case as one of PWSA's stormwater billing unit data sources.
- (f) If mapping or data sources are permitted to be changed between rate cases, thereby modifying the underlying GIS/meter source material, whether there should be a customer notification process describing how the mapping changeover may impact customer billing ERUs and whether PWSA should be required to retain the previous mapping and data sets to resolve billing disputes for a set time period.
- (g) How to handle billing unit data discrepancies where there has not been an apparent change on the ground, and what types of discrepancies would trigger a modification of billing unit data. For example, if a residential customer is assigned 2,711 square feet of impervious area based on existing aerial imagery, and a new release of aerial imagery indicates that same customer should be assigned 2,708 square feet, under PWSA's effective stormwater tariff, that customer would be billed a Tier 3 service charge under existing imagery and a Tier 2 service charge under updated imagery. In this regard, parties should also discuss:
 - i. Whether the difference of three-square feet, or approximately 0.1%, should result in a change in what the customer is billed, and whether the customer should be entitled to a refund.
 - ii. Whether this changes if the discrepancy is larger (*i.e.*, if the discrepancy is above a certain number or percentage difference between existing and updated values, and which has a material impact to the amount billed) or if existing data and updated data were based on different data sources (*i.e.*, a development permit vs. aerial imagery, or 2020 aerial imagery vs. 2025 aerial imagery, etc.).

3. 52 Pa. Code § 65.16 - System of Accounts

In the Revised Stormwater CP, Section 7, Part A of Appendix 1 at Page 8, PWSA indicated green infrastructure projects are considered as a system and that costs associated with installing the system are considered as a whole. PWSA further stated that most green infrastructure is not owned by PWSA as it is installed on private property and improvements on private property will be expensed. Parties should discuss:

- (a) Whether PWSA should record costs associated with green infrastructure projects as a whole or break down the system by major plant categories or subaccounts that are recorded and depreciated separately.
- (b) PWSA's capitalization policy for stormwater improvements, including whether PWSA should use the \$750 capitalization threshold for water and wastewater utilities under the uniform system of accounts for Class A Water and Wastewater Utilities.
- (c) Whether PWSA should expense improvements in one year or expense improvements through amortization of a deferred asset over a reasonable time period.

4. 52 Pa. Code § 65.19 Filing of Annual Financial Reports

In the Revised Stormwater CP, Section 9, Part B of Appendix 1 at Page 13, PWSA indicated that, for stormwater financial reporting, it proposes to use the approved annual report form for municipal wastewater utilities without any changes. Parties should discuss:

- (a) Whether PWSA should use the approved annual report for municipal wastewater utilities for an interim period before switching to the approved annual report form for Class A wastewater utilities in the future and the appropriate timeline for this transition.

5. 52 Pa. Code § 65.22 - Customer Advance Financing, Refunds and Facilities on Private Property

In the Revised Stormwater CP, Section 7, Part B of Appendix 1 at Page 8, PWSA indicated that most green infrastructure is not owned by PWSA as it is installed on private property and that improvements on private property will be expensed. Parties should discuss:

- (a) The requirements of 52 Pa. Code § 65.22(c) and whether this provision applies to green infrastructure installed on private property.

- (b) PWSA's method of formally dedicating assets installed on private property to the property owner.
- (c) Whether PWSA's method of formal dedication ensures assets installed on private property will be maintained to a working order, and whether an operating, inspection and maintenance, or similar agreement for such facilities that runs with the property should be created.
- (d) Whether PWSA should expense improvements on private property.

6. 52 Pa. Code § 73.3 - Annual Depreciation Reports

In the Revised Stormwater CP, Section 13 of Appendix 1 at Page 18, PWSA indicated that, for green infrastructure systems, the pipes or underground storage are the primary costs and the costs of trees and shrubs are ancillary and grouped with the pipe as part of the system. The costs of the pipe are then depreciated in the same manner as for water or wastewater assets. Parties should discuss:

- (a) Whether PWSA should group disparate assets with different service lives together and then apply the same depreciation to that group.

7. PWSA's Relationship with the City of Pittsburgh

In the Revised Stormwater CP, Section 19, Part G of Appendix 1 at Page 23, PWSA indicated that PWSA is not an "agent" of the City. On Pages 21 to 22 of PWSA Statement No. 7 at Docket No. R-2021-3024779, PWSA stated, "PWSA has taken responsibility for maintaining approximately 25,000 stormwater catch basins and inlets. [...] Right now, PWSA acts as an agent of the [City] to perform maintenance of all publicly owned catch basins."

Additionally, in Revised Stormwater CP at Section 19, Part D of Appendix 1, Pages 22 to 23, PWSA indicated that: (1) PWSA is not operating stormwater infrastructure without a written service agreement or lease, except in certain instances; (2) if PWSA performs any work or services on "private" stormwater infrastructure, PWSA will charge the owner for such services; and (3) that charging the City for PWSA services provided is set forth in the City/PWSA Cooperation Agreement. Parties should discuss:

- (a) Whether the City/PWSA Cooperation Agreement and other agreements between the City and PWSA adequately address non-tariff stormwater services and costs, facility ownership, and facility operational control. Parties should distinguish between stormwater facilities that are part of PWSA's combined sewer system and stormwater facilities that are part of the City's and/or PWSA's MS4.

Finally, in Revised Stormwater CP, Section 19, Part C of Appendix 1 at Page 22, PWSA indicated that, to the extent PWSA provides services to the City, such as sampling the City's outfalls or maintaining City-owned catch basins, PWSA will charge the City for those services pursuant to the Cooperation Agreement. Parties should discuss:

- (b) Whether any current non-tariff stormwater services and costs, including sampling costs for the City and costs for PWSA to operate and replace City-owned stormwater infrastructure that serves the public, should be incorporated into PWSA's revenue requirement and charged as a component of PWSA's base stormwater rates.

8. Bulk Stormwater Agreements

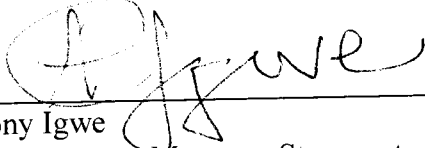
In the Revised Stormwater CP, Section 20 of Appendix 1 at Page 25, PWSA indicated that it did not propose any charges for contributing municipality service as part of the Stormwater Rate Case for two major reasons. One reason is that stormwater from these municipalities flows into a combined sewer system that the City of Pittsburgh developed decades ago. Parties should discuss:

- (a) Whether PWSA should enter into Bulk Service Agreements with contributing municipalities for the conveyance and treatment of these flows or maintain the practice of charging PWSA's wastewater and stormwater ratepayers located in the City for these costs.
- (b) Whether PWSA should develop a stormwater cost of service study for contributing municipalities within PWSA's sewershed areas to be filed prior to its next stormwater base rate case.
- (c) Whether any existing arrangements between PWSA and contributing municipalities impact PWSA's ability to earn a reasonable amount of funding for stormwater operations or create a burden on PWSA customers located in the City.

VERIFICATION

I, Tony Igwe, hereby state that: (1) I am the Senior Group Manager, Stormwater for The Pittsburgh Water and Sewer Authority ("PWSA"); (2) the facts set forth in the foregoing testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: March 22, 2022



Tony Igwe
Senior Group Manager, Stormwater
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

KEITH READLING

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos. M-2018-2640802 & M-2018-2640803

Implementation of Chapter 32 of the Public Utility Code
Regarding Pittsburgh Water and Sewer Authority – Stage 2

TOPICS:

Response to TUS Second Set of Directed Questions,
Questions 1(c)-(d) and 2

March 22, 2022

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Keith Readling. My business address is 1001 Winstead Drive, Suite 355, Cary, North Carolina, 27513.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am Executive Vice President of Raftelis Financial Consultants, Inc. (Raftelis), a consulting firm specializing in the areas of water and wastewater finance and pricing. Raftelis was established in 1993 in Charlotte, North Carolina, by George A. Raftelis to provide financial and management consulting services to public and private sector clients. Raftelis is a national leader in the development of water, wastewater, and stormwater rates.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. I obtained a Bachelor of Science degree in Civil Engineering from North Carolina State University in 1985, and am a registered Professional Engineer in North Carolina. My engineering license is inactive as I do not practice engineering. I have more than 35 years of experience in municipal stormwater management and civil engineering. As an executive and leader of Raftelis' Stormwater Management Consulting Division, I work with entities across the United States with a focus on stormwater utility development and implementation, as well as program and financial planning. I have consulted with many of the largest and most complex stormwater utilities in the country, and have assisted with the establishment of about 50 stormwater utilities in at least 16 different states, serving as lead consultant for many of those projects. Additionally, I have managed the development of more than 30 stormwater utility impervious area or intensity of

development databases and utility billing and collections or integration systems to support the connectivity of geographic billing data to legacy account-based billing systems.

Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION (“PUC” OR “COMMISSION”)?

A. Yes, I submitted written testimony in PWSA’s 2021 rate case at Docket No. R-2021-3024773, *et al.*, including direct, supplemental direct, rebuttal, and rejoinder testimony.

Q. PLEASE DESCRIBE YOUR WORK WITH THE PITTSBURGH WATER AND SEWER AUTHORITY (“PWSA”).

A. Over the last three years, I have assisted PWSA with developing its stormwater rates. This has included reviewing the development of stormwater revenue requirements, working with PWSA staff to plan rate structures, billing policies and procedures, data development, and overseeing stormwater billing information software development.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to respond to portions of the Second Set of Directed Questions issued by the Commission’s Bureau of Technical Utility Services (“TUS”) on February 22, 2022. Specifically, I am responding to Question 2 and its various subparts related to 52 Pa. Code Section 65.8 – Meters, and 52 Pa. Code Section 65.14 – Measurement, as well as Question 1(c)-(d). The complete second set of Directed Questions with questions and subparts numbered for reference is attached to PWSA St. No. 1 as Exhibit TI-1.

II. RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION 2

In the Revised Stormwater CP, Section 6, Part C of Appendix 1 at Page 6, PWSA indicated that, throughout the impervious area data development process, there was no “allowable error.”

Further, PWSA indicated that the minimum mapping unit for all features is 100 square feet, or less, if the feature is visible in the imagery and could be appropriately collected. It appears, based upon the minimum mapping unit, that features less than 100 square feet or not visible may have reasonably induced errors for certain customers. Parties should discuss:

- (a) The registration error tolerance of no more than 2% for water meters established by the Commission at 52 Pa. Code § 65.8.
- (b) The level, amount, or percentage, if any, at which a reasonable error tolerance should be established for Geographical Information Systems (GIS) based stormwater mapping of impervious areas.
- (c) The utilization of equivalent residential units (ERUs) in PWSA's Storm Water Tariff Tiers based upon impervious area measured in square feet.

Additionally, in Section 6, Part E of Appendix 1, PWSA indicated that it will update stormwater billing source data in response to customer inquiries, "event triggers" indicating new or changed developments, and "as needed" following new releases of aerial imagery. Parties should discuss:

- (d) The tariff language for billing unit adjustments included in Pages 38-39 of PWSA's stormwater tariff.
- (e) Sources that PWSA may or must use to determine stormwater billing unit data, and whether PWSA should be permitted to use any sources or change between sources at its discretion, even when sources have not been identified in a rate case as one of PWSA's stormwater billing unit data sources.
- (f) If mapping or data sources are permitted to be changed between rate cases, thereby modifying the underlying GIS/meter source material, whether there should be a customer notification process describing how the mapping changeover may impact customer billing ERUs and whether PWSA should be required to retain the previous mapping and data sets to resolve billing disputes for a set time period.
- (g) How to handle billing unit data discrepancies where there has not been an apparent change on the ground, and what types of discrepancies would trigger a modification of billing unit data. For example, if a residential customer is assigned 2,711 square feet of impervious area based on existing aerial imagery, and a new release of aerial imagery indicates that same customer should be assigned 2,708 square feet, under PWSA's effective stormwater tariff, that customer would be billed a Tier 3 service charge under existing imagery and a Tier 2 service charge under updated imagery. In this regard, parties should also discuss:

- i. Whether the difference of three-square feet, or approximately 0.1%, should result in a change in what the customer is billed, and whether the customer should be entitled to a refund.
- ii. Whether this changes if the discrepancy is larger (i.e., if the discrepancy is above a certain number or percentage difference between existing and updated values, and which has a material impact to the amount billed) or if existing data and updated data were based on different data sources (i.e., a development permit vs. aerial imagery, or 2020 aerial imagery vs. 2025 aerial imagery, etc.).

Q. QUESTION 2(A) ASKS THE PARTIES TO ADDRESS THE REGISTRATION ERROR TOLERANCE OF NO MORE THAN 2% FOR WATER METERS ESTABLISHED BY THE COMMISSION AT 52 PA. CODE § 65.8. PLEASE PROVIDE A RESPONSE.

A. The identification of impervious area using GIS-based stormwater mapping is inherently different from water meters such that the 2% registration error tolerance established in Section 56.8 does not apply here. In developing impervious area calculations, the data was subjected to a detailed quality assurance/quality control process to correct the vast majority of errors (such as errors resulting from imperfections in overlaying the map of parcel boundaries on the aerial imagery). Going forward, when any error in mapping impervious area is identified, it will be corrected. Therefore, it is not possible to identify an “error tolerance” for stormwater impervious area mapping in the way that a water meter can be tested for accuracy.

Q. DOES PWSA’S STORMWATER RATE STRUCTURE HAVE A LEVEL OF ERROR TOLERANCE BUILT INTO ITS DESIGN?

A. Yes. PWSA’s stormwater rate structure allows for small variations in impervious area determinations which, in most cases, will not result in any change to the customer’s bill. For single family residential customers, the tiered rate structure results in most customers (70%) being billed at the Tier 2 rate, and minor variations in impervious area (caused by, among other things, an error) would only potentially affect the bill for customers with impervious area very close to the breakpoints between Tiers 1 and 2, and between Tiers 2 and 3. Similarly, for non-single family residential customers, a small variation in impervious area would only affect the bill for customers at each ERU threshold. As such, the rate design itself includes a level of error tolerance.

1 **Q. PLEASE PROVIDE ADDITIONAL EXPLANATION REGARDING PWSA’S USE**
2 **OF THE 100 SQUARE FOOT MINIMUM MAPPING UNIT.**

3 A. PWSA has used a 100 square foot minimum mapping unit because very small or very
4 narrow features cannot always be seen in the aerial imagery. When the aerial imagery
5 was processed to identify impervious area, features under 100 square feet were captured
6 in the vast majority of cases. However, if such a feature was not able to be captured, this
7 did not automatically result in an error since the error definition applies only when
8 impervious area for a feature is greater than 100 square feet. Importantly, when a very
9 small piece of impervious area is excluded, it is most likely to result in a customer being
10 undercharged (if it affects their billed amount for stormwater service at all).

11 **Q. QUESTION 2(B) ASKS THE PARTIES TO IDENTIFY THE LEVEL, AMOUNT,**
12 **OR PERCENTAGE, IF ANY, AT WHICH A REASONABLE ERROR**
13 **TOLERANCE SHOULD BE ESTABLISHED FOR GEOGRAPHICAL**
14 **INFORMATION SYSTEMS (GIS) BASED STORMWATER MAPPING OF**
15 **IMPERVIOUS AREA. PLEASE STATE PWSA’S POSITION ON THIS TOPIC.**

16 A. As discussed above, it is not possible to set a specific level of error tolerance for
17 impervious area, although the stormwater rate structure itself is designed to include a
18 level or error tolerance in which small errors would almost never result in a change to the
19 customer’s billed amount (because of the relatively large blocks used for determining a
20 customer’s bill). I would also note that PWSA’s stormwater rate structure is an industry
21 standard approach, and was approved by the Commission as part of PWSA’s 2021 rate
22 case without opposition. My testimonies in PWSA’s 2021 rate case (Docket No. R-2021-
23 3024779), PWSA St. Nos. 8, 8-SD, 8-R, and 8-RJ, on the Authority’s stormwater rate
24 structure and its development are incorporated herein by reference.

25 **Q. QUESTION 2(C) ASKS THE PARTIES TO DISCUSS THE UTILIZATION OF**
26 **EQUIVALENT RESIDENTIAL UNITS (ERUS) IN PWSA’S STORMWATER**

TARIFF TIERS BASED UPON IMPERVIOUS AREA MEASURED IN SQUARE FEET. PLEASE RESPOND.

A. At the outset, I would note that the Commission has previously approved PWSA's Stormwater Tariff, including the tiered rate structure for residential customers based on square feet of impervious area on a property. The basis for this was addressed in detail in PWSA's 2021 base rate case, and this tiered structure was unopposed by the parties. Impervious area is the most commonly used metric across the United States to charge for costs related to stormwater service. PWSA's ERU value was calculated based on a statistical analysis of impervious areas for single family residential properties in Pittsburgh, resulting in a value of 1,650 square feet of impervious area per 1 ERU.

PWSA has implemented a tiered rate structure for residential customers in order to recognize the wide range of impervious area found on residential lots in Pittsburgh, which ranges from 400 square feet to over 4,000 square feet. A tiered rate structure (as opposed to one flat rate) allows PWSA to maintain an equitable approach across the various types of development and homes and results in substantially similar properties being billed the same amount. Under this rate structure, the majority of residential ratepayers (70%) are included in the middle tier, or Tier 2. PWSA's three-tiered residential rate structure recognizes that residential lots tend to have more trees and more complicated building shapes and are the most difficult to measure at high precision. Any minor error in the impervious area calculation for an individual property is unlikely to result in a change to the applicable billing tier, as most customers will continue to fall into Tier 2.

The use of an ERU-based rate structure for residential customers is the most common approach across the United States, and for those using a tiered rate design, three

1 tiers is the most common structure. This design is more equitable than one flat rate,
2 while still limiting the number of thresholds where an error can occur. If, for example, it
3 were suggested that PWSA should instead bill in 100 square foot increments (or some
4 other small increment), this would introduce many more thresholds where an error could
5 move the customer into a different tier and would make stormwater billing more complex
6 and confusing for customers. By way of illustration, if PWSA billed in 100 square foot
7 increments, this would result in 37 different possible fees for residential customers.
8 PWSA's current stormwater rate structure provides a reasonable, industry-standard
9 approach that is both equitable and avoids unnecessary complexity.

10 **Q. QUESTION 2(D) ASKS FOR A DISCUSSION OF THE TARIFF LANGUAGE**
11 **FOR BILLING UNIT ADJUSTMENTS INCLUDES IN PAGES 38-39 OF PWSA'S**
12 **STORMWATER TARIFF. PLEASE DISCUSS THIS TARIFF LANGUAGE.**

13 A. The language on Pages 38-39 of PWSA's stormwater tariff allows PWSA to adjust the
14 number of ERUs or tier applicable to a customer from time to time, as updated
15 information is obtained or the property is altered. This tariff provision provides a
16 notification process if any adjustment results in an increase to the customer's bill, and
17 provides for a credit/refund process if the adjustment results in a decrease to the
18 customer's bill.

19 This tariff language was approved by the Commission as part of PWSA's 2021
20 base rate case. No party raised any concern with this language or PWSA's proposal to
21 periodically update ERU data in order to keep billing information up-to-date.

Q. PLEASE CLARIFY HOW PWSA WILL USE UPDATED AERIAL IMAGERY OR OTHER SOURCES OF INFORMATION, SUCH AS SITE VISITS, ON IMPERVIOUS AREA TO UPDATE CUSTOMER BILLING INFORMATION.

A. When PWSA periodically obtains new aerial imagery, it will not use this imagery to completely remeasure all impervious area and recalculate all customer bills. Rather, we will use customer feedback, permitting data, and visually discernable areas in new imagery to guide us to selected locations for updated measurement. It is extremely important to understand that PWSA will not change a customer's bill unless impervious area on the ground has changed, or a mistake is identified.

Q. QUESTION 2(E) ASKS TO IDENTIFY THE SOURCES THAT PWSA MAY OR MUST USE TO DETERMINE STORMWATER BILLING UNIT DATA, AND WHETHER PWSA SHOULD BE PERMITTED TO USE ANY SOURCES OR CHANGE BETWEEN SOURCES AT ITS DISCRETION, EVEN WHEN SOURCES HAVE NOT BEEN IDENTIFIED IN A RATE CASE AS ONE OF PWSA'S STORMWATER BILLING UNIT DATA SOURCES. PLEASE RESPOND.

A. PWSA should be permitted to use a variety of data sources to measure impervious area, as the purpose is to identify actual impervious area on the site which may change over time. Original measurements have been completed for all properties and bills are currently based on these measurements. There are a variety of reasons the impervious area and, potentially, the customer's bill may need to change in the future, including: new construction, demolition, correction of a previous measuring error, parcel boundary changes caused by recombination or subdivision, service area changes, or ownership changes. Since the measurement of impervious area relies on human interpretation of imagery sources that can be verified or modified by field observation, and since a customer who disagrees with a measurement always has recourse and can request a field visit to verify impervious area (and a field visit should definitively resolve any dispute

about impervious area), there is no need to limit the data sources for identifying this information.

Q. QUESTION 2(F) ASKS WHETHER, IF MAPPING OR DATA SOURCES ARE PERMITTED TO BE CHANGED BETWEEN RATE CASES, THERE SHOULD BE A CUSTOMER NOTIFICATION PROCESS DESCRIBING HOW THE MAPPING CHANGEOVER MAY IMPACT CUSTOMER BILLING ERUS AND WHETHER PWSA SHOULD BE REQUIRED TO RETAIN PREVIOUS MAPPING AND DATA SETS TO RESOLVE BILLING DISPUTES FOR A SET TIME PERIOD. PLEASE DISCUSS PWSA’S RESPONSE.

A. As I explained previously, there will not be a “mapping changeover” when PWSA obtains updated aerial imagery or other data sources. Rather, this information will be used to guide us to areas where impervious area on the ground has changed and where information for specific parcels should be updated to reflect the property’s current impervious area.

There is no need to notify customers that PWSA has obtained updated imagery, as most customer bills will be unaffected by this. Further, PWSA’s Commission-approved stormwater tariff already provides for a customer notification process when ERU adjustments occur at the customer’s property. If an ERU adjustment will increase a customer’s bill and occurs outside of a base rate case, PWSA will provide written notice to the customer at least sixty (60) days in advance of the effective date of the ERU adjustment. If the ERU adjustment will increase a customers bill and occurs concurrent with a base rate case, PWSA will include information regarding the ERU adjustment as part of its written notice to customers. (PWSA Tariff Storm Water – Pa. P.U.C. No. 1, Part III, Section E.9.)

Q. QUESTION 2(G) ASKS HOW BILLING UNIT DATA DISCREPANCIES SHOULD BE HANDLED WHERE THERE HAS NOT BEEN AN APPARENT CHANGE ON THE GROUND, AND WHAT KINDS OF DISCREPANCIES

WOULD TRIGGER A MODIFICATION OF BILLING UNIT DATA. PLEASE RESPOND.

A. PWSA will not change a customer's stormwater bill unless there has been a change on the ground or an error is being corrected. Slight changes in imagery/parcel registration or the angle of the imagery can cause slight changes in measurements, but PWSA will not remeasure the property's impervious area unless a new or changed feature is identified on the ground or a clear-cut error is identified.

Q. QUESTION 2(G)(i) FURTHER ASKS WHETHER A DIFFERENCE OF THREE-SQUARE FEET, OR APPROXIMATELY 0.1%, SHOULD RESULT IN A CHANGE IN WHAT THE CUSTOMER IS BILLED, AND WHETHER THE CUSTOMER SHOULD BE ENTITLED TO A REFUND. PLEASE STATE PWSA'S POSITION.

A. If there is a legitimate change on the ground to the customer's impervious area that results in a change to the property's residential tier or ERU classification, even if the change is small, the customer will be billed for the current accurate tier or ERUs.

Pursuant to PWSA's Stormwater Tariff, if an ERU adjustment will result in a decrease to a customer's bill, any excess amounts received by the Authority will be provided as a credit to the customer's account. If the excess amount is greater than the customer's next bill, PWSA will refund the difference between the excess amount and the customer's next bill upon the customer's request. The effective date of the ERU adjustment will be the date PWSA received or collected the ERU data that resulted in the ERU adjustment.

Q. QUESTION 2(G)(ii) ASKS WHETHER THE RESPONSE TO QUESTION 2(G)(i) ABOVE CHANGES IF THE DISCREPANCY IS LARGER (I.E., IF THE DISCREPANCY IS ABOVE A CERTAIN NUMBER OR PERCENTAGE DIFFERENCE, AND WHICH HAS A MATERIAL IMPACT ON THE AMOUNT

BILLED) OR IF EXISTING DATA AND UPDATED DATA WERE BASED ON DIFFERENT SOURCES. PLEASE RESPOND.

A. No, the response is the same regardless of the size of any “discrepancy” or the data sources used. Again, PWSA will not change the customer’s impervious area or bill unless something has changed on the ground or we are fixing a clear error. Our approach is that, if nothing has changed, the units also should not change.

Q. ARE THERE ANY OVERARCHING COMMENTS YOU WOULD LIKE TO MAKE IN RESPONSE TO QUESTION 2?

A. I would simply reiterate that PWSA’s approach to impervious area is the industry standard approach that is used across the country, and which was accepted by the Parties and approved by the Commission as part of PWSA’s 2021 rate case.

III. RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION 1(C) AND (D)

Additionally, certain filing requirements include terms like “consumption,” “usage,” “gallons,” “water,” and “wastewater.” Parties should discuss:

(a) Whether such terms are applicable for stormwater purposes and whether such terms provide necessary data.

(b) Whether PWSA’s responses should include similar stormwater billing units (i.e., impervious area) or other data and/or metrics where the terms “consumption,” “usage,” and “gallons” are used.

Q. THE SECOND PART OF QUESTION 1 NOTES THAT CERTAIN FILING REQUIREMENTS INCLUDE TERMS LIKE “CONSUMPTION,” “USAGE,” “GALLONS,” “WATER,” AND “WASTEWATER” AND ASKS WHETHER SUCH TERMS ARE APPLICABLE FOR STORMWATER PURPOSES AND WHETHER SUCH TERMS PROVIDE NECESSARY DATA. THE QUESTION ALSO ASKS WHETHER PWSA’S RESPONSES TO THE FILING REQUIREMENTS SHOULD INCLUDE SIMILAR STORMWATER BILLING UNITS (I.E. IMPERVIOUS AREA) OR OTHER DATA AND/OR METRICS

WHERE THE TERMS “CONSUMPTION,” “USAGE,” AND “GALLONS” ARE USED.

A. In PWSA’s initial stormwater rate case, the Commission established the applicable billing units for stormwater (impervious area and “Equivalent Residential Units” or “ERUs”). PWSA provided detailed information about these measurements of responsibility for stormwater charges. *See*, Docket No. R-2021-3024779, Direct Testimony of Keith Readling, PWSA St. No. 8. As these are now the established billing units for stormwater service, they will be used to respond to filing requirements or other questions to the extent those questions are applicable to stormwater, which is a non-metered service.

IV. CONCLUSION

Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

VERIFICATION

I, Keith Readling, hereby state that: (1) I am the Executive Vice President, Raftelis Financial Consultants, Consultant to The Pittsburgh Water and Sewer Authority ("PWSA"); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: March 22, 2022



Keith Readling
Executive Vice President
Raftelis Financial Consultants

Consultant to:
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

EDWARD BARCA

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos. M-2018-2640802 & M-2018-2640803

Implementation of Chapter 32 of the Public Utility Code
Regarding Pittsburgh Water and Sewer Authority – Stage 2

TOPICS:

Responses to TUS Second Set of Directed Questions,
Questions 1 and 3-6

March 22, 2022

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND POSITION FOR THE RECORD.

A. My name is Edward Barca and I am the Director of Finance for The Pittsburgh Water and Sewer Authority (“PWSA” or “Authority”).

Q. WHEN DID YOU TAKE ON THE POSITION OF TREASURER?

A. I was appointed as the Authority’s Treasurer in June 2018 and assumed my duties with the Authority during August 2018. I was promoted to the Deputy Director of Finance/Treasurer in July 2019 and ultimately became the Director of Finance in June 2020, which is my current position.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.

A. I have a Master’s Degree in Finance from the Colorado State University-Global Campus and a Bachelor's Degree in Finance from Mercyhurst University.

Q. PLEASE PROVIDE A SUMMARY OF YOUR RELEVANT EXPERIENCE.

A. I have been at the Authority since August 2018. As I stated, I started as the Authority’s Treasurer in August 2018. I remained in that position until I became the Authority’s Deputy Director of Finance/Treasurer in July 2019 and then the Director of Finance, which is the position I currently hold.

Prior to working at the Authority, I worked for the City of Pittsburgh (“City”). I joined the City in 2015 and was promoted to the Assistant Director of Finance in 2017.

While at the City, I served as a Business Intelligence Analyst, Senior Financial Analyst, Revenue Manager, and, finally, Assistant Director of Finance.

Before starting with the City, I had prior work experience as a Financial Planning Analyst for the Allegheny Financial Group and as a Financial Services Representative for

E*TRADE Financial. In addition, since November 2015, I have owned and operated a business — Barca Tax Services, LLC — that provides tax preparation services.

Q. MR. BARCA, WHAT ARE YOUR VARIOUS JOB RESPONSIBILITIES WITH PWSA?

A. In my present position, I am responsible for the financial affairs of the Authority along with overseeing the Finance Department. This includes creating, implementing, and monitoring the annual operating and capital budgets. I also manage the Authority's: (a) cash and liquidity to ensure that sufficient funds are available to process payments, invest in infrastructure, and service debt while preserving principal and thereafter maximizing return on cash and investments; and (b) debt portfolio, which includes assessing opportunities for financing and refinancing, securing additional debt capital from both bank and capital markets, managing the interest rate swap portfolio and maintaining all credit support vehicles. I further help to ensure compliance with all trust indentures, loan agreements, bond covenants, and filing deadlines.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION?

A. Yes. I presented written testimony in support of PWSA's 2020 base rate case at Docket Numbers R-2020-3017951 (water) and R-2020-3017970 (wastewater). I also submitted written Direct, Supplemental Direct, Rebuttal, Surrebuttal and Rejoinder testimony in PWSA's most recent base rate case at Docket Numbers R-2021-3024773, *et al.* In addition, I have been directly involved in various financial proceedings before the Pennsylvania Public Utility Commission ("PUC" or "Commission") regarding the issuance of securities certificates. In 2020 and 2021, these proceedings included: (1) the issuance of an abbreviated securities certificate for a PENNVEST Loan (S-2020-3019059); (2) the issuance of a securities certificate (S-2020-3019507) for a Capital Line

of Credit; (3) the issuance of a securities certificate (S-2020-3022170) for indebtedness (revenue bonds the Authority in an amount up to \$531 million in long term debt securities); (4) the issuance of an abbreviated securities certificate for a PENNVEST Loan (S-2021-3024057); (5) the issuance of an abbreviated securities certificate for a PENNVEST Loan (S-2021-3028238); (6) the issuance of an abbreviated securities certificate for a PENNVEST Loan (S-2021-3025592); (7) the issuance of an abbreviated securities certificate for a PENNVEST Loan (S-2021-3029726); (8) the issuance of an abbreviated securities certificate for a PENNVEST Loan (S-2021-3029722), and (9) the issuance of an abbreviated securities certificate for a PENNEVST Loan (S-2021-3029725).

Q. PLEASE EXPLAIN THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to respond to portions of the Second Set of Directed Questions issued by the Commission’s Bureau of Technical Utility Services (“TUS”) on February 22, 2022. Specifically, I am responding to a portion of Question #1, and Questions #3, 4, 5 and 6 and their various subparts. The complete second set of Directed Questions with questions and subparts numbered for reference is attached to PWSA St. No. 1 as Exhibit TI-1.

II. PWSA’S RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION #1:

Certain PWSA responses to filing requirements included with PWSA’s 2021 Rate Case do not appear to include separate and distinct data for each operating division (i.e., water, wastewater, and stormwater). For example, PWSA provided a consolidated income statement, rather than separate and distinct income statements for each operating division, in response to Filing Requirements I.2 & I.3. Parties should discuss:

(a) Whether PWSA should provide separate and distinct data for each operating division.

(b) The potential steps and associated time frame for Filing Requirement I.3.

Q. WHICH PORTION OF QUESTION 1 WILL YOU BE ADDRESSING?

A. I will address the first sections of the question, as set forth above. The remaining portions of Question 1 will be addressed by Mr. Readling.

Q. MR. BARCA, WHAT IS PWSA’S VIEW ON WHETHER, IN THE CONTEXT OF A BASE RATE CASE FILING, PWSA SHOULD PROVIDE “SEPARATE AND DISTINCT DATA [IN ANSWER TO FILING REQUIREMENTS] FOR EACH OPERATING DIVISION”?

A. PWSA does not support any requirement that it file “separate and distinct data” for each of its three operations – water, wastewater and stormwater – as the primary data submitted to satisfy the PUC filing requirements, although, as will be explained, such data was made available – and will continue to be made available – in PWSA’s base rate cases on an allocated basis. PWSA’s experience before the Commission to date shows that such a segregated filing is neither necessary nor justified. Before I explain PWSA’s position in more detail, I wish to point out that in none of PWSA’s three base rate cases that PWSA has filed since coming under the jurisdiction of the PUC has the Authority segregated its financial data among its various operations to respond to the Commission’s filing requirements. In all three cases, PWSA filed a petition pursuant to 66 Pa. C.S. §1311(c) which specifically authorizes a water/wastewater utility to file its revenue requirement data on a consolidated basis.¹ In all three cases the Petitions were granted by the presiding officers without opposition and were approved as part of overall settlements

¹ The relevant language states: “When any public utility furnishes more than one of the different types of utility service, the commission shall segregate the property used and useful in furnishing each type of such service, and shall not consider the property of such public utility as a unit in determining the value of the rate base of such public utility for the purpose of fixing base rates. A utility that provides water and wastewater service shall be exempt from this subsection upon petition of a utility to combine water and wastewater revenue requirements.” 66 Pa. C.S. § 1311 (c).

1 by the PUC. Notably, in PWSA's last base rate case, it was authorized to file its rate case
2 filing requirements on a consolidated basis regardless of the fact that the Authority was
3 requesting three separate rate increases. For filing requirement purposes, PWSA
4 provided only a consolidated income statement in all of its cases because PWSA operates
5 their water, wastewater conveyance, and stormwater systems as a combined utility.
6 PWSA maintains only one operating fund, sharing administrative and support functions
7 across all three services, and is legally required to issue debt pledged on all utility
8 revenue sources.

9 **Q. IF PWSA SUBMITTED ITS FILING REQUIREMENT DATA ON A**
10 **CONSOLIDATED BASIS, HOW DID PWSA DETERMINE REVENUE**
11 **REQUIREMENTS FOR THE THREE AREAS OF OPERATIONS?**

12 A. The 2021 Rate Case, as did PWSA's prior cases, included a detailed cost allocation
13 analysis that established the utility revenue requirements by service (before the service
14 data was then separated still further by customer class). Direct costs for water,
15 wastewater conveyance, and stormwater were identified where available, and the
16 remaining costs were allocated between two or more of the services. The cost allocation
17 analysis was detailed in PWSA St. No. 4 Harold J. Smith, pages 10-13, and the results
18 were provided in Exhibit HJS-1. PWSA witness Smith provides more detail about this
19 analysis and the useful information that it provides in Statement No. 4. Importantly, the
20 Allocation Study produces separated financial data, including revenues, expenses, assets
21 etc. for each of the categories of operations – water, wastewater and stormwater. It also
22 provides a calculation of total cost of service for each category and compares total costs
23 with total applicable revenues.

24 **Q. COULD PWSA SEPARATE ON ITS BOOKS ITS REVENUES, EXPENSES,**
25 **ASSETS AND DEBT AMONG THE THREE CATEGORIES OF OPERATIONS**

AND PRESENT SEPARATE REVENUE REQUIRMENT INFORMATION THAT WAS NOT BASED ON AN ALLOCATION STUDY?

A. Unfortunately, it would not be possible. PWSA’s historic books of account are not sufficiently detailed. PWSA has not historically designated on its books what portion of wastewater expenditures were associated with sewer verses stormwater. Even if it were possible for some assets it would take years to actually go through the Authority’s books of account to separate assets and associated depreciation accounts among water, wastewater and stormwater, and it would be enormously expensive and difficult to do so. Accordingly, any directive to “separate” such costs into distinct revenue requirement categories would require the application of the same types of allocation factors that are used in the Allocation Study discussed above. Using the Allocation Study approach is not only much more cost effective, it ensures that all of the allocations are conducted on a consistent and logical basis. Given that there has been no indication by either the Parties or the Commission that submitting consolidated revenue requirement information, with subsequent allocation using the allocation study method, was a problem in any way. If the Commission would prefer to see PWSA’s filing requirement data separated by operating area in future base rate cases, PWSA could, where possible and in addition to providing total company data, provide separated income statements for reference purposes. Mr. Smith explains this in more detail in his PWSA St. No. 4.

III. PWSA’S RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION #3:

52 Pa. Code § 65.16 - System of Accounts

In the Revised Stormwater CP, Section 7, Part A of Appendix I at Page 8, PWSA indicated green infrastructure projects are considered as a system and that costs associated with installing the system are considered as a whole. PWSA further stated that most green infrastructure is not owned by PWSA as it is installed on private property and improvements on private property will be expensed. Parties should discuss:

(a) *Whether PWSA should record costs associated with green infrastructure projects as a whole or break down the system by major plant categories or subaccounts that are recorded and depreciated separately.*

(b) *PWSA’s capitalization policy for stormwater improvements, including whether PWSA should use the \$750 capitalization threshold for water and wastewater utilities under the uniform system of accounts for Class A Water and Wastewater Utilities.*

(c) *Whether PWSA should expense improvements in one year or expense improvements through amortization of a deferred asset over a reasonable time period.*

Q. WITH RESPECT TO THE FIRST PART OF THIS QUESTION, SHOULD PWSA RECORD COSTS ASSOCIATED WITH GREEN INFRASTRUCTURE PROJECTS AS A WHOLE OR BREAK DOWN THE SYSTEM BY MAJOR PLANT CATEGORIES OR SUBACCOUNTS THAT ARE RECORDED AND DEPRECIATED SEPARATELY?

A. PWSA believes its present approach is reasonable and that no change is needed. PWSA includes the costs of green infrastructure along with the costs of the related stormwater facility being installed because the “green infrastructure” costs a relatively small part of the costs (estimated by PWSA’s stormwater team at 5%). Separating out these incidental costs from the much more costly stormwater facilities (such as piping) would not be appropriate because the time and expense of doing so is not justified. PWSA would note that it is not unusual to capitalize associated expenses, such as design work, in the total cost of a capital project. The incidental green infrastructure expenditures are similarly ancillary to the “grey” infrastructure expenditures for stormwater drains, piping etc., with which they are included. Importantly, PWSA does not set rates using a rate base and therefore, its depreciation and plant in service accounts are relevant only for financial accounting purposes. Therefore, there is no reason to separate out these incidental costs.

Q. PLEASE EXPLAIN PWSA’S CAPITALIZATION POLICY FOR STORMWATER IMPROVEMENTS, INCLUDING WHETHER PWSA SHOULD USE THE \$750 CAPITALIZATION THRESHOLD FOR WATER AND WASTEWATER UTILITIES UNDER THE UNIFORM SYSTEM OF ACCOUNTS FOR CLASS A WATER AND WASTEWATER UTILITIES.

A. PWSA employs a \$10,000 threshold for capitalization which is standard for municipal water/wastewater utilities. PWSA does not believe that a \$750 threshold is reasonable considering its circumstances. The \$750 threshold is more appropriate for companies that are regulated on a rate of return/rate base basis. For investor-owned utilities, when an asset is capitalized, the return on and of the investment is recovered over the asset's depreciation life. This means that the cost of a purchase of a computer, for example, with a useful life of 3-5 years will be recovered in 3-5 years. However, PWSA finances most of its capital additions using long term debt that is reflected in PWSA's debt for 30 years (the typical term of PWSA's bonds). Since it is not regulated on a rate of return/rate base basis, the cost of the computer is recovered via the debt service associated with the bond that financed the purchase. As a result, the cost of the capitalized asset will be charged to ratepayers for the entire 30-year life of the bond – long after the short lived asset has been retired. Additionally, because PWSA's rates are regulated on a Cash Flow basis, it has no need to calculate an accurate rate base. Therefore, in PWSA's view, it would not be worth the time and effort to capitalize and then have to track small, short lived assets such as computers or printers. Therefore, it is more reasonable to customers, and better for the municipal utility to expense smaller asset acquisitions and to only capitalize more substantial purchases, which will generally have longer useful lives.

Q. SHOULD PWSA EXPENSE IMPROVEMENTS IN ONE YEAR OR EXPENSE IMPROVEMENTS THROUGH AMORTIZATION OF A DEFERRED ASSET OVER A REASONABLE TIME PERIOD?

A. No. PWSA's rates are regulated on a Cash Flow basis. Therefore, PWSA needs to have available the full amount of cash required to add the asset in the year in which the asset is put in service. Therefore, amortization of the costs of an asset simply means that PWSA will not be able to add the asset (because it won't have the cash to pay for it in the year in

whish it wished to add it). I would also point out, respectfully, that this is a ratemaking question and should not be determined in the context of this compliance process.

IV. PWSA’S RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION #4:

52 Pa. Code § 65.19 Filing of Annual Financial Reports

In the Revised Stormwater CP, Section 9, Part B of Appendix I at Page 13, PWSA indicated that, for stormwater financial reporting, it proposes to use the approved annual report form for municipal wastewater utilities without any changes. Parties should discuss:

(a) Whether PWSA should use the approved annual report for municipal wastewater utilities for an interim period before switching to the approved annual report form for Class A wastewater utilities in the future and the appropriate timeline for this transition.

Q. CAN YOU COMMENT ON QUESTION 4?

A. As noted in the referenced portion of the CP, PWSA is currently utilizing the annual report form for municipal utilities for its annual report for water and wastewater. It continues its commitment that it will utilize this annual report form to reflect its stormwater operations as well. PWSA does not believe that the creations of stormwater as a separate service justifies changing the annual report format which has, at this point, been acceptable to the Commission. Moreover, compiling the data to populate the much more extensive and detailed annual report form for Class A water/wastewater utilities is not feasible for PWSA at the present time. Currently, PWSA is struggling to comply with a variety of commitments to various agencies while it is also attempting to bring its entire operation into compliance with PUC requirements. PWSA believes that it should focus its limited resources on compliance with PUC requirements in other areas, such as consumer protection, eradicating lead service lines and improving reliability of its system. PWSA suggests that transition to the more extensive and costly Class A form be reconsidered in the future.

V. PWSA’S RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION #5

52 Pa. Code § 65.22 – Customer Advance Financing, Refunds and Facilities on Private Property

In the Revised Stormwater CP, Section 7, Part B of Appendix I at Page 8, PWSA indicated that most green infrastructure is not owned by PWSA as it is installed on private property and that improvements on private property will be expensed. Parties should discuss:

(a) The requirements of 52 Pa. Code § 65.22(c) and whether this provision applies to green infrastructure installed on private property.

(b) PWSA’s method of formally dedicating assets installed on private property to the property owner.

(c) Whether PWSA’s method of formal dedication ensures assets installed on private property will be maintained to a working order, and whether an operating, inspection and maintenance, or similar agreement for such facilities that runs with the property should be created.

(d) Whether PWSA should expense improvements on private property.

Q. IN RESPONSE TO QUESTION 5(A), PLEASE DISCUSS WHETHER 52 PA. CODE § 56.22(C) APPLIES TO GREEN INFRASTRUCTURE INSTALLED ON PRIVATE PROPERTY.

A. Section 65.22 does not apply to green infrastructure installed on private property. This section requires customers “to pay, in advance, a reasonable charge for service lines and equipment installed on private property *for the exclusive use of the customer.*” However, green infrastructure projects are, in most cases, not for the exclusive use of the customer. If PWSA is installing green infrastructure on private property, it is doing so because it benefits PWSA’s system as a whole, not the individual customer. PWSA often installs green infrastructure in the public right of way or in public parks, but in some instances it is necessary to install GI on private property. Again, installations on private property provide broader stormwater management benefits to PWSA’s system as a whole, not the individual property owner.

Q. IN RESPONSE TO QUESTIONS 5(B) AND (C), DOES PWSA FORMALLY DEDICATE ASSETS INSTALLED ON PRIVATE PROPERTY TO THE PROPERTY OWNER?

A. No, PWSA does not formally dedicate assets installed on private property to the property owner because the assets are not installed for the benefit of that one customer. They benefit the system as a whole. As such, it would be inappropriate to dedicate the asset to the customer.

Q. REGARDING QUESTION 5(D), PLEASE DISCUSS WHETHER PWSA SHOULD EXPENSE IMPROVEMENTS ON PRIVATE PROPERTY.

A. PWSA's current practice is to expense improvements that provide system benefits and which are on private property. This is true for green infrastructure projects, as well as other improvements such as lead service line replacements and damaged wastewater lateral replacements. Please note that, under Generally Accepted Accounting Principles applicable to municipal entities, PWSA is not permitted to capitalize work on private property. The Authority is not permitted to list an asset on its books and depreciate it if PWSA does not own it. This current practice therefore is the only feasible course. Note that this is the same approach that PWSA utilizes for private lead service line replacement.

VI. PWSA'S RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION #6:

52 Pa. Code § 73.3 - Annual Depreciation Reports

In the Revised Stormwater CP, Section 13 of Appendix 1 at Page 18, PWSA indicated that, for green infrastructure systems, the pipes or underground storage are the primary costs and the costs of trees and shrubs are ancillary and grouped with the pipe as part of the system. The costs of the pipe are then depreciated in the same manner as for water or wastewater assets. Parties should discuss:

(a) Whether PWSA should group disparate assets with different service lives together and then apply the same depreciation to that group.

1 **Q. CAN YOU PRESENT PWSA’S POSITION REGARDING THIS QUESTION?**

2 A. Yes. PWSA believes it is reasonable for PWSA that the inclusion of incidental green
 3 infrastructure costs with the costs of piping etc. because those incidental “green
 4 infrastructure” costs are a very small fraction of the total costs (estimated at around 5%).
 5 Moreover, tracking and recording incidental costs would impose additional costs on the
 6 Authority and require PWSA to devote resources that would be better spent on other
 7 projects. It is important to recall that PWSA’s Cash Flow ratemaking methodology does
 8 not utilize PWSA’s reserve for depreciation in any way. While PWSA needs to account
 9 for depreciation on its books there does not appear to be any reason to spend the time or
 10 money to separate out these incidental costs.

11

12 **VII. CONCLUSION**

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

14 A. Yes. I do reserve the right to supplement this testimony as may be appropriate.

VERIFICATION

I, Edward Barca, hereby state that: (1) I am the Director of Finance for The Pittsburgh Water and Sewer Authority (“PWSA”); (2) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (3) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Date: March 22, 2022

Edward Barca

Edward Barca
Director of Finance
The Pittsburgh Water and Sewer Authority

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DIRECT TESTIMONY OF

HAROLD J. SMITH

ON BEHALF OF
THE PITTSBURGH WATER
AND SEWER AUTHORITY

Docket Nos. M-2018-2640802 & M-2018-2640803

Implementation of Chapter 32 of the Public Utility Code
Regarding Pittsburgh Water and Sewer Authority – Stage 2

TOPICS:

Response to TUS Second Set of Directed Questions,
Question 1(a) and (b)

March 22, 2022

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Table of Exhibits

No.	Description
HJS-1	FPFTY 2022 Revenue Requirements by Utility (from 2021 Rate Case)
HJS-2	Utility Allocation Factor Summary (from 2021 Rate Case)

1 **I. INTRODUCTION AND QUALIFICATIONS**

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

3 A. My name is Harold J. Smith and my business address is 5619 DTC Parkway Suite 850
4 Greenwood Village, CO 80111.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY.**

6 A. I am a Vice President of Raftelis Financial Consultants, Inc. (Raftelis), a consulting firm
7 specializing in the areas of water and wastewater finance and pricing. Raftelis was
8 established in 1993 in Charlotte, North Carolina, by George A. Raftelis to provide
9 financial and management consulting services to public and private sector clients.
10 Raftelis is a national leader in the development of water, wastewater, and stormwater
11 rates.

12 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND WORK**
13 **EXPERIENCE.**

14 A. I obtained a Master of Business Administration from Wake Forest University in 1997 and
15 a Bachelor of Science in Natural Resources from the University of the South in 1987. As
16 an employee of Raftelis Financial Consultants, I have been involved in numerous projects
17 for public utilities including a number of studies involving a wide range of technical
18 specialties including water utility cost of service and rate structure studies and water
19 utility financial planning studies.

20 **Q. DO YOU BELONG TO ANY PROFESSIONAL ORGANIZATIONS OR**
21 **COMMITTEES?**

22 A. Yes. I am a member of the American Water Works Association where I served as
23 chairman of the Competitive Practices Committee and I am a member of the New
24 England Water Works Association.

Q. HAVE YOU PREVIOUSLY TESTIFIED IN PROCEEDINGS BEFORE THE PENNSYLVANIA PUBLIC UTILITY COMMISSION (PAPUC) ON BEHALF OF PWSA?

A. Yes, I provided testimony for The Pittsburgh Water and Sewer Authority's ("PWSA") 2018 base rate case (Docket Nos. R-2018-3002645 and R-2018-3002645), 2020 base rate case (Docket Nos. R-2020-3017951 and R-2020-3017970), and 2021 base rate case (Docket Nos. R-2021-3024773, R-2021-3024774, and R-2021-3024779).

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE ANY OTHER REGULATORY AGENCIES ON UTILITY RATE RELATED MATTERS?

A. Yes. I have provided testimony before the Rhode Island Public Utilities Commission (RIPUC) in Providence Water Supply Board's nine most recent filings before the Rhode Island Public Utility Commission (RIPUC) (Docket Nos. 3832, 4061, 4070, 4080, 4287, 4406, 4571, 4618 and 4994) and in Newport Water's nine most recent filings (RIPUC Docket Nos. 3578, 3675, 3818, 4025, 4128, 4243, 4355, 4595 and 4933). I have also provided testimony on water, sewer and stormwater rate related matters before the Tennessee Regulatory Authority as well as in court proceedings in Arizona, Connecticut, Indiana, Maryland and Maine.

Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.

A. The purpose of my testimony is to respond to portions of the Second Set of Directed Questions issued by the Commission's Bureau of Technical Utility Services ("TUS") on February 22, 2022. Specifically, I am responding to Question 1(a) and (b). The complete Second Set of Directed Questions with questions and subparts numbered for reference is attached to PWSA St. No. 1 as Exhibit TI-1.

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. Yes. I am sponsoring Exhibits HJS-1 and HJS-2, which are the FPPTY 2022 Revenue Requirements by Utility and the Utility Allocation Factor Summary from PWSA's 2021 rate case, respectively.

II. PWSA's RESPONSE TO SECOND SET OF STORMWATER DIRECTED QUESTIONS, QUESTION 1

Certain PWSA responses to filing requirements included with PWSA's 2021 Rate Case do not appear to include separate and distinct data for each operating division (i.e., water, wastewater, and stormwater). For example, PWSA provided a consolidated income statement, rather than separate and distinct income statements for each operating division, in response to Filing Requirements I.2 & I.3. Parties should discuss:

(a) *Whether PWSA should provide separate and distinct data for each operating division.*

(b) *The potential steps and associated time frame for Filing Requirement I.3.*

Q. DOES PWSA MAINTAIN SEPARATE CHARTS OF ACCOUNT FOR EACH OPERATING DIVISION (I.E. WATER, WASTEWATER AND STORMWATER)?

A. No, PWSA only has one chart of accounts. PWSA's budget is organized such that many of the costs directly associated with one type of service are grouped together into categories, but several categories include costs that are shared among all three utility services.

Q. CAN PWSA PROVIDE SEPARATE CONSOLIDATED INCOME STATEMENTS FOR EACH OPERATING DIVISION (I.E. WATER, WASTEWATER AND STORMWATER)?

A. No, not in the traditional sense. PWSA provided their consolidated income statement in the 2021 Rate Case Filing Requirement I.2 for the utility as a whole. However, for rate setting purposes, PWSA's expenses are subjected to an extensive cost allocation process to determine the appropriate level of rate revenue needed from rates associated with each utility service. I explain that process below.

1 III. OVERVIEW OF ALLOCATION OF TOTAL SYSTEM REVENUE
2 REQUIREMENTS

3 Q. DOES PWSA PRESENT AN ANNUAL OPERATING BUDGET AND
4 STATEMENT OF INCOME FOR THE UTILITY THAT COVERS ALL
5 OPERATING DIVISIONS?

6 A. Yes, PWSA presents the budget and statement of income information from their chart of
7 accounts. Using information from annual budgets and capital improvement plans, PWSA
8 determines the annual revenue that is required to cover the costs of providing all the
9 services it provides (water treatment and delivery; wastewater conveyance and
10 stormwater management). In the 2021 rate case, the Statement of Income (for Proposed
11 Rates) for the utility that shows this information was included as Exhibit EB-2.

12 Q. HOW ARE THE WATER, WASTEWATER CONVEYANCE, AND
13 STORMWATER UTILITY SERVICE REVENUE REQUIREMENTS
14 DETERMINED FOR RATE SETTING PURPOSES?

15 A. The annual revenue requirements for each utility service are determined via an extensive
16 cost allocation exercise.

17 Q. PLEASE DESCRIBE THE COST ALLOCATION EXERCISE.

18 A. First, PWSA's existing chart of accounts groups some costs that are 100 percent allocable
19 directly to a particular operating division, i.e. water, wastewater conveyance, or
20 stormwater. For example, costs associated with operating the water treatment plant are
21 tracked separately from all other costs under the budget category labeled Plant Operations
22 and are allocated 100 percent for recovery from water rates and charges.

23 The revenue requirements that are not designated as water only, wastewater
24 conveyance only, stormwater only are allocated based on a set of allocation factors. The
25 results of the cost allocation of total system revenue requirements to water, wastewater
26 and stormwater for the FPFTY for the 2021 rate case are shown on Schedule HJS-1.

Q. PLEASE DESCRIBE THE COST ALLOCATION FACTORS USED IN THE COST ALLOCATION EXERCISE.

A. The following cost allocation factors were used in the cost allocation analysis (Schedule HJS-2) to derive the revenue requirements for each operating division:

Cost Allocation Factor	Water	Wastewater Conveyance	Stormwater	Derivation
Water Only	100.00%			Direct allocation to water
Wastewater Only		100.00%		Direct allocation to sewer
Stormwater Only			100.00%	Direct allocation to stormwater
Wastewater: Sewer and Stormwater		50%	50%	Share of wastewater conveyance costs allocated to each service
Customer Service - Meters	51.23%	48.77%		Number of customer meters of water only + combined water and sewer customers
Customer Bills	26.80%	35.22%	37.98%	Distribution of water, sewer, and stormwater bills
Operations Cost	73.23%	15.35%	11.42%	Each operating division's proportionate share of the direct operations costs and allocated environmental compliance and engineering and construction costs
Engineering and Construction	64.97%	23.63%	11.40%	2022 capital projects (from the CIP) that have been designated as water, wastewater, or stormwater
Environmental Compliance	35.00%	32.50%	32.50%	Developed based on staff estimate
Existing Debt Service - Assets	58.09%	20.95%	20.95%	Proportionate amount of fixed assets in the system

IV. ALLOCATION OF DIRECT OPERATING REVENUE REQUIREMENTS

Q. WHAT COSTS ARE DESIGNATED AS WATER ONLY?

A. Operating budgets for the water quality lab, water treatment plant, and water distribution system are designated as water only costs, as shown on Schedule HJS-1.

Q. ARE ANY COSTS DESIGNATED AS WASTEWATER CONVEYANCE (SEWER RATES) ONLY?

A. No, no line item in the PWSA operating budget is allocation directly to wastewater conveyance (sewer rates).

Q. ARE ANY COSTS DESIGNATED AS STORMWATER ONLY?

A. No, no 2022 budgeted operating costs are allocated directly to stormwater (stormwater rates).

Q. WHY ARE NO COSTS DESIGNATED SPECIFICALLY FOR WASTEWATER CONVEYANCE (SEWER RATES) OR STORMWATER?

A. PWSA operates a largely combined collection system that serves as both a wastewater collection system and a stormwater conveyance system and work performed on the combined system provides benefits to both wastewater customers and stormwater customers; however, the relative benefits accruing to each utility vary dramatically depending on the nature of the work performed.

Q. ARE ANY COSTS DESIGNATED AS ONLY WASTEWATER CONVEYANCE AND STORMWATER?

A. Yes, the operating budget for sewer operations serves both wastewater conveyance and stormwater daily operations. These costs are tracked separately and are not allocated to the water operating division. The costs were allocated 50-50 between only wastewater conveyance (sewer rates) and stormwater operating divisions as shown on Schedule HJS-1. The derivation of this cost allocation factor for wastewater conveyance (sewer rates) and stormwater was presented in the 2021 rate case in St. No. 8 Reading, pages 3-4:

We looked at several methods for allocating conveyance and debt service costs between stormwater and wastewater rates. We considered the relationship of stormwater peak flow and total volume of stormwater to the volume of all flows in combined systems. For the peak flow method, I reviewed work performed by

Black & Veatch for PWSA in 2013¹ wherein the three largest storms during a “typical year” for the Pittsburgh region were considered in terms of what portion of flows within combined sewers on those days was stormwater. These three largest storms of the year suggest that during those storms, stormwater accounted for about 70% of the total flow. Using this as the rationale for allocating O&M and debt service costs, 70% of the costs would be attributable to stormwater. We also approached the issue using a total volume method wherein we evaluated the total volume of stormwater contributed to the system based upon rainfall totals in a “typical year” and a “wet year.” Under this method, stormwater accounts for less than 20% of the flow, and thus less than 20% of costs would be allocated to stormwater.

During smaller rainfall events and dry weather, stormwater is a smaller fraction of the total flow, and during large (but rare) storm events, stormwater is a large portion of the flow. To balance the demand placed on the system by stormwater over time, I recommended allocating O&M and debt service costs for shared infrastructure evenly between the two services. An even split balances the peak flow and total flow allocation methodologies. Calculated rates are driven by the 50-50 split between sewer and stormwater for these shared infrastructure costs, which include gravity collection sewers, manholes, and power operated equipment.

Q. HOW ARE THE REMAINING COSTS ALLOCATED BETWEEN WATER AND WASTEWATER CONVEYANCE (SEWER AND STORMWATER)?

The remaining costs are allocated using a set of allocation factors. The allocation factors used in the establishment of utility service revenue requirements are summarized above and shown in Schedule HJS-2.

Q. BASED ON THIS ALLOCATION METHODOLOGY, CAN PARTIES AND THE COMMISSION DETERMINE THE ITEMS THAT ARE REQUESTED IN THE FILING REQUIREMENTS ON A SERVICE-BY-SERVICE BASIS?

A. Yes. Certainly, the overall cost of service for each category is shown and forms the basis for the rate increase determinations made in the rate case. The allocation study also permits parties to observe individual items on a service specific basis.

¹ Exhibit KR-1 – Technical Memorandum #4 – Revenue Requirements, prepared by Black & Veatch for PWSA, dated August 1, 2013.

1 I understand that it would be very difficult for PWSA to attempt to separate its
2 books of accounts and financial reporting on a service differentiated basis. The allocation
3 approach, therefore, is a very reasonable alternative. In my view, the allocation study
4 approach is the most reasonable and consistent method of identifying the revenue
5 requirement for each service and produces reasonable results on which PWSA's revenue
6 requirement for each service class can be determined.

7 **Q. COULD PWSA PRODUCE SERVICE SPECIFIC INCOME OR OTHER DATA**
8 **FOR FILING REQUIREMENT PURPOSES?**

9 A. For informational purposes, PWSA could synthesize income statements for each utility
10 service using the results of the cost allocation process and submit those along with the
11 consolidated income statement data, but the separate income statements, as requested in
12 Filing Requirement I.3 would not be generated from their financial system.

13
14 **V. CONCLUSION**

15 **Q. MR. SMITH, DOES THAT CONCLUDE YOUR TESTIMONY?**

16 A. Yes it does.

PWSA EXH. HJS-1

Pittsburgh Water and Sewer Authority
Revenue Requirements by Utility

	FPPTY 2022			
	Water	Wastewater Conveyance	Stormwater	Total
Base Rate Revenue Requirements				
<u>Operating Expenses</u>				
<i>Direct Operating Expenses</i>				
Administrative Division				
Executive Director	\$ 2,237,558	\$ 468,972	\$ 348,904	\$ 3,055,434
Customer Service	2,551,184	3,203,545	3,032,377	8,787,106
Management Information Systems	3,364,483	705,166	524,626	4,594,275
Finance	5,699,209	1,194,504	888,681	7,782,394
Procurement	-	-	-	-
Human Resources	864,436	181,178	134,792	1,180,406
Legal	4,328,612	907,239	674,963	5,910,814
Public Affairs	939,628	196,938	146,517	1,283,083
Operations Division				
Environmental Compliance	1,392,137	1,292,698	1,292,698	3,977,533
Ops Capital Assets	-	-	-	-
Warehouse	346,692	72,664	54,060	473,416
Water Treatment Plant	22,973,908	-	-	22,973,908
Water Quality (Lab)	1,792,010	-	-	1,792,010
Water Distribution	15,138,386	-	-	15,138,386
Sewer Operations	-	1,718,790	1,718,790	3,437,579
Engineering & Construction Division				
Engineering & Construction	21,574,561	10,164,915	6,790,943	38,530,420
<i>Subtotal: Direct Operating Expenses</i>	\$ 83,202,804	\$ 20,106,610	\$ 15,607,350	\$ 118,916,763
<i>Other Operating Expenses</i>				
Loss / (Gain) on ALCOSAN Billings	\$ -	\$ 1,571,968	\$ -	\$ 1,571,968
City Services	3,500,493	733,673	545,834	4,780,001
Non-City Water Payments	-	-	-	-
<i>Subtotal: Other Operating Expenses</i>	\$ 3,500,493	\$ 2,305,641	\$ 545,834	\$ 6,351,969
<i>Subtotal: Operating Expenses</i>	\$ 86,703,297	\$ 22,412,251	\$ 16,153,184	\$ 125,268,732
<u>Debt Service</u>				
<i>Existing Debt</i>				
Senior Debt Service	\$ 32,928,147	\$ 11,876,756	\$ 11,876,756	\$ 56,681,659
Subordinate Debt Service	5,456,284	1,968,011	1,968,011	9,392,305
<i>Subtotal: Existing Debt</i>	\$ 38,384,431	\$ 13,844,767	\$ 13,844,767	\$ 66,073,964
<i>Proposed Debt</i>				
Revolving Line of Credit Interest	\$ 1,966,166	\$ 1,010,648	\$ 523,186	\$ 3,500,000
Revenue Bonds	9,355,344	3,447,831	2,956,852	15,760,027
SRF Loans	2,413,415	836,765	823,102	4,073,281
<i>Subtotal: Proposed Debt</i>	\$ 13,734,926	\$ 5,295,244	\$ 4,303,139	\$ 23,333,308
<i>Subtotal: Debt Service</i>	\$ 52,119,357	\$ 19,140,010	\$ 18,147,906	\$ 89,407,273
<u>Capital Expenditures & Transfers</u>				
Internally Generated Funds / PAYGO	\$ 1,000,000	\$ -	\$ -	\$ 1,000,000
Other Transfers to Reserves	640,000	250,000	110,000	1,000,000
Reimbursements from Municipalities	-	-	-	-
Remarketing & Liquidity Charges	-	-	-	-
Bad Debt Expense	2,977,855	1,148,825	1,591,397	5,718,077
Stormwater Credit Program Cost	-	-	696,685	696,685
<i>Subtotal: Capital Expenditures & Transfers</i>	\$ 4,617,855	\$ 1,398,825	\$ 2,398,082	\$ 8,414,762
Total: Base Rate Revenue Requirements	\$ 143,440,509	\$ 42,951,087	\$ 36,699,172	\$ 223,090,767
DSIC Costs	\$ 6,864,558	\$ 2,735,298	\$ -	\$ 9,599,856
Total System Revenue Requirements	\$ 150,305,066	\$ 45,686,384	\$ 36,699,172	\$ 232,690,623

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Pittsburgh Water and Sewer Authority
Allocation Factors - Between Utilities

Allocations to Utilities (Revenue Requirements & Assets)				
<i>Code</i>	<i>Description</i>	<i>Water</i>	<i>Sewer</i>	<i>Stormwater</i>
A	Water Only	100.0%	0.0%	0.0%
B	Wastewater Only	0.0%	100.0%	0.0%
C	Stormwater Only	0.0%	0.0%	100.0%
D	Customer Service - Meters	51.2%	48.8%	0.0%
E	Customer Bills	26.8%	35.2%	38.0%
F	Operations Cost	73.2%	15.3%	11.4%
G	Engineering and Construction	65.0%	23.6%	11.4%
H	Environmental Compliance	35.0%	32.5%	32.5%
I	Customer Service - Composite	29.0%	36.5%	34.5%
J	Wastewater - Conveyance	0.0%	50.0%	50.0%
K	Existing Debt Service - Assets	58.1%	21.0%	21.0%

Sewer / Stormwater Allocation Factor Detail

	Sewer	Stormwater
Conveyance	50.0%	50.0%
Debt Service	50.0%	50.0%

Pittsburgh Water and Sewer Authority
Allocation Factor Detail

Factor Derivations - Allocation to Utilities				
<i>Code(s)</i>	<i>Description</i>		<i>Calculations</i>	
D	Customer Service - Meters			
	- This factor uses water and sewer meters to allocate meter costs between utilities	Water Meters Water & Sewer Meters	<u>2022</u> 76,150 72,500 148,650	<u>Factor</u> 51.23% 48.77%
E	Customer Bills			
	- This factor uses water, sewer, and stormwater bills to allocate billing costs between utilities. Stormwater parcels are used to estimate the number of bills issued.	Water Bills Sewer Bills Stormwater	<u>2022</u> 913,799 1,200,726 1,294,644 3,409,168	<u>Factor</u> 26.80% 35.22% 37.98%
F	Operations Costs			
	- This factor uses the allocation of the operations budget category as a composite allocation for allocating administrative costs to the utilities	Water Wastewater Stormwater	<u>2022</u> \$ 63,217,694 13,249,066 9,856,491 \$ 86,323,251	<u>Factor</u> 73.23% 15.35% 11.42%
G	Engineering & Construction			
	- This factor uses the 2022 CIP to allocate engineering and construction costs between utilities.	Water Wastewater Stormwater	<u>2022</u> \$ 110,747 40,272 19,432 \$ 170,450	<u>Factor</u> 64.97% 23.63% 11.40%
H	Environmental Compliance			
	- This factor is based on PWSA Staff estimates of 35% of Environmental Compliance costs being water-related. The wastewater portion is allocated 50/50 to wastewater/stormwater.	Water Wastewater Stormwater	<u>Factor</u> 35.00% 32.50% 32.50%	
I	Customer Service - Composite			
	- This factor is a composite allocation of the allocated Customer Service (911) budget between to allocate Customer Service assets between the utilities.	Water Wastewater Stormwater	<u>2022</u> \$ 2,551,184 3,203,545 3,032,377 \$ 8,787,106	<u>Factor</u> 29.03% 36.46% 34.51%
K	Existing Debt Service - Assets			
	- Existing system debt service is allocated between utilities by using system fixed assets. Non-water assets are allocated to wastewater conveyance.	Water Wastewater Stormwater	<u>Factor</u> 58.09% 20.95% 20.95%	

VERIFICATION

I, Harold J. Smith, hereby state that: (1) I am a Vice President of Raftelis Financial Consultants, Inc.; (2) I have been retained by The Pittsburgh Water and Sewer Authority (“PWSA”) and am authorized to present testimony on its behalf; (3) the facts set forth in my testimony are true and correct (or are true and correct to the best of my knowledge, information and belief); and, (4) I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

Dated: March 22, 2022



Harold J. Smith, Vice President
Raftelis Financial Consultants, Inc.

Consultant to:
The Pittsburgh Water and Sewer Authority