



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
COMMONWEALTH KEYSTONE BUILDING
400 NORTH STREET, HARRISBURG, PA 17120

BUREAU OF
INVESTIGATION
&
ENFORCEMENT

September 2, 2021

Via Electronic Filing

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street
Harrisburg, PA 17120

Re: Pennsylvania Public Utility Commission v.
Pittsburgh Water and Sewer Authority
Docket Nos. R-2021-3024773 (Water), R-2021-3024774 (Wastewater)
and R-2021-3024779 (Stormwater)

I&E Pre-Served Testimony, Exhibits, and Verification Statements

Dear Secretary Chiavetta:


Per Administrative Law Judge Vero's August 17, 2021 Post-Hearing Order,¹ enclosed for electronic filing please find the following documents that were admitted into the record at the evidentiary hearing held on August 13, 2021: **Pre-Served Testimony, Exhibits and Verification Statements** of the Bureau of Investigation & Enforcement's (I&E) witnesses in the above captioned proceeding as follows:

Anthony Spadaccio	I&E Statement No. 1 I&E Exhibit No. 1 I&E Statement No. 1-SR I&E Exhibit No. 1-SR Verification Statement
D. C. Patel	I&E Statement No. 2 I&E Exhibit No. 2 I&E Statement No. 2-R I&E Statement No. 2-SR Verification Statement
Ethan H. Cline	I&E Statement No. 3 I&E Exhibit No. 3 I&E Statement No. 3-SR I&E Exhibit No. 3-SR Verification Statement
Israel E. Gray	I&E Statement No. 4 I&E Exhibit No. 4 I&E Statement No. 4-SR I&E Exhibit No. 4-SR Verification Statement

¹ The Post-Hearing Order was corrected via Errata on August 18, 2021.

Copies of this letter are being served on parties of record per the attached Certificate of Service. *Due to the temporary closing of the PUC's offices, I&E is only providing electronic service.* Should you have any questions, please do not hesitate to contact me.

Respectfully,



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GLM/ac
Enclosures

cc: Honorable Eranda Vero (*Cover Letter & Certificate of Service only – via email*)
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Per Certificate of Service (*Cover Letter and Certificate of Service only – via email*)

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission	:	
	:	
v.	:	Docket Nos.: R-2021-3024773 (Water)
	:	R-2021-3024774 (Wastewater)
Pittsburgh Water and Sewer Authority	:	R-2021-3024779 (Stormwater)

CERTIFICATE OF SERVICE

I hereby certify that I am serving the foregoing **Letter Regarding Pre-Served Testimony, Exhibits, and Verification Statements** dated September 2, 2021, in the manner and upon the persons listed below:

Served via Electronic Mail Only

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**I&E Statement No. 1
Witness: Anthony Spadaccio**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Direct Testimony

of

Anthony Spadaccio, CRRA

Bureau of Investigation & Enforcement

Concerning:

**Revenue Requirement
Credit Rating Agencies
Days Cash on Hand
Debt Service Coverage Ratio
Rate Stabilization Fund
PAYGO**

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1 **INTRODUCTION OF WITNESS**

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

3 A. My name is Anthony Spadaccio. My business address is Pennsylvania Public Utility
4 Commission, Commonwealth Keystone Building, 400 North Street, Harrisburg, PA
5 17120.

6
7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in the
9 Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial Analyst.

10

11 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND?**

12 A. My educational and employment background is set forth in the attached Appendix A.

13

14 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

15 A. I&E is responsible for representing the public interest in rate and other proceedings
16 before the Commission. I&E's analysis in this proceeding is based on its
17 responsibility to represent the public interest. This responsibility requires balancing
18 the interests of ratepayers, the utility company, and the regulated community as a
19 whole.

20

21 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

22 A. The purpose of my direct testimony is to address the revenue requirement, various
23 financial metrics such as debt service coverage ratio (DSCR) and days cash on hand

1 (DCOH), Pay As You Go financing (PAYGO), Rate Stabilization Fund (RSF), and
2 credit ratings for Pittsburgh Water & Sewer Authority (PWSA or Authority) as
3 discussed by William J. Pickering, Chief Executive Officer (PWSA Statement No. 1),
4 Edward Barca, Director of Finance (PWSA Statement No. 2), and Thomas F. Huestis,
5 Senior Managing Director and Partner with Public Resources Advisory Group, Inc.
6 (PRAG) (PWSA Statement No. 3). I will also present I&E's recommended overall
7 revenue requirement.

8
9 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

10 A. Yes. I&E Exhibit No. 1 contains schedules relating to my testimony.

11
12 **BACKGROUND**

13 **Q. PLEASE PROVIDE SOME BACKGROUND REGARDING THIS**
14 **PROCEEDING.**

15 A. This proceeding represents the third time in as many years that PWSA has filed a rate
16 case while under the Commission's jurisdiction. The Pennsylvania Public Utility
17 Code was recently amended to add 66 Pa. C.S. § 3201, et al. (Chapter 32).
18 Chapter 32 addresses the Commission's jurisdiction over Pennsylvania water and
19 sewer authorities established by cities of the second class under the Municipal
20 Authorities Act. Under Chapter 32, the Commission gained full regulatory
21 jurisdiction over PWSA's water, wastewater, and stormwater services.¹

¹ *Implementation of Chapter 32 of the Public Utility Code Re Pittsburgh Water and Sewer Authority*, M-2018-264802 et al, Final Implementation Order (entered on March 15, 2018) ("Final Implementation Order"), p. 1.

1 **Q. WHAT IS PWSA REQUESTING IN THIS PROCEEDING?**

2 A. PWSA is requesting the Commission approve its proposal to increase its annual base
3 rates by \$32.2 million, or 17.1%.² PWSA claims that in consideration of the financial
4 hardships experienced by its customers, created in part by the COVID-19 pandemic,
5 this request includes a phase-in of the total amount over two years. The Year 1
6 increase would be \$22.0 million or 11.7%, followed by the Year 2 increase of \$10.2
7 million, or 5.4%.³ Year 1 represents the Fully Projected Future Test Year (FPFTY) of
8 January 1, 2022 through December 31, 2022 while Year 2 represents the forecasted
9 period of January 1, 2023 through December 31, 2023 (FY 2023).⁴ However, PWSA
10 indicates that if its revenue request is adjusted “materially downward,” PWSA
11 reserves the right to withdraw the phase-in proposal.⁵ I note that PWSA has not
12 defined what it considers to be “materially downward” so there is no guarantee that
13 PWSA intends to phase-in an increase over a two-year period if it recovers less
14 revenue than requested.

15 Additionally, as PWSA indicates⁶ this is the first base rate case for the
16 Authority where stormwater fees and associated expenses are addressed.

² PWSA Statement No. 1, p. 4, ln. 24 through p. 5, ln. 2.

³ PWSA Statement No. 1, p. 6, lines 5-11.

⁴ PWSA Statement No. 2, p. 14, lines 3-4.

⁵ PWSA Statement No. 2, p. 4, footnote 2.

⁶ PWSA Statement No. 1, p. 6, lines 16-20.

1 **Q. WHAT RATEMAKING METHOD DID THE COMMISSION DIRECT PWSA**
2 **TO USE IN ITS BASE RATE PROCEEDINGS?**

3 A. As mentioned by Mr. Barca,⁷ the Commission directed that PWSA use a cash flow
4 ratemaking method as detailed in 52 Pa. Code § 69.2703.⁸

5
6 **Q. DID PWSA USE A CASH FLOW RATEMAKING METHOD IN THIS**
7 **PROCEEDING?**

8 A. Yes.

9
10 **Q. PLEASE EXPLAIN WHAT 52 PA. CODE § 69.2703 ENCOMPASSES.**

11 A. Commission regulations at 52 Pa. Code §69.2701-2703 contain the ratemaking
12 elements, procedures, and factors that the Commission will consider in determining
13 just and reasonable rates for PGW. In particular, 52 Pa. Code §69.2703, which was
14 drafted with PGW in mind, but which also now translates to PWSA, states the
15 following:

16 (a) In determining just and reasonable rate levels for PGW, the

17 Commission will consider, among other relevant factors:

18 (1) PGW's test year-end and (as a check) projected future levels of
19 nonborrowed year-end cash.

20 (2) Available short term borrowing capacity and internal generation
21 of funds to fund construction.

⁷ PWSA Statement No. 2, p. 30, ln. 5 through p. 31, ln. 26.

⁸ Final Implementation Order, p. 27-28.

- 1 (3) Debt to equity ratios and financial performance of similarly
2 situated utility enterprises.
- 3 (4) Level of operating and other expenses in comparison to
4 similarly situated utility enterprises.
- 5 (5) Level of financial performance needed to maintain or improve
6 PGW's bond rating thereby permitting PGW to access the
7 capital markets at the lowest reasonable costs to customers over
8 time.
- 9 (6) PGW's management quality, efficiency and effectiveness.
- 10 (7) Service quality and reliability.
- 11 (8) Effect on universal service.
- 12 (b) The Commission is obligated to establish rate levels adequate to permit
13 PGW to satisfy its bond ordinance covenants, consistent with 66
14 Pa.C.S. § 2212(e) (relating to securities of city natural gas distribution
15 operations).
- 16 (c) These financial measures will be considered by the Commission in
17 determining just and reasonable rates for PGW under 66 Pa.C.S.
18 (relating to the Public Utility Code) and are consistent with the PGW
19 Management Agreement Ordinance.

20 In accordance with the Commission directive cited above, these requirements
21 should apply to PWSA in this instant proceeding as well.

1 **Q. AS PART OF YOUR TESTIMONY IN THIS PROCEEDING, YOU ARE**
2 **PRESENTING I&E’S RECOMMENDED OVERALL REVENUE**
3 **REQUIREMENT. SHOULD I&E’S POSITION HERE BE CONSIDERED**
4 **DETERMINATIVE OF POSITIONS THAT I&E MAY TAKE IN PWSA’S**
5 **STAGE 2 COMPLIANCE PLAN PROCEEDING FOR STORMWATER, OR**
6 **ANY OTHER FUTURE PROCEEDINGS?**

7 A. No, because I&E’s overall position is based only upon the information that was
8 available in this proceeding. Additionally, I&E’s positions here should not be
9 considered as being determinative of its positions on any of the issues and questions
10 raised in the Commission’s Directed Questions.⁹ The Directed Questions raise
11 important issues that I&E could not comprehensively address in the timeframe
12 allotted, and considering the format of PWSA’s filing and with the information
13 available for this rate proceeding. So while PWSA has submitted supplemental direct
14 testimony in relation to some of the Directed Questions,¹⁰ I&E’s responses, or non-
15 responses to the Directed Questions, regardless of whether PWSA has elected to
16 address them in this proceeding, should not be interpreted as being determinative of
17 I&E’s position in the Stage 2 Stormwater Compliance Plan case or in any other
18 PWSA proceeding.

⁹ *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority- Stage 2-Stormwater*, Pennsylvania Public Utility Commission Technical Staff Report and Directed Questions Stage 2, Docket No. M-2018-2640802 et al., (Issued on May 20, 2021).

¹⁰ PWSA Statement Nos. 2-SD, 5-SD, 7-SD, & 8-SD.

1 **SUMMARY OF I&E OVERALL POSITION**

2 **Q. WHAT IS I&E’S TOTAL RECOMMENDED REVENUE REQUIREMENT?**

3 A. I&E’s total recommended revenue requirement for PWSA is \$198,550,267.¹¹ This
4 recommended revenue requirement represents an increase of \$2,339,804 to the
5 FPPTY revenues at present rates of \$196,210,463, which produces a revenue surplus
6 of \$56,523. This total recommended allowance incorporates the analysis in this
7 testimony as well as the analysis and adjustments made in the testimonies of I&E
8 witnesses D.C. Patel (I&E Statement No. 2), and Ethan Cline (I&E Statement No. 3),
9 and Israel Gray (I&E Statement No. 4). A calculation of the I&E recommended
10 revenue requirement is included in I&E Exhibit No. 1, Schedule 1.

11 In accordance with PWSA’s Cost of Service Study,¹² this revenue increase
12 should be allocated 64.30% to water operations, 19.25% to wastewater operations,
13 and 16.45% to stormwater operations. Therefore, the I&E recommendation
14 corresponds to an increase of \$1,504,494 to water operations ($\$2,339,804 \times 64.30\%$),
15 an increase of \$450,412 to wastewater operations ($\$2,339,804 \times 19.25\%$), and an
16 increase of \$384,898 to stormwater operations ($\$2,339,804 \times 16.45\%$).

¹¹ I&E Exhibit No. 1, Schedule 1.

¹² PWSA Cost of Service Study Model 4.13.21, RevReq_Alloc tab, Column P, Rows 25-27.

1 **CREDIT RATING AGENCIES**

2 **Q. HAVE YOU REVIEWED THE MOST RECENT REPORTS FROM CREDIT**
3 **RATING AGENCIES REGARDING THE FINANCIAL POSITION OF**
4 **PWSA?**

5 A. Yes. I have reviewed PWSA’s Moody’s Investors Service (Moody’s) Credit Opinion
6 report dated November 5, 2020, as well as PWSA’s S&P Global Ratings (S&P)
7 report, dated November 10, 2020,¹³ which were the most recent reports available to
8 me at the time of this testimony.

9

10 **Q. PLEASE SUMMARIZE THE MOODY’S INVESTORS SERVICE REPORT**
11 **REGARDING PWSA.**

12 A. Moody’s credit rating for PWSA remains at “A3 stable,” however the credit rating
13 agency notes that the “credit profile continues to improve, with financial metrics
14 steadily strengthening over the last three years.¹⁴” The A3 stable rating falls into the
15 category of upper medium grade obligations and is considered to have low credit risk.
16 The large size, considerable assets, diverse service area, and “significant” recent rate
17 increases are considered to be the Authority’s credit strengths, while the substantial
18 debt burden, projected capital needs to be funded with debt, and narrow liquidity
19 versus similarly sized peers are among the credit challenges. Moody’s notes that
20 PWSA continues to benefit from the Commission’s oversight, as well as from

¹³ PWSA, Filing Requirement FR VII.18 and PWSA Exhibits EB-9 and EB-10.

¹⁴ PWSA Exhibit EB-9, Moody’s Investors Service, Credit Opinion, p. 1, Summary, November 5, 2020

1 changes to the Authority’s governance, but that the system’s future credit reviews will
2 be primarily based on PWSA’s ability to manage its substantial debt burden.¹⁵

3
4 **Q. PLEASE SUMMARIZE THE S&P GLOBAL RATINGS REPORT**
5 **REGARDING PWSA.**

6 A. S&P has assigned PWSA’s first-lien revenue bonds an “A” rating, and an “A-” rating
7 to the Authority’s subordinate-lien revenue bonds, both with a stable outlook. The
8 investment grade A rating implies a strong capacity to meet its financial obligations.
9 While S&P notes its expectation of a credit-supportive relationship between PWSA
10 and the Commission, the credit rating agency expresses concerns over the Authority’s
11 high leverage and future capital commitments resulting in pressure on its overall
12 financial profile.¹⁶

13
14 **Q. WHAT ARE YOUR COMMENTS REGARDING THE CREDIT RATING**
15 **AGENCY REPORTS?**

16 A. Since PWSA’s previous base rate case, both credit rating agencies continue to express
17 concern over PWSA’s large debt burden, yet both appear confident that the
18 Authority’s recently established (April 1, 2018) relationship with the Commission and
19 being subjected to regulatory oversight will yield positive results in strengthening its
20 financial position. Sound financial management remains essential going forward,
21 especially considering the vast amount of planned future debt issuances for capital

¹⁵ PWSA Exhibit EB-9, Moody’s Investors Service, Credit Opinion, November 5, 2020.

¹⁶ PWSA Exhibit EB-10, S&P Global Ratings, RatingsDirect, November 10, 2020.

1 improvement projects. The debt service coverage ratios and days cash on hand
2 metrics mentioned in these credit reports are discussed below.

3

4 **DAYS CASH ON HAND (DCOH)**

5 **Q. PLEASE EXPLAIN THE DCOH METRIC.**

6 A. The DCOH metric represents the number of days a company can pay its current level
7 of operating expenses with the amount of cash it has available. The formula to
8 calculate DCOH is as follows:

9
$$\text{Cash Available} \div ((\text{Operating Expenses} - \text{Noncash Expenses}) \div 365)$$

10

11 **Q. WHAT IS PWSA'S TESTIMONY REGARDING DCOH?**

12 A. Mr. Barca opines that at present rates, the DCOH is projected to be 195 days in the
13 Future Test Year (FTY), followed by dramatic declines to 87.1 days in the FPFTY
14 and to -26.8 days in FY 2023. He credits the substantial drop in DCOH to increases
15 in required operational and capital spending.¹⁷

16 Similar to Mr. Barca, Mr. Huestis asserts that the DCOH would fall to
17 unacceptable levels and the Authority would be in jeopardy of a credit downgrade,
18 resulting in increased borrowing costs which would demand higher rate increases
19 over time if the requested rate increase is not approved in its entirety.¹⁸ He also
20 alleges that PWSA's level of DCOH is considerably lower than that of its peer
21 utilities.¹⁹

¹⁷ PWSA Statement No. 2, p. 37, lines 2-13.

¹⁸ PWSA Statement No. 3 p. 16, ln. 13 through p. 17, ln. 8.

¹⁹ PWSA Statement No. 3 p. 24, lines 1-12.

1 **Q. DO THE RATING AGENCIES EXPRESS CONCERN ABOUT PWSA'S**
2 **NUMBER OF DCOH?**

3 A. No. The Moody's Credit Opinion of November 5, 2020 states:²⁰

4 Liquidity is particularly improved and is expected to be
5 maintained at roughly 140 days' cash on hand at the end of fiscal
6 2020, up from a critically low 29 days' cash at fiscal 2017 year
7 end.
8

9 **Q. WHAT ARE THE RANGES OF DCOH DESCRIBED BY MOODY'S IN ITS**
10 **RATING METHODOLOGY?**

11 A. Moody's sets the following ranges for each rating categories:²¹

Aaa	Greater than 250 days
Aa	Greater than 150 days but less than or equal to 250 days
A	Greater than 35 days but less than or equal to 150 days
Baa	Greater than 15 days but less than or equal to 35 days
Ba	Greater than 7 days but less than or equal to 15 days
B and Below	Equal to or less than 7 days

12

13

14 **Q. WHAT DOES S&P SAY ABOUT PWSA'S NUMBER OF DCOH?**

15 A. The S&P Global Ratings November 10, 2020 credit profile states as follows:²²

16 The system's liquidity remains an area of consistency and credit
17 strength...All told, cash and equivalents held by PWSA remains
18 sound, usually equivalent to four-six months of operating
19 expenses.

²⁰ PWSA Exhibit EB-9, Moody's Investors Service, Credit Opinion, November 5, 2020.

²¹ I&E Exhibit No. 1, Schedule 3, p. 10.

²² PWSA Exhibit EB-10, S&P Global Ratings, RatingsDirect, p. 6, Financial Risk, November 10, 2020.

1 **Q. WHAT WOULD PWSA’S DCOH BE AT I&E’S PROPOSED RATES?**

2 A. I&E’s proposed rates would result in approximately 221 days of cash on hand.²³ This
3 metric falls within Moody’s range for the ‘Aa’ rating category, which is higher than
4 Moody’s overall ‘A3’ rating for PWSA. The DCOH metric, as well as the annual
5 debt service coverage as discussed below, are subfactors of the “Financial Strength”
6 factor used in Moody’s “Municipal Utility Scorecard Factors”.²⁴ The “Financial
7 Strength” factor represents 40% of the total weighting factors when considering a
8 utility’s credit profile.

9 It is important to recognize that the 195 DCOH the Authority projects to have
10 at the end of FY 2021²⁵ regardless of the consideration of any future rate increases, is
11 much higher than the 113 days and 150 days projected by PWSA and I&E,
12 respectively, in the previous base rate case.²⁶ This is largely due to the Authority
13 budgeting higher expenses than it actually experiences as I&E witness D.C. Patel
14 discusses in his direct testimony regarding PWSA’s operating and maintenance
15 expenses.²⁷

16 Finally, the 221 DCOH resulting from I&E’s recommendation is greater than
17 PWSA’s five-year target goal of 200 days as asserted in its Financial Management
18 Policy.²⁸ Again, it is also important to recognize that the Authority has only recently
19 come under the Commission’s jurisdiction, and as indicated by Moody’s and S&P

²³ I&E Exhibit No. 1, Schedule 2.

²⁴ I&E Exhibit No. 1, Schedule 3, p. 6.

²⁵ PWSA Statement No. 2, p. 37, ln. 8 and PWSA Statement No. 3, p. 18, ln. 5.

²⁶ R-2020-3017951 & R-2020-3017970, PWSA Exhibit JP-2 and I&E Exhibit No. 1, Schedule 2.

²⁷ I&E Statement No. 2.

²⁸ PWSA Exhibit EB-6, p. 2.

1 Global and cited above, the DCOH has steadily been improving ever since.
2 Consequently, any fear of a credit downgrade regarding the level of cash on hand is
3 unjustified.
4

5 **DEBT SERVICE COVERAGE RATIO (DSCR)**

6 **Q. WHAT IS THE DEBT SERVICE COVERGE RATIO?**

7 A. The DSCR is a commonly used indicator that gauges an entity's ability to pay its
8 outstanding loan principal and interest in full and on time. The DSCR calculation
9 includes dividing the net operating income by the entity's debt service payments.
10 This calculation is often done on two levels, once to include only senior debt service,
11 and again to cover the entire debt service.
12

13 **Q. WHAT IS PWSA'S CLAIMED DSCR FOR THE FPFTY?**

14 A. The Authority provides a calculation illustrating that at proposed rates, the DSCR for
15 senior debt service would be 1.46x, and 1.18x for total debt service coverage.²⁹

16 Mr. Barca expresses concern that coverage ratios under present rates would
17 fall well below the legal minimum requirements, and, consequently, the Authority
18 would be unable to fully pay its debt obligations.³⁰ He contends that it is critical for
19 PWSA to maintain adequate coverage to remain in a position to have access to the
20 capital markets on acceptable terms.³¹ Additionally, Mr. Barca argues that at present

²⁹ PWSA Cost of Service Study Model 4.13.21, Sufficiency tab, Column K, Rows 112-118.

³⁰ PWSA Statement No. 2, p. 38, lines 14-18.

³¹ PWSA Statement No. 2, p. 38, lines 6-8.

1 rates the Authority would not be able to satisfy the Additional Bonds Test.³² Further,
2 he claims that any excess of revenues over expenses is invested back into the system,
3 which will benefit ratepayers by offsetting future revenue increases.³³

4 Mr. Huestis explains that the Authority's Financial Management Policy
5 requires coverage of 1.35x for senior debt and 1.15x for overall debt, which is more
6 stringent than the legal covenant, yet he claims is still below the norm for the overall
7 municipal water and sewer utility sector. He suggests that the target of 1.35x should
8 be viewed not as a goal, but as the minimum. Mr. Huestis further rationalizes that it
9 is important for PWSA to increase its coverage levels in excess of the legal
10 requirements in order to reduce its over reliance on debt, protect against unforeseen
11 expenses and decreases in expected revenue, and to have the funds required
12 throughout the year to satisfy its financial obligations over and above its debt service,
13 including the City's Co-op payment.³⁴

14
15 **Q. DO THE RATING AGENCIES INDICATE CONCERN ABOUT PWSA'S**
16 **DSCR?**

17 A. No. The Moody's Credit Opinion of November 5, 2020 states:³⁵

18 Beginning in 2019, the Authority was required to meet a covenant
19 of 125% of senior debt service coverage plus 110% of
20 subordinate debt service coverage without the use of free cash.
21 PWSA met both of these requirements in both fiscal 2019 – with
22 Moody's calculated coverage of 1.97 and 1.68 times, respectively
23 – as well as fiscal 2018, with PWSA reporting senior lien debt
24 service coverage of 1.89x and overall coverage of 1.37x.
25

³² PWSA Statement No. 2, p. 35, lines 7-8.

³³ PWSA Statement No. 2, p. 39, lines 5-8.

³⁴ PWSA Statement No. 3, p. 8, ln. 19 through p. 11, ln. 14.

³⁵ PWSA Exhibit EB-9, Moody's Investors Service, Credit Opinion, p. 2, November 5, 2020.

1 This statement clearly indicates that although Moody’s acknowledges the
2 Authority’s need to maintain appropriate coverage levels, the credit rating
3 agency is aware of PWSA’s legal covenants as well as its steadily improving
4 DSCRs that are well above the legal requirements.

5
6 **Q. WHAT ARE THE RANGES OF ANNUAL DEBT SERVICE COVERAGE**
7 **DESCRIBED BY MOODY’S IN ITS RATING METHODOLOGY?**

8 A. Moody’s sets the following ranges for each rating categories:³⁶

Aaa	Greater than 2.00x
Aa	Greater than 1.70x but less than or equal to 2.00x
A	Greater than 1.25x but less than or equal to 1.70x
Baa	Greater than 1.00x but less than or equal to 1.25x
Ba	Greater than 0.70x but less than or equal to 1.00x
B and Below	Equal to or less than 0.70x

9
10
11 **Q. WHAT DOES S&P SAY ABOUT PWSA’S DSCR?**

12 A. Like Moody’s, the S&P Global Ratings November 10, 2020 credit profile notes that
13 PWSA’s “all-in DSC” has been steadily increasing from below 1x in 2016 to near
14 1.7x in 2019, yet the rating agency expects it to trend towards 1.25x based on its
15 review of management’s projections which include consideration of additional debt
16 burden. S&P further remarks on the financial benefits from unloading the financial

³⁶ I&E Exhibit No. 1, Schedule 3, p. 10.

1 burden of providing free service to a portion of the City of Pittsburgh via the 2019
2 Cooperation Agreement, as well as the credit supportive relationship with the
3 Commission.³⁷

4
5 **Q. ARE YOU AWARE OF ANY ADDITIONAL LITERATURE THAT**
6 **INDICATES WHAT AN IDEAL DSCR SHOULD BE FOR MUNICIPALLY-**
7 **OWNED WATER AND SEWER UTILITIES?**

8 A. Yes. I have provided a Standard & Poor's article³⁸ that illustrates at what level a
9 municipal water and or sewer utility has the ability to repay its debt. The article
10 presents the following analysis regarding what the range of DSCR indicates:

11 <1.0x = Insufficient

12 1.0x to 1.25x = Adequate

13 1.26x to 1.50x = Good

14 >1.50x = Strong

15
16 **Q. WHAT WOULD PWSA'S DSCRs BE AT I&E'S PROPOSED RATES?**

17 A. I&E's proposed rates would result in DSCRs of 1.43x for senior debt service and
18 1.16x for total debt service coverage.³⁹ These ratios exceed both the legal covenant
19 requirements of 1.25x for senior debt service and 1.10⁴⁰ for total debt service as well

³⁷ PWSA Exhibit EB-10, S&P Global Ratings, RatingsDirect, p. 6, Financial Risk, November 10, 2020.

³⁸ I&E Exhibit No. 1, Schedule 4, p. 4.

³⁹ I&E Exhibit No. 1, Schedule 2.

⁴⁰ Filing Requirement VII.7, Amended and Restated Trust Indenture Between The Pittsburgh Water and Sewer Authority and The Bank of New York Mellon Trust Company, N.A., Amended and Restated as of November 1, 2017, p. 58, Section 7.01(c)(ii).

1 as the requirement from the Authority’s Financial Management Policy as mentioned
2 above. I&E’s recommendation for senior debt service coverage would be considered
3 ‘Good’ by the Standard & Poor’s analysis above, while the recommendation for total
4 debt service coverage would be considered ‘Adequate.’ This allows PWSA to at least
5 maintain, if not provide support for the consideration to improve, its credit rating.

6 Ultimately, other than the recommendation to reject the requested PAYGO
7 funding, as will be discussed below, it must be recognized that I&E is not
8 recommending any reduction or denial to planned capital improvements or the ability
9 to fund the associated debt service in the FPPTY. I&E’s reductions to the overall
10 revenue requirement are almost exclusively associated with the claimed operating and
11 maintenance expenses. Therefore, PWSA should not be in danger of failing to meet
12 its rate covenants or the Additional Bonds Test.

13
14 **Q. ARE THERE ADDITIONAL REQUESTS TO CONSIDER THAT WILL**
15 **AFFECT THE OVERALL CLAIMED DSCR AND REQUESTED REVENUE**
16 **INCREASE OTHER THAN STANDARD OPERATING EXPENSES AND**
17 **DEBT SERVICE?**

18 A. Yes. PWSA is claiming continued financing of its Rate Stabilization Fund as well as
19 PAYGO funding.

1 **RATE STABILIZATION FUND (RSF)**

2 **Q. WHAT IS THE AUTHORITY’S CLAIM REGARDING ITS RSF?**

3 A. PWSA proposes to add \$900,000 to its RSF, which is currently funded at \$2.4
4 million.⁴¹

5
6 **Q. WHAT IS THE BASIS FOR PWSA’S RSF CLAIM?**

7 A. Mr. Barca explains that this fund is a standard feature of municipal ratemaking and is
8 designed to provide flexibility to meet minimum DSCRs and demonstrate financial
9 stability to the financial community.⁴²

10

11 **Q. DO YOU ACCEPT PWSA’S CLAIM FOR THE RSF IN THIS PROCEEDING?**

12 A. Yes. I believe it is reasonable for PWSA to maintain a small RSF as a financial
13 cushion to deal with unforeseen circumstances and potential debt service deficiencies
14 that could result from those circumstances. As outlined by Mr. Huestis, excess funds
15 after all required payments may be transferred to the RSF, Debt Service Fund, or the
16 Operating Fund to pay for construction or capital projects.⁴³ However, as in PWSA’s
17 previous rate cases, I recommend that the funding of PWSA’s RSF be reevaluated in
18 each of PWSA’s subsequent rate cases to determine whether it is prudent and
19 reasonable as PWSA’s operations evolve under the Commission’s jurisdiction.

⁴¹ PWSA Statement No. 2, p. 40, lines 1-10.

⁴² PWSA Statement No. 2, p. 40, lines 2-4.

⁴³ PWSA Exhibit TH-1.

1 **PAYGO**

2 **Q. EXPLAIN PWSA’S CLAIM REGARDING ITS PAYGO FUND.**

3 A. PWSA is requesting \$1.0 million from base rates to provide additional funding for
4 costs in the operating budget that are eligible to be capitalized at year-end.⁴⁴

5
6 **Q. WHAT IS THE BASIS FOR PWSA’S PAYGO CLAIM?**

7 A. Mr. Barca explains that PAYGO funds are internally generated funds that are used to
8 finance capital assets with current year revenues. He argues PAYGO funding is often
9 used in lieu of long-term debt to fund capital assets with shorter useful lives. Further,
10 he claims that PAYGO funding provides financial flexibility within the capital
11 program, is cheaper than the debt service associated with long-term debt, and it can
12 help prevent an overleveraged debt position. Finally, Mr. Barca asserts that although
13 the Authority is limiting its current PAYGO funding request attributable to the effects
14 of the pandemic, PWSA intends to increase its PAYGO funding in future years.⁴⁵

15
16 **Q. DO YOU ACCEPT PWSA’S CLAIM REGARDING THE PAYGO FUND FOR**
17 **THIS PROCEEDING?**

18 A. No. I recommend the Commission reject the entire PAYGO claim in this proceeding.

⁴⁴ PWSA Statement No. 2, p. 23, lines 6-8.

⁴⁵ PWSA Statement No. 2, p. 23, ln. 11 through p. 24, ln 12.

1 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION TO REJECT**
2 **PWSA’S PAYGO FUNDING CLAIM?**

3 A. First, it is important to recognize that a Distribution System Improvement Charge
4 (DSIC) was established in PWSA’s 2020 base rate case. The DSIC provides an
5 additional 5% of distribution revenue, which results in approximately \$8.5 million⁴⁶
6 allowing for accelerated investment in infrastructure and reduced regulatory lag.
7 Further, the Long-term Infrastructure Improvement Plan (LTIIP), which is required
8 for the DSIC, provides a clear picture of how ratepayer funds are being used to fund
9 capital projects, which is a level of spending accountability that is not provided with
10 PAYGO.

11 Second, the Authority has continued to secure extremely low-cost
12 Pennsylvania Infrastructure Investment Authority (PENNVEST) funding.
13 Specifically, the Authority secured 1% cost-rate PENNVEST loans of \$49.1 million
14 in March 2019, \$65.2 million in June 2020, and \$7.8 million in May 2021.
15 Additionally, PWSA “has or will” apply for further PENNVEST funding in the
16 amounts of \$38.5 million for water main replacements, \$45.3 million for sewer
17 rehabilitation and replacement, and \$126.8 million for partial funding of the Consent
18 Order and Agreement issued by the Pennsylvania Department of Environmental
19 Protection. Mr. Barca notes that although future PENNVEST funding is not
20 guaranteed, the use of these funds provides major cost savings to the Authority’s
21 ratepayers.⁴⁷

⁴⁶ I&E Exhibit No. 1, Schedule 1.

⁴⁷ PWSA Statement No. 2, p. 25, ln. 5 through p. 26, ln. 2.

1 **Q. HAS PWSA RECENTLY BEEN AWARDED PENNVEST FUNDING THAT**
2 **WAS NOT FACTORED INTO ITS FILING?**

3 A. Yes. In a response to I&E's discovery request, Mr. Barca acknowledges that PWSA
4 was recently awarded a PENNVEST grant in the amount of \$2,976,450 (almost 3x
5 the requested PAYGO amount) and a loan for \$35,573,550 to replace approximately
6 25,000 feet of distribution piping and 592 lead service lines. He further explains that
7 this funding, which was not known to be available at the time of PWSA's filing, is to
8 close on July 7th, which is when funds can begin to be drawn, and that a revised
9 revenue requirement will be presented in rebuttal testimony since this funding was
10 originally reflected as revenue bonds in the Cost of Service Model.⁴⁸

11 Then, as cited above, excess funds after all required payments may be
12 transferred to the RSF, Debt Service Fund, or the Operating Fund to pay for
13 construction or capital projects. I&E's recommendation yields a revenue surplus of
14 \$56,523 which contributes to an ending *Unrestricted* Cash Balance of \$59,339,166⁴⁹
15 that can be used accordingly.

16
17 **Q. ARE THERE ANY OTHER REASONS TO DENY THE PAYGO CLAIM?**

18 A. Yes. Finally, and perhaps most importantly, as recommended in the prior rate case,
19 the capital expenditures that cannot be funded through the DSIC should be tied to
20 actual, identified expenditures in the FPPTY rather than simply having no restrictions
21 over available funds. To address this concern, the expenditures that Mr. Barca

⁴⁸ I&E Exhibit No. 1, Schedule 5.

⁴⁹ I&E Exhibit No. 1, Schedule 1.

1 references,⁵⁰ including vehicles, pumps, and IT hardware just to name a few, can be
2 normalized over the estimated useful life and included in rates. In direct testimony,
3 I&E witness D.C. Patel discusses in detail the benefits of and reasons for
4 normalization of equipment costs.⁵¹ This same strategy is ideal for recovery of the
5 capital assets previously mentioned.

6 7 **OVERALL RECOMMENDATION**

8 **Q. WHAT IS YOUR RECOMMENDATION FOR PWSA'S DSCR AND** 9 **OVERALL REVENUE REQUIREMENT?**

10 A. I recommend an increase in revenues of \$2,339,804 (\$198,550,267 - \$196,210,463)⁵²
11 from FPFTY revenues at present rates, which results in DSCRs of 1.43x on senior
12 debt and 1.16x on total debt.⁵³

13 14 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

15 A. PWSA's bond covenant requires DSCRs of 1.25x on senior debt service and 1.10x on
16 total debt service while the Authority's Financial Management Policy requires
17 coverage of 1.35x for senior debt and 1.15x for total debt. I&E's recommended
18 coverage ratios exceed both of these requirements and provide PWSA the opportunity
19 to build financial stability to lessen risks associated with being highly leveraged,

⁵⁰ I&E Exhibit No. 1, Schedule 6.

⁵¹ I&E Statement No. 2.

⁵² I&E Exhibit No. 1, Schedule 1.

⁵³ I&E Exhibit No. 1, Schedule 2.

1 increase liquidity, and maintain its credit quality. The I&E recommended revenue
2 increase of \$2,339,804 results in a total revenue requirement \$198,550,267.⁵⁴

3 As previously indicated, this revenue increase should be allocated 64.30% to
4 water operations, 19.25% to wastewater operations, and 16.45% to stormwater
5 operations. Therefore, the I&E recommendation corresponds to an increase of
6 \$1,504,494 to water operations ($\$2,339,804 \times 64.30\%$), an increase of \$450,412 to
7 wastewater operations ($\$2,339,804 \times 19.25\%$), and an increase of \$384,898 to
8 stormwater operations ($\$2,339,804 \times 16.45\%$). If the I&E recommendation is
9 accepted by the Commission, a phase-in of rates would be unnecessary due to the
10 increase amount being reasonable to implement in a single year.

11 Finally, I believe the DSCRs and DCOH, along with the recently established
12 DSIC, will afford PWSA the opportunity to cover necessary expenses, pay its debt,
13 and maintain, if not improve its current financial position and credit ratings. As
14 evidenced by the credit rating agencies discussed above, PWSA's recently established
15 relationship with the Commission as well as its strengthened management team have
16 allowed the Authority to make notable improvements to these financial metrics in
17 working towards putting the Authority more in line with its peer utilities.

18
19 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

20 **A.** Yes. However, I reserve the right to supplement my testimony if additional issues or
21 facts arise that would impact my recommendation.

⁵⁴ I&E Exhibit No. 1, Schedule 1.

ANTHONY D. SPADACCIO, CRRA
PROFESSIONAL EXPERIENCE AND EDUCATION

EMPLOYMENT

Fixed Utility Financial Analyst 2014 – Present	PA Public Utility Commission Bureau of Investigation & Enforcement
Auditor 2012 – 2014	Public School Employee’s Retirement System Bureau of Benefits Administration
Tax Technician 2010 – 2012	PA Department of Labor and Industry Unemployment Compensation Tax Services
Staff Accountant 2006 – 2009	Boyer & Ritter Certified Public Accountants

EDUCATION & TRAINING

EDUCATION/CERTIFICATIONS:

Society of Utility and Regulatory Financial Analysts – 2018
Certified Rate of Return Analyst (CRRA)

Indiana University of Pennsylvania, A.A. Accounting - 2006

The Pennsylvania State University, B.S. Labor and Industrial Relations – 2003

The Pennsylvania State University - The Smeal College of Business - 2003

Certificates of Completion:

Business Management - 20 credits of instruction

General Business - 20 credits of instruction

UTILITY SPECIFIC TRAINING/CONFERENCES:

SURFA Annual Financial Forum – New Orleans, LA - 2018

SURFA Annual Financial Forum – Indianapolis, IN - 2016

Western NARUC Utility Rate School – San Diego, CA - 2015

Pennsylvania Public Utility Commission Rate School – Harrisburg, PA – 2014

EXPERIENCE

I have submitted testimony or provided assistance in the following proceedings:

- Docket No. R-2021-3023618 – UGI Utilities, Inc. – Electric Division*
- Docket No. R-2020-3022135 – Pike County Light & Power Company (Electric)*
- Docket No. R-2020-3022135 – Pike County Light & Power Company (Gas)*
- Docket No. R-2020-3020919 – Audubon Water Company*
- Docket No. R-2020-3020256 – City of Bethlehem – Bureau of Water*
- Docket Nos. R-2020-3019369 & R-2020-3019371 – Pennsylvania-American Water Company*
- Docket Nos. R-2020-3017951, R-2020-3017970 & P-2020-3019019 – Pittsburgh Water & Sewer Authority*
- Docket No. R-2020-3017206 – Philadelphia Gas Works*
- Docket No. R-2020-3017850 – Peoples Natural Gas Company, LLC 1307(f)*
- Docket No. R-2020-3017846 – Peoples Gas Company, LLC 1307(f)*
- Docket No. R-2019-3010955 – City of Lancaster – Sewer Fund*
- Docket No. R-2019-3008208 – Wellsboro Electric Company*
- Docket No. R-2019-3008212 – Citizens’ Electric Company of Lewisburg, PA*
- Docket No. R-2019-3008948 – Community Utilities of PA, Inc. – Wastewater Division*
- Docket No. R-2019-3008947 – Community Utilities of PA, Inc. – Water Division*
- Docket No. A-2019-3006880 – Pennsylvania-American Water Company – Acquisition of the Water Treatment and Distribution System Assets of Steelton Borough Authority (§1329)*
- Docket No. R-2018-3006814 – UGI Utilities, Inc. – Gas Division*
- Docket Nos. M-2018-2640802 & 2640803 – Pittsburgh Water & Sewer Authority (Compliance Plan)*
- Docket Nos. R-2018-3002645 & 3002647 – Pittsburgh Water & Sewer Authority*
- Docket Nos. A-2018-3003517 & 3003519 – SUEZ Water Pennsylvania, Inc. – Acquisition of the Water and Wastewater Assets of Mahoning Township (§1329)*
- Docket No. R-2018-3000124 – Duquesne Light Company*
- Docket No. R-2018-3000164 – PECO Energy Company – Electric Division*
- Docket No. R-2018-2645296 – Peoples Gas Company LLC 1307(f)*
- Docket No. R-2018-3000236 – Peoples Natural Gas – Equitable Division 1307(f)*
- Docket No. R-2018-2645278 – Peoples Natural Gas Company, LLC 1307(f)*
- Docket No. R-2017-2640058 – UGI Utilities, Inc. – Electric Division*

- Docket No. R-2017-2595853 – Pennsylvania-American Water Company*
- Docket No. A-2017-2606103 – Pennsylvania-American Water Company – Acquisition of Assets of the Municipal Authority of the City of McKeesport (§1329)*
- Docket No. A-2016-2580061 - Aqua PA Wastewater, Inc. – Acquisition of the Wastewater System Assets of New Garden Township and the New Garden Township Sewer Authority (§1329)
- Docket No. R-2016-2531551 – Wellsboro Electric Company*
- Docket No. R-2016-2531550 – Citizens’ Electric Company of Lewisburg, PA*
- Docket No. R-2016-2542923 – PNG, LLC – Equitable Division (Rate MLX)*
- Docket No. R-2016-2542918 – Peoples Natural Gas Company, LLC (Rate MLX)*
- Docket No. P-2016-2543140 – Duquesne Light Company (DSP VIII)*
- Docket No. R-2016-2529660 – Columbia Gas of PA, Inc.*
- Docket No. R-2016-2538660 – Community Utilities of PA, Inc.
- Docket No. P-2016-2521993 – Columbia Gas of PA, Inc. (DSIC)*
- Docket No. R-2015-2506337 – Twin Lakes Utilities, Inc.
- Docket No. R-2015-2479955 – Allied Utility Services, Inc.
- Docket No. R-2015-2479962 – Corner Water Supply & Service Corp.
- Docket No. R-2015-2470184 – Borough of Schuylkill Haven – Water Dept.
- Docket No. R-2014-2452705 – Delaware Sewer Company*
- Docket No. R-2014-2430945 – Plumer Water Company
- Docket No. R-2014-2427189 – B.E. Rhodes Sewer Company
- Docket No. R-2014-2427035 – Venango Water Company
- Docket No. R-2014-2428745 – Metropolitan Edison Company
- Docket No. R-2014-2428744 – Pennsylvania Power Company
- Docket No. R-2014-2428743 – Pennsylvania Electric Company
- Docket No. R-2014-2428742 – West Penn Power Company

*Testimony Submitted

I&E Exhibit No. 1
Witness: Anthony Spadaccio

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Exhibit to Accompany

the

Direct Testimony

of

Anthony Spadaccio, CRRA

Bureau of Investigation & Enforcement

Concerning:

Revenue Requirement
Credit Rating Agencies
Days Cash on Hand
Debt Service Coverage Ratio
Rate Stabilization Fund
PAYGO

TABLE I
Pittsburgh Water and Sewer Authority
FPPTY 2022 INCOME SUMMARY
Docket Nos. R-2021-3024773 (Water), R-2021-3024774 (Wastewater), & R-2021-3024779 (Stormwater)

I&E Exhibit No. 1
Schedule 1

I&E MODIFIED									
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
	PWSA	I&E	I&E	PWSA	PWSA	I&E	I&E	Not Applicable	Not Applicable
	FPPTY 2022 Present Rates	Revenue Adjustments	Adjusted FPPTY 2022 Present Rates	Rate Increase to Meet Revenue Requirements	FPPTY 2022 Proposed Rates	Revenue Requirement Adjustments	Pro Forma Adjusted Rates	Automatic Adjustments to Meet Minimum Financial Metrics	Metric-Adjusted Minimum Required Revenues
	(1)				(1)	(2)			
	\$	\$	\$	\$	\$	\$	\$	\$	\$
INCOME SUMMARY									
Beginning Unrestricted Cash	59,282,643	0	59,282,643	0	59,282,643	0	59,282,643	0	59,282,643
Revenues:									
Operating Revenues	190,932,625	0	190,932,625	32,214,664	223,147,289	(27,565,987)	194,884,617	0	194,884,617
DSIC Revenues	9,227,369	0	9,227,369	372,487	9,599,856	(1,120,980)	8,478,876	0	8,478,876
Less: Uncollectible Revenues	(3,949,530)	(0)	(3,949,530)	(1,768,547)	(5,718,077)	904,852	(4,813,225)	0	(4,813,225)
Stormwater Credit Program Cost	0	0	0	0	0	0	0	0	0
Total Revenues	196,210,463	(0)	196,210,463	30,818,604	227,029,067	(27,782,115)	198,550,267	0	198,550,267
Revenue Requirements:									
O & M Expense	125,268,731		125,268,731	0	125,268,731	(25,661,135)	99,607,596		99,607,596
Debt Service (Principal & Interest) (3)	89,407,273		89,407,273	0	89,407,273	0	89,407,273		89,407,273
Cash-Financed Capital	10,227,369		10,227,369	372,487	10,599,856	(2,120,980)	8,478,876		8,478,876
Restricted Reserve Contributions	1,000,000		1,000,000	0	1,000,000	0	1,000,000		1,000,000
Total Revenue Requirements	225,903,373		225,903,373	372,487	226,275,859	(27,782,115)	198,493,744	0	198,493,744
Revenue Surplus / (Deficit)	(29,692,909)		(29,692,909)	30,446,117	753,208		56,523		56,523
Ending Unrestricted Cash Balance	29,589,734				60,035,851		59,339,166		59,339,166
KEY FINANCIAL METRICS									
Debt Service Coverage					PWSA Filing				ALJ Adjusted
Senior (1.25 Requirement)					1.45				1.43
Total (1.10 Requirement)					1.18				1.16
Days Cash on Hand (4)					175.1				220.9
Debt Service Coverage									
Senior (1.25 Requirement)	1.05				1.47		1.43		1.43
Total (1.10 Requirement)	0.85				1.19		1.16		1.16
Days Cash on Hand (4)	87.3				177.2		220.9		220.9
Key Ratio Check (Achieved/Not Achieved)	Not Achieved				Achieved		Not Achieved		Achieved

(1) As filed in the FPPTY 2022 Base Rate Case.	\$ 198,550,267	I&E Recommended Revenue	\$ 198,493,744	I&E Total Revenue Requirement
(2) Revenue adjusted to meet to Revenue Requirements.	\$ 196,210,463	I&E Adjusted Present Rates Revenue	\$ 56,523	Revenue Surplus / (Deficit)
(3) Includes Principal and Interest payments on existing and proposed debt.	\$ 2,339,804	Total Revenue Increase	\$ 198,550,267	I&E Recommended Revenue
(4) Calculated using Operating & Maintenance Expenses (excludes non-operating expenses).	\$223,147,289	PWSA FPPTY 2022 Proposed Rates		
	(\$27,565,987)	I&E Revenue Requirement Adjustments		
	(\$696,685)	Removal of Stormwater Credit Program Cost - See I&E Statement No. 3		
	\$194,884,617			

TABLE I(A)
Pittsburgh Water and Sewer Authority
FPFTY 2022 KEY RATIOS

I&E Exhibit No. 1 Schedule 2

Docket Nos. R-2021-3024773 (Water), R-2021-3024774 (Wastewater), & R-2021-3024779 (Stormwater)

I&E MODIFIED

<u>Key Ratio Breakdown</u>	(A)	(B)	(C)	(D)
	PWSA	PWSA	I&E	I&E
	FPFTY 2022 Present Rates	FPFTY 2022 Proposed Rates	Pro Forma Adjusted Rates	Metric-Adjusted Minimum Required Revenues
	\$	\$	\$	\$
Debt Service Coverage				
Operating Revenues	200,159,994	232,747,145	203,363,492	203,363,492
Less:				
Bad Debt	(3,949,530)	(5,718,077)	(4,813,225)	(4,813,225)
Stormwater Credits	0	0	0	0
Net Collected Revenues	196,210,463	227,029,067	198,550,267	198,550,267
Less:				
Current Expenses	(125,268,731)	(125,268,731)	(99,607,596)	(99,607,596)
Adjustments:				
City Payments	4,780,000	4,780,000	4,780,000	4,780,000
Placeholder				
Placeholder				
Revenues Available for Debt Service	75,721,732	106,540,336	103,722,671	103,722,671
Senior Lien Debt Service	72,441,686	72,441,686	72,441,686	72,441,686
All Other Debt Service	16,965,586	16,965,586	16,965,586	16,965,586
Total Debt Service	89,407,273	89,407,273	89,407,273	89,407,273
Senior Lien Debt Service Coverage	1.05	1.47	1.43	1.43
Total Debt Service Coverage	0.85	1.19	1.16	1.16
Days Cash on Hand				
Ending Cash Balance	29,589,734	60,035,851	59,339,166	59,339,166
Operating Expenses	125,268,731	125,268,731	99,607,596	99,607,596
Adjustments:				
(Loss) / Gain on ALCOSAN Billings	(1,571,968)	(1,571,968)	(1,571,968)	(1,571,968)
Add: Adjustments to ALCOSAN	0	0	0	0
Placeholder				
Net Operating Expenses	123,696,763	123,696,763	98,035,628	98,035,628
Days Cash on Hand (x 365)	87.3	177.15	220.93	220.93

(1) As filed in the FPFTY 2022 Base Rate Case.

(2) Revenue adjusted to meet to Revenue Requirements.

RATING METHODOLOGY US Municipal Utility Revenue Debt

This rating methodology replaces "US Municipal Utility Revenue Debt", last revised on December 15, 2014. We have updated some outdated links and removed certain issuer-specific information.

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Summary

This methodology explains how we evaluate the credit quality of essential service US municipal utility revenue bonds. The approach described in this methodology applies to six basic categories of municipal utilities: water distribution, gas distribution, electric distribution, sanitary sewerage, stormwater disposal, and solid waste disposal.¹

The primary factors that drive our credit analysis for these types of utilities are the size and health of the system and its service area, the financial strength of its operations, the legal provisions governing its management, and the strength of its rate management and regulatory compliance.

We intend for this methodology to help investors, municipalities, utilities, and other interested market participants understand how key quantitative and qualitative risk factors are likely to affect ratings in the municipal utility sector. This document does not offer an exhaustive treatment of all factors that are reflected in our ratings, but should enable the reader to understand the considerations that are usually most important for ratings in this sector. While reflecting many of the same core principles that we have used in assigning ratings to this sector, this methodology uses a scorecard that quantifies several factors that we previously evaluated in qualitative ways.

The purpose of the scorecard is to provide a reference tool that market participants can use to approximate most credit profiles within the US municipal utility sector. The scorecard provides summarized guidance for the factors that we generally consider most important in assigning ratings to these issuers. However, the scorecard is a summary that does not include every rating consideration. The weights the scorecard shows for each factor represent an approximation of their importance for rating decisions. In addition, the scorecard was built based on historical results, while our ratings are based on forward-looking expectations. As a result, we would not expect the scorecard-indicated outcome to match the actual rating in every case.

THIS RATING METHODOLOGY WAS UPDATED ON OCTOBER 10, 2019. WE HAVE UPDATED SOME OUTDATED REFERENCES AND ALSO MADE SOME MINOR FORMATTING CHANGES.

¹ Different methodologies are used to assign ratings to municipal utility districts, global regulated water utilities, regulated electric and gas utilities, electric generation and transmission cooperatives, and waste to energy projects. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Introduction

This methodology covers debt secured by the revenues generated by US municipal utilities providing monopolistic services essential to public health and functional economies.

The security for a municipal utility revenue bond is typically defined in a bond resolution or a trust indenture, which acts as a contract between the utility and its bondholders. The resolution or indenture most often identifies the bond's security as a lien on the net revenues of the system after the payment of regular operating and maintenance expenses.

The sector is varied and fragmented. US municipal utilities provide many different services whose rates or fees can secure debt. The utilities mostly fall into one or more of six basic categories:

- 1) **Water utilities** take water from the ground, a river, a lake, or in special cases the ocean, treat it to a potable standard, and distribute it to customers for drinking, cleaning, and commercial, industrial, or agricultural uses. These utilities can be involved in any or all of the functions of water supply: water treatment, long-distance transmission, and retail water distribution. Some water utilities have no treatment capacity and purchase potable water wholesale.
- 2) **Gas utilities** take natural gas from a wholesale² pipeline, odorize it for safety detection, and pressurize it and deliver it to customers through a pipe network for uses such as heating, cooking, or commercial and industrial applications. Some municipal gas systems may encompass their own natural gas supplies.
- 3) **Electric utilities** purchase electricity³ from wholesale suppliers and deliver it to residential, commercial, and industrial customers for a wide range of power uses.
- 4) **Sanitary sewer** utilities collect and treat wastewater, discharging it into a waterway or injecting it underground, and landfilling or incinerating the residual sludge. Some sewer utilities with no treatment capacity gather wastewater and transmit it to another utility that treats it.
- 5) **Stormwater** utilities collect and treat rainwater before discharging it into a body of water such as an ocean or a river. While every city or county addresses stormwater drainage as an integral element of its streets and highways, the stormwater systems that require capital markets financing are typically large in scale and are necessary to avert flooding from heavy seasonal rainfall in hilly areas.
- 6) **Solid waste** utilities collect residential or commercial refuse and dispose of it through landfills, waste-to-energy plants, or other waste-disposal processes. A solid waste system can be complete or collection-only, relying on another municipal or private entity for long-haul removal and disposal through landfill or incineration.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody.com for the most updated credit rating action information and rating history.

² This methodology covers gas distribution utilities. These utilities purchase their supply from providers covered under the regulated electric and gas utilities methodology, or other providers. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

³ Only those municipal electric utilities that generate less than 20% of their own power are covered by this methodology. We rate electric generation utilities under different methodologies. For information, see our methodology that describes general principles related to US public power electric utilities with generation ownership exposure and also our methodology that describes general principles related to US municipal joint action agencies. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Defining the municipal utility universe

This methodology covers essential-service utilities that operate as departments, boards, or independent authorities of US states or local governments.

States and subdivisions of states, such as counties and cities, often issue bonds secured by the net revenues generated by a system operated directly under their auspices, such as a city water department. Other times, states or state subdivisions create an independent authority or special purpose district that operates the system and issues the bonds. This distinction is usually unimportant for rating purposes, although in some cases a separate authority has beneficial management expertise.

This methodology focuses on revenue bonds for essential-service functions. Other types of public utilities issue bonds backed by revenues charged for services such as telephone, cable television, or parking. These services are typically competitive and subject to greater elasticity in pricing and utilization. Bonds secured by revenues generated by these services are not rated under this methodology. Also not rated under this methodology are utility revenue bonds whose rating is ultimately based on a General Obligation guaranty. Lastly, the electric utilities covered under this methodology are typically retail distributors of electricity mostly generated elsewhere. Electric generation utilities, municipal waste-to-energy facilities, and US municipal joint action agencies are rated under separate methodologies.⁴

The credit quality of essential-service utility revenue bonds is generally strong. Its numerous fundamental strengths include:

- 1) The provision of essential services, usually in a government-protected monopoly
- 2) Typically unregulated and independent rate-setting authority
- 3) The ability to discontinue service to delinquent accounts and in many cases to put a lien on the property for nonpayment
- 4) Utility cost burdens that are typically low relative to household income and to tax burdens
- 5) A generally strong federal and state regulatory framework that is designed to keep utilities functioning in order to protect public health and achieve environmental goals
- 6) A "special revenue" designation that may insulate a utility from a parent's bankruptcy

The Relationship Between General Obligation (GO) and Utility Revenue Bond Ratings

A municipality's GO credit quality may directly affect the strength of its associated utility systems. This section outlines the broad principles that apply when assessing the credit linkages between a municipality's GO and utility debt. These broad principles are meant to enhance transparency around our view of the relationship between related ratings and explain why, in most cases, the ratings of GO and associated utility revenue debt are and will remain relatively close.

Municipal utility debt is generally exposed to similar credit strengths and pressures as the GO and can thus expect to experience simultaneous credit improvement or deterioration. Examples of credit linkages between the GO and utility debt include:

- » Economy: Utility systems usually rely on a coterminous or overlapping economic base and service area.

⁴ A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

- » Legal structure: Utility bond indentures sometimes contain events of default tied to the bankruptcy or insolvency of the general government.
- » Finances and Debt: Cash can often flow between the two entities, sometimes with a formal funding mechanism. Debt and other long-term liabilities are often paid by the same group of constituents. GO and utility issuers may also be exposed to the same pension plan.
- » Management and Governance: Management of the city and the utility may be the same or have close ties. For instance, city management may appoint the board of the utility or have the power to affect enterprise rates.
- » Capital Markets: The GO and the utility issuer may need to access the same capital markets for funding.

Because of these linkages, in most cases, ratings of a municipality's utility debt will typically be within two notches of its GO rating.

There are, however, cases where a utility's credit strength may be sufficiently independent from its associated GO rating to justify a larger notching difference. We expect these cases to be rare, and they would likely include several of the following characteristics:

- » An unusually weak GO rating which is driven by idiosyncratic factors less relevant to the utility's credit strength.
- » A non-coterminous service area, so that utility revenues are derived from a larger and more diversified base.
- » A closed loop flow of funds, wherein the GO issuer is unable to access utility revenues.
- » A strict separation of accounts and assets.
- » The absence of rating triggers tied to the GO credit quality in utility financings.
- » Separation of management and governance.

Conversely, a utility rating more than two notches below its associated GO generally has one or more of the following characteristics:

- » An unusually weak utility rating which is driven by factors less relevant to the general government's credit strength.
- » A utility service that is narrower and less diverse than the municipality as a whole.
- » A lack of expectation that the general government would transfer funds to assist a utility experiencing financial distress.
- » A strict separation of accounts and assets.
- » The absence of rating triggers tied to the utility credit quality in GO financings.
- » Separation of management and governance.

Essential service revenue bonds in bankruptcy

An important property of public utility revenue bonds is that they enjoy a potential moat from a general government's bankruptcy. Under Chapter 9 of the US bankruptcy code, a lien on "special revenue" bonds remains valid and enforceable even if the issuer is granted bankruptcy protection.

The potential survival through bankruptcy of a lien on the net revenues of a utility system is a key strength. When a debtor is granted bankruptcy protection, its unsecured assets are subject to an automatic stay, which freezes outflows unless approved by the bankruptcy judge. An asset secured by a lien that is not subject to the automatic stay enjoys a credit advantage over a related General Obligation credit that is subject to the stay.

Further, a special revenue bond is less susceptible to adjustment in bankruptcy if its lien leads to an interpretation of the bonds as enjoying secured status.

Although the bankruptcy code establishes these strengths of a special revenue bond, Chapter 9 remains largely untested. Case law offers few precedents, and only a handful of examples to support the assertion that a special revenue designation protects revenue bonds in bankruptcy.

The political reality is that utility systems are often major cash-generating assets that other stakeholders frequently would like to bring into bankruptcy negotiations. Moreover, bankruptcy judges in some cases have allowed the cash flows generated by special revenue systems to pay the legal costs of related parents in bankruptcy.

It is premature to conclude that utility revenue bonds are completely insulated from Chapter 9 bankruptcies, and the risks and costs of a general government bankruptcy remain considerable.

The Scorecard

The municipal utility scorecard (see Exhibit 1) is a tool providing a composite score of a utility's credit profile based on the weighted factors we consider most important, universal and measurable, as well as possible notching factors dependent on individual credit strengths and weaknesses. The scorecard is designed to enhance the transparency of our approach by identifying critical factors as a starting point for analysis, along with additional considerations that may affect the final rating assignment.

The scorecard is not a calculator. Its purpose is not to determine the final rating, but rather to provide a standard platform from which to begin viewing and comparing municipal utility credits. It, therefore, acts as a starting point for a more thorough and detailed analysis.

The scorecard-indicated outcome will not match the actual rating in every case, for a number of reasons including the following:

- » Our methodology considers forward-looking expectations that may not be captured in historical data.
- » The scorecard is a summary that does not include every rating consideration.
- » In some circumstances, the importance of one factor may escalate and transcend its prescribed weight in this methodology.

EXHIBIT 1

Municipal Utility Scorecard Factors

Broad Scorecard Factors	Factor Weighting	Subfactors	Subfactor Weighting
System Characteristics	30%	Asset Condition (Remaining Useful Life)	10%
		Service Area Wealth (Median Family Income)	12.5%
		System Size (O&M)	7.5%
Financial Strength	40%	Annual Debt Service Coverage	15%
		Days Cash on Hand	15%
		Debt to Operating Revenues	10%
Management	20%	Rate Management	10%
		Regulatory Compliance and Capital Planning	10%
Legal Provisions	10%	Rate Covenant	5%
		Debt Service Reserve Requirement	5%
Total	100%	Total	100%

We intentionally limited our scorecard metrics to major rating drivers that are common to most issuers. Outside of these drivers, we may adjust the scorecard score for a variety of "below-the-line" adjustments, which are more idiosyncratic factors that are likely not to apply to all issuers, but that can impact credit strength. The scorecard score is the result of the "above-the-line" score based quantitatively on the above-the-line factors, combined with any "below-the-line" notching adjustments. The scorecard score is a guideline for discussion, but does not determine the final rating. The rating is determined by a rating committee, which considers, but is not bound by, the scorecard score.

Discussion of Scorecard Factors

To arrive at a scorecard-indicated outcome, we begin by assigning a score for each subfactor. We have chosen measures that act as proxies for a variety of different service area characteristics, financial conditions, and governance behaviors that can otherwise be difficult to measure objectively and consistently. Based on the scores and weights for each subfactor, a preliminary score is produced that translates to a given rating level.

We may then move the score up or down a certain number of rating notches based on additional “below-the-line” factors that we believe impact a particular utility’s credit quality in ways not captured by the statistical portion of the scorecard. This is where analytical judgment comes into play. We may also choose to make adjustments to the historical inputs to reflect our forward-looking views of how these statistics may change.

The scorecard score, combined with below-the-line notching, then provides an adjusted score. This adjusted score is not necessarily the final rating. Because some utilities’ credit profiles are idiosyncratic, one factor, regardless of its scorecard weight, can overwhelm other factors, and other considerations may prompt us to consider final ratings that differ from the scorecard-indicated outcome.

Below, we discuss each factor and subfactor, as well as the below-the-line adjustments and other considerations that we analyze within each category of this methodology.

Factor 1: System Characteristics (30%)

EXHIBIT 2

System Characteristics (30%)

		Aaa	Aa	A	Baa	Ba	B and Below
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation :	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
System Size (7.5%)	Water and/or sewer / Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Service Area Wealth (12.5%)		> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median

Why it matters

This factor on the scorecard measures a utility’s capacity to fund its operations and capital needs based on the health of its capital assets, the size and diversity of its operations, and the strength and resources of its service base.

The scope of this factor is broad. Each of the subfactors contributes to an analysis of what magnitude of expenditures is necessary to keep the system functioning, and how large, diverse, and flexible the available resources are to meet those expenditures.

Subfactor 1a: Asset condition (10%)

Input: Net fixed assets divided by most recent year's depreciation, expressed in years

The condition of a utility's capital assets determines its ability to comply with environmental regulations and continue delivering adequate service with existing resources.

Depreciation is an accounting concept that acts as a proxy for the rate at which a utility's plant and equipment are aging. Central to our analysis of capital adequacy is an assessment of how utilities "fund depreciation," meaning make capital replacements and repairs to address aging plant and equipment.

The consequences of failing to fund depreciation can be costly. Implicit in this measure is the concept of deferred capital investment. Utilities that delay investing in their systems, replacing aging plant and equipment, and modernizing their facilities often find it more expensive to do so later. Capital investments are ordinarily more expensive when deferred.

Further, systems whose facilities deteriorate often run afoul of environmental regulations. The failure to fund depreciation, which will manifest as a declining useful remaining life, can lead to sewage overflows, inflow and infiltration problems, or non-compliant wastewater discharges, resulting in civil fines, litigation, or regulatory consent decrees. These are usually more expensive than funding depreciation through a prudent multi-year capital plan that replaces assets as they deteriorate or break down.

The inherent differences between types of utilities are manifested in their component parts, which can have very different useful lives. Because a solid waste utility is largely automotive-based, with collection vehicles and earthmoving equipment at the landfill, the useful life of its assets will be well under 20 years, compared to a water utility whose distribution mains and reservoir have useful lives of 40 to 100 years. We generally acknowledge and address these differences below the line.

For utilities whose asset condition ratios are not determinable, such as utilities that utilize cash accounting and do not report net fixed assets or depreciation, we are likely to assess the sufficiency of capital assets based on other available information.

Subfactor 1b: Service area wealth (12.5%)

Input: Median family income of the service area, expressed as a percentage of the US median

Most of the costs of operating a utility and maintaining its capital assets are borne by ratepayers. The income of the residents of the service base conveys the capacity of its ratepayers to bear higher rates to fund operations and capital upgrades. The median family income breakpoints in this scorecard are aligned with the ones in our US local government general obligation debt methodology.⁵

Utilities that serve lower-income ratepayers may have more difficulty implementing higher rates, if utility costs consume a considerable share of residents' budgets. The US Environmental Protection Agency (EPA) considers wastewater costs exceeding 2% of median household income to be a heavy burden, for example, a threshold that would be reached more quickly for a utility serving lower-income ratepayers.

We believe MFI is the best proxy for the wealth of a service base, but other indicators such as the poverty rate, unemployment, home foreclosures, per capita income, and median home value supplement our analysis of ratepayer capacity.

⁵ A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Subfactor 1c: System size (7.5%)

Input: Most recent year operations and maintenance expenditures, expressed in dollars

Larger systems tend to be more diverse and enjoy economies of scale. The size of a system implies the flexibility and resilience not only of its operations, but also of its service base.

Small systems present a number of risks. They are less likely to have redundancies, which allow a system to shut down some of its operations in an emergency or to make repairs without interrupting service. Small standalone water or sewer systems will typically depend upon a single supply of water or a single sewage treatment plant. They are more likely to be exposed to a concentrated customer base. They are more susceptible to the departure of a single large customer. An unexpected capital need is likely to be more costly relative to its annual budget. The collective engineering and scientific expertise is likely to be less robust than a larger system's.

We use different breakpoints for different types of systems in this subfactor, recognizing that not all types of utilities have the same cost structure. For instance, an electric distribution system is more expensive to run than a stormwater system. A distribution-only water system is likely to have a lower, more predictable cost base, but also depend on an external system for water supply and pay prices largely out of its control.

Utilities that are wholesalers to municipal government customers may exhibit operating stability not captured by size or service area wealth. Many of a utility's risks may be shifted to its municipal customers if their service contracts prevent these customers from switching providers or decreasing payments. If service contracts are so strongly worded and unconditional that municipal customers would have to pay the utility's debt service under any circumstances, then the utility's bonds may effectively represent a claim on the combined credit quality of the municipal governments.

For utilities that are exclusively wholesalers to municipal customers, we assess the customers' ("participants") credit quality, using our methodologies for general obligation bonds, lease revenue bonds, or other appropriate methodology determined by the nature of the participants' pledge to the utility.⁶ For bonds secured by a utility's net revenue pledge, we incorporate the strength of the municipal customers' credit quality as an important factor in the utility's revenue base. For utilities whose pledges are essentially a pass-through of the municipal customers' underlying pledges, we may rate their bonds using our public sector pool financings methodology, recognizing that bondholders enjoy a direct claim on the underlying municipalities' ability and willingness to pay.⁷

Below-the-line adjustments

Additional service area economic strength or diversity: We would use this adjustment, upward or downward, if the MFI statistic incompletely or inaccurately depicts that capacity of the service base to bear higher rates.

Significant customer concentration: A large exposure to a single user or industry, or a small number of users, poses substantial risks that might not be captured in MFI. We may adjust the scorecard score down if a large share of a utility's revenues comes from one or a small number of customers, or from a single industry. We would be more likely to use this adjustment for volatile, unpredictable, and mobile industries than for longer-standing, more stable ones. We are less likely to consider a wholesale customer as a factor contributing to concentration, as it is purchasing on behalf of end-users.

⁶ A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

⁷ A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Revenue per customer greatly over/under regional average: Revenue per customer conveys additional information about users' capacity for higher rates that might not be captured in MFI. We might adjust the above-the-line rating, upward or downward, if revenue per customer implies higher or lower ability to increase rates than MFI suggests.

Exposure to weather volatility, extreme conditions or market fluctuations: Large amounts of rain that infiltrate pipes or storms that destroy equipment are examples of credit risks that could result in below-the-line adjustments. Weather can also affect the prices that distribution systems pay third-party providers for electricity or natural gas.

Resource vulnerability: Water, gas, and electric distribution utilities sell a product whose availability can be limited or expensive in some cases. For instance, a water provider in a drought-stricken region may have to purchase expensive third-party water, and see declines in billable flow due to conservation efforts. We may adjust the scorecard score down if the availability of water, an adequate gas supply, or a dependable source of electricity is vulnerable or in doubt.

Sizeable or insufficient capacity margin: Our useful remaining life calculation is designed to assess the quality of existing capital assets, but it does not measure the adequacy of a system's capacity relative to demand. Areas that are growing need more water, gas, and electricity, and place greater demands on wastewater and trash disposal utilities. Systems that are close to capacity may face greater capital costs to expand in the future, suggesting larger debt burdens and posing additional risks that we may adjust the scorecard score downward for. Alternately, systems with ample capacity may be notched up, given the lack of capital spending requirements implied by the excess capacity. Further, excess capacity can sometimes imply a revenue-generating opportunity, since utilities can often sell their product or service to other parties. We are less likely to view excess capacity as a positive if it is caused by a declining user base.

Unusual depreciation practices relative to industry norms: Utilities typically have some flexibility to determine the depreciation schedules of their assets. Utilizing unreasonably long useful lives or employing other practices that distort depreciation schedules would also distort our remaining useful life calculation. We may notch a score down if an unreasonable depreciation schedule is inflating a utility's remaining useful life. Likewise, we may notch a score up if an unusually rapid depreciation schedule understates remaining useful life.

Factor 2: Financial Strength (40%)

EXHIBIT 3

Financial Strength (40%)	Aaa	Aa	A	Baa	Ba	B and Below
Annual Debt Service Coverage (15%)	> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)	> 250 Days	250 Days ≥ n > > 150 Days	150 Days ≥ n > > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)	< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x

Why it matters

The financial health of a utility determines its flexibility to respond to contingencies, resilience against potential short-term shocks, and cushion against a long-term unfavorable trend.

We measure utilities' financial health by looking at cash and other liquid reserves, the burden that debt places on operations, and the magnitude by which revenues are sufficient to meet expenditures.

Subfactor 2a: Annual debt service coverage (15%)

Input: Most recent year's net revenues divided by most recent year's debt service, expressed as a multiple

Debt service coverage is a core statistic assessing the financial health of a utility revenue system. The magnitude by which net revenues are sufficient to cover debt service shows a utility's margin to tolerate business risks or declines in demand while still assuring repayment of debt. Higher coverage levels indicate greater flexibility to withstand volatile revenues, unexpected outflows, or customer resistance to higher rates.

Utilities usually enter into a rate covenant under which they pledge to achieve a given level of debt service coverage each year. The covenant ensures that the utility utilizes its assets to generate sufficient income to pay bondholders.

The analysis of a utility system's debt service coverage demands ample context. If debt service escalates in future years, then the utility's current net revenues may be sufficient to cover debt service this year, but not in the future. Systems with greater revenue stability can operate comfortably at lower coverage levels. Systems with greater capital needs are likely to incur more debt, which will lead to increased debt service and decreased coverage. The debt service coverage calculation is the basis for a comprehensive analysis of a utility's financial flexibility and trend over the long term.

Rate covenants define a calculation method. These calculation methods vary, for example in the inclusion or exclusion of connection fees. Our coverage calculation will frequently differ from the coverage utilities report for purposes of complying with their rate covenants. Frequently, our analysis will consider several types of coverage, including maximum annual debt service (MADS) coverage, annual debt service coverage, coverage with and without connection fees, and coverage as calculated for the rate covenant. For entry on the scorecard, we include connection fees (when pledged) in revenues, recognizing that these are pledged revenues that are usually generated annually and are an important source of funding for expansion. If connection fees are particularly volatile, or if they represent an inordinate share of revenues, we may adjust below the line.

Subfactor 2b: Days cash on hand (15%)

Input: Unrestricted cash and liquid investments times 365 divided by operating and maintenance expenses, expressed in days

Cash is the paramount resource utilities have to meet expenses, cope with emergencies, and navigate business interruptions. Utilities with a lot of cash and cash equivalents are able to survive temporary disruptions and cash flow shortfalls without missing important payments. A large cash balance can also partially compensate for the lack of a debt service reserve fund. A low cash balance indicates poor flexibility to manage contingencies.

We include in this measure any cash or cash-equivalent that is both unrestricted and liquid. The measure does not include cash held in a debt service reserve fund, unspent bond proceeds, or cash that is restricted for capital.

Subfactor 2c: Debt to operating revenues (10%)

Input: Net debt divided by most recent year's operating revenues, expressed as a multiple

A utility's debt profile determines its leverage and fixed costs. Systems that carry a lot of debt have less ability to reduce costs if demand shrinks, and are generally more challenged to achieve higher debt service coverage.

A greater debt burden may also prohibit a utility from funding necessary capital upgrades, if a covenant prevents the issuer from incurring the debt necessary to fund those upgrades.

"Net debt" is a utility's long-term debt subtracted by debt service reserve funds.

Below-the-line adjustments

Debt service coverage (annual or MADS) below key thresholds: A debt service coverage ratio below 1 times is an important threshold, because coverage below 1 times indicates the utility is not fully covering debt service with income generated from operations. If a utility fails to achieve 1 times coverage, we may adjust the score down to reflect the financial imbalance of the utility's operations. Another key threshold that would likely prompt us to adjust the score down is if coverage were to fall below the utility's coverage covenant, even if that covenant is higher than 1 times. Management's willingness and ability to operate the system for bondholders' benefit is a crucial credit consideration, and a breach of covenant calls that willingness and ability into question. A coverage level that impedes the issuance of additional bonds under the utility's additional bonds covenant could also prompt us to adjust the score down, if we think it would prevent the utility from funding necessary capital upgrades.

Constrained liquidity position due to oversized transfers: It is common for utilities to transfer cash to their general governments regularly, either to share overhead costs, make payments in lieu of taxes for occupied property, or to help fund shared infrastructure. It is also common for parent governments to tap utilities' cash to fund General Fund operations. We may notch a utility's score down if these types of transfers are large and begin to strain its own liquidity. We are more likely to make this adjustment if the general government is operationally reliant on utility transfers and has the authority to increase them, particularly if the general government is struggling financially. Even if a utility has never transferred cash to its parent, such transfers remain a possibility⁸, one of the reasons for the relationship between a revenue rating and the GO rating of its general government.

Outsized capital needs: A utility with significant capital needs will likely need to incur additional debt not communicated in the existing debt metric. We may adjust the score downward for utilities under regulatory consent decree, or otherwise with great capital needs, that are likely to increase their debt levels.

Oversized adjusted net pension liability relative to debt, or significant actuarial required contribution underpayment: Employees of public utilities are usually members of a municipal pension plan. Most utilities either sponsor their own plan or participate in another entity's plan, and are responsible for funding their share of the plan's pension liabilities. We may adjust the score down if this liability is especially large, or if the utility has underfunded its contributions.

Significant exposure to puttable debt and/or swaps, or other unusual debt structure: The risks of a debt portfolio can be magnified if it is significantly composed of puttable debt. Utilities generally set rates with the intention of covering operating expenses and debt service in the current year. A debt put, accelerated amortization under a term-out, or other unexpected calls on a utility's resources can impose immediate and

⁸ Unless the utility's flow of funds is closed-loop. A closed-loop flow of funds is stronger than an open one for this reason.

substantial, unbudgeted cash outflows and upend that intention. We may notch a score down, potentially by several notches, if the composition of a debt portfolio, or cash-flow demands or unfavorable valuation of a swap, communicates a greater degree of risk than the existing debt metric.

Factor 3: Management (20%)

EXHIBIT 4

Management (20%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Management (10%)	Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory compliance and capital planning (10%)	Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted; Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning

Why it matters

If the legal provisions establish the minimum level of financial margin at which a utility must be run, the utility's management determines the actual level at which it is run.

Utility management refers to the dynamics of setting rates, planning for capital spending, budgeting for annual expenditures, and complying with environmental regulations. All of these factors interplay with one another to determine the credit strength of a utility system.

The scorecard captures two crucial aspects of management: rate-setting and capital planning. These two aspects encompass most of what is important in running a utility: keeping the system in good working order, and paying for it.

Subfactor 3a: Rate management (10%)

User rates are the primary, and sometimes only, mechanism utilities employ to pay for their operations.

Ideally, rates increase marginally and steadily, rather than choppily. It is common for utilities to split their rates into a “base” charge (flat rate charged to all users) plus a “volumetric” charge (per unit costs based on flow/usage). Utilities funded to a greater extent by the volumetric charge face greater risks, since volume can be economically sensitive or decline because of a shift in consumption patterns.

Management's track record at setting rates appropriately and increasing them when necessary drives this score. We tend to give higher scores to utilities that set rate structures under which increases are automatic, and do not require annual approval for implementation.

Embedded into this factor is the length of time required to implement a rate increase. Many public utilities enjoy the authority to set their own rates, and can enact a rate increase in short order by majority vote of the governing board. Some utilities must give the public a few weeks or months notice before increasing rates, or choose to do so by policy or practice. Some utilities require state approval to increase rates. Utilities that need state approval often have to file a rate case subject to public objection, and in some cases the state takes a long time to approve them or denies the full rate increase.

The longer it takes a utility to implement a rate increase, the less flexibility it has to quickly generate new revenues when faced with cash flow shortfalls.

Subfactor 3b: Regulatory compliance and capital planning (10%)

The public utility sector is heavily regulated. Most public utilities are regulated by federal as well as state agencies.

The EPA enforces the Safe Drinking Water Act for water distribution utilities, the Clean Water Act for sanitary sewer and stormwater utilities, the Resource Conservation and Recovery Act for solid waste disposal systems, and the Clean Air Act for electric utilities. These statutes, and the methods employed to enforce them, are continually evolving, often intensifying over time. Additionally, many states have passed their own environmental regulations and are active enforcers.

This scorecard factor assesses utilities' compliance with relevant regulations and their plans for the capital expenditures required to comply in the future.

In addition to achieving environmental compliance, proper capital planning ensures the continued delivery of the product or service and the ongoing generation of revenues.

During our reviews, we look for indications of potential compliance gaps, such as environmental litigation, a delay in renewing a permit, or a consent decree with a state or federal enforcement body.

Below-the-line adjustments

Unusually strong or weak capital planning: Continued violations of environmental laws and the associated litigation can impose extraordinary costs on utilities. We may notch the score down if these costs threaten to overwhelm a system's resources, in the form of a large consent decree, lawsuit, or other costs.

Alternately, we may notch the score up if a utility's capital planning is particularly sophisticated or forward-looking. More sophisticated and forward-looking capital management is more important for systems facing resource vulnerability or extreme weather volatility.

Factor 4: Legal provisions (10%)

EXHIBIT 5

Legal Provisions (10%)	Aaa	Aa	A	Baa	Ba	B and Below
Rate Covenant (5%)	> 1.30x	≥ n 1.30x > 1.20x	≥ n 1.20x > 1.10x	≥ n 1.10x > 1.00x		≤ 1.00x
Debt Service Reserve Requirement (5%)	DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF	NO explicit DSRF; OR funded with speculative grade surety		

Why it matters

The legal provisions of a public utility revenue bond form the backbone of its security.

When a municipality assigns its General Obligation pledge to a bond, it has promised to do whatever it has to do to cover debt service, in most cases from any revenues or resources at its disposal.

A utility revenue bond enjoys no such open-ended pledge, making the legal edifice of the bond critical to bondholder security. Most commonly, the legal security for municipal utility revenue bonds is a lien on the net revenues of the system. Occasionally, bondholders enjoy a lien on the gross revenues of a system. We ordinarily do not consider a gross revenue pledge as materially stronger than a net revenue pledge, because systems need to pay operating and maintenance costs in order to remain functional.

The linchpin of a bond's legal structure is its covenants: the legal compulsions the municipal utility agrees to when issuing the bonds.

Utilities abide by many different types of covenants. We consider three to be the most important: the rate covenant, the additional bonds test, and the debt service reserve fund. Also crucial in the analysis of a revenue bond's legal structure is whether the flow of funds is open-loop (accessible by another government entity) or closed.

Strong covenants bind the utility to utilize its assets to benefit bondholders by operating with a comfortable financial margin, not taking on too much debt, and maintaining adequate cash available to pay debt service. Weak or nonexistent covenants allow the utility to operate on a thin margin or even at a net loss, incur a lot of leverage, transfer its money to other government entities, or maintain inadequate cash, in ways that are detrimental to bondholders.

Covenants specify the minimum factors management must legally abide by. Utilities frequently exceed the minimum. Many of our ratings represent the expectation of performance at levels that exceed the covenants.

Subfactor 4a: Rate covenant (5%)

Input: Covenant governing net revenues (operating revenues minus operating expenditures net of depreciation) divided by annual debt service, expressed as a multiple

The rate covenant is a legal pledge to set rates such that net revenues will be sufficient to cover debt service at a prescribed level. For example, a covenant may bind a utility to ensure that net revenues cover debt service by 1.2 times. If net revenues fall short of this covenant in one year, the utility must raise rates to achieve a compliant coverage level the following year.

The rate covenant takes many forms. Some utilities pledge for net revenues to cover current year annual debt service by a given level. Others pledge to cover average annual debt service throughout the life of the bonds at that level. A strong coverage requirement would be for net revenues to cover maximum annual debt service (MADS) by a certain level.

Some rate covenant formats are materially weaker than this. Some utilities allow a "rolling" calculation, which includes outstanding cash from prior years' surpluses as part of the resources available to cover debt service. Many rate covenants allow connection fees to be included in available operating revenues.

The above-the-line coverage factor assumes the covenant is an annual debt service coverage calculation. We can adjust for any departures from this format below the line, upward or downward.

Subfactor 4b: Debt service reserve requirement (5%)

Input: Debt service reserve requirement

Many issuers agree to hold a specified amount of cash or other resources in a debt service reserve fund (DSRF), which the trustee can tap to pay debt service in the event that net revenues are inadequate. The DSRF covenant ordinarily requires the utility to replenish any draws from the DSRF.

The DSRF protects bondholders by assuring the payment of debt service even if net revenues fall short in one year.

DSRF funds can be funded with cash, or with surety policies from an insurer. We generally consider cash to be superior to a surety, although this is unlikely to materially affect the rating as long as the surety provider is rated investment grade.

One commonly used DSRF requirement is known as the "three-pronged test." Under tax law, the Internal Revenue Service limits the earning of interest on proceeds of a tax-exempt bond unless the invested proceeds comply with the three-pronged test. Under that test, the DSRF must be the lesser of 10% of principal, MADS, or 1.25 times average annual debt service. A DSRF set at the three-pronged test is usually weaker than one funded at MADS.

Revenue bonds have been issued without a DSRF in the past. This has resulted in a number of utilities with some bonds secured by a DSRF and other parity bonds secured by the same lien but no DSRF. We have rarely distinguished ratings between these parity bonds. The DSRF is a last-resort security measure, and most utilities comply with their coverage covenants and never have to tap their DSRF. We are most likely to distinguish between DSRF-secured bonds and bonds with no DSRF if the system holds narrow liquidity. A system operating with abundant liquidity can use its operating cash to meet debt service shortfalls, effectively executing a similar function to the DSRF. The combination of narrow liquidity and no DSRF exposes bondholders to greater risks of interrupted debt service payments, and is therefore more likely to be reflected in ratings.

For a utility whose debt is mostly, but not all, secured by a DSRF, we will still enter the DSRF requirement into the scorecard. For a utility whose debt is mostly not secured by a DSRF, we will adjust the DSRF entry downward⁹.

⁹ For example, if 1/3 of a utility's debt is secured by a DSRF funded at MADS and 2/3 is not secured by a DSRF at all, we may enter the DSRF requirement as a Baa.

Below-the-line adjustments

Coverage covenant other than annual debt service: Our input for the coverage covenant assumes the coverage refers to net revenue coverage of annual debt service. A “rolling” coverage covenant that includes outstanding cash, or some other modification that weakens the meaning of the covenant, may prompt us to notch the score down. Conversely, a MADS coverage covenant may prompt us to notch the score up.

Structural enhancements/complexities: The scorecard is designed to capture covenants as they are most commonly constituted, but cannot account for the myriad structures and complexities that arise in bond transactions throughout the sector. Enhancements such as a lock-box structure for debt service may lead us to notch the score up. Other shortcomings, such as a weak additional bonds test or the inclusion of cash in a coverage covenant, may lead us to notch the score down. Any characteristic of the legal provisions of a bond transaction may lead us to conclude that the scorecard does not adequately capture its risk profile.

Treatment of Different Liens on a US Municipal Utility's Net Revenues

It is common for utilities to issue debt secured by different liens on their net revenues. Senior bonds are secured by a first lien on net revenues, and subordinate bonds or loans secured by a subordinate, or junior, lien. Sometimes, utilities will issue debt secured by a third lien or lower.

Our practice is to evaluate the likelihood of default and the expected recovery in the event of default for each lien independently.

This will most commonly result in a rating distinction of one notch for each lien of subordination. In other words, if a municipal utility's senior lien is rated Aa3, its subordinate lien will most likely be rated A1 and the third lien will most likely be rated A2.

The reason for the typical one-notch-per-lien distinction is that subordinate liens are marginally more likely to default than senior liens, and subordinate liens' expected recovery in the event of default would be lower. Senior liens are typically afforded stronger legal protections under utilities' indentures, senior-lien debt service is usually paid earlier in the flow of funds, and the first lien would likely enjoy a better claim in bankruptcy.

For most investment grade municipal utilities, the probability of default for any lien is small, and so the notching distinction is driven primarily by a greater expected loss severity in the unlikely event of a default. This is comparable to our approach for ratings distinctions for different debt classes of investment grade corporations, where ratings distinctions are driven by differences in expected loss severities.¹⁰ In contrast to corporates, however, there often is not an explicit cross-default of senior municipal debt in the event of a subordinate payment default.

In some instances, we may conclude that an investment grade municipal utility's subordinate lien has a default probability and expected loss severity that is nearly as low or just as low as the senior lien (in which case we may not make a ratings distinction), or a default probability and expected loss severity that is materially higher than the senior lien (in which case we may make a ratings distinction of more than one notch).

Such a conclusion would be based on the municipal utility's management of its system with respect to its liens, and the characteristics of the legal framework governing the liens: rate covenants, additional debt provisions, and cross-default and acceleration provisions in a senior lien's variable rate debt resulting from a default on the subordinate lien, for example. If a utility has only a very small amount of senior lien debt, we may choose not to distinguish between liens.

The distinctions among a municipal utility's liens become starker when it faces a material likelihood of default or bankruptcy. For these situations, the different characteristics of the liens are likely to drive greater disparities in default probabilities and expected recoveries for disparate liens. Thus, we are more likely to employ ratings distinctions other than one notch for speculative grade municipal utilities' different liens as the Loss Given Default approach drives more of the analysis.

In nearly all instances, the ratings on the different liens of the same utility will remain closely related. The reason for this is that municipal utilities are actively managed enterprises that continually need to generate net revenues sufficient not only to cover debt service but also to fund capital needs. Even if senior lien coverage is strong, a utility that is unable to pay its junior lien debt service is not generating excess funds for capital investment and does not have capacity for capital borrowing. Thus, while subordinate liens face greater default probability and higher loss expectations based on their first-loss positions, an increased likelihood of default on a subordinate lien implies an increased likelihood of insolvency for the utility as a whole.

For this reason, we enter the debt-oriented inputs into the scorecard on a consolidated basis. For the debt to revenues factor, we enter total debt (senior and junior). For the debt service coverage factor, we enter total debt service coverage. It is the municipal utility's ability to cover all of its debt service with net revenues that determines its viability as a going concern. Even for a senior lien with a large coverage factor by net revenues, a narrow coverage of all debt service implies pressure to maintain healthy operations and generate funds sufficient for capital reinvestment.

¹⁰ For more information, see our cross-sector methodology that describes the alignment of corporate instrument ratings based on differences in security and priority of claim. A link to an index of our sector and cross-sector methodologies can be found in the "Moody's Related Publications" section.

Appendix: Municipal Utility Revenue Bond Scorecard

EXHIBIT 6

		Aaa	Aa	A	Baa	Ba	B and Below
Numerical score		0.5 to 1.5	1.5 to 2.5	2.5 to 3.5	3.5 to 4.5	4.5 to 5.5	5.5 to 6.5
System Characteristics (30%)							
Asset Condition (10%)	Net Fixed Assets/Annual Depreciation :	> 75 years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 Years ≥ n > 6 Years	≤ 6 Years
Service Area Wealth (12.5%)		> 150% of US median	150% ≥ US median > 90%	90% ≥ US median > 75%	75% ≥ US median > 50%	50% ≥ US median > 40%	≤ 40% of US median
System Size (7.5%)	Water and/or Sewer/ Solid Waste:	O&M > \$65M	\$65M ≥ O&M > \$30M	\$30M ≥ O&M > \$10M	\$10M ≥ O&M > \$3M	\$3M ≥ O&M > \$1M	O&M ≤ \$1M
	Stormwater:	O&M > \$30M	\$30M ≥ O&M > \$15M	\$15M ≥ O&M > \$8M	\$8M ≥ O&M > \$2M	\$2M ≥ O&M > \$750K	O&M ≤ \$750K
	Gas or Electric:	O&M > \$100M	\$100M ≥ O&M > \$50M	\$50M ≥ O&M > \$20M	\$20M ≥ O&M > \$8M	\$8M ≥ O&M > \$3M	O&M ≤ \$3M
Financial Strength (40%)							
Annual Debt Service Coverage (15%)		> 2.00x	2.00x ≥ n > 1.70x	1.70x ≥ n > 1.25x	1.25x ≥ n > 1.00x	1.00x ≥ n > 0.70x	≤ 0.70x
Days Cash on Hand (15%)		> 250 Days	250 Days ≥ n > 150 Days	150 Days ≥ n > 35 Days	35 Days ≥ n > 15 Days	15 Days ≥ n > 7 Days	≤ 7 Days
Debt to Operating Revenues (10%)		< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	≥ 9.00x
Management (20%)							
Rate Management (10%)		Excellent rate-setting record; no material political, practical, or regulatory limits on rate increases	Strong rate-setting record; little political, practical, or regulatory limits on rate increases	Average rate-setting record; some political, practical, or regulatory limits on rate increases	Adequate rate-setting record; political, practical, or regulatory impediments place material limits on rate increases	Below average rate-setting record; political, practical, or regulatory impediments place substantial limits on rate increases	Record of insufficiently adjusting rates; political, practical, or regulatory obstacles prevent implementation of necessary rate increases
Regulatory Compliance and Capital Planning (10%)		Fully compliant OR proactively addressing compliance issues; Maintains sophisticated and manageable Capital Improvement Plan that addresses more than a 10-year period	Actively addressing minor compliance issues; Maintains comprehensive and manageable 10-year Capital Improvement Plan	Moderate violations with adopted plan to address issues; Maintains manageable 5-year Capital Improvement Plan	Significant compliance violations with limited solutions adopted; Maintains single year Capital Improvement Plan	Not fully addressing compliance issues; Limited or weak capital planning	Not addressing compliance issues; No capital planning
Legal Provisions (10%)							
Rate Covenant (5%)		> 1.30x	1.30x ≥ n > 1.20x	1.20x ≥ n > 1.10x	1.10x ≥ n > 1.00x		≤ 1.00x ¹¹
Debt Service Reserve Requirement (5%)		DSRF funded at MADS	DSRF funded at lesser of standard 3-prong test	DSRF funded at less than 3-prong test OR springing DSRF	NO explicit DSRF; OR funded with speculative grade surety ¹²		

¹¹ Scores as a Ba.¹² Scores as a Baa.

Adjustments/Notching Factors**Factor 1: System Characteristics**

Additional service area economic strength or diversity

Significant customer concentration

Revenue-per-Customer greatly over/under regional average

Exposure to weather volatility or extreme conditions

Resource vulnerability (1/3 or greater)

Sizable or insufficient capacity margin

Weak depreciation/reinvestment practices relative to industry norms

Other analyst adjustment to System Characteristics (Specify)**Factor 2: Financial Strength**

Debt Service Coverage (Annual or MADS) below key thresholds: Additional Bonds Test and 1.00x coverage

Constrained liquidity position due to oversized transfers

Oversized capital needs

Oversized ANPL relative to debt or significant under-payment of actuarial funding requirement

Significant exposure to puttable debt and/or swaps or other unusual debt structure

Other analyst adjustment to Financial Strength factor (Specify)**Factor 3: Legal Provisions**

Structural Enhancements/Complexities

Other analyst adjustment to Legal Provisions factor (Specify)**Factor 4: Management**

Unusually strong or weak operational or capital planning

Other analyst adjustment to Management factor (Specify)**Other**

Credit Event/Trend not yet reflected in existing data set

Scorecard-Indicated Outcome	Overall Weighted Score
Aaa	0.5 to 1.5
Aa1	1.5 to 1.83
Aa2	1.83 to 2.17
Aa3	2.17 to 2.5
A1	2.5 to 2.83
A2	2.83 to 3.17
A3	3.17 to 3.5
Baa1	3.5 to 3.83
Baa2	3.83 to 4.17
Baa3	4.17 to 4.5
Ba1	4.5 to 4.83
Ba2	4.83 to 5.17
Ba3	5.17 to 5.5
B1	5.5 to 5.83
B2	5.83 to 6.17
B3	6.17 to 6.5

Moody's Related Publications

Credit ratings are primarily determined by sector credit rating methodologies. Certain broad methodological considerations (described in one or more cross-sector rating methodologies) may also be relevant to the determination of credit ratings of issuers and instruments. An index of sector and cross-sector credit rating methodologies can be found [here](#).

For data summarizing the historical robustness and predictive power of credit ratings, please click [here](#).

For further information, please refer to *Rating Symbols and Definitions*, which is available [here](#).

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Key Water And Sewer Utility Credit Ratio Ranges

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Criteria | Governments | U.S. Public Finance:

Key Water And Sewer Utility Credit Ratio Ranges

Municipally-owned utilities continue to demonstrate rating stability and solid-investment-grade financial metrics despite concern about current economic conditions and the impact on local governments (see the article, "U.S. Public Finance Report Card: Water Supply Pressures Could Test The Stability Of Providers," dated Feb. 4, 2008, on RatingsDirect).

The representative ranges of ratios for water and/or sewer utility revenue bond issuers below provides an indication, through the use of descriptors, of what constitutes a high to low ratio from an analytical credit perspective. The selected ratios represent key factors Standard & Poor's Ratings Services uses in the credit rating process.

Municipalities may also own and/or operate other enterprises such as electric utilities, solid waste or other systems. While many of the metric addressed below also are part of the analysis for these other enterprises, Standard & Poor's will address key ratios specifically for those enterprises at a later date.

The ratios complement Standard & Poor's periodic updates of historical median ratios for rated utilities. (These medians represent measures of economic, financial, and system indebtedness characteristics.) The statistics will drift up and down during economic cycles because Standard & Poor's analysis is forward looking. In recent years, the medians have tended to outperform analytical guidelines.

However, it is not the case that an issuer must attain certain financial metrics in order to guarantee a certain rating or rating level. Financial condition -- historical, current, and likely future -- is only one of the criteria points for a water and sewer utility revenue bond rating.

Reading Behind The Numbers

Means, particularly for lesser-weighted ratios, may give a false impression in certain cases that deviations from the means may imply the need for a rating change, when in fact we may believe there is analytical comfort in a broad band of numbers for a particular ratio.

Examples of this phenomenon are evident when comparing key ratio ranges to the means for similar ratios. While a credit with a liquidity of six months' cash on hand would be technically "below average," relative to the rated universe of issuers, regardless of system size, we would nevertheless likely view it as having strong cash reserves.

Similarly, an issuer with total debt service coverage of all obligations of 1.4x, meaning pledged revenues are 40% greater than the revenue requirements, would likely be characterized as "good," all other things being equal.

Key Rating Factors

The relative weight of each factor is discussed in detail in Standard & Poor's Criteria section on RatingsDirect (the most recent article was published June 25, 2007). When evaluating water and sewer systems, Standard & Poor's examines six main factors:

- Economic considerations;
- Financial data/capital improvement plan;
- Rate criteria;
- Operational characteristics;
- Management; and
- Legal provisions.

Variation in the relative strengths or weaknesses of any of these factors can influence our opinion of creditworthiness and, accordingly, our ratings. Additionally, there is no dependent relationship between a general obligation (GO) rating and the revenue rating of the same entity. Due to the significance of the service area and economic base in our analysis and the frequent overlap of senior staff at the government and utility levels, the ratings of GO bonds and revenue bonds tend to be close, but there is also significant room for divergence, as seen in the case of Jefferson County, Ala.

A Note of Caution

Ratios do not tell the whole story -- they are only a portion of what Standard & Poor's uses in its analysis. Economic, administrative, structural, and other qualitative factors may outweigh any of these ratios when a rating is assigned. Numbers alone cannot determine an entity's willingness to meet its financial obligations, nor can they reveal a history of reactive or nonexistent rate adjustments or the operating restraints presented by the state/local framework.

The key ratios below do not represent a complete set of the ratios Standard & Poor's uses in its analysis. We also incorporate information from many internal and external databases. Depending on various credit conditions, certain ratios can take on more significance than others. In addition, a municipal entity's trends in any of these ratios may be more important to us than the historical ratios. A rating, after all, is prospective in nature.

Key Ratios

Income Levels – Household/Per Capita Effective Buying Income As A Percentage Of U.S. Level

As is the case with GO debt ratings, wealth and income levels are an important credit factor in our analysis, as they provide insight regarding the economic resources of a utility's service area. It does not necessarily imply the rate base's ability to pay a utility bill or a utility's willingness to make rate adjustments, but we believe it is still one of many important factors. One way to evaluate wealth and income levels is to look at the household/per capita effective buying income of the locality relative to the average U.S. level.

Below 65% Low

65% - 90% Adequate

90% - 110% Good

110% - 130% Strong

Above 130% Very Strong

Debt Service Coverage

Given that there usually are legal covenants that require an issuer to provide some transparent level of security to the bondholders, Standard & Poor's views the minimum level of operating revenues (excluding impact fees and other nonrecurring revenues) available for debt service as generally sufficient, i.e. 1.0x, for all liens. A ratio of less than 1.0x may indicate a mismatch between revenues and revenue requirements, and, possibly, a technical default by the bondholder that may compel further action such as a review of the appropriateness of the current rate schedule and structure.

Wholesale or regional systems, or joint action agencies, which typically provide water or sewer services on a cost-of-service-based rate schedule, will typically have lower coverage, although the criteria for wholesale utilities -- which typically includes an analysis of the system's participants' general creditworthiness -- allows less emphasis to be paid to the wholesaler's financial metrics.

<1.0x Insufficient

1.0x to 1.25x Adequate

1.26x to 1.50x Good

>1.50x Strong

Liquidity

A typical water utility earns most of its revenues -- often more than half -- from May through August. While sanitary sewer systems typically have more constant revenue flows, it is increasingly common for sewer billings to be either tied to water demand, or even be a flat, fixed rate. Because there is usually some fluctuation in cash flows due to seasonal demands, the amount of precipitation, or other economic or customer base trends, we look to whether a utility has some reasonable level of unrestricted cash or equivalents for working capital. In our analysis, Standard & Poor's also gives credit to cash and investments that may be designated, but ultimately available for any lawful purpose such as a renewal and replacement fund or a rate stabilization fund. Generally speaking, a system that simply distributes a third party's treated water to its retail customers, or collects and conveys its sewer flows to a regional sewer treatment facility operated by another entity, has less operating and financial risk, in our view, and may therefore require less working capital.

<30 days Low

30 to 60 days Adequate

60 to 120 days Good

>120 days Strong

Total Debt To Net Property, Plant And Equipment

Simply referred to as "debt to plant," this ratio is an approximation that can be used as a proxy for total system indebtedness. A ratio of 0% means the system has no debt outstanding and 100% means there is as much debt outstanding as net depreciable value of the system's assets, although it is certainly possible for the number to be greater than 100%. Total debt per retail customer account is another useful measure in our view, but when the issuer is a regional or wholesale system, the number of ultimate water meters is not always discernable. System indebtedness is useful for a number of reasons: it can give insight into, for example, whether the system is in the middle of a large growth- or rehabilitation-driven capital program (in which case the debt to plant number is high). It can also be closely tied to the system's rates and capacity for additional debt.

<40% Low

40% to 60% Moderate

60% to 80% Moderately high

>80% High

Top 10 Customers As A Percentage Of Total Operating Revenues

A system's high dependence on one or more of its principal customers for revenue need not constrain its rating. However, the fact a system's business could be affected by the changing fortunes of one of its principal customers should not be overlooked either. Therefore, Standard & Poor's looks at the relative diversity or concentration of operating revenues derived from sales to customers to gain insight into this potential vulnerability.

Examples might include a water-intensive food processor shuttering operations, the expiration of the contract of a large wholesale customer, or a major local employer relocating a facility to somewhere outside the service area. Conversely, if revenue distribution among the principal customers is relatively evenly dispersed, concentration concerns are more likely to be mitigated even if in totality the top customers comprise a large portion of total revenues.

<15% Very diverse

15% to 25% Diverse

26% to 40% Moderately concentrated

>40% Concentrated

Fixed-Charge Coverage

Similar to debt service, fixed-charge coverage is Standard & Poor's internally adjusted coverage calculation that factors into account that some utility systems are distribution-only and/or collection-only, with capital-intensive treatment plants built, owned and operated by another entity. Obligations to those third parties are typically off-balance sheet and often treated as operating expenses, not debt. These may also include raw-water purchases or

other contractual obligations or participation in a joint action agency.

We believe fixed-charge coverage allows a more realistic comparison between "pipes-only" systems and those that also include treatment plants. Standard & Poor's treats any recurring long-term obligation as fixed, especially capacity payments or other minimum demand costs that the system must pay regardless of whether the service is delivered. The adjusted debt service coverage calculation, therefore, removes these fixed charges from operating expenses and instead treats them as if they were debt, allowing for a more meaningful quantitative comparison between these systems and those with actual on-balance sheet debt.

<1.0x Insufficient

1.0x to 1.20x Adequate

1.21x to 1.40x Good

>1.40x Strong

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**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I&E Exhibit No. 1 Schedule 5

Request: I&E-RS-9 Reference Pennsylvania Governor Wolf’s April 21, 2021 announcement of investment in Water Infrastructure Projects as reflected on the Commonwealth of Pennsylvania’s website at the following link: [Governor Wolf Announces \\$117 Million Investment in Water Infrastructure Projects in 19 Counties \(pa.gov\)](https://www.pa.gov/governor/announcements/governor-wolf-announces-117-million-investment-in-water-infrastructure-projects-in-19-counties).

- A. Confirm whether PWSA was recently awarded a \$2,976,450 PENNVEST grant and a \$35,573,550 loan to replace approximately 25,000 feet of distribution piping and 592 lead service lines.
- B. Provide the date it was provided or will be provided.
- C. If so, please indicate where the available funding is reflected PWSA’s filing. If the funding was attained and is not reflected in PWSA’s filing, explain why not.
- D. If not, provide the level of funding, the date it will be provided, and the type of funding being provided to PWSA.

Response:

A. Yes, the PWSA was recently awarded a \$2,976,450 PENNVEST grant and a \$35,573,550 loan to replace approximately 25,000 feet of distribution piping and 592 lead service lines.

B. The PWSA plans to close on this funding on July 7th. It is on that date that the PWSA can start drawing on the funding.

C. This funding was reflected in the Cost of Service Model within the FutureDebt tab row 62 as being funded by a revenue bond. The PWSA assumed this would be funded by a revenue bond because it was not certain that PENNVEST funding would be awarded when the rate case was filed. Now that the award is near final the PWSA will look to revise the revenue requirement during rebuttal testimony.

D. See the response in section A.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: June 17, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), Set I in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I&E Exhibit No. 1 Schedule 6

Request: I&E-RR-2-D Reference PWSA Statement No. 2, p. 23, ln. 18 through p. 24, ln. 12. Provide specific examples of items or capital assets that may be financed via the \$1.0 million PAYGO request.

Response:

Listed below are examples of items or capital assets that may be financed via the PAYGO request. This list does not include all items or capital assets that could be funded with the PAYGO requests.

- Large meter test bench
- Small meter test bench
- Vehicles
- Meters
- Pumps
- Boilers
- IT hardware/software replacements

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 11, 2021

I&E Statement No. 2
Witness: D. C. Patel

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Direct Testimony

of

D. C. Patel

Bureau of Investigation and Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES

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1 **INTRODUCTION**

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

3 A. My name is D. C. Patel, and my business address is Pennsylvania Public Utility
4 Commission, Commonwealth Keystone Building, 400 North Street, Harrisburg,
5 PA 17120.

6
7 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

8 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
9 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
10 Analyst.

11

12 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT BACKGROUND?**

13 A. An outline of my education and employment background is set forth in the
14 attached Appendix A.

15

16 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

17 A. I&E is responsible for representing the public interest in proceedings before the
18 Commission. I&E's analysis in this proceeding is based on its responsibility to
19 represent the public interest. This responsibility requires the balancing of the
20 interests of ratepayers, the regulated utility, and the regulated community as a
21 whole.

1 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2 A. The purpose of my direct testimony is to review the base rate filing of the
3 Pittsburgh Water and Sewer Authority (PWSA) and make recommended
4 adjustments to PWSA's proposed operating and maintenance (O&M) expense
5 claims for the fully projected future test year (FPFTY) ending December 31, 2022.

6
7 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

8 A. Yes. I&E Exhibit No. 2 contains schedules relating to my testimony.

9
10 **Q. DO YOU HAVE ANY COMMENTS REGARDING THE OVERALL SCOPE**
11 **OF YOUR DIRECT TESTIMONY?**

12 A. Yes. Since PWSA came under the Commission's jurisdiction for regulation and
13 oversight effective April 1, 2018, there are various compliance requirements of
14 utility statute, regulations, and Commission Orders with which it must comply.
15 PWSA has started taking steps to comply with these requirements. Since then,
16 PWSA filed two base rate cases in 2018 (at Docket Nos. R-2018-3002645 and R-
17 2018-3002647) and 2020 (at Docket Nos. R-2020-3017951 and R-2020-3017970)
18 and the mandated Compliance Plan Stage I filing in 2018 (at Docket Nos. M-2018-
19 2640802 and M-2018-2640803). Per the February 4, 2021 Commission Order in
20 PWSA's Stage I Compliance Plan proceeding, PWSA filed the required materials
21 related to the Stage 2 Compliance Plan concerning the Chapter 56 billing and

1 collection issues and the development of a storm water tariff for review by the
2 concerned parties.

3 In this testimony, I am addressing some of the issues from the current base
4 rate case filing. However, with respect to issues I have not addressed, I&E does not
5 waive its right to address those issues in the Compliance Plan Stage 2 filing, in future
6 base rate proceedings, or in any other proceedings. Further, issues not addressed in
7 this proceeding should not be construed as I&E's agreement to PWSA's position on
8 those issues. Lastly, I&E reserves its right to make further recommendations in
9 future proceedings for any issue addressed in this testimony.

10
11 **Q. WHAT TEST YEARS HAS PWSA USED IN THIS PROCEEDING?**

12 A. PWSA used the calendar year ended December 31, 2020 as the historic test year
13 (HTY), the year ending December 31, 2021 as the future test year (FTY), and the
14 year ending December 31, 2022 as the FPFTY in this rate case proceeding (PWSA
15 Statement No. 2, p. 13).

16
17 **Q. WHAT IS PWSA'S REQUESTED REVENUE INCREASE IN THIS
18 PROCEEDING?**

19 A. PWSA has requested an annual total revenue increase of \$32,214,664 or a 17.11%
20 increase in the FPFTY (PWSA Statement No. 1, p. 5 and PWSA Exhibit WJP-1,
21 Table III). If PWSA receives the full level of its requested increase, it has
22 proposed to phase-in the requested rate increase over two years, and the Year 1

1 increase would be \$22 million, or 11.7%, and the Year 2 increase would be \$10.2
2 million, or 5.4% (PWSA Statement No. 1, p. 6; and PWSA Statement. No. 2, p. 4).
3 It should be noted that I&E witness Anthony Spadaccio is addressing I&E's
4 overall recommended revenue requirement in this proceeding (I&E Statement
5 No. 1).

6
7 **Q. HOW HAS PWSA EXPLAINED ITS BUDGETING PROCESS?**

8 A. PWSA explained that its O&M expense claims are based on the results derived
9 through a utility-wide budgeting process using a zero-based budgeting method, the
10 previous years' budgets are referenced for developing the annual operating budget,
11 and each cost is individually considered when developing the budget (PWSA
12 Statement No. 2, p. 15).

13
14 **Q. DO YOU HAVE ANY OVERALL COMMENTS ABOUT THE ACCURACY**
15 **OF PWSA'S PREVIOUS BUDGETED DIRECT O&M EXPENSE CLAIMS**
16 **MADE IN ITS PRIOR BASE RATE CASES?**

17 A. Yes. In response to I&E-RE-50-D, PWSA provided a comparative statement of
18 budgeted expenses for the fiscal years 2018, 2019, and 2020, as presented in the
19 last rate case filings and the actual expense incurred in side-by-side columns for
20 each year by line item of expense in a similar schedule that is provided in PWSA's
21 current filing FR-III.1 for the FPPTY (I&E Exhibit No. 2, Schedule 1, pp. 1-22).
22 Based on this information, I developed an O&M expense summary by major

1 expense title (I&E Exhibit No. 2, Schedule 2, pp. 1-2), and the following table
2 shows a summarized schedule of the total budgeted versus actual O&M expenses
3 incurred in the fiscal years 2018, 2019, and 2020:

Fiscal Year	Budgeted	Actual	Variance	Variance
2018	\$94,871,427	\$84,496,209	(\$10,375,218)	(10.94%)
2019	\$111,827,727	\$89,531,892	(\$22,295,835)	(19.94%)
2020	\$109,582,585	\$94,539,067	(\$15,043,518)	(13.73%)

5 Historically, PWSA incurred less O&M expense compared to its budgeted O&M
6 expense level. The average of three years' underspending was \$15,904,857
7 $((\$10,375,218 + \$22,295,835 + \$15,043,518) \div 3)$, which is 14.87% $(10.94\% +$
8 $19.94\% + 13.73\%)$ of the budgeted expenses.

9
10 **Q. HAS PWSA ATTEMPTED TO EXPLAIN THE SUBSTANTIAL**
11 **VARIANCES BETWEEN ITS BUDGET PROJECTIONS AND ACTUAL**
12 **EXPENSES?**

13 A. Yes, but its explanations only raised reliability concerns regarding PWSA's O&M
14 projections. Specifically, throughout its response to I&E-RE-50-D Attachment,
15 PWSA briefly stated various one-line reasons for each expense line item's
16 negative variance, such as "did not meet the hiring projection," "did not meet
17 projections," "did not use the anticipated amount," etc. This response reveals that
18 PWSA's FTY and FPFTY O&M expense budgeting and claim amounts are not

1 fully reliable and produces concerns about the reasonableness of the FTY and
2 PFPTY budgeted amounts in this proceeding.

3
4 **SUMMARY OF ADJUSTMENTS**

5 **Q. PLEASE SUMMARIZE YOUR ADJUSTMENTS.**

6 A. The following table summarizes my recommended O&M expense adjustments for
7 the combined water, wastewater, and stormwater operations:

8

	<u>PWSA Claim</u>	<u>I&E Recommended Allowance</u>	<u>I&E Adjustment</u>
Rate Case Expense	\$2,040,000	\$1,530,000	(\$510,000)
Payroll Expense	\$31,188,177	\$23,714,529	(\$7,473,648)
Employee Benefits Expense	\$8,256,825	\$6,278,225	(\$1,978,600)
Chemicals Expense	\$5,193,874	\$4,443,467	(\$750,407)
Materials Expense	\$571,220	\$519,445	(\$51,775)
Equipment	\$7,578,417	\$1,290,460	(\$6,287,957)
Operating Contracts	\$27,106,585	\$22,652,907	(\$4,453,678)
Repairs and Maintenance	\$14,818,843	\$13,545,197	(\$1,273,646)
Lease and Rent	\$1,557,194	\$1,248,134	(\$309,060)
Professional Services	\$24,781,053	\$22,963,137	(\$1,817,916)
Utilities	\$5,293,104	\$5,138,656	(\$154,448)
Miscellaneous Admin. Expense - Claims Deductibles	\$600,000	\$0	(\$600,000)
Total O&M Expense Adjustments			<u>(\$25,661,135)</u>

1 **Q. HOW DID YOU ALLOCATE YOUR EXPENSE ADJUSTMENTS**
2 **BETWEEN THE WATER, WASTEWATER, AND STORMWATER**
3 **SYSTEMS?**

4 A. I allocated the above O&M expense adjustments using a ratio of 64.30% for water
5 operations, 19.25% for wastewater operations, and 16.45% for stormwater
6 operations based on PWSA’s FPFTY 2022 Cost of Service Study and Rate Design
7 as shown in the table below (PWSA filing, FPFTY 2022 Cost of Service and Rate
8 Design, RevReq Allocation tab, Column P, lines 25-27):

	<u>I&E Adjustment</u>	<u>Water (64.30%)</u>	<u>Wastewater (19.25%)</u>	<u>Stormwater (16.45%)</u>
Rate Case Expense	(\$510,000)	(\$327,930)	(\$98,175)	(\$83,895)
Payroll Expense	(\$7,473,648)	(\$4,805,556)	(\$1,438,677)	(\$1,229,415)
Employee Benefits Expense	(\$1,978,600)	(\$1,272,240)	(\$380,881)	(\$325,480)
Chemicals Expense	(\$750,407)	(\$482,512)	(\$144,453)	(\$123,442)
Materials Expense	(\$51,775)	(\$33,291)	(\$9,967)	(\$8,517)
Equipment	(\$6,287,957)	(\$4,043,156)	(\$1,210,432)	(\$1,034,369)
Operating Contracts	(\$4,453,678)	(\$2,863,715)	(\$857,333)	(\$732,630)
Repairs and Maintenance	(\$1,273,646)	(\$818,954)	(\$245,177)	(\$209,515)
Lease and Rent	(\$309,060)	(\$198,726)	(\$59,494)	(\$50,840)
Professional Services	(\$1,817,916)	(\$1,168,920)	(\$349,949)	(\$299,047)
Utilities	(\$154,448)	(\$99,310)	(\$29,731)	(\$25,407)
Miscellaneous Admin. Expense - Claims Deductibles	<u>(\$600,000)</u>	<u>(\$385,800)</u>	<u>(\$115,500)</u>	<u>(\$98,700)</u>
Total O&M Expense Adjustments	<u>(\$25,661,135)</u>	<u>(\$16,500,110)</u>	<u>(\$4,939,768)</u>	<u>(\$4,221,257)</u>

1 **RATE CASE EXPENSE**

2 **Q. BRIEFLY DESCRIBE THE NATURE AND TYPES OF EXPENDITURES**
3 **TYPICALLY ALLOWED AS A PART OF A REGULATED UTILITY'S**
4 **OVERALL RATE CASE EXPENSE.**

5 A. The nature and types of individual expenditures that comprise a utility's allowable
6 claim for rate case expense are those directly incurred to compile, present, and
7 defend a utility's request for a base rate increase before the Commission. The
8 actual expenditures and estimated costs typically found in an allowable rate case
9 expense claim include legal fees for outside counsel, fees to outside consultants,
10 and the cost of printing, document assembly, and postage.

11
12 **Q. HOW HAS THE COMMISSION TRADITIONALLY TREATED RATE**
13 **CASE EXPENSE FOR RATEMAKING PURPOSES?**

14 A. The Commission has historically stated that it considers prudently incurred rate
15 case expense as an ongoing expense, occurring at irregular intervals, related to the
16 rendering of utility service. The Commission has also cited the importance of
17 considering the involved utility's history regarding the frequency of rate case
18 filings as an essential element to determine the normalized level of rate case
19 expense for ratemaking purposes.

20
21 **Q. HOW IS THE FREQUENCY OF RATE CASE FILINGS DETERMINED?**

22 A. The frequency is determined by calculating the average number of months

1 between the utility's previous rate case filings.

2

3 **Q. WHAT IS PWSA'S CLAIM FOR RATE CASE EXPENSE?**

4 A. PWSA is claiming rate case expense of \$2,040,000 in the FPFTY (PWSA filing
5 Volume I, FR-III-4).

6

7 **Q. WHAT IS THE BASIS FOR PWSA'S CLAIM?**

8 A. PWSA has projected its total rate case expense of \$2,040,000 and included the
9 entire amount as projected in the FPFTY revenue requirement rather than
10 normalizing these expenditures over some period of time. PWSA recognized the
11 full rate case expense in the FPFTY as this cost is anticipated to be expensed as
12 incurred in that year (PWSA filing Volume I, FR-III-4). This results in the full
13 expense claim of \$2,040,000 in the FPFTY revenue requirement.

14

15 **Q. DO YOU AGREE WITH PWSA'S CLAIM?**

16 A. No.

17

18 **Q. WHAT IS YOUR RECOMMENDATION FOR RATE CASE EXPENSE?**

19 A. I recommend that PWSA's rate case expense be normalized over a period of 16
20 months resulting in an annual expense of \$1,530,000 ($(\$2,040,000 \div 16 \text{ months}) \times$
21 12 months), or a reduction of \$510,000 ($\$2,040,000 - \$1,530,000$) to PWSA's
22 claim.

1 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

2 A. I disagree with PWSA's full expense claim of \$2,040,000 in the FPFTY, because it
3 is not supported by the Company's historic filing frequency. PWSA witness
4 Edward Barca states that PWSA, as a cash flow regulated municipal utility,
5 reflects costs that it actually incurs in a year and that collecting those costs in rates
6 over two or three years is not reasonable. He further, states that PWSA has been
7 involved in rate-related activity on an annual basis since coming under the
8 jurisdiction of the Commission and anticipates continuing incurring costs for rate-
9 related activities on a yearly or every other year pace for next several years
10 (PWSA Statement No. 3, p. 18). Mr. Barca's assertions that PWSA should be
11 entitled to collect the full rate case expense in the year it is actually incurred, and
12 his contention that it is involved in rate-related activity on an annual basis are not
13 supported by the historic rate case filing frequency. Additionally, in response to
14 I&E-RE-23-D(J), PWSA states that the timing of its next base rate case filing is
15 yet to be determined (I&E Exhibit No. 2, Schedule 3, pp. 1-2). Further, as
16 proposed by PWSA, it would continue to collect the full cost of its current rate
17 case filing in rates each year, regardless of how many years may pass until the next
18 rate case filing. The concept of normalization allows the utility to receive in base
19 rates a properly normalized amount between cases. Finally, if PWSA only
20 recognizes actual expenses in the year incurred due to its cash-flow nature, the
21 cost of the current rate case filing would fall into the FTY or even the HTY, and
22 PWSA would have no claim for rate case expense in the FPFTY. This supports

1 my position recommending normalization as it permits inclusion of a normalized
2 amount of rate case expense in base rates between rate cases to prospectively fund
3 future rate case expenses.

4 In contrast to PWSA's claim, I recommend a 16-month normalization
5 period (rounded) $((13 + 20) \div 2)$, which is reasonable and approximates PWSA's
6 filing history as shown below:

7

Rate Case Docket No.	Filing date	Filing interval - Months
R-2021-3024773, R-2021-3024774, and R-2021-3024779	4/13/2021	13
R-2020-3017951 and R-2020-3017970	3/06/2020	20
R-2018-3002645 and R-2018-3002647	7/02/2018	

8 In view of the above, my recommended 16-month normalization period for rate
9 case expense is well supported and reasonable.

10
11 **Q. ARE THERE ANY RECENT COMMISSION DECISIONS THAT SUPPORT**
12 **YOUR RECOMMENDATION FOR A RATE CASE FILING INTERVAL**
13 **BASED ON HISTORIC FILING FREQUENCY?**

14 A. Yes. In a base rate case filed by Emporium Water Company, the Commission
15 adopted the I&E-recommended historic filing frequency.¹ In that proceeding, the
16 Commission found in favor of I&E's recommendation of a five-year normalization

¹ PA PUC v. Emporium Water Company, Docket No. R-2014-2402324, p. 50 (Order Entered January 28, 2015).

1 period based on an historic average filing frequency that was rounded down from
2 64 months.

3 Additionally, in the City of DuBois rate case, the Commission agreed with
4 I&E’s recommendation to use an historic filing frequency.² In that proceeding, the
5 Commission found in favor of I&E’s recommended 64-month normalization
6 period, which matched the actual historic filing frequency.

7 In the recent Columbia Gas of PA, Inc. base rate case order, the
8 Commission indicated that “the normalization period should align with the historic
9 data rather than the Company’s assertion” as to when it is likely to file its next
10 base rate case.³ In this proceeding the Commission agreed with I&E
11 recommended 20-month normalization period, which was based on Columbia’s
12 historic filing frequency.

13 Lastly, as recently as last month, the Commission agreed with I&E’s
14 recommendation of a five-year (60-month) normalization period based on the
15 historic average filing frequency in the PECO Energy Company- Gas Division
16 base rate proceeding.⁴

² PA PUC v. City of DuBois - Bureau of Water, Docket No. R-2016-2554150, pp. 65-66 (Order Entered March 28, 2017).

³ PA PUC v. Columbia Gas of PA, Inc., Docket No. R-2020-3018835, pp. 78-79 (Order Entered February 19, 2021).

⁴ PA PUC v. PECO Energy Company (Gas Division) Docket No. R-2020-3018929, p. 119 (Order Entered June 22, 2021).

1 **Q. ARE THERE ANY DECISIONS FOR CASH FLOW COMPANIES THAT**
2 **SUPPORT YOUR RECOMMENDATION?**

3 A. Yes. The Commission previously adopted I&E's recommendation that rate case
4 expense for Philadelphia Gas Works (PGW) be normalized over a two-year period,
5 i.e., the expected period between PGW base rate filings.⁵ This is important to note
6 because PGW is also a cash-flow based utility regulated by the Commission.
7 Also, when the Commission adopted I&E's recommendation in 2001, PGW
8 similarly had a short history of filings, and therefore, the projected amount of time
9 until PGW's next base rate filing was found to be a reasonable normalization
10 period.

11

12 **Q. GIVEN THESE COMMISSION ORDERS AND PWSA'S FILING**
13 **HISTORY, IS THE CLAIMED ONE-YEAR RECOVERY PERIOD**
14 **REASONABLE?**

15 A. No. PWSA has not demonstrated that it will file the next base rate case within 12
16 months of this rate case. My 16-month normalization recommendation is in the
17 public interest as it moderates PWSA's historic filing intervals between rate case
18 filings while also being long enough to protect customers from paying
19 unreasonable rate case expenses in rates.

⁵ PA PUC v. Philadelphia Gas Works, Docket No. R-00006042, pp. 51-53 (Order Entered October 4, 2001).

1 **PAYROLL EXPENSE**

2 **Q. WHAT IS INCLUDED IN PWSA’S CLAIM FOR PAYROLL EXPENSE?**

3 A. PWSA’s payroll expense claim includes salaries and wages for regular payroll,
4 overtime premium pay, and other pay/compensation (PWSA filing, FPFTY 2022
5 Cost of Service and Rate Design, FR-III.1).

6
7 **Q. WHAT IS PWSA’S CLAIM FOR PAYROLL EXPENSE?**

8 A. PWSA is claiming payroll expense of \$31,188,177 in the FPFTY (PWSA filing,
9 FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

10

11 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

12 A. Per PWSA’s response to I&E-RE-2-D, the increases in the FTY and FPFTY
13 budgeted payroll expense claims include an anticipated increase in filled positions
14 and a 3% increase for union and non-union employees (I&E Exhibit No. 2,
15 Schedule 4, p. 1). Per response to OCA-II-22, Attachment, PWSA provided
16 estimated annual payroll expense by employee title and department for the total
17 434 filled positions (employee count) at the end of the FPFTY (I&E Exhibit No. 2,
18 Schedule 4, p. 2 (omitting voluminous attachment)).

19

20 **Q. DO YOU AGREE WITH PWSA’S PAYROLL EXPENSE CLAIM?**

21 A. No.

1 **Q. WHAT DO YOU RECOMMEND?**

2 A. I recommend an allowance of \$23,714,529 for payroll expense, or a reduction of
3 \$7,473,648 (\$31,188,177 - \$23,714,529) to PWSA's claim.
4

5 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

6 A. My recommendation is based on adjusting payroll expense for the unfilled
7 (vacant) positions that are budgeted in the FPPTY claim.
8

9 **Q. PLEASE EXPLAIN YOUR RECOMMENDED VACANCY ADJUSTMENT.**

10 A. My recommended vacancy adjustment is based on an average employee vacancy
11 rate experienced in the fiscal years 2018, 2019, and 2020. For determining an
12 average annual vacancy rate, first I reviewed PWSA's history of actual monthly
13 filled positions for the fiscal years 2018 through 2020 and calculated a monthly
14 average of actual filled positions for the fiscal years 2018 through 2020 as
15 provided in PWSA's response to I&E-RE-24-D, which included an Attachment
16 (I&E Exhibit No. 2, Schedule 5, pp. 1-2), a summary of which is produced below.
17 I determined an annual vacancy rate by dividing monthly average filled positions
18 by the budgeted employee count and then averaged three years' vacancy rates for

1 the years 2018, 2019, and 2020, as summarized in the table below:

2

	2018	2019	2020
January	271	298	334
February	272	302	338
March	281	313	346
April	283	316	348
May	288	321	346
June	293	329	345
July	293	333	343
August	301	331	342
September	295	330	346
October	296	332	346
November	295	330	349
December	<u>295</u>	<u>331</u>	<u>347</u>
1. Total employees count	<u>3,463</u>	<u>3,866</u>	<u>4,130</u>
2. Average employee count per month (1 ÷ 12)	289	322	344
3. Annual budgeted employee count	394	402	457
4. Annual vacancy rate [(2 ÷ 3) x 100) – 100]	27%	20%	25%

3 The average of the annual employee vacancy rates for those three years is 24%
4 $((27\% + 20\% + 25\%) \div 3)$. This produces 104 (FPFTY budgeted employee count:
5 $434 \times \text{vacancy rate: } 0.24$) unfilled/vacant positions for the FPFTY. Lastly,
6 multiplying the 104 unfilled/vacant positions by the average annual payroll cost of
7 \$71,862 ($\$31,188,177 \div 434$) per employee yields the payroll adjustment of

1 \$7,473,648, which is summarized in the table below:

2

	CALCULATION	RESULT
EMPLOYEE VACANCY RATE:		
1. Average annual vacancy rate of 2018, 2019 and 2020		24.00%
2. FPFTY budgeted employee count		434
3. Projected employee vacancies	434 x 0.24	104
EMPLOYEE PAYROLL EXPENSE:		
4. FPFTY payroll expense		\$31,188,177
5. Average per employee payroll cost	\$ 31,188,177 ÷ 434	\$71,862
6. Total payroll claim reduction for vacancies	\$71,862 x 104	\$7,473,648
7. Payroll expense allowance (4 – 6)		\$23,714,529

3

4 **Q. SUMMARIZE YOUR RATIONALE FOR THE VACANCY**

5 **ADJUSTMENT.**

6 A. In response to I&E-RE-26-D, PWSA states that its payroll increases amounts
7 reflect filled positions, vacant positions fully budgeted for the 12 months of the
8 FTY, and vacant positions partially budgeted for the FTY based on effective dates
9 (I&E Exhibit No. 2, Schedule 4, p. 3). Per the FPFTY budgeted employee count
10 of 434, PWSA anticipates filling all vacant positions including additional new
11 positions by the end of the FPFTY, and the FPFTY total payroll expense claim is
12 based on the budgeted total employee count of 434. However, it is unreasonable
13 to assume that PWSA will fill and maintain 100% full staffing of 434 budgeted

1 positions in the FPFTY based on its own historic vacancy records for fiscal years
2 2018 through 2020. Per PWSA's response to I&E-RE-24-D(D), PWSA had 127
3 vacant positions at the beginning of 2019 and 102 vacant positions at the
4 beginning of 2020, and 73 vacant positions at the beginning of the FTY 2021 (I&E
5 Exhibit No. 2, Schedule 5, p. 2). These historic vacancy records support my
6 recommended 104 vacant positions based on the historic average annual vacancy
7 rate of 24% for an adjustment to the FPFTY payroll cost as discussed above.

8
9 **Q. PLEASE CONTINUE.**

10 A. Additionally, with the ongoing COVID-19 pandemic, and if PWSA fails to
11 terminate its employee residency requirement as the Commission ordered in the
12 PWSA's Stage I Compliance Plan proceeding, PWSA will continue to face
13 challenges in filling all positions as budgeted in the FTY and FPFTY. Lastly,
14 there will always be a certain level of normal vacancies due to retirements,
15 resignations, transfers, layoffs, etc. on a day-to-day operating basis, which are
16 unpredictable, and there will always be search and placement time involved in
17 filling normal vacancies as well as new positions. Such vacancies will yield an
18 annual savings in payroll costs that needs to be reflected for ratemaking to
19 eliminate an unreasonable impact on rates.

1 **EMPLOYEE BENEFITS EXPENSE**

2 **Q. WHAT IS INCLUDED IN PWSA’S CLAIM FOR EMPLOYEE BENEFITS**
3 **EXPENSE?**

4 A. PWSA’s employee benefits expense claim includes the cost for benefits such as the
5 Federal Insurance Contribution Act (FICA) tax, Medicare tax, state and federal
6 unemployment taxes, workers’ compensation insurance, medical, dental, and
7 vision insurance, life insurance, short-term and long-term disability, uniforms,
8 tuition reimbursement, etc. (PWSA filing, FPFTY 2022 Cost of Service and Rate
9 Design, FR-III.1).

10

11 **Q. WHAT IS PWSA’S CLAIM FOR EMPLOYEE BENEFITS EXPENSE?**

12 A. PWSA is claiming FPFTY employee benefits expense of \$8,256,825 (PWSA
13 filing, 2022 Cost of Service and Rate Design, FR-III.1).

14

15 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

16 A. PWSA’s claim for FPFTY FICA tax and Medicare tax is estimated by applying
17 the statutory tax rates to the FPFTY budgeted total payroll expense. Per PWSA’s
18 response to I&E-RE-4-D, its projected increase in the total employee benefits
19 expense from the FTY to FPFTY is primarily due to an anticipated increase in
20 filled positions and a 3% increase in payroll expense for union and non-union
21 employees (I&E Exhibit No. 2, Schedule 6, p. 1). The FPFTY benefits expense
22 claim is based on the FPFTY budgeted total 434 employee count.

1 **Q. DO YOU AGREE WITH PWSA’S EMPLOYEE BENEFITS EXPENSE**
2 **CLAIM?**

3 A. No.

4
5 **Q. WHAT DO YOU RECOMMEND FOR EMPLOYEE BENEFITS**
6 **EXPENSE?**

7 A. I recommend an allowance of \$6,278,225 for employee benefits expense, or a
8 reduction of \$1,978,600 (\$8,256,825 - \$6,278,225) to PWSA’s claim.

9
10 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

11 A. I recommend adjusting employee benefits expense for the 104 unfilled (vacant)
12 positions that are budgeted in the FPFTY expense claim. Since I recommended an
13 adjustment to payroll expense for the vacant positions discussed in the payroll
14 section above, the FPFTY employee benefits expense claim of \$8,256,825 should
15 also be adjusted to reflect a corresponding number of vacant positions. A
16 calculation showing the FPFTY employee benefits expense adjustment for 104
17 vacant positions is summarized in the table below:

18

EMPLOYEE BENEFITS EXPENSE:		
1. FPFTY Employee benefits expense		\$8,256,825
2. Average benefits expense per employee	$\$8,256,825 \div 434$	\$19,025
3. Total benefits claim reduction for vacancies	$\$19,025 \times 104$	\$1,978,600
4. Employee benefits expense allowance (1 – 3)		\$6,278,225

1 **CHEMICALS EXPENSE**

2 **Q. WHAT IS INCLUDED IN PWSA’S CHEMICALS EXPENSE CLAIM?**

3 A. PWSA uses various chemicals for water treatment in its water operations as shown
4 in the breakdown provided in the filing (PWSA filing, FPFTY 2022 Cost of
5 Service and Rate Design, FR-III.1).

6
7 **Q. WHAT IS PWSA’S CLAIM FOR CHEMICALS EXPENSE?**

8 A. PWSA is claiming a chemicals expense of \$5,193,874 in the FPFTY (PWSA
9 filing, FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

10

11 **Q. WHAT IS THE BASIS FOR PWSA’S CHEMICALS EXPENSE CLAIM?**

12 A. Per PWSA’s responses to I&E-RE-5-D and I&E-RE-6-D, the increases in the FTY
13 and FPFTY chemical expense claims are due to an anticipated increased use and
14 unit costs (I&E Exhibit No. 2, Schedule 7, pp. 1-4). PWSA applied a projected
15 increase of 3% in the unit cost of all sub-categories of chemicals across the board,
16 except for Ferric Chloride, in the FPFTY total chemicals claim over the FTY
17 projected chemicals claim. I note that the FTY projected chemicals claim itself is
18 already ramped up by 26.44% over the HTY chemicals expense, further
19 compounding the increase (I&E Exhibit No. 2, Schedule 7, pp. 1-4).

20

21 **Q. DO YOU AGREE WITH PWSA’S CHEMICALS EXPENSE CLAIM?**

22 A. No.

1 **Q. WHAT DO YOU RECOMMEND FOR CHEMICALS EXPENSE?**

2 A. I recommend an allowance of \$4,443,467 or a reduction of \$750,407 (\$5,193,874 -
3 \$4,443,467) to PWSA's claim.

4
5 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

6 A. To determine my recommended allowance, I considered PWSA's HTY actual
7 chemical expense and adjusted for the use of new chemicals, (Chlorine Cylinders
8 and Powdered Active Carbon) and the increased use of Citric Acid. Next, I
9 applied an average of the quarterly Consumer Price Index (CPI)⁶ inflation factors
10 of 3.30% ((3.70% + 4.80% + 2.60% + 2.10%) ÷ 4) and 2.23% ((2.20% + 2.30% +
11 2.20%) ÷ 3) for the four quarters in 2021, and the projected first three quarters of
12 2022, respectively, as per the calculation shown in the table below:

13

1. HTY chemicals per book	\$3,927,806
2. Adj. for Chlorine Cylinders (New)	\$19,920
3. Adj. for Powdered Active Carbon (New)	\$229,800
4. Adj. for increase in Citric Acid use	<u>\$30,160</u>
5. HTY adjusted chemicals cost (1+2+3+4)	<u>\$4,207,686</u>
6. Add. 2021 CPI increase 3.30%	\$138,854
7. FTY allowance (5 + 6)	\$4,346,540
8. Add. 2022 CPI increase 2.23%	\$96,928
9. FPFTY allowance (7 + 8)	\$4,443,468
10. FPFTY claim	\$5,193,874
11. I&E adjustment (9 – 10)	(\$750,407)

⁶ Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, p. 2.

1 **Q. HAS PWSA PROVIDED SUFFICIENT SUPPORT FOR ITS CLAIM?**

2 A. No. In the responses to I&E-RE-5-D and I&E-RE-6-D, PWSA did not provide
3 sufficient support for the projected increased use of chemicals in the FTY and
4 FPFTY and an increase of 3% in the unit cost of all sub-categories of chemicals in
5 the FPFTY (I&E Exhibit No. 2, Schedule 7, pp. 1-4). In the absence of supporting
6 documentation and explanations for the anticipated increased use and the arbitrary
7 projected increase of 3% in the unit cost of chemicals, PWSA’s claim is
8 inappropriately increased and may impact rates unreasonably.

9 Additionally, PWSA’s actual chemical expenses were significantly less than
10 the budgeted expenses in the fiscal years 2018, 2019, and 2020 as shown in the
11 table below, which does not support PWSA’s similarly overinflated FPFTY
12 projected chemicals claim (I&E Exhibit No. 2, Schedule 2, pp. 1-2):

13

	Budget	Actual	Variance	Underspent
2018	\$5,269,422	\$3,965,455	(\$1,303,967)	(24.75%)
2019	\$6,473,336	\$4,499,921	(\$1,973,415)	(30.49%)
2020	\$6,813,739	\$3,925,786	(\$2,887,953)	(42.38%)

14 Therefore, my recommendation of applying the CPI inflation factors to determine
15 the FTY and FPFTY chemicals expense allowances based on the HTY cost as
16 discussed above is reasonable and fairly supported by the CPI, which aligns with
17 current market conditions.

1 **MATERIALS EXPENSE**

2 **Q. WHAT IS INCLUDED IN PWSA’S MATERIALS EXPENSE CLAIM?**

3 A. PWSA uses various types of materials in its water and sewer operations as shown
4 in the breakdown provided in the filing (PWSA filing, FPPTY 2022 Cost of
5 Service and Rate Design, FR-III.1).

6
7 **Q. WHAT IS PWSA’S CLAIM FOR MATERIALS EXPENSE?**

8 A. PWSA is claiming FPPTY materials expense of \$571,220 (PWSA filing, FPPTY
9 2022 Cost of Service and Rate Design, FR-III.1).

10

11 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

12 A. Per PWSA’s response to I&E-RE-9-D, its materials expense claim is based on an
13 increase in work and an anticipated increase in the use and in the unit cost of Slag,
14 which is a major component of the total materials expense claim in the FTY and
15 FPPTY as compared to the HTY materials expense (I&E Exhibit No. 2, Schedule
16 8, p. 1).

17

18 **Q. DO YOU AGREE WITH PWSA’S MATERIALS EXPENSE CLAIM?**

19 A. No.

1 **Q. WHAT DO YOU RECOMMEND FOR MATERIALS EXPENSE?**

2 A. I recommend an allowance of \$519,445 or a reduction of \$51,775 (\$571,220 -
3 \$519,445) to PWSA's claim.

4
5 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

6 A. My recommendation is based on PWSA's historic expense trend of materials
7 expense. First, I averaged the actual materials expense from 2018, 2019, and 2020
8 and then applied an average of the quarterly Consumer Price Index (CPI)⁷ inflation
9 factors of 3.30% $((3.70\% + 4.80\% + 2.60\% + 2.10\%) \div 4)$ and 2.23% $((2.20\% +$
10 $2.30\% + 2.20\%) \div 3)$ for the four quarters in 2021 and the projected first three
11 quarters of 2022, respectively, as per the calculation shown in the table below:

12

1. Average of materials expense $((\$495,836 + \$524,002 + \$455,807) \div 3)$	\$491,882
2. Add. 2021 CPI increase 3.30%	\$16,232
3. FTY allowance (1 + 2)	\$508,114
4. Add. 2022 CPI increase 2.23%	\$11,331
5. FPFTY allowance (3 + 4)	\$519,445
6. FPFTY claim	\$571,220
7. I&E adjustment (5 - 6)	(\$51,775)

13 Historically, PWSA's total materials expense increased by 6.68% in 2018, 5.68%
14 in 2019, and declined by 13.01% in 2020. It is projecting a significant increase of

⁷ Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, p. 2.

1 26.97% in the FTY and slight reduction of 1.30% in the FPFTY over the FTY
2 expense claim without any credible support. Therefore, it is more appropriate to
3 apply a three-year historic average of the actual expense and apply a CPI inflation
4 factor for the projected increases in the FTY and FPFTY expenses, which fairly
5 reflects the anticipated increase in usage and unit costs of materials.
6

7 **Q. PLEASE CONTINUE.**

8 A. PWSA experienced significant variations in budgeted versus actual materials
9 expense in the fiscal years 2018 through 2020 as shown in the table below, which
10 does not support PWSA's FPFTY projected materials expense claim (I&E Exhibit
11 No. 2, Schedule 2, pp. 1-2):
12

	Budget	Actual	Variance	Over/Under spent
2018	\$419,332	\$495,837	\$76,504	18.24%
2019	\$758,273	\$524,002	(\$234,271)	(30.90%)
2020	\$654,570	\$455,807	(\$198,762)	(30.37%)

13 Therefore, my recommendation to apply the CPI inflation factors to determine the
14 FTY and FPFTY materials expense allowance based on a three-year historic
15 average of the actual expense as discussed above is reasonable.
16

17 **EQUIPMENT**

18 **Q. WHAT IS INCLUDED IN PWSA'S CLAIM FOR EQUIPMENT?**

19 A. PWSA's claim for equipment includes computers and peripherals, computer

1 networking, furniture and fixtures, laboratory equipment, machinery, and vehicles
2 as shown in the breakdown provided in the filing (PWSA filing, FPFTY 2022 Cost
3 of Service and Rate Design, FR-III.1).

4
5 **Q. WHAT IS PWSA'S CLAIM FOR EQUIPMENT?**

6 A. PWSA is claiming FPFTY equipment expense of \$7,578,417 (PWSA filing,
7 FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

8
9 **Q. WHAT IS THE BASIS FOR PWSA'S CLAIM?**

10 A. Since PWSA's revenue requirement calculation is based on the cash flow method,
11 PWSA reported and claimed the entire equipment cost in its operating expenses
12 (I&E Exhibit No. 2, Schedule 9, p. 1).

13
14 **Q. DO YOU AGREE WITH PWSA'S CLAIM?**

15 A. No.

16
17 **Q. WHAT DO YOU RECOMMEND FOR EQUIPMENT?**

18 A. I recommend an allowance of \$1,290,460 for equipment or a reduction of
19 \$6,287,957 (\$7,578,417 - \$1,290,460) to PWSA's claim.

20
21 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

22 A. My recommendation is based on normalizing the cost of the equipment over the

1 useful service life of the respective equipment⁸ as shown in the table below:

2

Code	Type	FPFTY Claim	Useful life in years	Normalized Allowance
5120	Computer and Peripherals	\$633,212	5	\$126,642
5125	Computers Networking	\$3,757,846	5	\$751,569
5140	Furniture and Fixture	\$224,450	7	\$32,064
5145	Grounds Maintenance	\$75,810	7	\$10,830
5147	Laboratory Equipment	\$348,100	20	\$17,405
5150	Machinery	\$1,039,000	20	\$51,950
5190	Vehicles	\$1,500,000	5	\$300,000
	Total	<u>\$7,578,417</u>		<u>\$1,290,460</u>

3 The equipment's useful life shown in the above table is also in accordance with
4 PWSA's Capital Asset Policy.

5
6 **Q. EXPLAIN WHY YOU RECOMMEND NORMALIZING THE**
7 **EQUIPMENT COSTS.**

8 A. Normalization specifically addresses the prospective recovery of an ongoing
9 expense that recurs sporadically. Allowed normalized expenses are no different
10 than other O&M expenses in that the utility is given the opportunity to achieve full
11 recovery. My recommendation to normalize equipment costs over the useful life
12 of the equipment is supported by the following points. First, equipment is

⁸ MACRS Asset Life Table available at http://cs.thomsonreuters.com/ua/fixa/cs_us_en/ass_life_tbl/hid_help_asset_lives.htm (Accessed on 6/21/2021).

1 typically categorized as a capital expenditure because it is useful for providing
2 service for a period longer than one year (beyond the FPFTY) and is not
3 consumable or perishable.

4 Second, such costs are one-time expenditures and generally non-recurring
5 in nature during the normal useful life span of the equipment.

6 Third, in normal accounting practice, a capital asset is depreciated over its
7 useful life. Thus, I am recommending similar normalization periods for equipment
8 costs.

9 Fourth, including the full cost of equipment in the FPFTY unreasonably
10 burdens ratepayers since the benefits of the equipment will continue to be
11 experienced during the useful life of the equipment, a period longer than the
12 FPFTY, and the cost of replacing that equipment in its entirety continues to be
13 embedded in rates each year using PWSA's method.

14 Finally, had the equipment been acquired by leasing, the lease payments
15 would have spread over more than one year. Thus, spreading the cost of the
16 equipment over its normal useful life is more appropriate and moderates the cost
17 impact in rates.

18 19 **OPERATING CONTRACTS**

20 **Q. WHAT IS INCLUDED IN PWSA'S CLAIM FOR OPERATING** 21 **CONTRACTS?**

22 A. PWSA's claim for operating contracts primarily includes operations and

1 maintenance-related outside services contracts like annual sewer contracts, curb
2 box repair, debris removal, vector debris removal, emergency waterline repair,
3 field inspection, landscaping, other operating contracts, etc. (PWSA filing, FPFTY
4 2022 Cost of Service and Rate Design, FR-III.1).

5
6 **Q. WHAT IS PWSA’S CLAIM FOR OPERATING CONTRACTS?**

7 A. PWSA is claiming FPFTY operating contracts of \$27,106,585 (PWSA filing,
8 FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

9
10 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

11 A. Per PWSA’s response to I&E-RE-10-D, its projected increases in various
12 categories of operating contract costs are based on anticipated increases in the
13 contract costs for various operational needs and to fund emergency response work
14 (I&E Exhibit No. 2, Schedule 10, pp. 1-3).

15
16 **Q. DO YOU AGREE WITH PWSA’S CLAIM?**

17 A. No.

18
19 **Q. WHAT DO YOU RECOMMEND FOR OPERATING CONTRACTS?**

20 A. I recommend an allowance of \$22,652,907 or a reduction of \$4,453,678
21 (\$27,106,585 - \$22,652,907) to PWSA’s claim.

1 **Q. DOES YOUR RECOMMENDATION ADJUST ALL SUB-CATEGORIES OF**
 2 **OPERATING CONTRACTS?**

3 A. No. I am addressing the significant increase in the FPFTY claims of the following
 4 three sub-categories of operating contracts as shown in the table below (PWSA
 5 filing, FPFTY 2022 Cost of Service and Rate Design, FR-III.1):

6

	2018	2019	HTY - 2020	FTY - 2021	FPFTY - 2022
Inspection Field	\$793,856	\$ 698,229	\$1,424,101	\$1,772,500	\$2,117,890
Landscape	\$87,840	\$90,869	\$118,865	\$125,000	\$220,000
Operating Contract - Other	<u>\$1,996,525</u>	<u>\$1,816,157</u>	<u>\$5,296,671</u>	<u>\$9,277,747</u>	<u>\$13,291,035</u>
Total	<u>\$2,878,221</u>	<u>\$2,605,255</u>	<u>\$6,839,637</u>	<u>\$11,175,247</u>	<u>\$15,628,925</u>

7
 8 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

9 A. In response to I&E-RE-10-D, PWSA gave a general explanation for the significant
 10 increases in expense claims from the HTY to FTY and from the FTY to FPFTY,
 11 and primarily, states that FTY and FPFTY claims are based on an anticipated
 12 increase in contract costs for operational needs and the probable need for
 13 emergency response work. PWSA did not adequately support the claims with a
 14 detailed basis, a breakdown of cost, and documentation for increases in these
 15 claims (I&E Exhibit No. 2, Schedule 10, pp. 1-3). The failure to support its O&M
 16 claims in this proceeding is especially concerning given that PWSA significantly
 17 overestimated its O&M expenses in its prior base rate cases. Historically, PWSA's

1 actual expenses were significantly lower than the budgeted expenses, which is
2 discussed below for each expense item. Allowing PWSA to recover expenses
3 from customers that are not supported and potentially not incurred is not in the
4 public interest.

5
6 **Inspection Field**

7 **Q. PLEASE EXPLAIN THE COMPANY’S CLAIM FOR THE INSPECTION**
8 **FIELD SUB-CATEGORY AND YOUR RESPONSE.**

9 A. PWSA’s inspection field claim is \$2,117,890 in the FPFTY, which is a 19.49%
10 increase over the FTY expense claim of \$1,772,500. Additionally, PWSA’s FTY
11 claim of \$1,772,500 is 24.46% over the HTY actual expense of \$1,424,101
12 (PWSA filing, FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

13 PWSA’s justification for the increase in expense from the HTY to FTY and
14 the FTY to FPFTY include an anticipated increase in contract costs and number of
15 inspections. This line item generally reflects the emergency repairs work that may
16 be performed under the annual sewer contract and water line repairs (I&E Exhibit
17 No. 2, Schedule 10, pp. 1-3). Since the emergency response work is not
18 predictable and certain, the significant and unsupported increase in the FTY and
19 FPFTY claims are not reliable and acceptable. Further, as PWSA continues to
20 advance remediation of its system, emergency response work should, theoretically,
21 decline with the system improvement.

1 **Q. DO YOU HAVE ANY ADDITIONAL SUPPORT TO DEMONSTRATE**
2 **THAT PWSA’S CLAIM IS LIKELY OVERSTATED?**

3 A. Yes. PWSA underspent this expense as compared to the budgeted amount in the
4 last three fiscal years as shown in the table below (I&E Exhibit No. 2, Schedule 1,
5 pp. 1-22):

6

	Budgeted	Actual	Underspent	Variance
2018	\$916,500	\$793,856	\$122,644	13%
2019	\$2,562,000	\$698,229	\$1,863,771	73%
2020	\$1,598,917	\$1,424,101	\$174,816	11%

7

8 **Landscape**

9 **Q. PLEASE EXPLAIN YOUR POSITION REGARDING THE COMPANY’S**
10 **CLAIM FOR THE LANDSCAPE SUB-CATEGORY.**

11 A. PWSA claims \$220,000 in the FPFTY, which is a 76.00% increase over the FTY
12 expense claim of \$125,000. The FTY claim of \$125,000 is increased by 5.16%
13 over the HTY actual expense of \$118,865 (PWSA filing, FPFTY 2022 Cost of
14 Service and Rate Design, FR-III.1). PWSA avers that the increases in landscaping
15 from the HTY to FTY and the FTY to FPFTY includes an anticipated increase in
16 contract costs and addresses deferred (postponed) grounds maintenance at all
17 locations (I&E Exhibit No. 2, Schedule 10, pp. 1-3). However, PWSA did not

1 support increases in the contract costs for this expense and the HTY’s deferred
 2 ground maintenance expense represents the HTY’s unspent expense, which was
 3 already budgeted and claimed in the previous two rate cases, and that should not
 4 be the basis for an increase in the FPFTY claim. Additionally, PWSA underspent
 5 this expense as compared to the budgeted amount in the last three fiscal years as
 6 shown in the table below (I&E Exhibit No. 2, Schedule 1, pp. 1-22):

	Budgeted	Actual	Underspent	Variance
2018	\$165,000	\$87,840	\$77,160	47%
2019	\$300,008	\$90,869	\$209,139	70%
2020	\$162,000	\$118,865	\$43,135	27%

8
 9 **Operating Contracts - Other**

10 **Q. PLEASE EXPLAIN THE COMPANY’S CLAIM FOR THE OPERATING**
 11 **CONTRACTS - OTHER SUB-CATEGORY AND YOUR RESPONSE.**

12 A. PWSA claims \$13,291,035 in the FPFTY, which is a 43.26% increase over the
 13 FTY expense claim of \$9,277,747 (PWSA filing, FPFTY 2022 Cost of Service and
 14 Rate Design, FR-III.1). Additionally, PWSA’s FTY claim of \$9,277,747 is
 15 significantly overstated by 75.16% over the HTY actual expense of \$5,296,671.
 16 PWSA avers that the increases in contract costs from the HTY to FTY and the
 17 FTY to FPFTY include an anticipated increase in contract costs for line locating,
 18 pump and motor, manhole point repair, CSO flow monitoring, washout

1 disconnection, CCTV and heavy cleaning, trunk line transfer to ALCOSAN, and
2 tank inspection contracts. However, PWSA did not provide a detailed basis,
3 breakdown, and supporting documentation for the increases in the contract costs,
4 (I&E Exhibit No. 2, Schedule 10, pp. 1-3). Additionally, PWSA underspent this
5 expense as compared to the budgeted amount in the last three fiscal years as
6 shown in the table below (I&E Exhibit No. 2, Schedule 1, pp. 1-22):

7

	Budgeted	Actual	Underspent	Variance
2018	\$6,806,904	\$1,996,527	\$4,810,377	71%
2019	\$6,908,291	\$1,816,157	\$5,092,134	74%
2020	\$8,642,500	\$5,296,671	\$3,345,829	39%

8

9 **Recommendation**

10 **Q. WHAT IS YOUR RECOMMENDATION FOR THESE EXPENSE**
11 **CATEGORIES?**

12 A. In evaluating the historic trends for these expenses, I recognize that these expenses
13 have exhibited an upward trend over the 2018 to 2020 actual years; however, at
14 the same time, PWSA has consistently underspent its budget estimates. In order to
15 recognize these issues, I recommend utilizing PWSA's budgeted FTY claim for its
16 FPFTY allowance. Selecting the FTY claim recognizes both the fact that the
17 actual expense is increasing and the fact that PWSA's budgeted projection for
18 these expenses has historically been overstated. The impact of this

1 recommendation to these three categories of operating contracts is summarized in
 2 the table below:

	FPFTY Claim	FPFTY Allowance	Adjustment
Inspection Field	\$2,117,890	\$1,772,500	(\$345,390)
Landscape	\$220,000	\$125,000	(\$95,000)
Operating Contract - Other	<u>\$13,291,035</u>	<u>\$9,277,747</u>	<u>(\$4,013,288)</u>
Total	<u>\$15,628,925</u>	<u>\$11,175,247</u>	<u>(\$4,453,678)</u>

4 My recommended allowance and adjustment for total operating contracts is
 5 summarized in the table below:

1. FPFTY total operating contracts claim	\$27,106,585
2. Less FPFTY I&E disputed claim	\$15,628,925
3. FPFTY unadjusted claim (1 – 2)	\$11,477,660
4. I&E allowance for disputed claim	\$11,175,247
5. I&E allowance for total claim (3 + 4)	\$22,652,907
6. I&E adjustment (5 - 1)	(\$4,453,678)

7
 8 **REPAIRS AND MAINTENANCE**

9 **Q. WHAT IS INCLUDED IN PWSA’S CLAIM FOR REPAIRS AND**
 10 **MAINTENANCE?**

11 **A.** PWSA’s claim for repairs and maintenance includes annual software support,

1 building repairs, concrete repairs, electrical repairs, fence repairs, equipment
2 repairs, plant repairs, heavy equipment repairs, vehicle repairs, etc. (PWSA filing,
3 FPPTY 2022 Cost of Service and Rate Design, FR-III.1).

4
5 **Q. WHAT IS PWSA'S CLAIM FOR REPAIRS AND MAINTENANCE?**

6 A. PWSA is claiming FPPTY repairs and maintenance of \$14,818,843 (PWSA filing,
7 FPPTY 2022 Cost of Service and Rate Design, FR-III.1).

8
9 **Q. WHAT IS THE BASIS FOR PWSA'S CLAIM?**

10 A. Per PWSA's response to I&E-RE-11-D, the projected increases in the FTY and
11 FPPTY claims in various categories of repairs and maintenance expense are
12 primarily due to an anticipated increases in contract costs and the need for
13 additional repairs and maintenance work (I&E Exhibit No. 2, Schedule 11, pp. 1-
14 4).

15
16 **Q. DO YOU AGREE WITH PWSA'S CLAIM?**

17 A. No.

18
19 **Q. WHAT DO YOU RECOMMEND FOR REPAIRS AND MAINTENANCE?**

20 A. I recommend an allowance of \$13,545,197 or a reduction of \$1,273,646
21 (\$14,818,843 - \$13,545,197) to PWSA's repairs and maintenance claim.

1 **Q. DOES YOUR RECOMMENDATION ADJUST ALL SUB-CATEGORIES OF**
2 **REPAIRS AND MAINTENANCE?**

3 A. No. I am addressing the significant increases in the FPFTY claims of the
4 following two sub-categories of repairs and maintenance as shown in the table
5 below (PWSA filing, FPFTY 2022 Cost of Service and Rate Design, FR-III.1):

6

	2018	2019	HTY - 2020	FTY - 2021	FPFTY - 2022
Building Repairs	\$224,240	\$188,512	\$173,305	\$126,072	\$1,761,635
Plant Repairs	\$0	\$136,910	\$297,515	\$260,000	\$641,700
Total	<u>\$224,240</u>	<u>\$325,422</u>	<u>\$470,820</u>	<u>\$386,072</u>	<u>\$2,403,335</u>

7

8 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

9 A. **Building Repairs**

10 PWSA building repairs claim of \$1,761,635 in the FPFTY is a 1,297.32% increase
11 over the FTY expense claim of \$126,072 (PWSA filing, FPFTY 2022 Cost of
12 Service and Rate Design, FR-III.1). In response to I&E-RE-11-D, PWSA gave a
13 generalized explanation for the significant increase in the expense claim from the
14 FTY to FPFTY stating that the repairs claim includes an anticipated increase in
15 repairs, notably at the Water Treatment Plant. However, PWSA did not provide a
16 detailed basis, breakdown, and documentation to support this significantly inflated
17 claim (I&E Exhibit No. 2, Schedule 11, pp. 1-4). Additionally, PWSA underspent
18 this expense as compared to the budgeted amount in the last three fiscal years as

1 shown in the table below (I&E Exhibit No. 2, Schedule 1, pp. 1-22):

2

	Budgeted	Actual	Underspent	Variance
2018	\$272,500	\$224,243	\$48,257	18%
2019	\$770,250	\$188,512	\$581,738	76%
2020	\$2,119,392	\$173,305	\$1,946,087	92%

3 I recommend normalizing the FPFTY unplanned additional repairs cost of
4 \$1,566,283 (\$1,761,635 (FPFTY claim) – \$195,352 (Three years’ average of
5 historic actual expenses: \$224,240 (2018) + \$188,512 (2019) + \$173,305 (2020) ÷
6 3)) concerning the water treatment plant over three years. Thus, the normalized
7 expense allowance for unplanned additional repairs is \$522,094 ($\$1,566,283 \div 3$
8 years). Then, I added the normalized unplanned repairs expense of \$522,094 to
9 the normal repairs cost of \$195,352 amounting to the total FPFTY allowance of
10 \$717,446 for building repairs.

11 **Plant Repairs**

12 PWSA claims \$641,700 in the FPFTY, which is a 146.81% increase over the FTY
13 expense claim of \$260,000 and 115.69% over the HTY expense of \$297,515
14 (PWSA filing, FPFTY 2022 Cost of Service and Rate Design, FR-III.1). Per
15 PWSA’s response to I&E-RE-11-D, the increase in the FPFTY expense claim
16 includes an anticipated increase in the number of plant repairs that were deferred⁹
17 in the FTY. However, PWSA did not provide support for the anticipated increase

⁹ Deferred plant repairs connote the FTY delayed or postponed repairs expense, which is included in the FPFTY budget.

1 in plant repairs expense, nor did it provide a breakdown of deferred repairs cost
2 and projected new repairs in the FPFTY (I&E Exhibit No. 2, Schedule 11, pp. 1-
3 4).

4 Therefore, I recommend normalizing the FPFTY delayed repairs cost of
5 \$344,185 (FPFTY claim of \$641,700 – HTY claim of \$297,515) over three years.
6 This results in a normalized expense allowance for the delayed repairs expense of
7 \$114,728 ($\$344,185 \div 3$ years). Then, I added the normalized delayed repairs
8 expense allowance of \$114,728 to the normal plant repairs expense balance of
9 \$297,515, resulting in the total FPFTY allowance of \$412,243 for plant repairs.

10
11 **Q. SUMMARIZE YOUR RECOMMENDATION.**

12 A. Considering the above discussion regarding normalization of delayed repair
13 expenses included in the FPFTY claims, my recommended allowance and
14 adjustment for the total repairs and maintenance expense is summarized in the
15 table below:

16

1. FPFTY total repairs and maintenance expense claim	\$14,818,843
2. Less. FPFTY I&E disputed claim	\$2,403,335
3. FPFTY unadjusted claim (1 – 2)	\$12,415,508
4. I&E allowance for disputed claim	\$1,129,689
5. I&E allowance for total claim (3 + 4)	\$13,545,197
6. I&E adjustment (5- 1)	(\$1,273,646)

1 **LEASE AND RENT EXPENSE**

2 **Q. WHAT IS INCLUDED IN PWSA’S CLAIM FOR LEASE AND RENT**
3 **EXPENSE?**

4 A. PWSA’s claim for lease and rent expense includes equipment rental, office rent,
5 and copier/fax machine lease expenses as shown in the breakdown provided in the
6 filing (PWSA filing, FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

7
8 **Q. WHAT IS PWSA’S CLAIM FOR LEASE AND RENT?**

9 A. PWSA is claiming FPFTY lease and rent expense of \$1,557,194 (PWSA filing,
10 FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

11
12 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

13 A. Per its response to I&E-RE-16-D, PWSA projected an increase in equipment
14 rentals based on anticipated increases in rented equipment. Similarly, the
15 projected increase in office rent is based on an anticipated increase in annual
16 office rent and the proposed renting of an additional new space for the operations
17 (I&E Exhibit No. 2, Schedule 12, p. 1).

18
19 **Q. DO YOU AGREE WITH PWSA’S CLAIM?**

20 A. No.

1 **Q. WHAT DO YOU RECOMMEND FOR LEASE AND RENT?**

2 A. I recommend an allowance of \$1,248,134, or a reduction of \$309,060 (\$1,557,194
3 - \$1,248,134) to the Company's claim for lease and rent expense.
4

5 **Q. DOES YOUR RECOMMENDATION ADJUST ALL SUB-CATEGORIES OF**
6 **LEASE AND RENT EXPENSE?**

7 A. No. I am addressing the significant increase in the FPFTY claim for the office rent
8 expense of \$1,221,960, which is increased by 33.85% over the FTY expense claim
9 of \$912,900 (PWSA filing, FPFTY 2022 Cost of Service and Rate Design, FR-
10 III.1).
11

12 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

13 A. As stated above, PWSA intends to rent an additional space for its operations;
14 therefore, it claimed an increase in its FPFTY office rent claim. However, it
15 appears that as of this date, PWSA has not identified a lease space, square feet
16 area, and the approximate lease rate (I&E Exhibit No. 2, Schedule 12, p. 1).
17 Additionally, in the last rate case, PWSA indicated that it would lease an
18 additional space for its business operations and claimed additional rent expense
19 per its responses to I&E-RE-14-D and I&E-RE-53 (I&E Exhibit No. 2, Schedule
20 10, pp. 1-2 at Docket Nos. R-2020-3017951, R-2020-3017970, and R-2020-
21 3019019).

1 Therefore, to remove the unsupported, estimated/unknown rent expense for
2 additional new office space, I recommend the FTY office rental expense claim of
3 \$912,900 as the FPFTY allowance, which is a reduction of \$309,060 (\$1,221,960 -
4 \$912,900) to PWSA's claim. My recommended allowance for total lease and rent
5 expense is \$1,248,134 (\$912,900 (adjusted office rent expense) \$912,900 +
6 \$335,234 (unadjusted sub-categories of lease and rent expense).

7
8 **PROFESSIONAL SERVICES**

9 **Q. WHAT IS INCLUDED IN PWSA'S CLAIM FOR PROFESSIONAL**
10 **SERVICES?**

11 A. PWSA's claim for professional services includes advertising, billing contract,
12 consultants, miscellaneous services, insurance, legal, meter services, payroll
13 services, professional services – other, etc. (PWSA filing, FPFTY 2022 Cost of
14 Service and Rate Design, FR-III.1).

15
16 **Q. WHAT IS PWSA'S CLAIM FOR PROFESSIONAL SERVICES?**

17 A. PWSA is claiming FPFTY professional services of \$24,781,053 (PWSA filing,
18 FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

19
20 **Q. WHAT IS THE BASIS FOR PWSA'S CLAIM?**

21 A. PWSA projected increases in some of the sub-categories of professional services

1 expense for anticipated increases in the FTY and FPFTY as briefly described in
2 PWSA's response to I&E-RE-17-D (I&E Exhibit No. 2, Schedule 13, pp. 1-4).

3
4 **Q. DO YOU AGREE WITH PWSA'S CLAIM?**

5 A. No.

6
7 **Q. WHAT DO YOU RECOMMEND FOR PROFESSIONAL SERVICES?**

8 A. I recommend an allowance of \$22,963,137 or a reduction of \$1,817,916
9 (\$24,781,053 - \$22,963,137) to professional services.

10
11 **Q. DOES YOUR RECOMMENDATION ADJUST ALL SUB-CATEGORIES OF**
12 **PROFESSIONAL SERVICES EXPENSE?**

13 A. No. I am addressing increases in the FPFTY claims for the following sub-
14 categories of expense as shown in the table below (PWSA filing, FPFTY 2022
15 Cost of Service and Rate Design, FR-III.1):

16

	2018	2019	HTY-2020	FTY-2021	FPFTY-2022
Legal	\$2,894,514	\$2,388,647	\$2,620,392	\$3,376,500	\$3,410,400
Prof. Service - Other	<u>\$5,307,168</u>	<u>\$6,083,922</u>	<u>\$ 6,143,089</u>	<u>\$ 8,876,882</u>	<u>\$ 9,094,297</u>
	<u>\$8,201,682</u>	<u>\$8,472,569</u>	<u>\$8,763,481</u>	<u>\$12,253,382</u>	<u>\$12,504,697</u>

1 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

2 A. The basis for each adjustment is explained below.

3 **Legal**

4 In response to I&E-RE-40-D, PWSA states that legal expenses include
5 government affairs related lobbying expense of \$90,000 for the FTY and the same
6 amount in the FPFTY for McNees and Saxton and Stump (consultant/lobbyist)
7 (I&E Exhibit No. 2, Schedule 13, p. 5). Lobbying expenses are not necessary for
8 the utility to provide safe and reliable service, and therefore, should not be funded
9 by ratepayers. I recommend disallowance of the lobbying expense of \$90,000.
10 Thus, my recommended allowance for the FPFTY legal expense is \$3,320,400
11 (\$3,410,400 - \$90,000).

12 **Professional Services – Other**

13 PWSA significantly increased its FTY claim of \$8,876,882 (a 44.50% increase
14 over the HTY actual expense of \$6,143,089) and further increased the FPFTY
15 claim of \$9,094,297 (a 2.45% increase over the FTY claim). In its response to
16 I&E-RE-17-D(I), PWSA states that the increase from the HTY to FTY includes
17 increases in services, most notably a remote site SCADA upgrade and the increase
18 in expense claim from the FTY to FPFTY includes anticipated increases in
19 services (I&E Exhibit No. 2, Schedule 13, pp. 3-4). However, PWSA did not
20 provide any basis, calculation, breakdown, or supporting documentation for the
21 significant increase in the FTY claim and further increase in the FPFTY claim.
22 Additionally, PWSA underspent this expense as compared to the budgeted amount

1 in the last three fiscal years as shown in the table below (I&E Exhibit No. 2,
2 Schedule 1, pp. 1-22):

3

	Budgeted	Actual	Underspent	Variance
2018	\$7,118,775	\$5,307,167	\$1,811,608	25%
2019	\$10,679,421	\$6,083,922	\$4,595,499	43%
2020	\$7,616,258	\$6,143,089	\$1,473,169	19%

4 In response to I&E-RE-50-D, PWSA provided an Attachment, that demonstrated it
5 did not meet projections for the lower actual expense (I&E Exhibit No. 2,
6 Schedule 1, pp. 1-22). This significant variance between budgeted and actual
7 expense amounts is concerning and creates doubt about the credibility, reliability,
8 and reasonableness of the FTY and FPFTY projected expenses claimed in this
9 case. Further, the referenced SCADA upgrade is possibly of the same nature as
10 the previously discussed equipment costs where this investment will provide
11 multiple years of service that would more appropriately be normalized over the
12 investment's useful life.

13 Therefore, I recommend an adjustment of \$1,727,916 ($\$9,094,297 \times 0.19$),
14 which was determined by applying a reduction of 19% based on the HTY-2020
15 variance between budgeted and actual expense to the FPFTY claim of \$9,094,297.
16 My recommendation to utilize the 19% reduction is a moderated adjustment
17 because the actual average variance over the last three years was 29%. Thus, my

1 recommended allowance of \$7,366,381 (\$9,094,297 - \$1,727,916) will moderate
2 the unsupported and inflated FPFTY claim for professional services-other.

3
4 **Q. SUMMARIZE YOUR RECOMMENDATION FOR PROFESSIONAL**
5 **SERVICES.**

6 A. The following table summarizes my recommended FPFTY allowance and
7 adjustment to professional services expense:

8

1. FPFTY total professional services expense claim	\$24,781,053
2. Less. FPFTY I&E disputed claim	\$12,504,697
3. FPFTY unadjusted claim (1 – 2)	\$12,276,356
4. I&E allowance for disputed claim	\$10,686,781
5. I&E allowance for total claim (3 + 4)	\$22,963,137
6. I&E adjustment (5- 1)	(\$1,817,916)

9
10 **UTILITIES EXPENSE**

11 **Q. WHAT IS INCLUDED IN PWSA’S CLAIM FOR UTILITIES EXPENSE?**

12 A. PWSA’s claim for utilities expense includes electric, natural gas, telephone, and
13 internet services as shown in the breakdown provided in the filing (PWSA filing,
14 FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

1 **Q. WHAT IS PWSA’S CLAIM FOR UTILITIES EXPENSE?**

2 A. PWSA is claiming FPFTY utilities expense of \$5,293,104 (PWSA filing, FPFTY
3 2022 Cost of Service and Rate Design, FR-III.1).

4
5 **Q. WHAT IS THE BASIS FOR PWSA’S CLAIM?**

6 A. Per the response to I&E-RE-20-D, PWSA projects increases in the FTY and
7 FPFTY electric expense including an anticipated increase in a contract extension
8 for PWSA’s current energy providers. This increase also reflects the additional
9 cost of electricity since the Microfiltration Plant is online (I&E Exhibit No. 2,
10 Schedule 14, pp. 1-2). The increases in the FTY and FPFTY natural gas expense
11 include an anticipated increase in cost and usage, most notably at the Water
12 Treatment Plant and Microfiltration Plant (I&E Exhibit No. 2, Schedule 14, pp. 1-
13 2). The projected increases in the FTY and FPFTY cell phone expense are due to
14 an anticipated increase in staffing level and cell phone plan expense (I&E Exhibit
15 No. 2, Schedule 14, pp. 1-2).

16
17 **Q. DO YOU AGREE WITH PWSA’S CLAIM?**

18 A. No.

19
20 **Q. WHAT DO YOU RECOMMEND FOR UTILITIES EXPENSE?**

21 A. I recommend an allowance of \$5,138,656 or a reduction of \$154,448 (\$5,293,104 -
22 \$5,138,656) for utilities expense.

1 **Q. DOES YOUR RECOMMENDATION ADJUST ALL SUB-CATEGORIES OF**
2 **UTILITIES EXPENSE?**

3 A. Yes.

4
5 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

6 A. First, per PWSA's response to I&E-RE-20-D, PWSA has already factored in the
7 FTY budget additional electricity usage for the microfiltration plant and the
8 increase in cost due to the electric contract extension (I&E Exhibit No. 2,
9 Schedule 14, pp. 1-2). Similarly, PWSA has already factored in the FTY budgeted
10 increase in usage and the cost of natural gas. However, in the FPFTY, PWSA
11 budgeted a flat increase of 3.00% in electric and 5.00% increase in natural gas
12 costs, and there is no reasonable detailed basis and support for these increases.

13 PWSA also claimed flat increases in the FPFTY telemeter and telephone
14 expenses of 1.50% and 3.00%. The claim for an increase in cell phone expense is
15 based on the assumption of an anticipated increase in staffing levels, which is not
16 reliable as there is no certainty of securing and maintaining 100% of the budgeted
17 staffing level (as discussed in the payroll expense section above) that would
18 necessitate an increased cell phone expense claim. Additionally, the assumption
19 for an increase in the cell phone and local phone plan expense in the FPFTY is
20 uncertain and unsupported.

1 **Q. SUMMARIZE YOUR RECOMMENDATION.**

2 A. Considering the above discussion, I recommend the FTY claim amount of
3 \$5,138,656 for the FPFTY allowance as shown in the table below:

4

	FPFTY Claim	FPFTY Allowance	Adjustment
Electric	\$4,395,216	\$4,267,200	(\$128,016)
Natural Gas City	\$420,000	\$400,000	(\$20,000)
Phone, telemeter, and internet	<u>\$477,888</u>	<u>\$471,456</u>	<u>(\$6,432)</u>
	<u>\$5,293,104</u>	<u>\$5,138,656</u>	<u>(\$154,448)</u>

5

6 **MISCELLANEOUS ADMINISTRATIVE EXPENSES**

7 **Q. WHAT IS INCLUDED IN PWSA'S CLAIM FOR MISCELLANEOUS**
8 **ADMINISTRATIVE EXPENSES?**

9 A. PWSA's miscellaneous administrative expenses include claims for deductibles,
10 education and outreach, one call, publication subscriptions, and the City's indirect
11 costs as shown in the breakdown provided in the filing (PWSA filing, FPFTY
12 2022 Cost of Service and Rate Design, FR-III.1).

13

14 **Q. WHAT IS PWSA'S CLAIM FOR MISCELLANEOUS ADMINISTRATIVE**
15 **EXPENSES?**

16 A. PWSA is claiming total FPFTY miscellaneous administrative expenses of
17 (\$9,849,487) (total miscellaneous admin. expenses of \$4,576,259 (which includes

1 claims deductibles of \$600,000) - capital assets reclass of \$14,425,746) (PWSA
2 filing, FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

3
4 **Q. ARE YOU ADDRESSING ALL SUB-CATEGORIES OF**
5 **MISCELLANEOUS ADMINISTRATIVE EXPENSES?**

6 A. No. I am addressing the FPFTY claims deductibles expense of \$600,000 included
7 in the total miscellaneous administrative expense of \$4,576,259 (PWSA filing,
8 FPFTY 2022 Cost of Service and Rate Design, FR-III.1).

9
10 **Q. WHAT IS MISCELLANEOUS ADMIN. EXPENSE - CLAIMS**
11 **DEDUCTIBLES EXPENSE?**

12 A. In response to I&E-RE-47-D concerning fines and penalties, PWSA pointed to a
13 response attachment, which shows the budgeted amount of \$600,000 (GL code
14 916-7715) for probable fines and penalties that may be imposed by statutory
15 authorities (I&E Exhibit No. 2, Schedule 15, pp. 1-2). In the 2020 base rate case,
16 PWSA included claim deductibles of \$1,200,000 and explained that this expense
17 item as a legal contingency provision for various known and unknown legal
18 matters that may or may not result in future financial liabilities (PWSA filing,
19 2021 Cost of Service and Rate Design, FR-III.1 at Docket Nos. R-2020-3017951,
20 R-2020-3017970, and R-2020-3019019).

1 **Q. DO YOU AGREE WITH PWSA'S CLAIMS DEDUCTIBLES EXPENSE?**

2 A. No.

3

4 **Q. WHAT DO YOU RECOMMEND?**

5 A. I recommend that the Commission disallow the claim of \$600,000 in its entirety.

6

7 **Q. WHAT IS THE BASIS OF YOUR RECOMMENDATION?**

8 A. As stated above, PWSA's response to I&E-RE-47-D defines fines and penalties as
9 claims deductibles expense claim of \$600,000 (I&E Exhibit No. 2, Schedule 15,
10 pp. 1-2). This expense is dependent or contingent upon the occurrence of
11 unexpected disputes, violations, and litigation outcomes, which are unmeasurable
12 or difficult to estimate and ratepayers should not be required to pay for unknown
13 fines and penalties or for violations of statutory rules and regulations. I am also
14 advised by counsel that any of PWSA's penalties for violation of the law are not
15 properly recoverable from ratepayers; however, I will defer to counsel to address
16 any legal argument in this case in briefing, if necessary. I also note that in contrast
17 to the FPFTY claim amount of \$600,000, PWSA has incurred claims deductibles
18 expense of \$15,000 in 2018; \$108,583 in 2019, and \$39,196 in the HTY (I&E
19 Exhibit No. 2, Schedule 15, pp. 1-2), which shows PWSA has experienced far less
20 actual expense than the FPFTY claim amount of \$600,000.

1 **WINTER SHUTOFF MORATORIUM**

2 **Q. WHAT IS PWSA’S CURRENT WINTER SHUTOFF MORATORIUM?**

3 A. PWSA has a winter shutoff moratorium for all residential customers who qualify
4 under the federal poverty income level of less than or equal to 300% during the
5 winter period December 1 through March 31, which was approved in the 2020
6 base rate proceeding (PWSA Statement No. 6, p. 23).

7

8 **Q. DOES PWSA PROPOSE ANY ENHANCEMENTS TO THE WINTER**
9 **SHUTOFF MORATORIUM?**

10 A. Yes. PWSA is proposing to expand the winter shutoff moratorium to all senior
11 citizens (65+ age) regardless of their income level (PWSA Statement No. 6, p. 27).

12

13 **Q. WHAT IS THE BASIS FOR EXPANDING THE WINTER SHUTOFF**
14 **MORATORIUM TO ALL SENIOR CITIZENS REGARDLESS OF**
15 **INCOME LEVEL?**

16 A. Approximately 14.7% of the population in PWSA’s service territory are 65 years
17 or older (PWSA Statement No. 6, p. 27). PWSA considers this proposal as a step
18 towards ensuring that no senior citizen on a fixed income runs the risk of having
19 their water service shut off in winter months if they fall behind on their
20 water/wastewater bills. PWSA’s proposal is primarily based on a response from
21 some senior citizens via their direct engagement with PWSA.

1 **Q. DO YOU AGREE WITH PWSA’S PROPOSED CHANGE TO THE**
2 **WINTER SHUTOFF MORATORIUM PROGRAM FOR SENIOR**
3 **CITIZENS REGARDLESS OF INCOME LEVEL?**

4 A. No.

5
6 **Q. WHAT IS THE BASIS OF YOUR DISAGREEMENT?**

7 A. First, I am empathetic to the hardships that may be experienced by senior citizens
8 if they are having difficulty paying their bills. However, PWSA does offer a bill
9 discount program and hardship grant program based on federal poverty income
10 level, which are available to all eligible fixed income senior citizens in addition to
11 the winter shutoff moratorium.

12 Second, in its response to I&E-RE-54-D, PWSA states that it did not
13 conduct any studies or surveys in this matter. Rather, it relied on senior citizens
14 who approached PWSA’s Director of Customer Service Julie Quigley during
15 community meetings held by Homewood Concerned Citizens and the Allegheny
16 County Area Agency on Aging, pointing out that there were no protections for
17 them despite the rising cost of living and no equal rise in social security benefits
18 (I&E Exhibit No. 2, Schedule 16, p. 1).

19 Third, PWSA has not conducted any research on the impact of this proposal
20 nor considered any other factors in reaching the determination that using age
21 instead of income level as a basis of qualifying for winter moratorium protection

1 would be appropriate for a jurisdictional regulated utility (I&E Exhibit No. 2,
2 Schedule 16, p. 1).

3 Fourth, PWSA does not currently have an identifier for senior citizens in its
4 Customer Information System that would permit determining the cost impact in
5 the FPFTY due to the enhancement of this program for senior citizens regardless
6 of the income level (I&E Exhibit No. 2, Schedule 16, p. 1).

7
8 **Q. DOES THE COMMISSION HAVE A POLICY OF REQUIRING THAT**
9 **CUSTOMER ASSISTANCE-BASED PROGRAMMING BE TARGETED TO**
10 **LOW INCOME CUSTOMERS?**

11 A. Yes. The Commission's policy statement regarding the scope of customer
12 assistance programs (CAPs) expressly indicates that "CAPs should be targeted to
13 low-income customers."¹⁰ PWSA's age-based winter moratorium proposal
14 directly departs from the Commission's directive, because it depends on age as the
15 determinative qualification for eligibility, with absolutely no regard for the
16 customer's income or ability to pay. This will hurt other customers in the long run
17 who must ultimately pick up the tab for unwarranted uncollectibles expenses.

¹⁰ 52 Pa. Code § 69.264.

1 **Q. ARE THERE OTHER CONCERNS ABOUT PWSA’S AGE-BASED**
2 **WINTER MORATORIUM PROPOSAL?**

3 A. Yes. I am also advised by counsel that PWSA’s age-based eligibility criteria
4 offends Section 1304 of the Public Utility Code’s prohibition against rate
5 discrimination because it would extend rate protection, in the form of protection
6 against termination for non-payment, to customers based on an unreasonable
7 preference or advantage (age, regardless of income or ability to pay). However,
8 because I am not offering a legal opinion, I will leave it to counsel to address the
9 legal arguments in briefs. But as point of helpful comparison, it is likely that
10 many different types of PWSA customers who are not age 65 or older may have
11 bill payment issues. As an example, single parents, students, and customers with
12 chronic illnesses may experience financial hardship that challenges their ability to
13 pay PWSA bills, but PWSA is not proposing special treatment for these
14 individuals. Instead, these customers may find themselves outside of the winter
15 moratorium protection limits, and they may be further burdened by paying
16 additional costs for non-payment troubled customers who are simply, by virtue of
17 their age, offered winter moratorium protection.

1 **Q. DO YOU HAVE ANY OTHER COMMENTS OR CONCERNS ABOUT**
2 **THE PROPOSED CHANGE TO THE WINTER SHUTOFF**
3 **MORATORIUM FOR SENIOR CITIZENS (65+) REGARDLESS OF THE**
4 **INCOME LEVEL?**

5 A. Yes. To the best of my knowledge, no other utilities have received permission to
6 implement a “winter shut off moratorium program for senior citizens (65+)
7 regardless of the income level.” This type of program is inappropriate, because
8 affected senior citizens would already be covered based on availability of coverage
9 via low-income programs.

10

11 **CONCLUSION**

12 **Q. SHOULD YOUR O&M EXPENSE ADJUSTMENTS RECOMMENDED**
13 **HEREIN BE CONSIDERED DETERMINATIVE OF YOUR POSITION IN**
14 **PWSA’S FUTURE PROCEEDINGS?**

15 A. No. My adjustments were based only upon the information that was available in
16 this proceeding. Any other information that may be made available at later time
17 may change I&E’s position in the future, including but not limited to stormwater
18 expenses, that could not be factored into my analysis.

1 **Q. CAN YOU GIVE AN EXAMPLE OF THE INFORMATION THAT IS NOT**
2 **AVAILABLE HERE BUT WHICH MAY IMPACT FUTURE EXPENSE**
3 **ADJUSTMENTS AND RECOMMENDATIONS?**

4 A. Yes. As an example, PWSA witness Igwe in his testimony indicates that PWSA
5 and the City are developing an agreement for stormwater management
6 responsibilities and cost-sharing, but a timeline for the agreement is pending
7 (PWSA Statement No. 7, pp. 20-21). Therefore, I am unable to evaluate any
8 expenses that PWSA may incur through any agreement that is reached, and I&E is
9 unable to determine whether any expenses that PWSA agrees to pay comport with
10 PWSA's obligations as a jurisdictional utility. Although, the information I
11 identified presents just a known example, I&E must always reserve the right to
12 revise its positions when further information becomes available about PWSA's
13 operations and claimed expenses.

1 **Q. PWSA WITNESS QUIGLEY TESTIFIES THAT FOR PWSA'S**
2 **WASTEWATER CONVEYANCE-ONLY CUSTOMERS, PWSA HAS**
3 **AGREEMENTS IN PLACE WITH THE CUSTOMERS' WATER**
4 **PROVIDERS WHEREBY PWSA MAY DIRECT THE WATER COMPANY**
5 **TO TERMINATE WATER SERVICE FOR A FAILURE OF PWSA'S**
6 **WASTEWATER CONVEYANCE CUSTOMERS TO PAY THEIR**
7 **CHARGES (PWSA STATEMENT NO. 6, P. 29). ARE YOU ADDRESSING**
8 **THAT ARRANGEMENT IN THIS PROCEEDING?**

9 A. No. Although, I am advised by counsel that the arrangement Ms. Quigley
10 describes may warrant further investigation, I&E will not address that issue in this
11 proceeding. Instead, I&E has already begun pursuing a resolution of this
12 termination issue through PWSA's ongoing Stage 2 Compliance Plan proceeding
13 related to billing, termination, and customer service issues.¹¹

14
15 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

16 A. Yes.

¹¹ PWSA's Stage 2 Compliance Plan: Chapters 14 and 56, Discontinuance of Service to Leased Premises Act, 66 Pa.C.S. §§ 1521-1533; and collections filed with the Commission on April 9, 2021 (at Docket Nos. M-2018-2640802 (water) and M-2018-2640803 (Wastewater)).

D. C. Patel
Professional and Educational Background

EXPERIENCE:

- Pennsylvania Public Utility Commission, Harrisburg, Pennsylvania
June 2015 to Present
Fixed Utility Financial Analyst, Bureau of Investigation and Enforcement
- Pennsylvania Insurance Department, Harrisburg, Pennsylvania
March 2013 - June 2015
Insurance Company Financial Analyst, Bureau of Company Licensing & Financial Analysis
- Pennsylvania Department of Revenue, Harrisburg, Pennsylvania
November 2010 - March 2013
Accounting Assistant, Bureau of Corporation Taxes (Accounting)
- Hersha Hospitality Management, Harrisburg, Pennsylvania
June 2007 - November 2010
Staff Accountant (Taxes), Accounting Department
- Corporate Experience, India
February 1987 – April 2007
Worked as Company Secretary for three different companies during this period, which were listed on the Stock Exchanges.

EDUCATION/CERTIFICATION:

- Gujarat State University, Ahmedabad, India
-Bachelor of Commerce (Major concentration: Accounting)
June 1980 - April 1983
-Bachelor of Law
June 1983 - December 1988
- The Institute of Company Secretaries of India, New Delhi, India
-Post Graduate Professional Degree: Company Secretary
June 1983 - December 1985

RATE CASE TRAINING:

- Attended 37th Western NARUC Utility Rate School in May 2016

D. C. Patel
Professional and Educational Background

WORKED ON THE FOLLOWING CASES (Testimony not required):

- R-2021-3024349 - Columbia Gas of Pennsylvania, Inc. (1307(f))
- R-2021-3023541 - National Fuel Gas Distribution Corporation (§ 1307(f))
- A-2020-3020178 - PA American Water Co.-Valley Township-Wastewater (1329)
- A-2020-3019859 - PA American Water Co.-Valley Township-Water (1329)
- A-2020-3021460 - PA American Water Co.-Upper Pottsgrove-Wastewater (1329)
- U-2020-3015258 - Pittsburgh Water and Sewer Authority
- R-2020-3019661 - PECO Energy Co. - Gas Operations (1307(f))
- R-2019-3008255 - Columbia Gas of Pennsylvania, Inc. (1307(f))
- R-2018-3001568 - PECO Energy Co. - Gas Operations (1307(f))
- R-2018-3000253 - Columbia Gas of Pennsylvania, Inc. (1307(f))
- A-2017-2629534 - PPL Electric Utilities (Restructuring Plan)
- R-2017-2631441 - Reynolds Water Co.
- R-2017-2602611 - PECO Energy Co. - Gas Operations (1307(f))
- R-2016-2567893 - Andreassi Gas Co.
- R-2016-2525128 - Columbia Water Co. - Marietta Division
- R-2015-2479962 - Corner Water Supply and Service Corporation
- R-2015-2479955 - Allied Utility Services, Inc.
- R-2015-2493905 - Sands, Inc.

SUBMITTED TESTIMONY IN THE FOLLOWING CASES:

- A-2020-3019634 – PA American Water Co. - Royersford Wastewater (1329)
- R-2020-3018921 - PECO Energy Co. - Gas Operations
- R-2020-3017951 et al. - Pittsburgh Water and Sewer Authority
- R-2020-3018993 - Columbia Gas Pennsylvania, Inc. (1307(f))
- R-2019-3008208 - Wellsboro Electric Company
- R-2019-3008212 - Citizens Electric Company of Lewisburg, PA
- A-2019-3008491 - Aqua Pennsylvania Wastewater, Inc.
- R-2018-3006814 - UGI Utilities, Inc. (Gas Division)
- M-2018-2640802 and 2640803 - Pittsburgh Water and Sewer Authority
- R-2018-3002645 and 3002647 - Pittsburgh Water and Sewer Authority
- R-2018-3000834 - Suez Water Pennsylvania, Inc.
- R-2018-2647577 - Columbia Gas of Pennsylvania, Inc.
- R-2017-2595853 - Pennsylvania American Water Co.
- P-2016-2526627 - PPL Electric Utilities Corp. (DSP IV)
- R-2016-2529660 - Columbia Gas of Pennsylvania, Inc.
- R-2016-2554150 - City of DuBois - Bureau of Water
- R-2016-2580030 - UGI Penn Natural Gas, Inc.

**I&E Exhibit No. 2
Witness: D. C. Patel**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Exhibit to Accompany

the

Direct Testimony

of

D. C. Patel

Bureau of Investigation & Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

- I&E-RE-50-D** Reference PWSA Volume I, FR-III.1 and the 2021 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning the operating expenses by account. Provide the following:
- A. Comparative statement of budgeted expenses by fiscal year 2018, 2019, and 2020 as presented in the last rate case filing and the actual expense incurred in side-by-side columns for each year by line item of expense in similar schedule as provided in FR-III.1 with an explanation for variance in each expense item exceeding 10%.
 - B. Information in response to Part A above in Excel spreadsheet with formulas intact.

Response:

A. and B. See Attachment I&E-RE-50-D.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

The Pittsburgh Water and Sewer Authority
2018, 2019, and 2020 Budget to Actual Variances

I&E-RE-50-D
Attachment

GL #	GL Description	BUDGET	ACTUAL	\$	%
		2020	2020		
		TOTAL	TOTAL	VARIANCE	VARIANCE
4001	Salary.Wages	23,011,520	18,617,022	4,394,498	19%
4005	OT Premium Pay	1,209,668	1,571,406	(361,738)	-30%
4010	Shift Differential	10,027	7,028	2,999	30%
4015	Semi Skill	8,636	2,741	5,895	68%
4020	Pay Adjustments	-	-	-	0%
4025	Bonus	2,907	-	2,907	100%
4030	Holiday Pay	906,442	915,618	(9,176)	-1%
4035	Vacation Pay	1,335,963	1,279,163	56,801	4%
4040	Other	3,186	-	3,186	100%
4045	Sick Pay	33,161	27,431	5,730	17%
4050	Personal Time Pay	695,087	630,179	64,908	9%
4055	Comp Time Taken	10,994	-	10,994	100%
4060	Comp Time Earned	-	-	-	0%
4065	Jury Duty	2,036	819	1,217	60%
4070	Military Leave	3,519	792	2,727	77%
4075	Supper Pay	32,488	20,104	12,384	38%
4080	Bereavement	26,403	24,901	1,502	6%
4081	Paid Parental Leave	3,433	17,939	(14,506)	-423%
4085	Special	81,217	76,630	4,587	6%
4090	Admin Leave	316	955,265	(954,949)	-302444%
4095	Severence	-	3,600	(3,600)	-100%
	Total Wages & Salaries	27,377,002	24,150,639	3,226,364	12%
4110	Fed Ins Contr Act Tx	1,512,575	1,453,301	59,274	4%
4115	Medicare	336,783	346,428	(9,645)	-3%
4120	Fed Unemploy Tax	-	-	-	0%
4125	State Unemploy Tax	50,000	10,670	39,330	79%
4130	Workers Comp Insur	-	-	-	0%
4135	Med Health Ins	4,201,263	4,210,424	(9,161)	0%
4140	Med Hlth Ins Waiver	78,368	72,359	6,009	8%
4145	Short Term Disability	169,260	226,692	(57,432)	-34%
4150	Long Term Disability	55,870	27,775	28,096	50%
4155	Life Ins <50k	41,688	38,413	3,275	8%
4160	Accident.Death.Dismember	5,930	5,171	758	13%
4165	Dental Ins	147,859	151,738	(3,879)	-3%
4170	Vision Insur	17,034	15,287	1,747	10%
4174	Cust Serv Week	12,075	-	12,075	100%
4175	Uniforms	223,227	155,684	67,543	30%
4180	Tuition Reimburse	223,289	64,196	159,094	71%
4185	Retirement Benefit	875	95,076	(94,201)	-10769%
4195	Misc Benefits	(35,916)	(23,442)	(12,474)	35%
4199	Payroll Upload Except	2,886	(1,385)	4,270	148%

Total Employee Benefits	7,043,067	6,848,387	194,679	3%
TOTAL SALARIES & BENEFITS	34,420,069	30,999,026	3,421,043	10%
5005 Alum	177,912	262,617	(84,705)	-48%
5010 Boiler Chemicals	13,104	37,852	(24,748)	-189%
5015 Calcium Hypochlorite	12,940	17,000	(4,060)	-31%
5020 Cat Flocc TL	124,126	88,779	35,346	28%
5025 Caustic Soda	249,600	3,978	245,622	98%
5030 Chlorine Cylinders	-	-	-	0%
5035 Chlorine Rail Car	-	-	-	0%
5040 Citric Acid	39,245	9,920	29,325	75%
5045 Copper Sulphate	-	-	-	0%
5050 Ferric Chloride	1,845,000	1,504,817	340,183	18%
5055 Hydrofluorosilicic Acid	165,132	150,933	14,199	9%
5060 Lime	1,080,000	529,609	550,391	51%
5065 Potassium Permanganate	480,480	125,776	354,704	74%
5070 Powdered Active Carbon	1,000,200	-	1,000,200	100%
5075 Soda Ash	979,200	732,716	246,484	25%
5080 Sodium Hypochlorite	619,200	445,308	173,892	28%
5085 Sodium Carbonate Peroxyhy	27,600	16,480	11,120	40%
Chemicals	6,813,739	3,925,786	2,887,953	42%
5120 Computer & Peripherals	351,034	337,329	13,705	4%
5125 Computers.Networking	55,800	3,860	51,940	93%
5140 Furniture.Fixture	108,402	140,096	(31,694)	-29%
5145 Grounds.Maint	134,700	143,863	(9,163)	-7%
5147 Lab Equip	216,830	96,553	120,277	55%
5150 Machinery	825,300	173,961	651,339	79%
5160 Office Equipment	38,200	37,070	1,130	3%
5190 Vehicles	-	577	(577)	-100%
Equipment	1,730,266	933,309	796,957	46%
5205 Asphalt Cold Patch	166,478	85,097	81,380	49%
5210 Asphalt Cold-City	-	-	-	0%
5215 Asphalt Hot-City	-	-	-	0%
5220 Asphalt Hotmix	12,600	-	12,600	0%
5225 Asphalt Patch Bit Sealer	-	-	-	0%
5227 Brick	2,000	402	1,599	80%
5230 Cement Bagged	4,362	811	3,550	81%
5235 Gravel	21,314	-	21,314	100%
5240 Iron Steel Brass	17,400	205	17,195	99%
5245 Lumber	28,000	26,047	1,953	7%
5250 Sand	12,000	2,658	9,342	78%
5255 Slag	378,000	338,716	39,284	10%
5260 Stone	-	-	-	0%
5265 Top Soil	12,416	1,871	10,545	85%
Materials	654,570	455,807	198,762	30%
5305 Annual Sewer Contract	4,325,000	8,056,519	(3,731,519)	-86%
5310 Boiler Compressor Elevtr	-	-	-	0%
5315 CB Cleaning	600,000	752,218	(152,218)	-25%

5316 CB Repairs	-	-	-	0%
5328 Curb Box Repair	120,000	-	120,000	100%
5330 Debris Removal	240,000	302,860	(62,860)	-26%
5335 Drag Bucket	-	-	-	0%
5340 Dumpster	28,800	46,827	(18,027)	-63%
5341 Vactor Debris Remove Cont	112,000	154,930	(42,930)	-38%
5342 Emergency WaterLine Repair	3,066,917	5,365,542	(2,298,626)	-75%
5345 Inspection	-	(34,374)	34,374	-100%
5347 Inspection.Field	1,598,917	1,424,101	174,816	11%
5350 Key.Lock Serv	1,300	1,230	70	5%
5355 Landscape (Grounds)	162,000	118,865	43,135	27%
5360 Meters	-	-	-	0%
5370 Operating Contract.Other	8,642,500	5,296,671	3,345,829	39%
5375 Radionuclides	-	-	-	0%
5380 Intr-Gov Proj Panther Hollow	-	-	-	0%
5383 Sewage Treatment	-	-	-	0%
5385 Temporary Help	-	-	-	0%
5390 Welding	2,000	15,500	(13,500)	-675%
5395 Water Relay.DISC	-	-	-	0%
5396 Sewer Relay.DISC	-	-	-	0%
Operating Contracts	18,899,433	21,500,889	(2,601,455)	-14%
5402 Annual Software Support	1,366,524	1,424,283	(57,759)	-4%
5405 Bldg.Property Repairs	2,119,392	173,305	1,946,087	92%
5408 Computer Hardware	67,738	43,050	24,688	36%
5411 Computer Software Support	6,000	48,050	(42,050)	-701%
5413 Concrete Repairs	7,334,000	5,248,496	2,085,504	28%
5415 Cranes Repairs	65,000	40,971	24,029	37%
5417 Electrical Repairs	62,500	175,886	(113,386)	-181%
5420 Fence Repairs	136,000	42,175	93,825	69%
5422 Fence Installation	30,000	13,309	16,691	56%
5427 GIS Hardware.Software	5,700	3,068	2,632	46%
5432 Hardware Repairs	-	-	-	0%
5437 Heavy Equip Repair	20,000	32,326	(12,326)	-62%
5439 HVAC.Plumbing	63,000	157,489	(94,489)	-150%
5444 Hydrant. A Section	-	-	-	0%
5445 Hydrant Misc Parts	-	-	-	0%
5447 Hydrant Repair Parts	-	-	-	0%
5452 Machinery Repairs	64,000	43,085	20,915	33%
5457 Office Equip Repairs	2,000	1,156	844	42%
5462 Plant Repairs	171,200	297,515	(126,315)	-74%
5467 Power Tool Repairs	5,000	1,736	3,264	65%
5472 Road Repair.Plant	-	-	-	0%
5475 Scanner	-	-	-	0%
5482 Tool Repairs	4,000	983	3,017	75%
5484 Hand Tool Repairs	4,400	1,475	2,925	66%
5486 Misc Tool Repairs	2,000	779	1,221	61%
5488 CC TV Repairs	60,000	25,493	34,507	58%

5490	Vactor Repairs	12,000	17,358	(5,358)	-45%
5491	Vehicle Repairs	660,000	890,330	(230,330)	-35%
5496	Repair.Maint Other	107,408	108,291	(883)	-1%
	Repairs & Maintenance	12,367,862	8,790,610	3,577,253	29%
5570	Testing Misc	654,300	448,212	206,088	31%
	Misc. Operating	654,300	448,212	206,088	31%
6015	Casting Manhole.CBasin	154,569	33,882	120,687	78%
6025	Casting Risers.Lids	170,193	8,481	161,712	95%
6035	Casting Sewer Inlet	6,234	15,068	(8,834)	-100%
6060	Casting Water Valve Box	422,873	130,605	292,268	69%
	Inventory - Castings	753,870	188,036	565,833	75%
6115	Clarifier Part Floc	-	-	-	0%
6120	Clarifier Part Screw	-	-	-	0%
6125	Clarifier Part Sludge	-	-	-	0%
	Inventory - Clarifier	-	-	-	0%
6200	Inventory-Equip	-	-	-	0%
6220	Fire Extinguishers	4,200	-	4,200	100%
6245	Materials.Handling	2,500	2,475	25	1%
6260	Safety Equipment	108,600	62,634	45,966	42%
6280	Vacuum Chlorinators	-	-	-	0%
	Inventory - Equipment	115,300	65,109	50,191	44%
6300	Inventory-Hardware	15,300	11,554	3,746	24%
6315	Fittings	186,000	135,925	50,075	27%
6320	Hardware Other	2,000	-	2,000	100%
6325	Hose.Fitting	14,400	8,331	6,069	42%
6330	Keys & Locks	-	-	-	0%
6335	Lights	7,900	4,180	3,720	47%
6340	Machinery Misc	4,000	10,015	(6,015)	-150%
6345	Meters	-	10,825	(10,825)	-100%
6350	Plumbing Inv Exp	108,000	10,945	97,055	90%
6355	Power Tool Inv Exp	10,000	9,265	735	7%
6360	Tools Inv Exp	77,000	125,316	(48,316)	-63%
6365	Hand Tools Inv Exp	12,000	-	12,000	100%
	Inventory - Hardware	436,600	326,356	110,244	25%
6420	Backhoe	2,500	556	1,944	78%
	Inventory - Heavy Equipment	2,500	556	1,944	78%
6500	Inventory-Misc	24,000	18,516	5,484	23%
6506	Batteries	2,400	596	1,804	75%
6515	Cleaning	16,950	14,283	2,667	16%
6518	Concrete Accessories	2,900	-	2,900	100%
6520	Copier Paper	3,750	-	3,750	100%
6525	Filters	600	-	600	100%
6526	Filters HVAC	1,800	-	1,800	100%
6530	FirstAid	16,550	1,883	14,667	89%
6540	Lamps	-	-	-	0%
6544	Lubricating Oil	6,600	10,676	(4,076)	-62%
6548	Paint Oils Putty Glass	11,200	4,818	6,382	57%

6552 Paper Products	2,400	-	2,400	100%
6555 Pump Oil	-	-	-	0%
6565 Sewer Matls.Supplies	-	143	(143)	-100%
6570 Testing Dyes	1,200	5,364	(4,164)	-347%
6580 Vehicle Oil	-	1,588	(1,588)	-100%
6585 Welding Supplies-Inventory	500	-	500	100%
Inventory - Miscellaneous	90,850	57,866	32,984	36%
6645 Parts Other	86,000	36,631	49,369	57%
6680 Yard	3,000	136,439	(133,439)	-100%
Inventory - Parts	89,000	173,070	(84,070)	-94%
6705 Pipe	-	4,452	(4,452)	-100%
6710 Pipe Ductile	55,000	523,557	(468,557)	-852%
6755 Pipe Plastic	9,000	2,909	6,091	68%
6765 Pipe Service Line	8,000	10,934	(2,934)	-37%
Inventory - Pipe	72,000	541,853	(469,853)	-653%
6805 Valves <12in	22,000	-	22,000	100%
6810 Valves >16in	100,000	-	100,000	100%
6820 Valves GA	-	-	-	0%
6825 Valves Misc	117,400	96,029	21,371	18%
Inventory - Valves	239,400	96,029	143,371	60%
INVENTORY TOTAL	1,799,520	1,448,874	350,645	19%
DIRECT OPERATING TOTAL	53,118,571	48,314,085	4,804,486	9%
7003 Bank Fees	300,000	269,922	30,078	10%
7005 Certification Fees	36,465	2,759	33,706	92%
7010 Membership Fees	122,557	98,652	23,905	20%
7015 Permits	725,475	757,270	(31,795)	-4%
7020 Registration Fees	550	1,587	(1,037)	-188%
7030 Licenses	17,632	825	16,807	95%
7035 Customer CC Fees	367,400	518,324	(150,924)	-41%
Total Fees	1,570,079	1,649,339	(79,259)	-5%
7105 Freight.Hauling	-	-	-	0%
7110 Freight.Shipping	26,810	40,208	(13,398)	-50%
7115 Postage	251,700	330,345	(78,645)	-31%
Total Freight and Postage	278,510	370,553	(92,043)	-33%
7210 Copier.Fax Machine	90,649	84,898	5,751	6%
7215 Equip Rental	132,594	191,672	(59,078)	-45%
7255 Office Rent	871,896	971,698	(99,802)	-11%
7260 Pagers	-	-	-	0%
7265 RadioLease(City)	-	-	-	0%
Total Leases & Rents	1,095,139	1,248,268	(153,129)	-14%
7305 Advertising	82,000	13,754	68,246	83%
7306 Annual Report	15,000	-	15,000	100%
7307 Advertising - Marketing	-	-	-	0%
7310 Annual Audit	49,500	48,613	887	2%
7315 Billing Contract	600,000	408,853	191,147	32%
7321 Coll Agency.Sewage	-	-	-	0%
7323 Consultants	2,142,817	2,298,014	(155,197)	-7%

7325 Consumer Confidence Rpt	3,500	1,476	2,024	58%
7328 Contingencies	39,500	134,585	(95,085)	-241%
7332 Consulting Engineers	50,000	69,487	(19,487)	-39%
7335 Misc Serv.NonCapital	4,840,174	3,565,869	1,274,306	26%
7345 Ins.Auto	109,411	128,253	(18,842)	-17%
7348 Ins.Commercial Prop	233,828	255,350	(21,522)	-9%
7353 Ins.Gen Liability	22,502	22,500	2	0%
7359 Ins.Officers.Director	76,019	77,306	(1,287)	-2%
7365 Ins.WorkersComp	409,284	480,217	(70,933)	-17%
7366 Ins.WorkersComp.City	32,000	33,352	(1,352)	-4%
7368 Internet Connection.Serv	-	1,568	(1,568)	-100%
7370 Legal	2,520,000	2,620,392	(100,392)	-4%
7371 Legal Self Ins	-	-	-	0%
7373 Minority.Women Bus Enter	-	-	-	0%
7375 Meter Services	800,000	788,812	11,188	1%
7382 Payroll Services	194,537	125,460	69,077	36%
7383 Prof Service.Other	7,616,258	6,143,089	1,473,169	19%
7389 Trust Admin	53,685	77,385	(23,700)	-44%
7390 Water Liens	-	30,000	(30,000)	-100%
Total Professional Services	19,890,014	17,324,335	2,565,679	13%
7405 Computer Software Supplies	15,000	68,804	(53,804)	-359%
7422 Fuel-Gasses	427,200	351,684	75,516	18%
7423 Fuel Kerosene	800	1,212	(412)	-52%
7424 Fuel Propane	13,000	1,066	11,934	92%
7435 GIS Plotter.Xerox	5,200	-	5,200	100%
7440 Grounds & Maint Supp	147,000	504,239	(357,239)	-243%
7443 ICE	-	-	-	0%
7445 Lab Chemicals	12,000	2,673	9,327	78%
7447 Lab Supplies	84,000	69,045	14,955	18%
7450 Office Supplies	114,960	41,414	73,546	64%
7490 Welding Supplies	700	20,209	(19,509)	-2787%
Total Supplies	819,860	1,060,346	(240,486)	-29%
7505 TE.Airfare	22,850	13,192	9,658	42%
7510 TE.Auto Rentals	1,550	-	1,550	100%
7520 TE.Fuel	3,200	-	3,200	100%
7540 TE.Lodging	43,025	5,944	37,081	86%
7545 TE.Meals	10,930	613	10,318	94%
7550 TE.Mileage	7,207	63	7,144	99%
7555 TE.SeminarsConferences	47,150	379	46,771	99%
7560 TE.Training	145,647	23,132	122,515	84%
7575 TE.Travel Misc	10,315	30,206	(19,891)	-193%
7590 TE.Travel Purch Orders	-	-	-	0%
Total Travel & Entertainment	291,874	73,528	218,346	75%
7605 Electric	4,620,000	3,784,526	835,474	18%
7650 Natural Gas.City	425,000	314,785	110,215	26%
7675 Telemeter	60,000	110,655	(50,655)	-84%
7680 Cellular Phone	236,856	144,037	92,819	39%

7681 Local Phones	160,687	151,083	9,604	6%
7682 Long Distance	990	182	808	82%
7683 Internet	51,101	39,490	11,611	23%
Total Utilities	5,554,634	4,544,758	1,009,876	18%
7705 Bad Debt	-	-	-	0%
7710 Capital Asset Reclass	(2,895,865)	(5,917,956)	3,022,091	-104%
7711 DISC Asset Reclass	-	-	-	0%
7712 Cash Discount Taken	-	(680)	680	-100%
7715 Claims.Deductibles	900,000	556,304	343,696	38%
7720 Customer Refund.CSM	-	-	-	0%
7721 Customer Refund. AP	480,000	494,192	(14,192)	-3%
7730 Fines.Penalties	20,000	24,455	(4,455)	-22%
7735 LienBuyBkExp	-	-	-	0%
7742 Education & Outreach	150,000	71,710	78,290	52%
7743 Employee Fund	-	-	-	0%
7750 Inv.Adjustments	25,000	-	25,000	100%
7760 Misc Gen.Admin Exp	-	19,701	(19,701)	-100%
7765 One Call	30,000	18,186	11,814	39%
7770 Publication.Subscription	18,050	14,089	3,961	22%
7787 3rd Pty LW Exp	-	-	-	0%
7789 3rd Pty Sew Trt Exp	-	-	-	0%
7799 Grants Awarded by PWSA	-	-	-	0%
Total Miscellaneous Admin	(1,272,815)	(4,719,997)	3,447,182	-271%
TOTAL ADMINISTRATIVE	28,227,295	21,551,129	6,676,166	24%
8005 City Indirect Costs	4,015,531	4,049,473	(33,942)	-1%
8070 Sewer Direct	-	-	-	0%
8071 Sewer Indirect	-	-	-	0%
Total City Subsidy	4,015,531	4,049,473	(33,942)	0%
8180 Non.City Water Reimburse	-	435,952	(435,952)	-100%
Total Non-City Subsidy	-	435,952	(435,952)	0%
8225 Depr Non.Utility	-	-	-	0%
8230 Depr Utility	-	-	-	0%
Total Depreciation	-	-	-	0%
8305 Amort Debt Discount	-	-	-	0%
8320 Int Exp.Cust Sec Deposit	-	-	-	0%
8335 Int Exp.LT Debt	-	-	-	0%
8340 Int Exp.Swap Fees	-	-	-	0%
8341 Int Exp.LiquidityFee	-	-	-	0%
8342 Int Exp.ReMktgFee	-	-	-	0%
8343 RatingFee	-	-	-	0%
8345 Int Exp.Swap Pmt.Rcpt	-	-	-	0%
8355 Int Exp.PV Loans	-	-	-	0%
8360 Revolver Interest	-	-	-	0%
Total Interest	-	-	-	0%
OTHER EXPENSES TOTAL	-	-	-	0%
GRAND TOTAL	109,582,585	94,539,067	15,043,518	14%

GL #	GL Description	BUDGET	ACTUAL	\$	%
		2019	2019		
		TOTAL	TOTAL	VARIANCE	VARIANCE
4001	Salary.Wages	21,469,270	17,415,267	4,054,003	19%
4005	OT Premium Pay	1,400,294	2,001,622	(601,328)	-43%
4010	Shift Differential	12,439	6,905	5,534	44%
4015	Semi Skill	10,136	6,471	3,665	36%
4020	Pay Adjustments	-	54	(54)	-100%
4025	Bonus	-	-	-	0%
4030	Holiday Pay	930,903	827,894	103,008	11%
4035	Vacation Pay	1,688,919	1,195,648	493,271	29%
4040	Other	12,615	12,078	536	4%
4045	Sick Pay	94,097	10,748	83,349	89%
4050	Personal Time Pay	858,328	614,118	244,210	28%
4055	Comp Time Taken	6,670	4,299	2,371	36%
4060	Comp Time Earned	-	-	-	0%
4065	Jury Duty	3,783	6,563	(2,780)	-74%
4070	Military Leave	1,123	2,885	(1,761)	-157%
4075	Supper Pay	32,008	32,622	(615)	-2%
4080	Bereavement	35,301	35,151	150	0%
4081	Paid Parental Leave	-	16,600	(16,600)	-100%
4085	Special	87,856	72,484	15,372	17%
4090	Admin Leave	-	445	(445)	-100%
4095	Severence	-	-	-	0%
	Total Wages & Salaries	26,643,741	22,261,855	4,381,886	16%
4110	Fed Ins Contr Act Tx	1,652,540	1,343,682	308,858	19%
4115	Medicare	386,481	319,884	66,596	17%
4120	Fed Unemploy Tax	3	(1)	4	127%
4125	State Unemploy Tax	120,000	8,846	111,154	93%
4130	Workers Comp Insur	400,000	305,362	94,638	24%
4135	Med Health Ins	5,363,105	3,962,528	1,400,577	26%
4140	Med Hlth Ins Waiver	55,010	84,134	(29,123)	-53%
4145	Short Term Disability	306,404	176,312	130,092	42%
4150	Long Term Disability	55,808	29,239	26,570	48%
4155	Life Ins <50k	49,995	33,383	16,612	33%
4160	Accident.Death.Dismember	6,031	4,712	1,319	22%
4165	Dental Ins	236,349	146,766	89,584	38%
4170	Vision Insur	19,332	12,658	6,674	35%
4174	Cust Serv Week	2,000	1,195	805	40%
4175	Uniforms	229,831	209,599	20,232	9%
4180	Tuition Reimburse	175,240	104,366	70,874	40%
4185	Retirement Benefit	-	-	-	0%
4195	Misc Benefits	(53,035)	(22,632)	(30,403)	57%
4199	Payroll Upload Except	(3,931)	(21)	(3,910)	99%
	Total Employee Benefits	9,001,163	6,720,012	2,281,152	25%

TOTAL SALARIES & BENEFITS	35,644,904	28,981,866	6,663,038	19%
5005 Alum	730,000	211,788	518,212	71%
5010 Boiler Chemicals	11,897	25,983	(14,086)	-118%
5015 Calcium Hypochlorite	14,112	-	14,112	100%
5020 Cat Flocc TL	106,203	108,736	(2,533)	-2%
5025 Caustic Soda	907,200	225,780	681,420	75%
5030 Chlorine Cylinders	-	-	-	0%
5035 Chlorine Rail Car	-	-	-	0%
5040 Citric Acid	15,227	-	15,227	100%
5045 Copper Sulphate	-	-	-	0%
5050 Ferric Chloride	1,797,296	1,823,669	(26,374)	-1%
5055 Hydrofluorosilicic Acid	173,904	140,479	33,425	19%
5060 Lime	302,400	462,458	(160,058)	-53%
5065 Potassium Permanganate	378,378	247,338	131,040	35%
5070 Powdered Active Carbon	278,565	-	278,565	100%
5075 Soda Ash	1,297,823	820,686	477,137	37%
5080 Sodium Hypochlorite	433,619	433,004	614	0%
5085 Sodium Carbonate Peroxyhy	26,712	-	26,712	100%
Chemicals	6,473,336	4,499,921	1,973,415	30%
5120 Computer & Peripherals	577,494	688,714	(111,220)	-19%
5125 Computers.Networking	100,000	20,577	79,423	79%
5140 Furniture.Fixture	70,000	82,981	(12,981)	-19%
5145 Grounds.Maint	-	67,378	(67,378)	-100%
5147 Lab Equip	329,441	150,360	179,081	54%
5150 Machinery	674,140	2,543,899	(1,869,759)	-277%
5160 Office Equipment	5,000	4,930	70	1%
5190 Vehicles	2,267,000	2,341,473	(74,473)	-3%
Equipment	4,023,075	5,900,312	(1,877,237)	-47%
5205 Asphalt Cold Patch	99,673	88,631	11,042	11%
5210 Asphalt Cold-City	-	-	-	0%
5215 Asphalt Hot-City	-	-	-	0%
5220 Asphalt Hotmix	-	-	-	0%
5225 Asphalt Patch Bit Sealer	-	-	-	0%
5227 Brick	1,000	543	457	46%
5230 Cement Bagged	6,000	1,243	4,757	79%
5235 Gravel	10,500	-	10,500	100%
5240 Iron Steel Brass	36,000	7,047	28,953	80%
5245 Lumber	26,000	21,886	4,114	16%
5250 Sand	24,600	9,971	14,629	59%
5255 Slag	552,000	383,089	168,911	31%
5260 Stone	-	8,142	(8,142)	-100%
5265 Top Soil	2,500	3,450	(950)	-38%
Materials	758,273	524,002	234,271	31%
5305 Annual Sewer Contract	2,499,996	6,631,750	(4,131,754)	-165%
5310 Boiler Compressr Elevtr	-	17,963	(17,963)	-100%
5315 CB Cleaning	1,320,000	732,709	587,291	44%
5316 CB Repairs	-	48,514	(48,514)	-100%

5328 Curb Box Repair	-	-	-	0%
5330 Debris Removal	470,000	271,258	198,742	42%
5335 Drag Bucket	-	-	-	0%
5340 Dumpster	23,400	37,574	(14,174)	-61%
5341 Vactor Debris Remove Cont	109,600	111,326	(1,726)	-2%
5342 Emergency WaterLine Repair	2,499,996	5,777,901	(3,277,905)	-131%
5345 Inspection	10,000	1,117,628	(1,107,628)	-11076%
5347 Inspection.Field	2,562,000	698,229	1,863,771	73%
5350 Key.Lock Serv	1,400	11	1,389	99%
5355 Landscape (Grounds)	300,008	90,869	209,139	70%
5360 Meters	-	-	-	0%
5370 Operating Contract.Other	6,908,291	1,816,157	5,092,134	74%
5375 Radionuclides	-	-	-	0%
5380 Intr-Gov Proj Panther Hollow	-	-	-	0%
5383 Sewage Treatment	-	-	-	0%
5385 Temporary Help	15,000	206	14,794	99%
5390 Welding	5,000	360	4,640	93%
5395 Water Relay.DISC	-	-	-	0%
5396 Sewer Relay.DISC	-	-	-	0%
Operating Contracts	16,724,691	17,352,454	(627,763)	-4%
5402 Annual Software Support	1,576,947	916,955	659,992	42%
5405 Bldg.Property Repairs	770,250	188,512	581,738	76%
5408 Computer Hardware	100,360	17,862	82,498	82%
5411 Computer Software Support	7,500	-	7,500	100%
5413 Concrete Repairs	5,250,000	6,318,850	(1,068,850)	-20%
5415 Cranes Repairs	45,000	18,029	26,971	60%
5417 Electrical Repairs	150,000	269,525	(119,525)	-80%
5420 Fence Repairs	58,000	2,914	55,086	95%
5422 Fence Installation	-	1,966	(1,966)	-100%
5427 GIS Hardware.Software	32,000	151,652	(119,652)	-374%
5432 Hardware Repairs	-	-	-	0%
5437 Heavy Equip Repair	-	38,853	(38,853)	-100%
5439 HVAC.Plumbing	64,000	64,111	(111)	0%
5444 Hydrant. A Section	-	-	-	0%
5445 Hydrant Misc Parts	-	-	-	0%
5447 Hydrant Repair Parts	-	-	-	0%
5452 Machinery Repairs	172,000	60,591	111,409	65%
5457 Office Equip Repairs	1,600	100	1,501	94%
5462 Plant Repairs	-	136,910	(136,910)	-100%
5467 Power Tool Repairs	3,000	5,948	(2,948)	-98%
5472 Road Repair.Plant	8,000	-	8,000	100%
5475 Scanner	-	-	-	0%
5482 Tool Repairs	39,125	3,269	35,856	92%
5484 Hand Tool Repairs	4,200	1,688	2,512	60%
5486 Misc Tool Repairs	3,900	467	3,433	88%
5488 CC TV Repairs	40,000	223,473	(183,473)	-459%
5490 Vactor Repairs	47,000	13,409	33,591	71%

5491 Vehicle Repairs	124,200	22,476	101,724	82%
5496 Repair.Maint Other	297,100	618,629	(321,529)	-108%
Repairs & Maintenance	8,794,182	9,076,188	(282,006)	-3%
5570 Testing Misc	2,030,004	1,025,998	1,004,006	49%
Misc. Operating	2,030,004	1,025,998	1,004,006	49%
6015 Casting Manhole.CBasin	193,537	151,212	42,324	22%
6025 Casting Risers.Lids	98,533	15,707	82,827	84%
6035 Casting Sewer Inlet	-	3,220	(3,220)	-100%
6060 Casting Water Valve Box	350,000	49,426	300,574	86%
Inventory - Castings	642,070	219,564	422,505	66%
6115 Clarifier Part Floc	-	-	-	0%
6120 Clarifier Part Screw	-	-	-	0%
6125 Clarifier Part Sludge	-	-	-	0%
Inventory - Clarifier	-	-	-	0%
6200 Inventory-Equip	1,000	2	998	100%
6220 Fire Extinguishers	1,610	-	1,610	100%
6245 Materials.Handling	600	-	600	100%
6260 Safety Equipment	73,500	122,056	(48,556)	-66%
6280 Vacuum Chlorinators	-	-	-	0%
Inventory - Equipment	76,710	122,057	(45,347)	-59%
6300 Inventory-Hardware	4,200	26,108	(21,908)	-522%
6315 Fittings	243,000	508,483	(265,483)	-109%
6320 Hardware Other	54,000	2,897	51,103	95%
6325 Hose.Fitting	21,000	20,070	930	4%
6330 Keys & Locks	1,840	-	1,840	100%
6335 Lights	5,600	9,278	(3,678)	-66%
6340 Machinery Misc	30,000	-	30,000	100%
6345 Meters	-	39,919	(39,919)	-100%
6350 Plumbing Inv Exp	87,000	95,193	(8,193)	-9%
6355 Power Tool Inv Exp	12,800	-	12,800	100%
6360 Tools Inv Exp	57,600	185,626	(128,026)	-222%
6365 Hand Tools Inv Exp	2,500	-	2,500	100%
Inventory - Hardware	519,540	887,573	(368,033)	-71%
6420 Backhoe	1,500	3,861	(2,361)	-157%
Inventory - Heavy Equipment	1,500	3,861	(2,361)	-157%
6500 Inventory-Misc	36,000	29,421	6,579	18%
6506 Batteries	8,600	210	8,390	98%
6515 Cleaning	37,200	59,968	(22,768)	-61%
6518 Concrete Accessories	6,600	-	6,600	100%
6520 Copier Paper	1,500	-	1,500	100%
6525 Filters	26,000	193	25,807	99%
6526 Filters HVAC	800	-	800	100%
6530 FirstAid	1,565	14,526	(12,961)	-828%
6540 Lamps	-	-	-	0%
6544 Lubricating Oil	5,400	20,102	(14,702)	-272%
6548 Paint Oils Putty Glass	18,300	11,533	6,767	37%
6552 Paper Products	-	-	-	0%

6555 Pump Oil	-	-	-	0%
6565 Sewer Matls.Supplies	6,000	1,594	4,406	73%
6570 Testing Dyes	6,400	2,023	4,377	68%
6580 Vehicle Oil	-	-	-	0%
6585 Welding Supplies-Inventory	1,000	562	438	44%
Inventory - Miscellaneous	155,365	140,133	15,232	10%
6645 Parts Other	132,000	136,633	(4,633)	-4%
6680 Yard	-	33,567	(33,567)	-100%
Inventory - Parts	132,000	170,199	(38,199)	-29%
6705 Pipe	-	1,904	(1,904)	-100%
6710 Pipe Ductile	120,000	237,339	(117,339)	-98%
6755 Pipe Plastic	64,000	21	63,979	100%
6765 Pipe Service Line	60,000	8,063	51,937	87%
Inventory - Pipe	244,000	247,327	(3,327)	-1%
6805 Valves <12in	30,000	-	30,000	100%
6810 Valves >16in	100,000	-	100,000	100%
6820 Valves GA	5,000	-	5,000	100%
6825 Valves Misc	15,000	258,003	(243,003)	-1620%
Inventory - Valves	150,000	258,003	(108,003)	-72%
INVENTORY TOTAL	1,921,185	2,048,718	(127,533)	-7%
DIRECT OPERATING TOTAL	76,369,650	69,409,458	6,960,192	9%
7003 Bank Fees	300,000	263,420	36,580	12%
7005 Certification Fees	43,035	2,718	40,317	94%
7010 Membership Fees	66,363	68,104	(1,741)	-3%
7015 Permits	115,190	50,589	64,601	56%
7020 Registration Fees	6,850	8,172	(1,322)	-19%
7030 Licenses	700	-	700	100%
7035 Customer CC Fees	301,800	543,823	(242,023)	-80%
Total Fees	833,938	936,827	(102,889)	-12%
7105 Freight.Hauling	500	-	500	100%
7110 Freight.Shipping	59,708	63,490	(3,782)	-6%
7115 Postage	580,500	731,843	(151,343)	-26%
Total Freight and Postage	640,708	795,333	(154,625)	-24%
7210 Copier.Fax Machine	106,800	93,709	13,091	12%
7215 Equip Rental	134,152	238,376	(104,224)	-78%
7255 Office Rent	869,031	912,335	(43,303)	-5%
7260 Pagers	-	-	-	0%
7265 RadioLease(City)	-	-	-	0%
Total Leases & Rents	1,109,983	1,244,419	(134,436)	-12%
7305 Advertising	86,550	45,975	40,575	47%
7306 Annual Report	17,500	-	17,500	100%
7307 Advertising - Marketing	51,500	5,068	46,432	90%
7310 Annual Audit	54,500	49,683	4,817	9%
7315 Billing Contract	588,240	470,173	118,067	20%
7321 Coll Agency.Sewage	-	-	-	0%
7323 Consultants	708,179	502,507	205,672	29%
7325 Consumer Confidence Rpt	7,000	2,171	4,829	69%

7328 Contingencies	52,000	148,800	(96,800)	-186%
7332 Consulting Engineers	143,917	26,831	117,086	81%
7335 Misc.Serv.NonCapital	10,051,332	5,264,191	4,787,141	48%
7345 Ins.Auto	97,688	74,044	23,644	24%
7348 Ins.Commercial Prop	226,173	226,172	1	0%
7353 Ins.Gen Liability	21,637	21,637	-	0%
7359 Ins.Officers.Director	74,528	74,528	-	0%
7365 Ins.WorkersComp	-	-	-	0%
7366 Ins.WorkersComp.City	32,000	33,352	(1,352)	-4%
7368 Internet Connection.Serv	80,700	53,334	27,366	34%
7370 Legal	1,938,000	2,388,647	(450,647)	-23%
7371 Legal Self Ins	-	-	-	0%
7373 Minority.Women Bus Enter	-	-	-	0%
7375 Meter Services	1,340,992	864,422	476,570	36%
7382 Payroll Services	-	70,633	(70,633)	-100%
7383 Prof Service.Other	10,679,421	6,083,922	4,595,499	43%
7389 Trust Admin	86,335	30,411	55,924	65%
7390 Water Liens	-	8,000	(8,000)	-100%
Total Professional Services	26,338,192	16,444,502	9,893,690	38%
7405 Computer Software Supplies	24,200	11,722	12,478	52%
7422 Fuel-Gasses	193,000	152,468	40,532	21%
7423 Fuel Kerosene	200	261	(61)	-31%
7424 Fuel Propane	1,000	18,670	(17,670)	-1767%
7435 GIS Plotter.Xerox	-	-	-	0%
7440 Grounds & Maint Supp	50,400	189,953	(139,553)	-277%
7443 ICE	-	-	-	0%
7445 Lab Chemicals	47,410	9,561	37,849	80%
7447 Lab Supplies	58,000	122,807	(64,807)	-112%
7450 Office Supplies	28,520	64,263	(35,743)	-125%
7490 Welding Supplies	24,000	19,397	4,603	19%
Total Supplies	426,730	589,103	(162,373)	-38%
7505 TE.Airfare	29,699	11,968	17,731	60%
7510 TE.Auto Rentals	2,294	-	2,294	100%
7520 TE.Fuel	2,910	-	2,910	100%
7540 TE.Lodging	43,560	14,151	29,409	68%
7545 TE.Meals	18,803	4,884	13,919	74%
7550 TE.Mileage	8,454	2,259	6,195	73%
7555 TE.SeminarsConferences	69,355	17,657	51,698	75%
7560 TE.Training	199,555	121,354	78,201	39%
7575 TE.Travel Misc	27,601	24,324	3,277	12%
7590 TE.Travel Purch Orders	-	-	-	0%
Total Travel & Entertainment	402,231	196,597	205,634	51%
7605 Electric	4,800,000	3,998,159	801,841	17%
7650 Natural Gas.City	384,000	367,363	16,637	4%
7675 Telemeter	204,000	53,542	150,458	74%
7680 Cellular Phone	260,580	190,291	70,289	27%
7681 Local Phones	147,545	156,337	(8,792)	-6%

7682 Long Distance	960	460	500	52%
7683 Internet		-	-	0%
Total Utilities	5,797,085	4,766,152	1,030,933	18%
7705 Bad Debt	-	-	-	0%
7710 Capital Asset Reclass	(1,559,166)	(6,568,443)	5,009,277	-321%
7711 DISC Asset Reclass	-	-	-	0%
7712 Cash Discount Taken	(240)	(623)	383	-160%
7715 Claims.Deductibles	400,000	587,017	(187,017)	-47%
7720 Customer Refund.CSM	-	-	-	0%
7721 Customer Refund. AP	600,000	667,728	(67,728)	-11%
7730 Fines.Penalties	20,000	20,500	(500)	-3%
7735 LienBuyBkExp	-	-	-	0%
7742 Education & Outreach	130,300	41,116	89,184	68%
7743 Employee Fund	-	-	-	0%
7750 Inv.Adjustments	-	240,929	(240,929)	-100%
7760 Misc Gen.Admin Exp	100	5,847	(5,747)	-5747%
7765 One Call	30,000	18,195	11,805	39%
7770 Publication.Subscription	9,321	24,884	(15,563)	-167%
7787 3rd Pty LW Exp	-	-	-	0%
7789 3rd Pty Sew Trt Exp	-	-	-	0%
7799 Grants Awarded by PWSA	278,895	112,352	166,544	60%
Total Miscellaneous Admin	(90,790)	(4,850,499)	4,759,709	-5243%
TOTAL ADMINISTRATIVE	35,458,077	20,122,434	15,335,643	43%
8005 City Indirect Costs	-	-	-	0%
8070 Sewer Direct	-	-	-	0%
8071 Sewer Indirect	-	-	-	0%
Total City Subsidy	-	-	-	0%
8180 Non.City Water Reimburse	-	-	-	0%
Total Non-City Subsidy	-	-	-	0%
8225 Depr Non.Utility	-	-	-	0%
8230 Depr Utility	-	-	-	0%
Total Depreciation	-	-	-	0%
8305 Amort Debt Discount	-	-	-	0%
8320 Int Exp.Cust Sec Deposit	-	-	-	0%
8335 Int Exp.LT Debt	-	-	-	0%
8340 Int Exp.Swap Fees	-	-	-	0%
8341 Int Exp.LiquidityFee	-	-	-	0%
8342 Int Exp.ReMktgFee	-	-	-	0%
8343 RatingFee	-	-	-	0%
8345 Int Exp.Swap Pmt.Rcpt	-	-	-	0%
8355 Int Exp.PV Loans	-	-	-	0%
8360 Revolver Interest	-	-	-	0%
Total Interest	-	-	-	0%
OTHER EXPENSES TOTAL	-	-	-	0%
GRAND TOTAL	111,827,727	89,531,892	22,295,835	20%

GL #	GL Description	BUDGET	ACTUAL	\$	%
		2018	2018		
		TOTAL	TOTAL	VARIANCE	VARIANCE
4001	Salary.Wages	16,821,033	14,013,848	2,807,185	17%
4005	OT Premium Pay	1,171,919	1,814,309	(642,390)	-55%
4010	Shift Differential	10,601	6,887	3,714	35%
4015	Semi Skill	8,415	7,129	1,287	15%
4020	Pay Adjustments	-	-	-	0%
4025	Bonus	-	5,500	(5,500)	-100%
4030	Holiday Pay	801,377	631,308	170,069	21%
4035	Vacation Pay	1,365,700	1,065,930	299,770	22%
4040	Other	134,423	29,800	104,623	78%
4045	Sick Pay	136,893	16,316	120,576	88%
4050	Personal Time Pay	691,336	558,981	132,356	19%
4055	Comp Time Taken	-	-	-	0%
4060	Comp Time Earned	-	-	-	0%
4065	Jury Duty	2,795	2,725	71	3%
4070	Military Leave	3,581	-	3,581	100%
4075	Supper Pay	25,137	33,051	(7,914)	-31%
4080	Bereavement	29,827	27,723	2,104	7%
4081	Paid Parental Leave	-	-	-	0%
4085	Special	71,165	60,207	10,958	15%
4090	Admin Leave	-	2,060	(2,060)	-100%
4095	Severance	112,174	152,174	(40,000)	-36%
	Total Wages & Salaries	21,386,377	18,427,947	2,958,429	14%
4110	Fed Ins Contr Act Tx	1,326,014	1,125,583	200,431	15%
4115	Medicare	310,116	265,323	44,794	14%
4120	Fed Unemploy Tax	-	-	-	0%
4125	State Unemploy Tax	105,000	34,478	70,522	67%
4130	Workers Comp Insur	490,000	(3,305)	493,305	101%
4135	Med Health Ins	4,131,336	3,527,693	603,643	15%
4140	Med Hlth Ins Waiver	29,839	57,239	(27,400)	-92%
4145	Short Term Disability	243,910	154,581	89,329	37%
4150	Long Term Disability	47,255	349,248	(301,993)	-639%
4155	Life Ins <50k	40,451	27,504	12,947	32%
4160	Accident.Death.Dismember	4,467	3,742	724	16%
4165	Dental Ins	190,787	135,371	55,416	29%
4170	Vision Insur	13,976	10,141	3,834	27%
4174	Cust Serv Week	2,000	457	1,543	77%
4175	Uniforms	192,310	167,162	25,148	13%
4180	Tuition Reimburse	193,348	68,156	125,192	65%
4185	Retirement Benefit	-	-	-	0%
4195	Misc Benefits	(35,958)	(22,029)	(13,929)	39%
4199	Payroll Upload Except	(3,403)	(1,456)	(1,947)	57%
	Total Employee Benefits	7,281,447	5,899,887	1,381,560	19%
	TOTAL SALARIES & BENEFITS	28,667,823	24,327,834	4,339,989	15%

5005 Alum	232,800	-	232,800	100%
5010 Boiler Chemicals	21,630	12,340	9,290	43%
5015 Calcium Hypochlorite	13,926	-	13,926	100%
5020 Cat Flocc TL	154,312	60,505	93,807	61%
5025 Caustic Soda	73,171	799,616	(726,445)	-993%
5030 Chlorine Cylinders	-	-	-	0%
5035 Chlorine Rail Car	-	-	-	0%
5040 Citric Acid	15,789	-	15,789	100%
5045 Copper Sulphate	53,485	-	53,485	100%
5050 Ferric Chloride	1,504,726	1,411,090	93,636	6%
5055 Hydrofluorosil Acid	164,845	177,308	(12,463)	-8%
5060 Lime	274,095	70,890	203,206	74%
5065 Potassium Permanganate	504,792	109,855	394,937	78%
5070 Powdered Active Carbon	477,813	-	477,813	100%
5075 Soda Ash	1,298,583	986,761	311,822	24%
5080 Sodium Hypochlorite	453,252	320,130	133,122	29%
5085 Sodium Carbonate Peroxyhy	26,203	16,960	9,243	35%
Chemicals	5,269,422	3,965,455	1,303,967	25%
5120 Computer & Peripherals	243,284	890,562	(647,277)	-266%
5125 Computers.Networking	255,000	378,556	(123,556)	-48%
5140 Furniture.Fixture	38,235	149,446	(111,211)	-291%
5145 Grounds.Maint	24,700	28,500	(3,800)	-15%
5147 Lab Equip	-	47,424	(47,424)	-100%
5150 Machinery	212,950	233,740	(20,790)	-10%
5160 Office Equipment	-	1,306	(1,306)	-100%
5190 Vehicles	-	1,570,946	(1,570,946)	-100%
Equipment	774,169	3,300,481	(2,526,312)	-326%
5205 Asphalt Cold Patch	56,077	94,307	(38,229)	-68%
5210 Asphalt Cold-City	-	-	-	0%
5215 Asphalt Hot-City	-	-	-	0%
5220 Asphalt Hotmix	-	-	-	0%
5225 Asphalt Patch Bit Sealer	-	-	-	0%
5227 Brick	6,000	240	5,760	96%
5230 Cement Bagged	8,504	1,747	6,757	79%
5235 Gravel	36,246	1,325	34,921	96%
5240 Iron Steel Brass	36,000	2,002	33,998	94%
5245 Lumber	12,360	13,177	(817)	-7%
5250 Sand	24,362	13,072	11,290	46%
5255 Slag	233,604	364,671	(131,067)	-56%
5260 Stone	-	-	-	0%
5265 Top Soil	6,180	5,296	884	14%
Materials	419,332	495,837	(76,504)	-18%
5305 Annual Sewer Contract	2,400,000	3,127,669	(727,669)	-30%
5310 Boiler Compressor Elevtr	-	53,336	(53,336)	-100%
5315 CB Cleaning	3,625,000	707,837	2,917,163	80%
5316 CB Repairs	1,600,000	-	1,600,000	100%
5328 Curb Box Repair	-	-	-	0%

5330 Debris Removal	168,000	198,360	(30,360)	-18%
5335 Drag Bucket	-	-	-	0%
5340 Dumpster	14,980	32,518	(17,538)	-117%
5341 Vactor Debris Remove Cont	-	61,556	(61,556)	-100%
5342 Emergency WaterLine Repair	2,910,000	3,864,918	(954,918)	-33%
5345 Inspection	861,955	1,313,960	(452,005)	-52%
5347 Inspection.Field	916,500	793,856	122,644	13%
5350 Key.Lock Serv	-	1,363	(1,363)	-100%
5355 Landscape (Grounds)	165,000	87,840	77,160	47%
5360 Meters	-	-	-	0%
5370 Operating Contract.Other	6,806,904	1,996,527	4,810,377	71%
5375 Radionuclides	-	-	-	0%
5380 Intr-Gov Proj Panther Hollow	-	-	-	0%
5383 Sewage Treatment	-	-	-	0%
5385 Temporary Help	12,000	254,245	(242,245)	-2019%
5390 Welding	-	-	-	0%
5395 Water Relay.DISC	-	-	-	0%
5396 Sewer Relay.DISC	-	-	-	0%
Operating Contracts	19,480,339	12,493,984	6,986,355	36%
5402 Annual Software Support	1,201,677	678,146	523,532	44%
5405 Bldg.Property Repairs	272,500	224,243	48,257	18%
5408 Computer Hardware	47,035	30,592	16,443	35%
5411 Computer Software Support	-	-	-	0%
5413 Concrete Repairs	4,148,700	6,929,924	(2,781,224)	-67%
5415 Cranes Repairs	389,128	-	389,128	100%
5417 Electrical Repairs	105,000	143,886	(38,886)	-37%
5420 Fence Repairs	172,000	1,990	170,010	99%
5422 Fence Installation	75,000	6,292	68,708	92%
5427 GIS Hardware.Software	147,142	10,758	136,384	93%
5432 Hardware Repairs	-	-	-	0%
5437 Heavy Equip Repair	3,000	2,781	219	7%
5439 HVAC.Plumbing	60,000	64,351	(4,351)	-7%
5444 Hydrant. A Section	-	-	-	0%
5445 Hydrant Misc Parts	-	-	-	0%
5447 Hydrant Repair Parts	-	-	-	0%
5452 Machinery Repairs	171,000	139,483	31,517	18%
5457 Office Equip Repairs	300	-	300	100%
5462 Plant Repairs	-	-	-	0%
5467 Power Tool Repairs	2,700	1,506	1,194	44%
5472 Road Repair.Plant	-	-	-	0%
5475 Scanner	75	-	75	100%
5482 Tool Repairs	48,000	7,653	40,347	84%
5484 Hand Tool Repairs	27,600	165	27,435	99%
5486 Misc Tool Repairs	5,400	5,470	(70)	-1%
5488 CC TV Repairs	18,000	144,253	(126,253)	-701%
5490 Vactor Repairs	240,000	22,104	217,896	91%
5491 Vehicle Repairs	24,000	6,630	17,370	72%

5496 Repair.Maint Other	204,330	399,058	(194,728)	-95%
Repairs & Maintenance	7,362,587	8,819,285	(1,456,698)	-20%
5570 Testing Misc	1,336,800	805,853	530,947	40%
Misc. Operating	1,336,800	805,853	530,947	40%
6015 Casting Manhole.CBasin	154,363	27,186	127,177	82%
6025 Casting Risers.Lids	-	-	-	0%
6035 Casting Sewer Inlet	-	490	(490)	-100%
6060 Casting Water Valve Box	201,876	-	201,876	100%
Inventory - Castings	356,239	27,675	328,564	92%
6115 Clarifier Part Floc	-	-	-	0%
6120 Clarifier Part Screw	-	-	-	0%
6125 Clarifier Part Sludge	-	-	-	0%
Inventory - Clarifier	-	-	-	0%
6200 Inventory-Equip	1,000	2	998	100%
6220 Fire Extinguishers	200	-	200	100%
6245 Materials.Handling	600	-	600	100%
6260 Safety Equipment	43,500	71,687	(28,187)	-65%
6280 Vacuum Chlorinators	-	-	-	0%
Inventory - Equipment	45,300	71,689	(26,389)	-58%
6300 Inventory-Hardware	4,500	15,054	(10,554)	-235%
6315 Fittings	207,000	286,547	(79,547)	-38%
6320 Hardware Other	44,400	-	44,400	100%
6325 Hose.Fitting	18,000	18,308	(308)	-2%
6330 Keys & Locks	1,230	-	1,230	100%
6335 Lights	5,600	33,848	(28,248)	-504%
6340 Machinery Misc	29,400	-	29,400	100%
6345 Meters	1,513,459	516,097	997,362	66%
6350 Plumbing Inv Exp	81,000	45,848	35,152	43%
6355 Power Tool Inv Exp	15,850	1,320	14,530	92%
6360 Tools Inv Exp	57,920	108,192	(50,272)	-87%
6365 Hand Tools Inv Exp	1,800	-	1,800	100%
Inventory - Hardware	1,980,159	1,025,215	954,944	48%
6420 Backhoe	-	1,217	(1,217)	-100%
Inventory - Heavy Equipment	-	1,217	(1,217)	-100%
6500 Inventory-Misc	35,100	43,346	(8,246)	-23%
6506 Batteries	7,500	-	7,500	100%
6515 Cleaning	37,200	45,162	(7,962)	-21%
6518 Concrete Accessories	5,400	-	5,400	100%
6520 Copier Paper	1,000	-	1,000	100%
6525 Filters	-	-	-	0%
6526 Filters HVAC	-	-	-	0%
6530 FirstAid	1,680	(1,101)	2,781	166%
6540 Lamps	400	118	282	70%
6544 Lubricating Oil	5,400	4,371	1,029	19%
6548 Paint Oils Putty Glass	16,500	7,455	9,045	55%
6552 Paper Products	-	-	-	0%
6555 Pump Oil	-	-	-	0%

6565 Sewer Matls.Supplies	8,400	3,208	5,192	62%
6570 Testing Dyes	6,000	-	6,000	100%
6580 Vehicle Oil	-	-	-	0%
6585 Welding Supplies-Inventory	-	(117)	117	-100%
Inventory - Miscellaneous	124,580	102,443	22,137	18%
6645 Parts Other	108,000	152,786	(44,786)	-41%
6680 Yard	-	-	-	0%
Inventory - Parts	108,000	152,786	(44,786)	-41%
6705 Pipe	108,000	(6,767)	114,767	106%
6710 Pipe Ductile	-	26,524	(26,524)	-100%
6755 Pipe Plastic	-	-	-	0%
6765 Pipe Service Line	-	-	-	0%
Inventory - Pipe	108,000	19,758	88,242	82%
6805 Valves <12in	-	-	-	0%
6810 Valves >16in	-	-	-	0%
6820 Valves GA	-	-	-	0%
6825 Valves Misc	93,000	81,812	11,188	12%
Inventory - Valves	93,000	81,812	11,188	12%
INVENTORY TOTAL	2,815,278	1,482,595	1,332,684	47%
DIRECT OPERATING TOTAL	66,125,751	55,691,324	10,434,427	16%
7003 Bank Fees	300,000	278,243	21,757	7%
7005 Certification Fees	50,445	3,319	47,126	93%
7010 Membership Fees	61,660	35,381	26,279	43%
7015 Permits	17,750	24,134	(6,384)	-36%
7020 Registratn Fees	5,650	41	5,609	99%
7030 Licenses	-	532	(532)	-100%
7035 Customer CC Fees	282,996	424,117	(141,122)	-50%
Total Fees	718,501	765,767	(47,266)	-7%
7105 Freight.Hauling	-	-	-	0%
7110 Freight.Shipping	28,480	50,990	(22,510)	-79%
7115 Postage	395,300	508,325	(113,025)	-29%
Total Freight and Postage	423,780	559,315	(135,535)	-32%
7210 Copier.Fax Machine	82,800	77,013	5,787	7%
7215 Equip Rental	63,508	803,705	(740,197)	-1166%
7255 Office Rent	785,031	707,415	77,617	10%
7260 Pagers	-	-	-	0%
7265 RadioLease(City)	-	-	-	0%
Total Leases & Rents	931,340	1,588,133	(656,793)	-71%
7305 Advertising	65,550	28,962	36,588	56%
7306 Annual Report	17,500	-	17,500	100%
7307 Advertising - Marketing	39,000	29,427	9,573	25%
7310 Annual Audit	74,785	64,308	10,477	14%
7315 Billing Contract	626,505	832,775	(206,270)	-33%
7321 Coll Agency.Sewage	60,000	-	60,000	100%
7323 Consultants	2,276,442	1,161,923	1,114,519	49%
7325 Consumer Confidence Rpt	3,500	1,707	1,793	51%
7328 Contingencies	21,709	11,766	9,943	46%

7332 Consulting Engineers	233,750	147,182	86,568	37%
7335 Misc Serv.NonCapital	6,619,824	3,583,069	3,036,755	46%
7345 Ins.Auto	100,000	29,307	70,693	71%
7348 Ins.Commercial Prop	215,000	215,532	(532)	0%
7353 Ins.Gen Liability	5,500	20,798	(15,298)	-278%
7359 Ins.Officers.Director	65,000	74,349	(9,349)	-14%
7365 Ins.WorkersComp	-	-	-	0%
7366 Ins.WorkersComp.City	42,000	33,352	8,648	21%
7368 Internet Connection.Serv	69,060	66,656	2,404	3%
7370 Legal	1,059,000	2,894,513	(1,835,513)	-173%
7371 Legal Self Ins	-	-	-	0%
7373 Minority.Women Bus Enter	-	-	-	0%
7375 Meter Services	789,990	879,344	(89,355)	-11%
7382 Payroll Services	81,469	72,899	8,570	11%
7383 Prof Service.Other	7,118,775	5,307,167	1,811,608	25%
7389 Trust Admin	108,335	71,235	37,100	34%
7390 Water Liens	-	-	-	0%
Total Professional Services	19,692,694	15,526,273	4,166,420	21%
7405 Computer Software Supplies	208,723	35,174	173,549	83%
7422 Fuel-Gasses	-	4,845	(4,845)	-100%
7423 Fuel Kerosene	-	-	-	0%
7424 Fuel Propane	193,000	174,824	18,176	9%
7435 GIS Plotter.Xerox	-	-	-	0%
7440 Grounds & Maint Supp	36,000	36,542	(542)	-2%
7443 ICE	-	-	-	0%
7445 Lab Chemicals	32,910	4,219	28,691	87%
7447 Lab Supplies	70,100	48,936	21,164	30%
7450 Office Supplies	42,930	37,623	5,307	12%
7490 Welding Supplies	24,000	17,885	6,115	25%
Total Supplies	607,663	360,047	247,616	41%
7505 TE.Airfare	30,763	6,706	24,057	78%
7510 TE.Auto Rentals	3,339	197	3,142	94%
7520 TE.Fuel	5,395	-	5,395	100%
7540 TE.Lodging	50,057	11,411	38,646	77%
7545 TE.Meals	24,900	4,428	20,472	82%
7550 TE.Mileage	9,247	1,440	7,807	84%
7555 TE.SeminarsConferences	52,610	12,255	40,355	77%
7560 TE.Training	101,405	25,288	76,117	75%
7575 TE.Travel Misc	11,002	20,799	(9,797)	-89%
7590 TE.Travel Purch Orders	60	-	60	100%
Total Travel & Entertainment	288,778	82,523	206,255	71%
7605 Electric	4,456,000	4,375,877	80,123	2%
7650 Natural Gas.City	372,500	383,385	(10,885)	-3%
7675 Telemeter	72,000	54,631	17,369	24%
7680 Cellular Phone	135,790	142,408	(6,618)	-5%
7681 Local Phones	137,340	150,377	(13,037)	-9%
7682 Long Distance	960	869	91	10%

7683 Internet	-	-	-	0%
Total Utilities	5,174,590	5,107,547	67,043	1%
7705 Bad Debt	-	-	-	0%
7710 Capital Asset Reclass	-	(3,150,810)	3,150,810	-100%
7711 DISC Asset Reclass	-	-	-	0%
7712 Cash Discount Taken	(240)	(523)	283	-118%
7715 Claims.Deductibles	400,000	353,049	46,951	12%
7720 Customer Refund.CSM	-	-	-	0%
7721 Customer Refund. AP	198,000	881,565	(683,565)	-345%
7730 Fines.Penalties	-	15,372	(15,372)	-100%
7735 LienBuyBkExp	-	-	-	0%
7742 Education & Outreach	84,000	50,512	33,488	40%
7743 Employee Fund	-	-	-	0%
7750 Inv.Adjustments	-	1,373,808	(1,373,808)	-100%
7760 Misc Gen.Admin Exp	100	-	100	100%
7765 One Call	16,800	14,921	1,879	11%
7770 Publication.Subscription	16,221	4,288	11,933	74%
7787 3rd Pty LW Exp	-	-	-	0%
7789 3rd Pty Sew Trt Exp	-	-	-	0%
7799 Grants Awarded by PWSA	193,450	95,000	98,450	51%
Total Miscellaneous Admin	908,331	(362,820)	1,271,151	140%
TOTAL ADMINISTRATIVE	28,745,676	23,626,785	5,118,891	18%
8005 City Indirect Costs	-	1,787,500	(1,787,500)	-100%
8070 Sewer Direct	-	-	-	0%
8071 Sewer Indirect	-	-	-	0%
Total City Subsidy	-	1,787,500	(1,787,500)	-100%
8180 Non.City Water Reimburse	-	3,390,600	(3,390,600)	-100%
Total Non-City Subsidy	-	3,390,600	(3,390,600)	-100%
8225 Depr Non.Utility	-	-	-	0%
8230 Depr Utility	-	-	-	0%
Total Depreciation	-	-	-	0%
8305 Amort Debt Discount	-	-	-	0%
8320 Int Exp.Cust Sec Deposit	-	-	-	0%
8335 Int Exp.LT Debt	-	-	-	0%
8340 Int Exp.Swap Fees	-	-	-	0%
8341 Int Exp.LiquidityFee	-	-	-	0%
8342 Int Exp.ReMktgFee	-	-	-	0%
8343 RatingFee	-	-	-	0%
8345 Int Exp.Swap Pmt.Rcpt	-	-	-	0%
8355 Int Exp.PV Loans	-	-	-	0%
8360 Revolver Interest	-	-	-	0%
Total Interest	-	-	-	0%
OTHER EXPENSES TOTAL	-	5,178,100	(5,178,100)	0%
GRAND TOTAL	94,871,427	84,496,209	10,375,218	11%

I&E Summarized - PWSA Budget v. Actual O&M Expense Summary (I&E-RE-50-D)

O&M Expense	2018 Budget	2018 Actual	Variance	% Change
Total Wages & Salaries	\$ 21,386,377	\$ 18,427,947	\$ (2,958,429)	(13.83)
Total Employee Benefits	\$ 7,281,447	\$ 5,899,887	\$ (1,381,560)	(18.97)
Chemicals	\$ 5,269,422	\$ 3,965,455	\$ (1,303,967)	(24.75)
Equipment	\$ 774,169	\$ 3,300,481	\$ 2,526,312	326.33
Materials	\$ 419,332	\$ 495,837	\$ 76,504	18.24
Operating Contracts	\$ 19,480,339	\$ 12,493,984	\$ (6,986,355)	(35.86)
Repairs & Maintenance	\$ 7,362,587	\$ 8,819,285	\$ 1,456,698	19.79
Misc. Operating	\$ 1,336,800	\$ 805,853	\$ (530,947)	(39.72)
Total Inventory	\$ 2,815,278	\$ 1,482,595	\$ (1,332,684)	(47.34)
Total Fees	\$ 718,501	\$ 765,767	\$ 47,266	6.58
Total Freight and Postage	\$ 423,780	\$ 559,315	\$ 135,535	31.98
Total Leases & Rents	\$ 931,340	\$ 1,588,133	\$ 656,793	70.52
Total Professional Services	\$ 19,692,694	\$ 15,526,273	\$ (4,166,420)	(21.16)
Total Supplies	\$ 607,663	\$ 360,047	\$ (247,616)	(40.75)
Total Travel & Entertainment	\$ 288,778	\$ 82,523	\$ (206,255)	(71.42)
Total Utilities	\$ 5,174,590	\$ 5,107,547	\$ (67,043)	(1.30)
Total Miscellaneous Admin	\$ 908,331	\$ (362,820)	\$ (1,271,151)	(139.94)
Total City Subsidy	\$ -	\$ 1,787,500	\$ 1,787,500	
Total Non-City Subsidy	\$ -	\$ 3,390,600	\$ 3,390,600	
Other O&M Expense	\$ -			
TOTAL O&M EXPENSE	\$ 94,871,427	\$ 84,496,209	\$ (10,375,218)	(10.94)

O&M Expense	2019 Budget	2019 Actual	Variance	% Change
Total Wages & Salaries	\$ 26,643,741	\$ 22,261,855	\$ (4,381,886)	(16.45)
Total Employee Benefits	\$ 9,001,163	\$ 6,720,012	\$ (2,281,152)	(25.34)
Chemicals	\$ 6,473,336	\$ 4,499,921	\$ (1,973,415)	(30.49)
Equipment	\$ 4,023,075	\$ 5,900,312	\$ 1,877,237	46.66
Materials	\$ 758,273	\$ 524,002	\$ (234,271)	(30.90)
Operating Contracts	\$ 16,724,691	\$ 17,352,454	\$ 627,763	3.75
Repairs & Maintenance	\$ 8,794,182	\$ 9,076,188	\$ 282,006	3.21
Misc. Operating	\$ 2,030,004	\$ 1,025,998	\$ (1,004,006)	(49.46)
Total Inventory	\$ 1,921,185	\$ 2,048,718	\$ 127,533	6.64
Total Fees	\$ 833,938	\$ 936,827	\$ 102,889	12.34
Total Freight and Postage	\$ 640,708	\$ 795,333	\$ 154,625	24.13
Total Leases & Rents	\$ 1,109,983	\$ 1,244,419	\$ 134,436	12.11
Total Professional Services	\$ 26,338,192	\$ 16,444,502	\$ (9,893,690)	(37.56)
Total Supplies	\$ 426,730	\$ 589,103	\$ 162,373	38.05
Total Travel & Entertainment	\$ 402,231	\$ 196,597	\$ (205,634)	(51.12)
Total Utilities	\$ 5,797,085	\$ 4,766,152	\$ (1,030,933)	(17.78)

Total Miscellaneous Admin	\$ (90,790)	\$ (4,850,499)	\$ (4,759,709)	5,242.54
Total City Subsidy	\$ -	\$ -	\$ -	
Total Non-City Subsidy	\$ -	\$ -	\$ -	
Other O&M Expense	\$ -	\$ -	\$ -	
TOTAL O&M EXPENSE	\$ 111,827,727	\$ 89,531,892	\$ (22,295,835)	(19.94)

O&M Expense	2020 Budget	2020 Actual	Variance	% Change
Total Wages & Salaries	\$ 27,377,002	\$ 24,150,639	\$ (3,226,364)	(11.78)
Total Employee Benefits	\$ 7,043,067	\$ 6,848,387	\$ (194,679)	(2.76)
Chemicals	\$ 6,813,739	\$ 3,925,786	\$ (2,887,953)	(42.38)
Equipment	\$ 1,730,266	\$ 933,309	\$ (796,957)	(46.06)
Materials	\$ 654,570	\$ 455,807	\$ (198,762)	(30.37)
Operating Contracts	\$ 18,899,433	\$ 21,500,889	\$ 2,601,455	13.76
Repairs & Maintenance	\$ 12,367,862	\$ 8,790,610	\$ (3,577,253)	(28.92)
Misc. Operating	\$ 654,300	\$ 448,212	\$ (206,088)	(31.50)
Total Inventory	\$ 1,799,520	\$ 1,448,874	\$ (350,645)	(19.49)
Total Fees	\$ 1,570,079	\$ 1,649,339	\$ 79,259	5.05
Total Freight and Postage	\$ 278,510	\$ 370,553	\$ 92,043	33.05
Total Leases & Rents	\$ 1,095,139	\$ 1,248,268	\$ 153,129	13.98
Total Professional Services	\$ 19,890,014	\$ 17,324,335	\$ (2,565,679)	(12.90)
Total Supplies	\$ 819,860	\$ 1,060,346	\$ 240,486	29.33
Total Travel & Entertainment	\$ 291,874	\$ 73,528	\$ (218,346)	(74.81)
Total Utilities	\$ 5,554,634	\$ 4,544,758	\$ (1,009,876)	(18.18)
Total Miscellaneous Admin	\$ (1,272,815)	\$ (4,719,997)	\$ (3,447,182)	270.83
Total City Subsidy	\$ 4,015,531	\$ 4,049,473	\$ 33,942	0.85
Total Non-City Subsidy	\$ -	\$ 435,952	\$ 435,952	
Other O&M Expense	\$ -	\$ -	\$ -	
TOTAL O&M EXPENSE	\$ 109,582,585	\$ 94,539,067	\$ (15,043,518)	(13.73)

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I&E Exhibit No. 2 Schedule 3 Page 1 of 2
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I&E-RE-23-D

Reference PWSA Reference PWSA Volume I, FR-III.4 concerning Rate Case Expense. Provide the following:

- A. Copies of all current outside service contract agreements for rate case-related services.
- B. Invoices/receipts for the rate case-related expenses incurred to date for the current filing and continue to provide updates for invoices as they are incurred.
- C. Explanation why PWSA determined it is appropriate to include the entire projected Rate Case Expense of \$1,860,000 in the FPFTY revenue requirement, rather than normalize it over a future period (PWSA Statement No. 2, p. 18).
- D. Confirmation that Rate Case Expense of \$1,860,000 is claimed in the FPFTY revenue requirement calculation.
- E. Explanation/clarification for showing Rate Case Expense claims of \$1,860,000 in the FTY and \$2,040,000 in the FPFTY in the table produced in FR-III.4.
- F. A breakdown of Rate Case Expense between the base rate case and DSIC proceedings for the following:
 1. Legal Counsel Costs: FTY (\$1,200,000) and FPFTY (\$1,260,000).
 2. Other Consultants: FTY (\$660,000) and FPFTY (\$780,000).
- G. Details for any other items of expense claimed/included as rate case expense in addition to the expense amount of \$1,860,000 described in response to Part D above.
- H. Identify the account name(s), number(s), and dollar amounts of all 2021 rate case-related expense items included in the FTY and FPFTY operating expense schedule (FR-III.2) of this filing.
- I. Identify the account name(s), number(s), and dollar amounts of the 2020 rate case filing related expense items, which are also claimed/included in PWSA’s current filing (2021).
- J. State when PWSA intends or expects to file its next base rate case.

Response:

A. See I&E-RE-23-D Attach A and B.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I&E Exhibit No. 2 Schedule 3 Page 2 of 2
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B. See I&E-RE-23-D Attach C-E.

C. As a cash-based utility it is appropriate to realize the full expense in the year that it is incurred.

D. Yes, \$1,860,000 is claimed in the FTY revenue requirements calculation.

E. FR-III.4 shows the estimated rate case cost for the current rate case in FTY and the estimated cost on FPFTY if the PWSA files another rate case in 2022.

F.1. PWSA did not file a DSIC proceeding in this rate case.

F.2. PWSA did not file a DSIC proceeding in this rate case.

G. There are none.

H. See below. The 2021 rate case-related expenses are paid out of the Finance and Legal budgets.

<u>General Ledger Account</u>	<u>Amount</u>	<u>Expense</u>
916-7370	\$1,200,000	Legal Counsel Costs
915-7323	\$660,000	Other Consultant

I. There are no case-related expense items from the last rate case claimed in the current filing.

J. The next base rate case filing is to be determined.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

I&E-RE-2-D Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning the operating expenses by account. Explain in detail the total increases in Wages and Salaries of 21.81%, 8.47%, 17.68%, and 9.75% from 2018 to 2019, 2019 to 2020, 2020 to the FTY, and from the FTY to FPPTY respectively.

Response:

The total increase in Wages and Salaries from 2018 to 2019 includes an increase in filled positions and a 3% increase for union and non-union employees. The total increase in Wages and Salaries from 2019 to 2020 includes an increase in filled positions and a 3% increase for union and non-union employees. The total increase in Wages and Salary from 2020 to FTY includes an anticipated increase in filled positions and a 3% increase for union and non-union employees. The total increase in Wages and Salaries from FTY to FPPTY includes an anticipated increase in filled positions and a 3% increase for union and non-union employees.

See Attachment I&E-RE-2-D for FTY and FPPTY budgets.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set II in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

- Request: OCA-II-22** Refer to PWSA St. No. 1 page 25 and FR-XI-4 (Pittsburgh Water and Sewer Authority Operating Budget). For each Operating Expense category beginning with the Chief Operating Officer, please provide the following:
- a. For each employee or employee groups, please provide the total salary compensation for the years shown (2020-2021), and for 2019 and 2022.
 - b. Identify employee by category (Union, Non-Union, hourly, etc.).
 - c. Segregate out by utility service (water, wastewater and stormwater).

Response:

See Attachment OCA-II-22.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 17, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

I&E-RE-26-D Reference PWSA Volume I, FR-III.5b concerning the payroll increase:

- A. Provide copies of all current union contracts and outline all contractual pay increase percentages and effective dates for the FTY and FPFTY.
- B. Reference the FTY estimated pay increase impact by employee categories of \$1,820,499, \$289,502, and \$2,159,445 (shown in FR-III.5b, column 3), explain whether these amounts represent twelve full months of the FTY or whether the amounts are calculated for a part of the year considering the actual pay increases from respective effective dates.
- C. Provide the estimated pay increase impact amounts by employee categories for the FPFTY similar to the FTY pay increase schedule referenced in Part B above along with the detailed explanation and supporting calculations.

Response:

A. See I&E-RE-26-D Attach A and B. Please note that all the union agreements are expired and are currently being negotiated. FTY and FPFTY assume 3% annual COLA increases because that is the historical increase percentage for the union contracts.

B. These amounts reflect filled positions, vacant positions fully budgeted for the 12 months of FTY, and vacant positions partially budgeted for FTY based on effective dates.

C. Please see the 2021 Cost of Service model, tab “FR-III.5”.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

- I&E-RE-24-D** Reference PWSA Volume I, FR-III.5 concerning payroll and benefits expense, provide the following:
- A. Budgeted and actual total employee counts, by union and non-union categories by month for the calendar years 2018, 2019, 2020, and projected for the FTY and FPFTY.
 - B. Indicate the number of positions that have been eliminated in 2020 and that are expected to be eliminated during the FTY and FPFTY.
 - C. Number of new employee additions made in the calendar year 2019, 2020, and the projected new employee additions in the FTY and FPFTY.
 - D. Number of actual vacant positions by month for the calendar years 2018, 2019, 2020, and in the FTY to date broken down by union and non-union categories.
 - E. Number of vacant positions projected by month for the FTY and FPFTY broken down by union and non-union categories.

Response:

A. See Attachment I&E-RE-24-D.

B. A number of budgeted, unfilled positions were eliminated in 2020 and will remain eliminated from the budget through FPFTY.

MIS Manager
Budget Director
Treasurer
Senior Manager, Projects
Deputy Director of Operations
Underground Asset Manager
Aboveground Asset Manager
Manager of Finance
Senior Manager Capital - Lead
Stores Manager
IT Projects Coordinator
Data Coordinator
Green Infrastructure Program & Policy Manager
Customer Service Analyst
Leak Detection Data Foreman

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
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and R-2021-3024779 (stormwater)**

Vactor Truck Driver
Appeals and Credits Specialist
Digital Media Specialist

C. There were 82 new employee additions made in the calendar year 2019 and 13 made in calendar year 2020.

D. PWSA does not keep records of vacancies per month. The PWSA had 127 vacancies at the beginning of 2019, 102 vacancies at the beginning of 2020, and 73 vacancies at the beginning of FTY.

E. Please the answer to section D above.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I&E-RE-4-D Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail the total increases in Employee Benefits of 11.21%, 1.80%, 14.24%, and 5.48% from 2018 to 2019, 2019 to 2020, 2020 to the FTY, and the FTY to FPFTY respectively.

Response:

The total increase in Employee Benefits from 2018 to 2019 includes an increase in filled positions and a 3% increase for union and non-union employees. The total increase in Employee Benefits from 2019 to 2020 includes an anticipated increase in filled positions and a 3% increase for union and non-union employees. The total increase in Employee Benefits from 2020 to FTY includes an anticipated increase in filled positions and a 3% increase for union and non-union employees. The total increase in Employee Benefits from FTY to FPFTY includes an anticipated increase in filled positions and a 3% increase for union and non-union employees.

See attachment for I&E-RE-2D for FTY and FPFTY budgets.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I&E-RE-5-D

Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail the increases/decreases in the following sub-categories of Chemicals and provide the detailed basis, calculations, and supporting documentation for the FTY and FPFTY expense projections:

A. Flocculant (5020):

1. From 2018 (\$60,504) to 2019 (\$108,736).
2. From 2019 (\$108,736) to 2020 (\$88,779).
3. From 2020 (\$88,779) to FTY (\$101,075).
4. From FTY (\$101,075) to FPFTY (\$104,107).

B. Caustic Soda (5025):

1. From 2018 (\$799,616) to 2019 (\$225,780).
2. From 2019 (\$225,780) to 2020 (\$3,978).
3. From 2020 (\$3,978) to FTY (\$271,080).
4. From FTY (\$271,080) to FPFTY (\$279,204).

C. Ferric Chloride (5050):

1. From 2018 (\$1,411,089) to 2019 (\$1,823,669).
2. From 2019 (\$1,823,669) to 2020 (\$1,504,817).
3. From 2020 (\$1,504,817) to FTY (\$1,700,000).
4. From FTY (\$1,700,000) to FPFTY (\$1,600,104).

D. Hydrofluorosilicic Acid (5055):

1. From 2018 (\$177,308) to 2019 (\$140,479).
2. From 2019 (\$140,479) to 2020 (\$150,933).
3. From 2020 (\$150,933) to FTY (\$178,858).
4. From FTY (\$178,858) to FPFTY (\$184,223).

E. Potassium Permanganate (5065):

1. From 2018 (\$109,855) to 2019 (\$247,338).
2. From 2019 (\$247,338) to 2020 (\$125,776).
3. From 2020 (\$125,776) to FTY (\$251,551).
4. From FTY (\$251,551) to FPFTY (\$259,098).

F. Powdered Active Carbon (5070):

1. From 2020 (\$0) to FTY (\$229,800).
2. From FTY (\$229,800) to FPFTY (\$468,444).

G. Soda Ash (5075):

1. From 2018 (\$986,761) to 2019 (\$820,686).
2. From 2019 (\$820,686) to 2020 (\$732,716).
3. From 2020 (\$732,716) to FTY (\$883,201).
4. From FTY (\$883,201) to FPFTY (\$909,697).

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

Response:

- A.1. The increase in Floc TL from 2018 to 2019 is due to increased use and unit costs.
- A.2. The decrease in Floc TL from 2019 to 2020 is due to decreased use.
- A.3. The increase in Floc TL from 2020 to FTY is due to an anticipated increased use and unit costs
- A.4. The increase in Floc TL from FTY to FPFTY is due to an anticipated increased use and unit costs.

- B.1. The decrease in Caustic Soda from 2018 to 2019 is due to decreased use.
- B.2. The decrease in Caustic Soda from 2019 to 2020 is due to decreased use.
- B.3. The increase in Caustic Soda from 2020 to FTY is due to an anticipated increased use and unit costs.
- B.4. The increase in Caustic Soda from FTY to FPFTY is due to an anticipated increased use and unit costs.

- C.1. The increase in Ferric Chloride from 2018 to 2019 is due to increased use and unit costs.
- C.2. The decrease in Ferric Chloride from 2019 to 2020 is due to decreased use.
- C.3. The increase in Ferric Chloride from 2020 to FTY is due to an anticipated increased use and unit costs.
- C.4. The decrease in Ferric Chloride from FTY to FPFTY is due to decreased use.

- D.1. The decrease in Hydroflurosil Acid from 2018 to 2019 is due to decreased use.
- D.2. The increase in Hydroflurosil Acid from 2019 to 2020 is due to increased use and unit costs.
- D.3. The increase in Hydroflurosil Acid from 2020 to FTY is due to an anticipated increased use and unit costs.
- D.4. The increase in Hydroflurosil Acid from FTY to FPFTY is due to an anticipated increased use and unit costs.

- E.1. The increase in Potassium Permanganate from 2018 to 2019 is due to increased use and unit costs.
- E.2. The decrease in Potassium Permanganate from 2019 to 2020 is due to decreased use.
- E.3. The increase in Potassium Permanganate from 2020 to FTY is due to an anticipated increased use and unit costs.
- E.4. The increase in Potassium Permanganate from FTY to FPFTY is due to an anticipated increased use and unit costs.

- F.1. The increase in Powdered Active Carbon from 2020 to FTY is due to increased use.
- F.2. The increase in Powered Active Carbon from FTY to FPFTY is due to an anticipated increased use and unit costs.

- G.1. The decrease in Soda Ash from 2018 to 2019 is due to decreased use.
- G.2. The decrease in Soda Ash from 2019 to 2020 is due to decreased use.
- G.3. The increase in Soda Ash from 2020 to FTY is due to an anticipated increased use and unit costs.

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

G.4. The increase in Soda Ash from FTY to FPFTY is due to an anticipated increased use and unit costs.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

I&E-RE-6-D Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Provide the following:

- A. Detailed basis, calculation, and supporting documentation for applying a 3.00% increase to all sub-categories of Chemicals (except for Chlorine Cylinders, Ferric Chloride, and Powdered Active Carbon) from the FTY to FPFTY projection.
- B. Explanation in detail for the total increases/decreases in Chemicals of 13.48%, (12.76%), 26.44%, and 4.64% from 2018 to 2019, 2019 to 2020, 2020 to the FTY and the FTY to FPFTY, respectively.

Response:

A. All subcategories of Chemicals, except for Ferric Chloride, were increased in the FPFTY as a projection of the increase in unit costs.

B. The increases and/or decreased from 2018 to 2019, 2019 to 2020, 2020 to FTY, and FTY to FPFTY are a result of decreased use or increased use and unit costs. Chemicals are critical to ensure a high-level of water quality through PWSA’s service area. The inventory of chemicals must be stocked to ensure the water can be properly treated.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

I&E-RE-9-D Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail the increases/decreases in the following sub-categories of Materials and provide the detailed basis, calculations, and supporting documentation for the FTY and FPFTY expense projections:

A. Slag (5255):

1. From 2018 (\$364,670) to 2019 (\$383,089).
2. From 2019 (\$383,089) to 2020 (\$338,716).
3. From 2020 (\$338,716) to FTY (\$395,000).
4. From FTY (\$395,000) to FPFTY (\$400,000).

B. Explanation in detail for the total increases/decreases in materials of 5.68%, (13.01%), 26.97%, and (1.30%) from 2018 to 2019, 2019 to 2020, 2020 to the FTY, and the FTY to FPFTY respectively.

Response:

A.1. The increase in Slag from 2018 to 2019 includes an increase in use and unit cost. Slag is used a PWSA makes repairs to the systems.

A.2. The decrease in Slag from 2019 to 2020 is a result of work slowdown caused by the COVID-19 pandemic.

A.3. The increase in Slag from 2020 to FTY includes an anticipated increase in use and unit cost. Slag is used a PWSA makes repairs to the systems.

A.4. The increase in Slag from FTY to FPFTY includes an anticipated increase in use and unit cost. Slag is used a PWSA makes repairs to the systems.

B. Like above, from 2018-2019 slight increase in work followed by a decrease due to Covid from 2019-2020. FTY budgeted for an increase in work compared to 2019 with a slight decrease budgeted from FTY to FPFTY.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

- I&E-RE-8-D** Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Provide the following:
- A. Explanation in detail for the total increases/decreases in Equipment cost of 78.77%, (84.18%), 758.14%, and (5.38%) from 2018 to 2019, 2019 to 2020, 2020 to the FTY, and the FTY to FPFTY respectively.
 - B. Detailed explanation and purpose for expensing equipment cost in the ratemaking calculation in contrast to capitalization of entire equipment cost.

Response:

- A. The increase from 2018 to 2019 and the decrease from 2019 to 2020 is based upon the water and sewer equipment replacements needs of the PWSA. The large increase from 2020 to FTY is due to the ERP implementation costs. The decrease from FTY to FPFTY is due to the decrease in the ERP implementation costs since the ERP implementation will be complete in FPFTY.
- B. The PWSA is a cash-basis utility and must pay for the cost in full when due. The costs cannot be received over multiple years.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I&E-RE-10-D Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail the increases/decreases in the following sub-categories of Operating Contracts and provide the detailed basis, calculations, and supporting documentation for the FTY and FPFTY expense projections:

- A. Annual Sewer Contracts (5305):
 - 1. From 2018 (\$3,127,669) to 2019 (\$6,631,750).
 - 2. From 2018 (\$6,631,750) to 2020 (\$8,056,519).
 - 3. From 2020 (\$8,056,519) to FTY (\$8,475,402).
 - 4. From FTY (\$8,475,402) to FPFTY (\$7,290,000).

- B. Curb Box Repair (5328):
 - 1. From 2020 (\$0) to FTY (\$150,000).
 - 2. From FTY (\$150,000) to FPFTY (\$155,000).

- C. Inspection Field (5347):
 - 1. From 2018 (\$793,856) to 2019 (\$698,229).
 - 2. From 2019 (\$698,229) to 2020 (\$1,424,101).
 - 3. From 2020 (\$1,424,101) to FTY (\$1,772,500).
 - 4. From FTY (\$1,772,500) to FPFTY (\$2,117,890).

- D. Landscape (5355):
 - 1. From 2018 (\$87,840) to 2019 (\$90,869).
 - 2. From 2019 (\$90,869) to 2020 (\$118,865).
 - 3. From 2020 (\$118,865) to FTY (\$125,000).
 - 4. From FTY (\$125,000) to FPFTY (\$220,000).

- E. Operating Contract - Other (5370):
 - 1. From 2018 (\$1,996,525) to 2019 (\$1,816,157).
 - 2. From 2019 (\$1,816,157) to 2020 (\$5,296,671).
 - 3. From 2020 (\$5,296,671) to FTY (\$9,277,747).
 - 4. From FTY (\$9,277,747) to FPFTY (\$13,291,035).

Response:

- A.1. The increase in Annual Sewer Contracts from 2018 to 2019 includes an increase in contract costs and increase in emergency response work.
- A.2. The increase in Annual Sewer Contracts from 2019 to 2020 includes an increase in contract costs and increase in emergency response work.
- A.3. The increase in Annual Sewer Contracts from 2020 to FTY includes an anticipated increase in contract costs and increase in emergency response work.
- A.4. The decrease in Annual Sewer Contracts from FTY to FPFTY assumes an anticipated decrease in emergency response work.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
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B.1. The increase in Curb Box Repair from 2020 to FTY is due to the implementation of an annual curb box repair program.

B.2. The increase in Curb Box Repair from FTY to FPFTY includes anticipated increase in contract costs.

C.1. The decrease in Inspection Field from 2018 to 2019 is due to a decrease in the number of inspections. This line item generally supports the emergency repair work completed through Annual Sewer Contracts (5305), Emergency Water Line Repair (5342), and Concrete Repairs (5413).

C.2. The increase in Inspection Field from 2019 to 2020 is due to an increase in contract costs and number of inspections. This line item generally supports the emergency repair work completed through Annual Sewer Contracts (5305), Emergency Water Line Repair (5342), and Concrete Repairs (5413).

C.3. The increase in Inspection Field from 2020 to FTY includes an anticipated increase in contract costs and number of inspections. This line item generally supports the emergency repair work completed through Annual Sewer Contracts (5305), Emergency Water Line Repair (5342), and Concrete Repairs (5413).

C.4. The increase in Inspection Field from FTY to FPFTY includes an anticipated increase in contract costs and number of inspections. This line item generally supports the emergency repair work completed through Annual Sewer Contracts (5305), Emergency Water Line Repair (5342), and Concrete Repairs (5413).

D.1. The increase in Landscaping from 2018 to 2019 is due to increase contract costs and deferred grounds maintenance at all locations.

D.2. The increase in Landscaping from 2019 to 2020 is due to increase contract costs and deferred grounds maintenance at all locations.

D.3. The increase in Landscaping from 2020 to FTY includes an anticipated increase contract costs and addressing deferred grounds maintenance at all locations.

D.4. The increase in Landscaping from FTY to FPFTY includes an anticipated increase contract costs and addressing deferred grounds maintenance at all locations.

E.1. The decrease in Operating Contract – Other from 2018 to 2019 is due to less work performed on the line locating, pump and motor, manhole point repair, CSO flow monitoring, and tank inspection contracts.

E.2. The increase in Operating Contract – Other from 2019 to 2020 is due to an increase in work performed on the line locating, pump and motor, manhole point repair, CSO flow monitoring, and tank inspection contracts.

E.3. The increase in Operating Contract – Other from 2020 to FTY includes an anticipated increase in contract costs for the line locating, pump and motor, manhole point repair, CSO flow monitoring, washout disconnection (CSO Mandated), CCTV and heavy cleaning, trunk line transfer to ALCOSAN, and tank inspection contracts.

E.4. The increase in Operating Contract – Other from FTY to FPFTY includes an anticipated increase in contract costs for the line locating, pump and motor, manhole point repair, CSO flow

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monitoring, washout disconnection (CSO Mandated), CCTV and heavy cleaning, trunk line transfer to ALCOSAN, and tank inspection contracts.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I&E-RE-11-D

Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail the increases/decreases in the following sub-categories of Repairs and Maintenance and provide the detailed basis, calculations, and supporting documentation for the FTY and FPFTY expense projections:

A. Annual Software Support (5402):

1. From 2018 (\$678,146) to 2019 (\$916,955).
2. From 2019 (\$916,955) to 2020 (\$1,424,283).
3. From 2020 (\$1,424,283) to FTY (\$1,716,321).
4. From FTY (\$1,716,321) to FPFTY (\$2,634,259).

B. Building Repairs (5405):

1. From 2018 (\$224,240) to 2019 (\$188,512).
2. From 2019 (\$188,512) to 2020 (\$173,305).
3. From 2020 (\$173,305) to FTY (\$126,072).
4. From FTY (\$126,072) to FPFTY (\$1,761,635).

C. Computer Software Support (5411):

1. From 2019 (\$0) to 2020 (\$48,050).
2. From 2020 (\$48,050) to FTY (\$140,936).
3. From FTY (\$140,936) to FPFTY (\$122,209).

D. Concrete Repairs (5413):

1. From 2018 (\$6,929,923) to 2019 (\$6,318,850).
2. From 2019 (\$6,318,850) to 2020 (\$5,248,496).
3. From 2020 (\$5,248,496) to FTY (\$5,505,800).
4. From FTY (\$5,505,800) to FPFTY (\$8,019,000).

E. Fence Repairs (5420):

1. From 2018 (\$1,990) to 2019 (\$2,914).
2. From 2019 (\$2,914) to 2020 (\$42,175).
3. From 2020 (\$42,175) to FTY (\$145,680).
4. From FTY (\$145,680) to FPFTY (\$134,500).

F. Heavy Equipment Repairs (5437):

1. From 2018 (\$2,781) to 2019 (\$38,853).
2. From 2019 (\$38,853) to 2020 (\$32,326).
3. From 2020 (\$32,326) to FTY (\$64,800).
4. From FTY (\$64,800) to FPFTY (\$65,000).

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G. Plant Repairs (5462):

1. From 2018 (\$0) to 2019 (\$136,910).
2. From 2019 (\$136,910) to 2020 (\$297,515).
3. From 2020 (\$297,515) to FTY (\$260,000).
4. From FTY (\$260,000) to FPFTY (\$641,700).

H. Vehicle Repairs (5462):

1. From 2018 (\$6,630) to 2019 (\$22,476).
2. From 2019 (\$22,476) to 2020 (\$890,330).
3. From 2020 (\$890,330) to FTY (\$748,161).
4. From FTY (\$748,161) to FPFTY (\$780,000).

Response:

A.1. The increase in Annual Software Support from 2018 to 2019 includes increases in licensing, maintenance, and hosting costs; as well as new contracts such as Cogsdale support for stormwater licenses and support, additional eBuilder licenses, and InfoMaster.

A.2. The increase in Annual Software Support from 2019 to 2020 includes increases in licensing, maintenance, and hosting costs; as well as new contracts such as SCADA support, additional Lab support, and website hosting.

A.3. The increase in Annual Software Support from 2020 to FTY includes anticipated increases in software support, notably the new ERP system.

A.4. The increase in Annual Software Support from FTY to FPFTY includes anticipated increased in software support, notable the new ERP system.

B.1. The decrease in Building Repairs from 2018 to 2019 is due to decreased demand for building repairs.

B.2. The decrease in Building Repairs from 2019 to 2020 is due to budget cuts caused by the COVID-19 pandemic.

B.3. The decrease in Building Repairs from 2020 to FTY is a result of a portion of building repairs being allocated to 5462

B.4. The increase in Building Repairs from FTY to FPFTY includes an anticipated increase in repairs, notably at the Water Treatment Plant.

C.1. The increase in Computer Software Support from 2019 to 2020 includes increased software support costs, notably for camera security.

C.2. The increase in Computer Software Support from 2020 to FTY includes anticipated increased software costs, notably for additional camera security.

C.3. The decrease in Computer Software Support from FTY to FPFTY includes anticipated decreases in software support as a result of the ERP implementation being completed.

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and R-2021-3024779 (stormwater)**

- D.1. The decrease in Concrete Repairs from 2018 to 2019 includes a reduction in the sites that needed to be paved from the prior year.
- D.2. The decrease in Concrete Repairs from 2019 to 2020 is a result of the COVID-19 pandemic.
- D.3. The increase in Concrete Repairs from 2020 to FTY includes an increase in contract costs, as well as an increase in surface restoration due to emergency water and sewer repairs and lead line work.
- D.4. The increase in Concrete Repairs from FTY to FPFTY includes an increase in contract costs, as well as an increase in surface restoration due to emergency water and sewer repairs and lead line work.
- E.1. The increase in Fence Repairs from 2018 to 2019 includes an increase in fence repairs at all PWSA facilities.
- E.2. The increase in Fence Repairs from 2019 to 2020 includes an increase in fence repairs at all PWSA facilities.
- E.3. The increase in Fence Repairs from 2020 to FTY includes an anticipated increase in fence repairs at all PWSA facilities.
- E.4. The decrease in Fence Repairs from FTY to FPFTY includes an anticipated decrease in fence repairs as a result of the work completed in the prior years.
- F.1. The increase in Heavy Equipment Repairs from 2018 to 2019 includes an increase in preventative maintenance and repairs on backhoes.
- F.2. The decrease in Heavy Equipment Repairs from 2019 to 2020 is a result of a decrease in the need for repairs.
- F.3. The increase in Heavy Equipment Repairs from 2020 to FTY includes an anticipated increase in maintenance costs, upgrades to equipment, and additional equipment.
- F.4. The increase in Heavy Equipment Repairs from FTY to FPFTY includes an anticipated increase in maintenance costs, upgrades to equipment, and additional equipment.
- G.1. The increase in Plant Repairs from 2018 to 2019 is a result of expenses being allocated from another general ledger code.
- G.2. The increase in Plant Repairs from 2019 to 2020 includes an increase in plant repairs, notably intake and PAX system repairs.
- G.3. The decrease in Plant Repairs from 2020 to FTY includes an anticipated decrease in the number of repairs due to funding limitations.
- G.4. The increase in Plant Repairs from FTY to FPFTY includes an anticipated increase in the number of plant repairs that were deferred in FTY.

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and R-2021-3024779 (stormwater)**

- H.1. The increase in Vehicle Repairs from 2018 to 2019 includes increases for preventative maintenance and repairs on specialized vehicles.
- H.2. The increase in Vehicle Repairs from 2019 to 2020 includes the payment to the City of Pittsburgh for PWSA’s portion of the City’s vehicle maintenance contract. In prior years, this payment was included in the annual flat payment to the City.
- H.3. The decrease in Vehicle Repairs from 2020 to FTY includes anticipated decreases in repairs due to the fleet containing newer vehicles.
- H.4. The increase in Vehicle Repairs from FTY to FPFTY includes anticipated increased vehicles repairs costs.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

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to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
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I&E-RE-16-D Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail the increases/decreases in the following sub-categories of Leases and Rents and provide the detailed basis, breaking down expense items with supporting documentation for the FTY and FPFTY expense projections:

- A. Equipment Rental (7215):
 - 1. From 2020 (\$191,672) to FTY (\$220,437).
 - 2. From FTY (\$220,437) to FPFTY (\$239,064).

- B. Office Rent (7255):
 - 1. From 2020 (\$971,698) to FTY (\$912,900).
 - 2. From FTY (\$912,900) to FPFTY (\$1,221,960).

Response:

- A.1. The increase in Equipment Rental from 2020 to FTY includes an anticipated increase in heavy equipment and pump rentals.
- A.2. The increase in Equipment Rental from FTY to FPFTY includes an anticipated increase in heavy equipment and pump rentals.

- B.1. The decrease in Office Rent from 2020 to FTY is a result of two years of CAM costs paid during 2020.
- B.2. The increase in Office Rent from FTY to FPFTY includes an anticipated increase in costs for additional space needed for operations.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

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I&E-RE-17-D

Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail the increases/decreases in the following sub-categories of Professional Services and provide the detailed basis and a breakdown of expense items with supporting documentation for the FTY and FPFTY expense projections:

A. Advertising (7305):

1. From 2020 (\$13,754) to FTY (\$24,400).
2. From FTY (\$24,400) to FPFTY (\$27,700).

B. Advertising – Marketing (7307):

From FTY (\$0) to FPFTY (\$12,000).

C. Billing Contracts (7315):

1. From 2019 (\$470,173) to 2020 (\$408,853).
2. From 2020 (\$408,853) to FTY (\$833,799).
3. From FTY (\$833,799) to FPFTY (\$837,399).

D. Consultants (7323):

1. From 2018 (\$1,161,921) to 2019 (\$502,507).
2. From 2019 (\$502,507) to 2020 (\$2,298,014).
3. From 2020 (\$2,298,014) to FTY (\$1,836,791).
4. From FTY (\$1,836,791) to FPFTY (\$2,273,102).

E. Consulting Engineers (7332)

1. From 2018 (\$147,182) to 2019 (\$26,831).
2. From 2019 (\$26,831) to 2020 (\$69,487).
3. From 2020 (\$69,487) to FTY (\$75,250).
4. From FTY (\$75,250) to FPFTY (\$200,000).

F. Misc. Service Non-capital (7335):

1. From 2018 (\$3,583,069) to 2019 (\$5,264,191).
2. From 2019 (\$5,264,191) to 2020 (\$3,565,869).
3. From 2020 (\$3,565,869) to FTY (\$5,094,286).
4. From FTY (\$5,094,286) to FPFTY (\$6,798,506).

G. Insurance Workers Comp. (7365):

1. From 2019 (\$0) to 2020 (\$480,217).
2. From 2020 (\$480,217) to FTY (\$450,000).
3. From FTY (\$450,000) to FPFTY (\$455,000).

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H. Legal (7370):

1. From 2018 (\$2,894,514) to 2019 (\$2,388,647).
2. From 2019 (\$2,388,647) to 2020 (\$2,620,392).
3. From 2020 (\$2,620,392) to FTY (\$3,376,500).
4. From FTY (\$3,376,500) to FPFTY (\$3,410,400).

I. Professional Service - Other (7383):

1. From 2018 (\$5,307,168) to 2019 (\$6,083,922).
2. From 2019 (\$6,083,922) to 2020 (\$6,143,089).
3. From 2020 (\$6,143,089) to FTY (\$8,876,882).
4. From FTY (\$8,876,882) to FPFTY (\$9,094,297).

J. Water Liens (7390):

1. From 2018 (\$0) to 2019 (\$8,000).
2. From 2019 (\$8,000) to 2020 (\$30,000).
3. From 2020 (\$30,000) to FTY (\$100,000).
4. From FTY (\$100,000) to FPFTY (\$84,000).

Response:

A.1. The increase in Advertising from 2020 to FTY includes an anticipated increase in advertising. Most notable for solicitations and Human Resources.

A.2. The increase in Advertising from FTY to FPFTY includes an anticipated increase in advertising, most notably for solicitations and Human Resources.

B.1. The increase in Advertising – Marketing from FTY to FPFTY includes anticipated costs for community outreach for current and future capital project.

C.1. The decrease in Billing Contracts from 2019 to 2020 includes decreases in activity for billings.

C.2. The increase in Billing Contracts from 2020 to FTY includes an anticipated increase in contractual service for billing due to a new contract.

C.3. The increase in Billing Contracts from FTY to FPFTY includes and anticipated increase in contractual service for billing due to a new contract.

D.1. The decrease in Consultants from 2018 to 2019 is a result of the PWSA hiring embedded consultants as full-time PWSA employees.

D.2. The increase in Consultants from 2019 to 2020 includes an increase in consulting services from PWSA, most notably to support stormwater efforts and environmental compliance.

D.3. The decrease in Consultants from 2020 to FTY included an anticipated decrease in consulting services due to the significant cut of PWSA’s last rate case.

D.4. The increase in Consultants from FTY to FPFTY includes an anticipated increase in consulting services for environmental compliance.

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E.1. The decrease in Consulting Engineers from 2018 to 2019 is a result of PWSA’s ability to negotiate a lower price for the annual Consulting Engineers Report, which is required to be completed annual by PWSA’s bond indenture.

E.2. The increase in Consulting Engineers from 2019 to 2020 includes an increase in costs for the annual Consulting Engineers Report.

E.3. The increase in Consulting Engineers from 2020 to FTY includes an anticipated increase in costs for the annual Consulting Engineers Report.

E.4. The increase in Consulting Engineers from FTY to FPFTY includes an anticipated increase in costs for the annual Consulting Engineers Report, which includes a site visit to all facilities.

F.1. The increase in Misc. Service Non-capital from 2018 to 2019 includes increases in various support, notably flow monitoring, modeling, stormwater efforts, and master planning.

F.2. The decrease in Misc. Service Non-capital from 2019 to 2020 includes a reduction in needed support, notably hiring embedded staff as full-time PWSA employees.

F.3. The increase in Misc. Service Non-capital from 2020 to FTY includes an anticipated increase in compliance costs, notably flow monitoring, modeling, stormwater efforts, and master planning.

F.4. The increase in Misc. Service Non-capital from FTY to FPFTY includes an anticipated increase in compliance costs, notably flow monitoring, modeling, stormwater efforts, and master planning.

G.1. The increase in Insurance Workers Comp. from 2019 to 2020 is a result of allocating the budget amounts from Workers Comp. Insurance (4130) to Insurance Workers Comp. (7365) for 2020.

G.2. The decrease in Insurance Works Comp. from 2020 to FTY includes an anticipated reduction of premium costs that the PWSA negotiated with its insurance carrier.

G.3. The increase in Insurance Workers Comp. from FTY to FPFTY includes an anticipated increase in the insurance premium.

H.1. The decrease in Legal from 2018 to 2019 is due to the PWSA not submitting a rate case in FY 2019.

H.2. The increase in Legal from 2019 to 2020 includes increases in legal services for PWSA, most notably related to PUC support.

H.3. The increase in Legal from 2020 to FTY includes an anticipated increase in legal services for PWSA, most notable related to PUC support.

H.4. The increase in Legal from FTY to FPFTY includes an anticipated increase in legal services for PWSA, most notable related to PUC support.

I.1. The increase in Professional Services – Other from 2018 to 2019 includes increase in services such as flow monitoring, mapping, and Compliance Plan support.

I.2. The increase in Professional Services – Other from 2019 to 2020 includes increases in services such as remote site SCADA upgrade and additional support at the Water Treatment Plant.

I.3. The increase in Professional Services – Other from 2020 to FTY includes anticipated increases in services, most notable remote site SCADA upgrade.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I.4. The increase in Professional Services – Other from FTY to FPFTY includes anticipated increases in services.

J.1. The increase in Water Liens from 2018 to 2019 is due to increased lien filings and the increased costs required by the County to file a lien.

J.2. The increase in Water Liens from 2019 to 2020 is due to increased lien filings and the increased costs required by the County to file a lien.

J.3. The increase in Water Liens from 2020 to FTY is due to anticipated increased lien filings and the increased costs required by the County to file a lien.

J.4. The decrease in Water Liens from FTY to FPFTY is due to anticipated decreased lien filings.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

I&E-RE-40-D Reference PWSA Volume I, FR-III.9 concerning Professional Services (7300), provide the following:

- A. Identify the professional services expense title (legal, consultants, professional services-other, etc.), account number, and dollar amounts attributed to lobbying expense incurred in 2018, 2019, 2020, and claimed in the FTY and FPFTY.
- B. Explanation and purpose for claiming lobbying related expenses in professional services expense.

Response:

A. See below.

Fiscal Year	Amount – Actual	Amount – Budget	Expense
2018	-	-	None
2019	\$60,433.24	-	Lobbying Expense
2020	-	\$90,119.49	Lobbying Expense
2021	-	\$90,000.00	Lobbying Expense
2022	-	\$90,000.00	Lobbying Expense

B. As a public, municipal organization McNees and Saxton and Stump (PWSA’s lobbyist) assists PWSA with various issues regarding the organization, including funding opportunities.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

I&E-RE-20-DReference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning operating expenses by account. Explain in detail the decreases/increases in the following sub-categories of Utilities and provide the detailed basis and a breakdown of expense items with supporting documentation for the FTY and FPFTY expense projections:

A. Electric (7605):

1. From 2018 (\$4,375,878) to 2019 (\$3,998,159).
2. From 2019 (\$3,998,159) to 2020 (\$3,784,526).
3. From 2020 (\$3,784,526) to FTY (\$4,267,200).
4. From FTY (\$4,267,200) to FPFTY (\$4,395,216).

B. Natural Gas City (7650):

1. From 2018 (\$383,384) to 2019 (\$367,363).
2. From 2019 (\$367,363) to 2020 (\$314,785).
3. From 2020 (\$314,785) to FTY (\$400,000).
4. From FTY (\$400,000) to FPFTY (\$420,000).

C. Cellular Phone (7680):

1. From 2018 (\$142,402) to 2019 (\$190,291).
2. From 2019 (\$190,291) to 2020 (\$144,037).
3. From 2020 (\$144,037) to FTY (\$162,565).
4. From FTY (\$162,565) to FPFTY (\$165,000).

Response:

A.1. The decrease in Electric from 2018 to 2019 is due to decreased electric use, most notably at the Water Treatment Plant.

A.2. The decrease in Electric from 2019 to 2020 is due to decreased electric use, most notably at the Water Treatment Plant.

A.3. The increase in Electric from 2020 to FTY includes an anticipated increase in our contract extension for PWSA current energy providers. This increase also considers the additional cost of electricity since the Microfiltration Plant is online.

A.4. The increase in Electric from FTY to FPFTY includes an anticipated increase in our contract extension for PWSA current energy providers. This increase also considers the additional cost of electricity since the Microfiltration Plant is online.

B.1. The decrease in Natural Gas City from 2018 to 2019 is due to decreased natural gas use, most notably at the Water Treatment Plant.

B.2. The decrease in Natural Gas City from 2019 to 2020 is due to decreased natural gas use, most notably at the Water Treatment Plant.

B.3. The increase in Natural Gas City from 2020 to FTY includes an anticipated increase in cost and use, most notably at the Water Treatment Plant and Microfiltration Plant.

B.4. The increase in Natural Gas City from FTY to FPFTY includes an anticipated increase in cost and use, most notably at the Water Treatment Plant and Microfiltration Plant.

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

C.1. The increase in Cellular Phone from 2018 to 2019 includes increases in staffing and plan expense.

C.2. The decrease in Cellular Phone from 2019 to 2020 is a result of decreased usage.

C.3. The increase in Cellular Phone from 2020 to FTY includes increases in staffing and plan expense.

C.4. The increase in Cellular Phone from FTY to FPFTY includes increases in staffing and plan expense.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

I&E-RE-47-D Reference PWSA Volume I, FR-III.1 and the 2022 Cost of Service Study and Rate Design - FR-III.1 Excel file concerning the operating expenses by account. Provide a list fines and penalties levied by the state, federal, and other authorities for violations of laws and regulations and identify the sub-categories of expense items and dollar amounts incurred in 2018, 2019, 2020, and projected for the FTY and FPFTY.

Response:

See Attachment I&E-RE-47-D.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

PWSA Response to I&E-RE-47-D - Attachment:

2018 - Spent

<u>GL Code</u>	<u>Amount</u>	<u>Agency</u>
910-7730	\$ 10,000	COMMONWEALTH OF PENNSYLVANIA
910-7730	5,000	COMMONWEALTH OF PENNSYLVANIA

Total \$ 15,000

2019 - Spent

<u>GL Code</u>	<u>Amount</u>	<u>Agency</u>
910-7330	\$ 20,000	COMMONWEALTH OF PENNSYLVANIA
910-7330	250	COMMONWEALTH OF PENNSYLVANIA
916-7715	88,333	PORT AUTHORITY OF ALLEGHENY COUNTY

Total \$ 108,583

2020 -Spent

<u>GL Code</u>	<u>Amount</u>	<u>Agency</u>
916-7715	\$ 15,000	WOMEN FOR A HEALTHY ENVIRONMENT (AG SETTLEMENT)
910-7330	20,000	COMMONWEALTH OF PENNSYLVANIA
910-7330	1,500	COMMONWEALTH OF PENNSYLVANIA
910-7330	500	COMMONWEALTH OF PENNSYLVANIA
910-7330	1,119	COMMONWEALTH OF PENNSYLVANIA
910-7330	1,077	COMMONWEALTH OF PENNSYLVANIA

Total \$ 39,196

2021 Budget

<u>GL Code</u>	<u>Amount</u>	<u>Agency</u>
910-7330	\$ 2,250	COMMONWEALTH OF PENNSYLVANIA
916-7715	950,000	BUDGETED AMOUNT

Total \$ 952,250

2022 Budget

<u>GL Code</u>	<u>Amount</u>	<u>Agency</u>
916-7715	\$ 600,000	BUDGETED AMOUNT

Total \$ 600,000

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
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and R-2021-3024779 (stormwater)**

I&E Exhibit No. 2 Schedule 16 Page 1 of 1

I&E-RE-54-D

Reference PWSA Statement No. 6, p. 27 (Direct Testimony of Julie Quigley), concerning PWSA’s proposal to expand the winter moratorium to senior citizens (65+) regardless of their income level. Provide the following:

- A. Any studies and/or surveys that PWSA conducted before reaching its decision for this proposal.
- B. Indicate whether PWSA has conducted any research on the impact its proposal would have upon collections. If so, please provide this research.
- C. Identify all the factors that PWSA considered in reaching the determination that using age instead of income level as a basis of qualifying for winter moratorium protection is appropriate for a jurisdictional utility.
- D. Additional cost impact on winter moratorium expansion in the FPFTY.

Response:

- A. PWSA did not conduct any studies or surveys in this matter; however, numerous senior citizens approached Director of Customer Service Julie Quigley during community meetings held by Homewood Concerned Citizens and the Allegheny County Area Agency on Aging, pointing out that there were no protections for them despite rising costs of living and no equal rise in social security benefits. These senior customers made the argument again and again that they had paid their PWSA bills for decades and were now faced with increasing rates, no increase in monthly income, and no way to make additional income. Having the threat of termination removed from seniors while they are dealing with increased heating utility bills in the winter months is a start to offering protections for this vulnerable group.
- B. PWSA has not conducted research on the impact of this proposal. Historically, customers’ aged debt increases due to Winter Moratorium protections, and those affected customers who did not make an effort to pay throughout the moratorium either entered into income based payment plans or faced termination of their water service for non-payment of water/wastewater conveyance charges.
- C. See I&E-RE-54-D.A.
- D. PWSA does not currently have an identifier for senior citizens in its Customer Information System that would permit determining the cost impact in the FPFTY.

Response Provided by: Julie A. Quigley, Director of Customer Service
The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

**I&E Statement No. 3
Witness: Ethan H. Cline**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Direct Testimony

of

Ethan H. Cline

Bureau of Investigation and Enforcement

Concerning:

**Class Cost of Service Study
Prospective Revenues
Water and Wastewater Rate Structure
Stormwater Operations
Stormwater Credit
Scale Back of Rates**

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1 **INTRODUCTION**

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

3 A. My name is Ethan H. Cline. My business address is Pennsylvania Public Utility
4 Commission, 400 North Street, Harrisburg, PA 17120.

5

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

7 A. I am employed by the Pennsylvania Public Utility Commission (“Commission”) in
8 the Bureau of Investigation and Enforcement (“I&E”) as a Fixed Utility Valuation
9 Engineer.

10

11 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT EXPERIENCE?**

12 A. An outline of my education and employment experience is attached as
13 Appendix A.

14

15 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

16 A. I&E is responsible for representing the public interest in rate and other
17 proceedings before the Commission. I&E's analysis in this proceeding is based on
18 its responsibility to represent the public interest. This responsibility requires the
19 balancing of the interests of ratepayers, the utility company, and the regulated
20 community as a whole.

1 **Q. WHAT ISSUES DO YOU ADDRESS IN YOUR DIRECT TESTIMONY?**

2 A. I will be addressing Pittsburgh Water and Sewer Authority's ("PWSA") class cost
3 of service study and providing a scale back recommendation if the Commission
4 grants less than the full requested increase. I will also be addressing the issues of
5 prospective additional revenue sources that may exist for PWSA, including the
6 recommended ratemaking treatment for any such revenue, and removal of
7 PWSA's minimum usage allowance and minimum charge in favor of a customer
8 charge for water and wastewater customers. Finally, I will also address the topics
9 of the proposed creation of the stormwater operations and its associated
10 stormwater fees and revenue allocation.

11

12 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

13 A. Yes. I&E Exhibit No. 3 contains schedules relating to my testimony.

14

15 **Q. DESCRIBE PWSA'S FILING.**

16 A. PWSA has requested a \$32.2 million overall revenue increase in the Fully
17 Projected Future Test Year ("FPFTY") ending December 31, 2022. However, if
18 PWSA receives the full amount of the rate increase requested, it is proposing to
19 phase-in the overall increase over a two-year period with \$22.0 million to be
20 recovered in 2022 and the remaining \$10.20 million to be recovered in 2023.

21 There is a caveat to PWSA's phase-in proposal, though, as PWSA indicated that if
22 its increase is adjusted downward, it may withdraw the proposal to phase in any

1 lower increase amount over a two-year period. (PWSA St. No. 2, p. 4).

2
3 **Q. DOES THIS CASE INCLUDE A REQUEST TO APPROVE THE FIRST**
4 **STORMWATER FEE PROPOSED BY A UTILITY REGULATED BY THE**
5 **COMMISSION?**

6 A. Yes.

7
8 **Q. HAS PWSA ALSO MADE A STAGE 2 COMPLIANCE FILING THAT**
9 **ADDRESSES STORMWATER ISSUES?**

10 A. Yes. As I&E witness Spadaccio has described, PWSA has a pending Stage 2
11 Compliance Plan case for stormwater which will, in part, address Directed
12 Questions¹ that may not be able to be answered in this rate case.

13
14 **Q. BASED UPON THESE FACTS, HOW SHOULD THE COMMISSION**
15 **VIEW I&E'S OVERALL POSITION IN THIS CASE REGARDING**
16 **PWSA'S STORMWATER FEE AND PROPOSALS?**

17 A. For the reasons described above, the positions I am setting forth here are based
18 upon the information available in the context of this rate case, without the benefit

¹ *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority-Stage 2-Stormwater*, Pennsylvania Public Utility Commission Technical Staff Report and Directed Questions Stage 2, Docket No. M-2018-2640802 et al, (issued on May 20, 2021).

1 of PWSA’s pending Stormwater Master Plan, or its pending agreement with the
2 City of Pittsburgh for stormwater management responsibilities.²

3
4 **PROSPECTIVE REVENUES**

5 **Q. HAS PWSA RECENTLY MADE ANY REQUESTS FOR RELIEF**
6 **FUNDING RELATED TO THE COVID-19 PANDEMIC AND/OR TO THE**
7 **AMERICAN RESCUE PLAN ACT OF 2021?**

8 A. Yes. As part of its investigation in this case, I&E asked PWSA whether it has or
9 will plan to seek relief funding that may be available through the American
10 Rescue Act of 2021. In its response to I&E-RS-8 and I&E-RS-10, attached as
11 I&E Exhibit No. 3, Schedules 1 and 2, PWSA indicated that on May 27, 2021, it
12 submitted a request to the City of Pittsburgh in an attempt to obtain \$143,835,000
13 over the next three to six years from the Coronavirus Local Fiscal Recovery Funds
14 (“CLFRF”). Additionally, in its response to I&E-RS-11, attached as I&E Exhibit
15 No. 3, Schedule 3, PWSA indicated that it intends to submit a request to the
16 Commonwealth of Pennsylvania for \$100,000,000 over five years from the
17 Coronavirus State Fiscal Recovery Funds (“CSFRF”), though it has not yet
18 submitted the request.

² PWSA St. No. 7, pp. 20-21, 28.

1 **Q. HAS PWSA RECEIVED ANY RESPONSE REGARDING ITS**
2 **REQUESTED FUNDS?**

3 A. Not at this time. Based on the responses to I&E's discovery requests, PWSA has
4 not received any guarantee that it would receive any relief funds or any timeline
5 on either of the two funding requests (I&E Ex. No. 3, Sch. 2-3).

6
7 **Q. HAS PWSA REFLECTED ANY OF THESE REQUESTED FUNDS IN THE**
8 **PRESENT BASE RATE PROCEEDING?**

9 A. No.

10

11 **Q. ARE YOU RECOMMENDING THAT PWSA REFLECT ANY OF THESE**
12 **REQUESTED FUNDS IN THE PRESENT BASE RATE PROCEEDING?**

13 A. Not at this time. As PWSA indicated in its responses to I&E-RS-10 and I&E-RS-
14 11, PWSA has not received any guarantee of funds from either the City of
15 Pittsburgh or the Commonwealth of Pennsylvania, nor is it guaranteed to be
16 granted all or a portion of its requested funds. Therefore, it would not be
17 reasonable to reflect these funds in the current base rate proceeding since it is
18 unclear when or if those funds will be distributed to PWSA. However, this
19 recommendation may change if the funds become available during the course of
20 the present rate proceeding.

1 **Q. HOW WOULD ANY ADDITIONAL FUNDING FROM THE CITY OF**
2 **PITTSBURGH AND/OR THE COMMONWEALTH OF PENNSYLVANIA**
3 **BE REFLECTED IN A BASE RATE PROCEEDING?**

4 A. Any additional funding, which does not need to be repaid, would properly be
5 reflected in a base rate proceeding as an additional revenue source. This
6 additional revenue source would have the effect of reducing the overall revenue
7 requirement that would need to be recovered from PWSA’s customers.

8
9 **Q. WHEN DOES PWSA INTEND TO FILE ITS NEXT BASE RATE**
10 **PROCEEDING?**

11 A. In its response to I&E-RS-2, attached as I&E Exhibit No. 3, Schedule 4, PWSA
12 indicated that its future base rate filing plans have yet to be determined, but it
13 anticipates filing another base rate case in 2023 or 2024.

14
15 **Q. IS IT POSSIBLE THAT PWSA WOULD BEGIN RECEIVING FUNDS**
16 **FROM THE CITY OF PITTSBURGH AND/OR THE COMMONWEALTH**
17 **OF PENNSYLVANIA IN BETWEEN BASE RATE CASES?**

18 A. Yes. Depending on the speed of the City of Pittsburgh or Commonwealth of
19 Pennsylvania’s funding request review process, PWSA could potentially begin
20 receiving funds at any time, including during the FPFTY in this proceeding.
21 However, it is impossible to determine or project when or if these funds would
22 become available to PWSA.

1 **Q. WHAT DO YOU RECOMMEND REGARDING THE TREATMENT OF**
2 **ANY POTENTIAL FUNDING FROM THE CLFRF OR CSFRF THAT**
3 **MAY BECOME AVAILABLE BEFORE THE PWSA’S NEXT BASE RATE**
4 **CASE?**

5 A. If PWSA receives funds through the CLFRF and/or CSFRF, or similar funding, I
6 recommend that PSWA track the funding, report the funding details to the
7 Commission and implement a credit on the customers’ bill equal to the amount of
8 the funding. The credit should be implemented as soon as practically possible so
9 that customers receive the benefit of this additional funding.

10

11 **Q. WHY DO YOU RECOMMEND PWSA PROVIDE A REFUND TO ITS**
12 **CUSTOMERS FOR ANY INTERIM FUNDING IT RECEIVES FROM THE**
13 **CLFRF OR CSFRF?**

14 A. PWSA is regulated as a cash flow company. This means rates established in this
15 case will recover the revenue necessary to operate the Company. Any additional
16 revenues received that were not reflected in the latest base rate case would allow
17 PWSA to over-recover revenues from its customers.

18

19 **Q. IS THERE ANOTHER UNDERLYING REASON THAT CUSTOMERS**
20 **SHOULD RECEIVE THE BENEFIT OF THE FUNDS RECEIVED FROM**
21 **THE CLFRF OR CSFRF?**

22 A. Yes. I believe these funds are intended to provide relief from the COVID-19

1 pandemic's impact. Therefore, based on the ongoing economic hardships being
2 experienced by customers, as well as the frequent base rate increases that they
3 have been subjected to, the most reasonable method to prevent an over-recovery
4 would be to refund any funds over and above the approved revenue requirement
5 through a negative surcharge or bill credit.

6
7 **CLASS COST OF SERVICE STUDY**

8 **Q. WHAT IS A CLASS COST OF SERVICE STUDY?**

9 A. A Class Cost of Service Study ("CCOSS") is an analysis of costs that allocates or
10 assigns to each customer or rate class its proportionate share of the company's
11 total cost of service (i.e., the company's total revenue requirement). The results of
12 these studies can be utilized to determine the relative cost of service for each class
13 and help determine the individual class revenue requirements and, to the extent a
14 particular class is above or below the system average rate of return, show the
15 subsidy each class receives or conversely the additional revenues that class or
16 classes contribute to the company's overall revenues.

17
18 **Q. DID PWSA PROVIDE A CLASS COST OF SERVICE STUDY IN ITS**
19 **BASE RATE FILING?**

20 A. Yes. PWSA provided a CCOSS in PWSA Exhibits HJS-1 through HJS-6, HJS-
21 1W through HJS-22W, and HJS-1WW through HJS-21WW to support its
22 proposed revenue requirement and cost allocations for the water and wastewater

1 systems and the CCOSS is described in PWSA Statement No. 4. The allocation of
2 stormwater costs is included in PWSA Exhibits HJS-1SW through HJS-9SW.

3
4 **Q. WHAT METHODOLOGY DID PWSA USE TO DEVELOP ITS CCOSS?**

5 A. As stated on page 13 of PWSA Statement No. 4, PWSA used the Base/Extra
6 Capacity cost allocation methodology to determine its water division allocations.
7 PWSA allocated wastewater conveyance costs using three steps: 1) assigning costs
8 to functional categories; 2) assigning the costs from each functional category to
9 cost categories; and 3) allocating the costs from each cost category to customer
10 classes based on customer class demand patterns (PWSA St. No. 4, p. 13).

11
12 **Q. IS THE BASE/EXTRA CAPACITY A REASONABLE METHODOLOGY**
13 **TO ALLOCATE COSTS IN THIS PROCEEDING?**

14 A. Yes. In general, PWSA's proposal to use the Base/Extra Capacity methodology to
15 develop its CCOSS model is reasonable.

16
17 **Q. WHAT MAJOR COST OF SERVICE STUDY CHANGE DID THE**
18 **COMPANY PROPOSE IN THIS CASE?**

19 A. In this case, the Company separated the cost of providing stormwater service into
20 separate stormwater operations. Prior to the creation of the stormwater operations,
21 these stormwater costs were mostly recovered in wastewater rates. (PWSA St.
22 No. 8, p. 6).

1 **Q. DID PWSA AGREE TO ADDRESS ADDITIONAL ISSUES AS PART OF**
2 **THE SETTLEMENT OF ITS LAST BASE RATE CASE?**

3 A. Yes. As noted by witness Harold Smith on pages 3-4 of PWSA Statement No. 4,
4 part of the resolution of the 2020 PWSA base rate case (Docket Nos. R-2020-
5 3017951 and R-2020-3017970) was that PWSA would consider the removal of
6 minimum usage allowances.

7

8 **Q. DID PWSA ADDRESS THE REMOVAL OF MINIMUM USAGE**
9 **ALLOWANCES?**

10 A. PWSA witness Smith provided a discussion of the reasons why PWSA believes it
11 should not remove the minimum usage allowances in this proceeding (PWSA
12 Statement No. 4, pp. 24-29). Although PWSA's testimony discusses this issue, it
13 is my position that it is not adequately addressed, as I will further explain below.

14

15 **WATER AND WASTEWATER RATE STRUCTURE**

16 **Q. WHAT RATE STRUCTURE IS PWSA PROPOSING IN THIS**
17 **PROCEEDING FOR WATER AND WASTEWATER CUSTOMERS?**

18 A. PWSA's rate structure for water and wastewater were initially presented on
19 PWSA Exhibit Nos. HJS-12W and HJS-11WW. The water and wastewater rates
20 each include a minimum charge determined by meter size and a usage rate that

1 varies based on customer class. The minimum charge includes a water or
2 wastewater allowance that is based upon the size of the meter or connection.

3
4 **Q. WHY DOES PWSA’S RATE STRUCTURE INCLUDE A MINIMUM**
5 **CHARGE RATHER THAN A CUSTOMER CHARGE WITH NO USAGE**
6 **ALLOWANCE?**

7 A. This rate structure was established before PWSA was under the Commission’s
8 jurisdiction. This type of rate structure provides more definitive revenue for
9 PWSA because customers pay an otherwise higher monthly charge, and less
10 revenue is collected through usage rates. (PWSA St. No. 4, p. 25).

11
12 **Q. WHAT ISSUES CONCERNING WATER, WASTEWATER AND**
13 **STORMWATER RATE DESIGN WILL YOU BE DISCUSSING?**

14 A. I will be discussing PWSA’s decision to not change its rate design from the
15 minimum charge to a more traditional customer charge (PWSA St No. 4, p. 24-
16 25). I will also discuss the proposed stormwater rate design below.

17
18 **Q. WHAT IS THE DIFFERENCE BETWEEN A MINIMUM CHARGE AND A**
19 **CUSTOMER CHARGE?**

20 A. A minimum charge is calculated using a meter component, a billing component, a
21 usage component, and adjustments (PWSA St. No. 4, p. 27). The minimum
22 amount of usage for each meter size is then subtracted from the usage rate

1 calculation so that PWSA does not double recover for the same amount of usage.
2 Alternatively, a customer charge segregates certain costs to be recovered by a
3 fixed, monthly charge and the remaining costs are recovered through a usage rate.
4 Some of the costs that are typically recovered from a customer charge are the cost
5 of meters, meter installation, services, and certain Operations and Maintenance
6 expenses. The cost of mains, or any other upstream plant such as filtration or
7 storage should not be recovered in the customer charge. The usage rate applies to
8 all usage under the customer charge methodology.
9

10 **Q. HAS THE ISSUE OF THE ELIMINATING THE MINIMUM CHARGE IN**
11 **FAVOR OF A CUSTOMER CHARGE BEEN RAISED IN ANY OF**
12 **PWSA’S PREVIOUS BASE RATE CASES?**

13 A. Yes. As early as PWSA’s s first base rate case in 2018 since first coming under
14 the Commission’s jurisdiction, I&E and OCA expressed concerns about the
15 appropriateness of PWSA’s minimum charge.³ In that case, PWSA agreed to
16 consider proposing the removal of its minimum charge in its next base rate
17 provided it did not “result in an unreasonable increase for affected customers.”⁴

³ Pa. PUC v. Pittsburgh Water and Sewer Authority, R-2018-3002645 et al., I&E St. No. 3, pp. 30-32; OCA St. No. 2, p. 18.

⁴ Pa. PUC v. Pittsburgh Water and Sewer Authority, R-2018-3002645 et al., Joint Petition for Settlement, p. 8, Section III(B)(7) (entered November 29, 2018).

1 **Q. DID THE COMPANY REMOVE THE MINIMUM CHARGE IN ITS NEXT**
2 **BASE RATE CASE?**

3 A. No. In its second base rate case, filed in 2020, PWSA again deferred action on
4 moving towards elimination of its minimum charge. In that case, PWSA claimed
5 that removal of the minimum charge would result in a reduction of fixed revenue,
6 adversely impact the bills for a significant number of non-residential customers,
7 and result in increases to rates for a “very large portion” of customers taking part
8 in the Bill Discount Program.⁵

9
10 **Q. WHAT DID YOU RECOMMEND IN THE 2020 BASE RATE CASE**
11 **CONCERNING PWSA’S PROPOSED MINIMUM CHARGES?**

12 A. In that case, I recommended that PWSA provide a customer cost analysis as part
13 of its CCOSS in its next base rate case as part of its continued exploration of
14 changing its rate design from a minimum charge to a customer charge. I made that
15 recommendation because adjusting the rate design from a minimum charge to a
16 customer charge in the 2020 base rate proceeding was not feasible at that time due
17 to the issues that PWSA raised and the effects of the COVID-19 pandemic.

⁵ Pa. PUC v. Pittsburgh Water and Sewer Authority, R-2020-3017951 et al., I&E St. No. 3, pp. 18-22.

1 **Q. DID THE COMPANY AGREE WITH YOUR RECOMMENDATION IN**
2 **THE 2020 BASE RATE CASE?**

3 A. Yes. In settlement of its 2020 base rate case, PWSA agreed with my
4 recommendation to provide a customer cost analysis as part of its CCOSS in its
5 combined water, wastewater, and stormwater filing as part of its continued
6 exploration of changing its rate design from a minimum charge to a customer
7 charge.⁶

8
9 **Q. IN THE INSTANT PROCEEDING, DID THE COMPANY PROVIDE A**
10 **TRADITIONAL CUSTOMER COST ANALYSIS AS AGREED TO IN THE**
11 **2020 BASE RATE CASE?**

12 A. No. I do note that in its response to OCA-IV-5, which is attached as I&E Exhibit
13 No. 3, Sch. 5, the Company provided the workpapers for the analysis it included
14 regarding the impact of removing the minimum charge shown on PWSA
15 Statement No. 4, pp. 26-27. However, while the materials that PWSA provided
16 through the discovery do contain more information than what was available in its
17 actual filing, they fall short of a comprehensive customer cost analysis.

⁶ Pa. PUC v. Pittsburgh Water and Sewer Authority, R-2020-3017951, Joint Petition for Settlement, p. 8, Section C(5) (September 30, 2021).

1 **Q. DID PWSA PROPOSE CHANGING FROM THE MINIMUM CHARGE**
2 **RATE DESIGN METHODOLOGY TO THE CUSTOMER CHARGE**
3 **METHODOLOGY IN THIS CASE?**

4 A. No. Similar to its previous base rate case, witness Smith discussed three
5 challenges that PWSA and its customers would face when removing the minimum
6 charge in this proceeding. First, PWSA claimed that removal of the minimum
7 charge would result in a significant reduction of fixed revenue for PWSA.
8 PWSA’s second claim was that the change would result in adverse bill impacts for
9 a significant number of non-residential customers. Third, witness Smith indicated
10 that over 60% of the customers taking part in the Bill Discount Program (“BDP”)
11 would see an increase in excess of 1.5 times the overall revenue increase (PWSA
12 St. No. 4, pp. 26-28).

13
14 **Q. REGARDING PWSA’S FIRST CONCERN, IS IT LIKELY PWSA WILL**
15 **EXPERIENCE A DECREASE IN FIXED REVENUE IF IT CHANGED ITS**
16 **RATE DESIGN FROM A MINIMUM CHARGE TO A CUSTOMER**
17 **CHARGE?**

18 A. Yes. It is likely PWSA would experience a decrease in fixed revenue if it changed
19 its rate design from a minimum charge to a customer charge. This is because
20 customers will only pay for the water they use or the wastewater treated as
21 opposed to the amount contained in the allowance.

1 **Q. IS THE AMOUNT OF FIXED REVENUE A COMPANY RECEIVES A**
2 **COMMON ISSUE IN RATE DESIGN?**

3 A. Yes. Unsurprisingly, utilities generally prefer to have higher fixed revenue;
4 however, affordability and conservation are concerns that also must be reflected in
5 a proper rate design. As I will describe below, historically, the Commission has
6 previously determined that the fixed revenue provided to utilities through the
7 customer charge is more reasonable than a usage allowance and minimum charge.

8
9 **Q. HAS THE COMMISSION TRANSITIONED AWAY FROM A WATER**
10 **ALLOWANCE IN THE RATE DESIGN OF WATER AND WASTEWATER**
11 **UTILITIES?**

12 A. Yes. As early as 1993, at which time I&E was known as the Office of Trial Staff
13 (“OTS”), OTS recommended that the Lemont Water Company’s water allowance
14 and minimum charge should be reduced and eventually totally eliminated. The
15 Commission agreed with this recommendation.⁷ More recently in the 2007 Total
16 Environmental Solutions, Inc. – Treasure Lake Water Division (“TESI”) case,⁸
17 OTS made a similar recommendation to remove TESI’s monthly water allowance
18 in its next base rate case, and the Commission adopted that recommendation.
19 Therefore, my position, which was reflected in PWSA’s first jurisdictional base

⁷ *Pennsylvania Public Utility Commission v. Lemont Water Co.*, 1994 WL 175097, at *26-28 (Pa.P.U.C.,1993).

⁸ *Pennsylvania Public Utility Commission v. Total Environmental Solutions, Inc. – Treasure Lake Water Division*, Docket No. R-00072495, et al., Order entered July 30, 2008, pp. 110-113.

1 rate case, and which has since then continued through the present proceeding, is
2 consistent with Commission precedent.

3
4 **Q. ASIDE FROM PRIOR COMMISSION DECISIONS, ARE THERE POLICY**
5 **REASONS WHY PWSA SHOULD TRANSITION FROM ITS MINIMUM**
6 **CHARGE?**

7 A. Yes. PWSA's current rate structure requires customers to pay for a defined
8 number of gallons of water, determined by meter size, regardless of whether they
9 use that water or not. This can be a detriment to low usage customers and a
10 disincentive to any conservation efforts because if a customer uses less than the
11 allowance in any month, that customer pays the full allowance amount for water
12 that they did not use. In contrast, billing customers' usage through volumetric
13 rates allows customers to fully reap the benefits of any conservation measures they
14 choose to implement and gives low-income customers a better means of
15 controlling their bills. In this way, customers are not only given clear and direct
16 price signals, but they are also empowered to respond to those signals by
17 controlling their usage.

18
19 **Q. ARE YOU AWARE OF ANY PWSA CUSTOMERS WHO HAVE BEEN**
20 **IMPACTED BY THE INEQUITY OF PWSA'S MINIMUM CHARGE?**

21 A. Yes. Counsel has informed me that at the public input hearing held in this case at
22 6 p.m. on June 28, 2021, PWSA customer Travis Evans testified. Mr Evans

1 testified that although he only uses about 1,200 gallons of water per month (based
2 on PWSA's own estimates), he is billed a minimum usage charge for 5,000
3 gallons per month based on the size of his water meter. Additionally, Mr. Evans
4 testified that the basis for his charges is unfair. Furthermore, Mr. Evans does not
5 use water conservation measures, as he noted that conservation would not do
6 anything to address his complaint, which is based upon an inaccurate and
7 overstated 5,000 gallon per month usage assumption.⁹ In my view, his
8 testimony, which demonstrates that he is using less than ¼ of the 5,000 gallon per
9 month allowance, exemplifies the unfairness of PWSA's minimum charge billing.
10 I also believe that the testimony of Mr. Evans exemplifies why the minimum
11 charge does not encourage customers to undertake water conservation measures
12 because, under the minimum charge framework, there would not be any
13 corresponding billing benefit.

14
15 **Q. DID PWSA PROVIDE AN ANALYSIS OF THE RATE SCENARIOS OF**
16 **INCLUDING AND EXCLUDING THE MINIMUM CHARGE?**

17 A. Yes. As I stated above, witness Smith provided a table on pages 26-27 of PWSA
18 St. No. 4 that shows the percent increase in the customer bill that would be
19 experienced by residential and non-residential customers under rates as proposed
20 and rates if the minimum allowance were to be removed. This table shows that,

⁹ PWSA Public Input Hearing, June 28, 2021 at 6 p m.

1 under the rate increase as proposed, 6,841 residential customers and 2,677 non-
2 residential customers would receive a customer bill increase above 40%. Under
3 the scenario of removing the minimum allowance, the table shows that 10,487
4 residential customers and 2,742 non-residential customers would receive a
5 customer bill increase above 40%.

6
7 **Q. WOULD THE CONCERNS REGARDING THE POTENTIAL CUSTOMER**
8 **BILL INCREASE PERCENTAGES BE THE SAME IF THE**
9 **COMMISSION GRANTS LESS THAN THE FULL INCREASE**
10 **REQUESTED BY PWSA?**

11 A. No. If the Commission grants less than the full increase requested by PWSA, then
12 the proposed rates would be scaled back and the percent increases experienced by
13 the various customer groups shown on the table on PWSA Statement No. 4, pp.
14 26-27 would then decrease. Depending on the level of revenue approved by the
15 Commission, the increases experienced by customers with the minimum
16 allowance removed may be reduced to a point where it is no longer an issue. This
17 determination, however, would not be able to be made until the Commission
18 approves a revenue increase amount for PWSA.

19
20 **Q. DID PWSA PROVIDE A TABLE THAT SHOWS THE IMPACT ON BDP**
21 **CUSTOMERS UNDER THE REMOVAL OF MINIMUM ALLOWANCE?**

22 A. Yes. The impact to BDP customers was addressed in the table on pp. 26-27 of

1 PWSA Statement No. 4, which shows that 189 BDP customers would see an
2 increase in their customer bill of over 40% with the minimum charge and 1,468
3 BDP customers would see a similar increase with the minimum charge removed.
4 This supports the concerns described by witness Smith. However, as discussed
5 above, these increases would be reduced along with any reduction by the
6 Commission in PWSA's requested revenue increase.

7
8 **Q. ARE THERE OPTIONS FOR TRANSITIONING AWAY FROM THE**
9 **MINIMUM CHARGE OTHER THAN SIMPLY REMOVING THE**
10 **MINIMUM CHARGE IN A SINGLE BASE RATE CASE?**

11 A. Yes. Several options exist to transition PWSA away from using a minimum
12 charge with a minimum usage allowance, including a partial reduction of the
13 minimum allowance, as well as removing the allowance while creating additional
14 usage rate blocks designed to lessen the impact on certain customers.

15
16 **Q. DID PWSA EVALUATE A PARTIAL REDUCTION OF THE MINIMUM**
17 **ALLOWANCE?**

18 A. Yes. PWSA stated in its response to OCA-IV-5, included as I&E Exhibit No. 3,
19 Schedule 5, that it "discussed and ultimately dismissed the consideration of
20 evaluating a partial reduction of the minimum allowance based on fairness and
21 equity." PWSA did not, however, indicate that it had considered creating
22 additional usage rate blocks.

1 **Q. IS IT GENERALLY POSSIBLE TO PHASE-OUT THE ALLOWANCE**
2 **OVER TIME WITHOUT A LARGE IMPACT TO CUSTOMERS?**

3 A. Yes. Usage rates can be adjusted, or new interim usage rates can be created to
4 mitigate the impact to certain customers at various usage levels that will
5 experience a larger increase.

6

7 **Q. WHAT DO YOU RECOMMEND PWSA DO REGARDING THE**
8 **MINIMUM CHARGE?**

9 A. I recommend, again, that PWSA provide a traditional customer cost analysis that
10 specifically identifies the plant and expenses included in the customer charge as
11 part of its CCOSS in its next base rate case as part of its continued exploration of
12 changing its rate design from a minimum charge to a customer charge. Although
13 PWSA agreed to provide this in the 2020 settlement, the information provided in
14 this case was inadequate because a traditional customer cost analysis, as I
15 described above, was not included in the filing. Therefore, I recommend that
16 PWSA be required to provide a full customer cost analysis in its next base rate
17 case that includes the cost of meters, meter installation, services, and certain
18 Operations and Maintenance expenses and excludes the cost of mains, or any other
19 upstream plant such as filtration or storage.

20 I also recommend that PWSA provide a plan to transition its rate design
21 away from the use of the minimum usage allowance with the first stage of that
22 plan occurring in the next base rate proceeding. As discussed above, this plan can

1 include a partial reduction of the minimum allowance or removing the allowance
2 while creating additional usage rate blocks. I am not making a specific
3 recommendation here as PWSA is in the best position to propose and implement
4 the transition in a way that minimizes the impact to customers. However, I&E and
5 other parties have raised this issue with PWSA in its two prior rate cases and it is
6 being raised for a third time in this proceeding. Therefore, the transition away
7 from a minimum charge should not be further delayed and PWSA should be
8 required to propose the first stage of the plan in its next base rate case.

9
10 **STORMWATER OPERATIONS**

11 **Q. IS PWSA PROPOSING TO CREATE SEPARATE STORMWATER**
12 **OPERATIONS IN THIS PROCEEDING?**

13 A. Yes. PWSA's stormwater operations, including its the proposed new stormwater
14 tariff fees, cost allocations, credit program, and fee structure, were presented by
15 witnesses Keith Readling (PWSA Statement No. 8), Tony Igwe (PWSA St. No. 7),
16 Julie A. Quigley (PWSA St. No. 6), and Harold J. Smith (PWSA St. No. 4).

17
18 **Q. WHY IS THE COMPANY PROPOSING TO CREATE SEPARATE**
19 **STORMWATER OPERATIONS IN THIS PROCEEDING?**

20 A. PWSA's system is combined sewer system, which means that in certain parts of
21 the system, wastewater and stormwater flows are conveyed through the same pipes
22 to the ALCOSAN wastewater treatment plant for treatment. This type of system

1 inherently has the problem that, during precipitation events, the capacity of the
2 system can be overwhelmed, which causes localized flooding, basement sewer
3 backups, and overflows to streams and rivers (PWSA St. No. 7, p. 6). In order to
4 mitigate the flooding, basement backup, and overflow issue, PWSA must
5 undertake certain capital projects and maintenance operations. Those costs are
6 currently recovered from the fees generated from customer charges for sewer
7 conveyance. It is PWSA's position that a sewer conveyance fee is not an
8 equitable way to recover the costs of stormwater management from customers
9 (PWSA St. No. 7, p. 3).

10
11 **Q. WHAT IS THE REVENUE REQUIREMENT FOR STORMWATER**
12 **OPERATIONS THAT PWSA HAS IDENTIFIED?**

13 A. PWSA witness Readling identified an overall stormwater operations revenue
14 requirement in the FPFTY of approximately \$36.7 million (PWSA St. No. 8, p. 3).

15
16 **Q. IS PWSA PROPOSING TO ALLOCATE A PORTION OF THE REVENUE**
17 **REQUIREMENT ACROSS THE WASTEWATER OPERATIONS?**

18 A. Yes. As described by PWSA witness Smith on pages 44-45 of PWSA Statement
19 No. 4, PWSA is proposing to reduce the burden of a new stormwater fee on
20 customers still recovering from the COVID-19 pandemic by reducing the overall
21 stormwater operations revenue requirement to be recovered from the stormwater

1 fees by \$12.4 million. PWSA is proposing that this \$12.4 million continue to be
2 recovered through the wastewater conveyance cost of service.

3
4 **Q. DO YOU AGREE WITH THE PROPOSED CONTINUED RECOVERY OF**
5 **\$12.4 MILLION IN STORMWATER REVENUE REQUIREMENT TO THE**
6 **WASTEWATER CONVEYANCE COST OF SERVICE?**

7 A. Yes, in this proceeding. The continued recovery of \$12.4 million of stormwater
8 costs through the wastewater cost of service is reasonable for three reasons. First,
9 as this is the first case in which a separate stormwater fee will be charged to
10 stormwater-only customers, I agree with Mr. Smith that the new stormwater
11 charge should not pose a financial challenge to customers still recovering from the
12 COVID-19 (PWSA St. No 4, p. 44). Second, the allocation to wastewater
13 conveyance customers is not overly burdensome because, until this rate case, those
14 customers have been accustomed to paying the full stormwater revenue
15 requirement in their wastewater conveyance rates. The creation of the stormwater
16 operations and associated fee still represents an overall reduction to the
17 wastewater conveyance rate. Third, based on the proposed 40% bad debt expense
18 rate for the stormwater operations compared to the 2% bad debt expense rate for
19 wastewater conveyance operations, denying the \$12.4 million allocation would
20 cost stormwater ratepayers much more than \$12.4 million once the bad debt rate
21 was applied.

1 **Q. SHOULD ANY ALLOCATION OF REVENUE REQUIREMENT FROM**
2 **STORMWATER OPERATIONS TO WASTEWATER CONVEYANCE**
3 **OPERATIONS BE EVALUATED ON A CASE BY CASE BASIS?**

4 A. Yes. In future base rate cases, if PWSA recommends a similar adjustment to
5 allocate a portion of the stormwater operations revenue requirement to wastewater
6 conveyance operations customers, that recommendation must be evaluated on its
7 merits in that base rate case. Until PWSA is fully billing stormwater customers
8 for that service, it will be impossible to determine the actual uncollectible rate to
9 properly design stormwater rates to recover the cost of providing stormwater
10 service.

11

12 **Q. IDENTIFY THE PROPOSED FEE DESIGN FOR PWSA’S**
13 **STORMWATER OPERATIONS.**

14 A. PWSA’s proposed fee structure will bill customers based on the amount of
15 impervious area on a property standardized into an Equivalent Residential Unit
16 (“ERU”). PWSA is proposing an ERU be equal to approximately 1,650 square
17 feet, or the median square footage of measured impervious area for single family
18 residential (“SFR”) parcels (PWSA St. No. 8, p. 7).

19

20 **Q. HOW DID PWSA DETERMINE THE IMPERVIOUS AREAS OF EACH**
21 **PROPERTY IN ITS SERVICE TERRITORY?**

22 A. The process that PWSA used to determine the impervious area for each of the

1 properties in its service area is described on pp. 7-9 of PWSA Statement No. 8. In
2 short, the process involved using ArcGIS mapping software and aerial imagery to
3 outline and measure the impervious area (sidewalks, rooftops and driveways) of
4 each of the properties in its service, excluding public roadways and railroad
5 ballast.

6
7 **Q. IS THE PROCESS USED BY PWSA TO DETERMINE THE IMPERVIOUS**
8 **AREA OF EACH PROPERTY REASONABLE?**

9 A. In general, yes. However, the process used by PWSA to determine the impervious
10 area of each property is not without its flaws. As noted in PWSA's response to
11 OCA-V-8, attached as I&E Exhibit No. 3, Schedule 6, parcel misalignment with
12 aerial imagery caused small slivers, generally less than 400 square feet, of
13 impervious area on one property to appear to be on another property. As I will
14 discuss further below, PWSA is proposing a 400 square foot minimum threshold
15 in its fee structure to avoid billing vacant properties for small slivers of
16 neighboring impervious area. Despite these flaws, the procedure used by PWSA
17 to determine the impervious area of each property is reasonable and cost-effective.

18
19 **Q. HOW IS PWSA PROPOSING TO CLASSIFY ITS STORMWATER**
20 **OPERATIONS CUSTOMERS?**

21 A. PWSA is proposing to separate its stormwater operations customers into two
22 customer classes; SFR and non-single family residential customers. Non-single

1 family residential customers include apartment buildings, commercial properties,
2 industrial properties, condominiums, schools, and railroad properties (PWSA St.
3 No. 8, p. 11). SFR and non-single family residential customers each have a fee
4 structure based on the definition of 1 ERU being equal to 1,650 square feet.

5
6 **Q. IDENTIFY THE PROPOSED FEE STRUCTURE FOR THE SFR**
7 **CUSTOMER CLASS.**

8 A. PWSA is proposing to bill the SFR customer class in three tiers. As shown on
9 PWSA's proposed tariff (PWSA Ex. TI-4, Original Page No. 7), Tier 1 will be
10 billed for 0.5 ERU and encompasses 400 square feet to less than 1,015 square feet.
11 Tier 2 will be billed 1 ERU and encompasses 1,015 square feet to less than 2,710
12 square feet. Tier 3 will be billed 2 ERUs and encompasses impervious greater or
13 equal to 2,710 square feet. PWSA Exhibit HJS-6SW shows that the total fee per
14 1 ERU is \$7.95. As part of the two-year phase-in, PWSA is proposing the fee per
15 1 ERU in the first year of \$5.96 (PWSA Ex. TI-4, Original Page No. 7). As I
16 noted above, customers with less than 400 square feet of impervious area will not
17 be billed a stormwater fee.

18
19 **Q. IS THE PROPOSED TIERED FEE STRUCTURE FOR THE SFR**
20 **CUSTOMER CLASS REASONABLE?**

21 A. Yes. Using a tiered fee structure based on a fee per ERU is a reasonable and easy
22 to understand approach for SFR customers.

1 **Q. IDENTIFY THE PROPOSED FEE STRUCTURE FOR THE NON-SINGLE**
2 **FAMILY RESIDENTIAL CUSTOMER CLASS.**

3 A. Similar to the SFR class, a customer in non-single family residential class with
4 less than 400 square feet of impervious area will not be billed a stormwater fee.
5 For all other customers with impervious area more than 400 square feet, as shown
6 on the Company’s proposed tariff (PWSA Ex. TI-4, Original Page No. 8), the total
7 measured impervious area for a non-single family residential customer will be
8 divided by 1,650 square feet (1 ERU) and rounded up to the nearest whole ERU.
9 The calculated ERU is then multiplied by the rate per ERU to determine a
10 customer’s monthly fee.

11
12 **Q. DO YOU AGREE WITH THE PROPOSED FEE STRUCTURE FOR THE**
13 **NON-SINGLE FAMILY RESIDENTIAL CLASS?**

14 A. Yes.

15

16 **STORMWATER CREDIT**

17 **Q. HAS PWSA INTRODUCED AN INCENTIVE FOR STORMWATER**
18 **CUSTOMERS TO REDUCE THEIR STORMWATER FEES?**

19 A. Yes. PWSA is proposing to implement a stormwater credit that will provide
20 credits to customers who implement certain stormwater control measures.
21 Specifically, non-single family residential customers would earn up to a 45%
22 credit for properties with stormwater controls that meet the 2016 City of

1 Pittsburgh stormwater standards and up to 60% for stormwater controls that meet
2 the 2019 City of Pittsburgh stormwater standards. PWSA is also proposing a
3 Residential Downspout Disconnection and Street Planters Credit for residential
4 customers, as well as a residential credit for capturing and slowly releasing runoff
5 from 3/4-inch of rain from the impervious areas on their property. (PWSA St. No.
6 8, pp. 16-17).

7
8 **Q. DO YOU OPPOSE THE PROPOSED STORMWATER CREDIT**
9 **PROGRAM?**

10 A. No. PWSA's proposed stormwater credit program is a reasonable method to
11 encourage stormwater customers, both SFR and non-single family residential, to
12 implement stormwater control measures which aligns with the overall goal of
13 mitigating the flooding, basement backup, and overflow issues.

14
15 **Q. WHAT IS THE PROPOSED COST OF THE STORMWATER CREDIT?**

16 A. PWSA witness Smith identified the cost of the program to be approximately
17 \$700,000, which is an estimation based on 5% of non-single family residential
18 stormwater charges (PWSA St. No. 4, p. 44). It should be noted, however, that
19 PWSA admitted in its response to OCA-IV-9, attached as I&E Exhibit No. 3,
20 Schedule 7, that the true cost of the credit program will not be known until the
21 stormwater fee and credit program are implemented.

1 **Q. IS PWSA’S ASSUMPTION THAT THE COST OF THE STORMWATER**
2 **CREDIT PROGRAM WILL BE EQUAL TO 5% OF THE NON-SINGLE**
3 **FAMILY RESIDENTIAL CHARGES REASONABLE?**

4 A. No. PWSA’s assumption that the cost of the stormwater credit program will be
5 equal to 5% of the non-single family residential charges is not reasonable for three
6 reasons. First, PWSA has provided no reason for the selection of 5% as the basis
7 of the calculation of the estimated cost of the stormwater credit. Second, PWSA
8 has provided no evidence to support its assumption that 5% of non-single family
9 residential buildings will qualify and apply for the stormwater credit. Third, it is
10 not reasonable to assume a full year of participation in the stormwater credit from
11 any stormwater customers.

12
13 **Q. DID PWSA PROVIDE SUPPORT FOR THE SELECTION OF 5% AS THE**
14 **BASIS OF THE CALCULATION OF THE ESTIMATED COST OF THE**
15 **STORMWATER CREDIT PROGRAM?**

16 A. No. Mr. Readling merely stated on page 19 of PWSA Statement No. 8 that “[t]he
17 estimated cost is based on 5% of non-single family residential buildings.” PWSA
18 provided no further factual basis or reasoning for the calculation of the cost of the
19 stormwater credit to be based upon 5% of non-single family residential buildings.

1 **Q. HAS PWSA PROVIDED ANY SUPPORT REGARDING THE LEVEL OF**
2 **NON-SINGLE FAMILY RESIDENTIAL PROPERTIES THAT**
3 **CURRENTLY MEET THE 2016 OR 2019 CITY OF PITTSBURGH**
4 **STORMWATER STANDARDS?**

5 A. No. In its response to an interrogatory sent by the Office of Small Business
6 Advocate (“OSBA”), OSBA-III-7 attached as I&E Exhibit No. 3, Schedule 8,
7 PWSA admitted that it has not estimated the number of non-single family
8 residential customers that currently meet either the 2016 or 2019 City of
9 Pittsburgh stormwater standards. Without this information, it is not possible to
10 reasonably forecast the eligibility level of participation in the stormwater credit
11 program.

12
13 **Q. ASIDE FROM ELIGIBILITY, ARE THERE OTHER REASONS WHY IT**
14 **IS UNREASONABLE TO ASSUME A FULL YEAR OF PARTICIPATION**
15 **IN THE STORMWATER CREDIT PROGRAM FROM ANY OF PWSA’S**
16 **STORMWATER CUSTOMERS?**

17 A. Yes. It is unreasonable to assume a full year of participation in the stormwater
18 credit program for any customer because this is the first year of the program. Any
19 participation in the program would require a customer to either install or verify it
20 had the qualifying stormwater mitigation measures, submit its application to
21 PWSA, have PWSA verify the eligibility of its stormwater mitigation measures,
22 and then have the credit be reflected in the bill. Each step in this process will take

1 time, and, as this process cannot begin until fees are already in effect, it is highly
2 unlikely for any customer to benefit from the stormwater credit program for the
3 entire year which PWSA has reflected in fees. Additionally, not all of the
4 prospective stormwater customers will pursue participation in the stormwater
5 credit program, as some customers may determine that it is simply not cost
6 effective to implement any mitigation measures and will instead opt to pay the full
7 fee. Finally, PWSA is assuming a rate of non-payment for stormwater-only
8 customers of 40% (PWSA St. No. 8, p. 5). This further reduces the number of
9 customers that would opt to participate in the stormwater credit program, as a
10 customer who does not pay their bill likely will not spend additional funds to
11 implement stormwater mitigation measures or apply for a credit.

12
13 **Q. WHAT DO YOU RECOMMEND REGARDING THE COST OF THE**
14 **STORMWATER CREDIT?**

15 A. For the reasons described above, it is apparent that there is not a well-supported
16 factual basis for PWSA's calculation of the approximately \$700,000 cost of the
17 stormwater credit program. Therefore, I recommend that the approximately
18 \$700,000 cost of the stormwater credit program be denied.

1 **SCALE BACK OF RATES**

2 **Q. WHAT SCALE BACK DO YOU RECOMMEND IF THE COMMISSION**
3 **GRANTS LESS THAN THE FULL INCREASE?**

4 A. Should the Commission grant an increase less than the full increase requested by
5 PWSA, I recommend that rates be scaled back based on the CCOSS approved by
6 the Commission. Further, I recommend that both the minimum charge and usage
7 rates be scaled back.

8
9 **SUMMARY OF RECOMMENDATIONS**

10 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.**

11 A. My recommendations are summarized as follows:

- 12 • PSWA should track any CLFRF or CSFRF funding, report the funding
13 details to the Commission and implement a credit on the customer's bill
14 equal to the amount of the funding.
- 15 • PWSA should provide a customer cost analysis as part of its CCOSS in
16 its next base rate case as part of its continued exploration of changing its
17 rate design from a minimum charge to a customer charge. PWSA's full
18 customer cost analysis should also include the cost of meters, meter
19 installation, services, and certain Operations and Maintenance expenses,
20 and exclude the cost of mains, or any other upstream plant such as
21 filtration or storage.

- 1 • PWSA should provide a plan to transition its rate design away from the
2 use of the minimum usage allowance with the first stage of that plan
3 occurring in the next base rate proceeding.
- 4 • The approximately \$700,000 cost of the stormwater credit program
5 should be denied.
- 6 • The minimum charge and usage rates should be scaled back based on
7 the CCOSS approved by the Commission.

8

9 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

10 **A. Yes.**

ETHAN H. CLINE

PROFESSIONAL EXPERIENCE AND EDUCATION

EXPERIENCE:

03/2009 - Present

Bureau of Investigation and Enforcement, Pennsylvania Public Utility Commission - Harrisburg, Pennsylvania

Fixed Utility Valuation Engineer – Assists in the performance of studies and analyses of the engineering-related areas including valuation, depreciation, cost of service, quality and reliability of service as they apply to fixed utilities. Assists in reviewing, comparing and performing analyses in specific areas of valuation engineering and rate structure including valuation concepts, original cost, rate base, fixed capital costs, inventory processing, excess capacity, cost of service, and rate design.

06/2008 – 09/2008

Akens Engineering, Inc. - Shiremanstown, Pennsylvania

Civil Engineer – Responsible, primarily, for assisting engineers and surveyors in the planning and design of residential development projects

10/2007 – 05/2008

J. Michael Brill and Associates - Mechanicsburg, Pennsylvania

Design Technician – Responsible, primarily, for assisting engineers in the permit application process for commercial development projects.

01/2006 – 10/2007

CABE Associates, Inc. - Dover, Delaware

Civil Engineer – Responsible, primarily, for assisting engineers in performing technical reviews of the sewer and sanitary sewer systems of Sussex County, Delaware residential development projects.

EDUCATION:

Pennsylvania State University, State College, Pennsylvania
Bachelor of Science; Major in Civil Engineering, 2005

- Attended NARUC Rate School, Clearwater, FL
- Attended Society of Depreciation Professionals Annual Conference and Training

TESTIMONY SUBMITTED:

I have testified and/or submitted testimony in the following proceedings:

1. Clean Treatment Sewage Company, Docket No. R-2009-2121928
2. Pennsylvania Utility Company – Water Division, Docket No. R-2009-2103937
3. Pennsylvania Utility Company – Sewer Division, Docket No. R-2009-2103980
4. UGI Central Penn Gas, Inc., 1307(f) proceeding, Docket No. R-2010-2172922
5. PAWC Clarion Wastewater Operations, Docket No. R-2010-2166208
6. PAWC Claysville Wastewater Operations, Docket No. R-2010-2166210
7. Citizens’ Electric Company of Lewisburg, Pa, Docket No. R-2010-2172665
8. City of Lancaster – Bureau of Water, Docket No. R-2010-2179103
9. Peoples Natural Gas Company LLC, Docket No. R-2010-2201702
10. UGI Central Penn Gas, Inc., Docket No. R-2010-2214415
11. Pennsylvania-American Water Company, Docket No. R-2011-2232243
12. Pentex Pipeline Company, Docket No. A-2011-2230314
13. Peregrine Keystone Gas Pipeline, LLC, Docket No. A-2010-2200201
14. Philadelphia Gas Works 1307(f), Docket No. R-2012-2286447
15. Peoples Natural Gas Company LLC, Docket No. R-2012-2285985
16. Equitable Gas Company, Docket Nos. R-2012-2312577, G-2012-2312597
17. City of Lancaster – Sewer Fund, Docket No. R-2012-2310366
18. Peoples TWP, LLC 1307(f), Docket No. R-2013-2341604
19. UGI Penn Natural Gas, Inc. 1307(f), Docket No. R-2013-2361763
20. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2013-2361764
21. Joint Application, Docket Nos. A-2013-2353647, A-2013-2353649, A-2013-2353651
22. City of Dubois – Bureau of Water, Docket No. R-2013-2350509
23. The Columbia Water Company, Docket No. R-2013-2360798
24. Pennsylvania American Water Company, Docket No. R-2013-2355276
25. Generic Investigation Regarding Gas-on-Gas Competition, Docket Nos. P-2011-227868, I-2012-2320323
26. Philadelphia Gas Works 1307(f), Docket No. R-2014-2404355
27. Pike County Light and Power Company (Gas), Docket No. R-2013-2397353
28. Pike County Light and Power Company (Electric), Docket No. R-2013-2397237
29. Peoples Natural Gas Company LLC 1307(f), Docket No. R-2014-2403939
30. UGI Penn Natural Gas, Inc. 1307(f), Docket No. R-2014-2420273
31. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2014-2420276
32. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2014-2420279
33. Emporium Water Company, Docket No. R-2014-2402324
34. Borough of Hanover – Hanover Municipal Water, Docket No. R-2014-2428304
35. Philadelphia Gas Works 1307(f), Docket No. R-2015-2465656
36. Peoples Natural Gas Company LLC 1307(f), Docket No. R-2015-2465172
37. Peoples Natural Gas Company – Equitable Division 1307(f), Docket No. R-2015-2465181
38. PPL Electric Utilities Corporation, Docket No. R-2015-2469275
39. UGI Penn Natural Gas, Inc. 1307(f), Docket No. R-2015-2480934
40. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2015-2480937
41. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2015-2480950

42. UGI Utilities, Inc. – Gas Division, Docket No. R-2015-2518438
43. Joint Application of Pennsylvania American Water, et al., Docket No. A-2016-2537209
44. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2016-2543309
45. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2016-2543311
46. City of Dubois – Company, Docket No. R-2016-2554150
47. UGI Penn Natural Gas, Inc., Docket No. R-2016-2580030
48. UGI Central Penn Gas, Inc. 1307(f), Docket No. R-2017-2602627
49. UGI Penn Natural Gas, Inc. 1307(f), Docket No. R-2017-2602633
50. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2017-2602638
51. Application of Pennsylvania American Water Company Acquisition of the Municipal Authority of the City of McKeesport, Docket No. A-2017-2606103
52. Pennsylvania American Water Company, Docket No. R-2017-2595853
53. Pennsylvania American Water Company Lead Line Petition, Docket No. P-2017-2606100
54. UGI Utilities, Inc. – Electric Division, Docket No. R-2017-2640058
55. Peoples Natural Gas Company, LLC – Peoples and Equitable Division 1307(f), Docket Nos. R-2018-2645278 & R-2018-3000236
56. Peoples Gas Company, LLC 1307(f), Docket No. R-2018-2645296
57. Columbia Gas of Pennsylvania, Inc., Docket No. R-2018-2647577
58. Duquesne Light Company, Docket No. R-2018-3000124
59. Suez Water Pennsylvania, Inc., Docket No. R-2018-3000834
60. Application of Pennsylvania American Water Company Acquisition of the Municipal Authority of the Township of Sadsbury, Docket No. A-2018-3002437
61. The York Water Company, Docket No. R-2018-3000006
62. Application of SUEZ Water Pennsylvania, Inc. Acquisition of the Water and Wastewater Assets of Mahoning Township, Docket Nos. A-2018-3003517 and A-2018-3003519
63. Pittsburgh Water and Sewer Authority, Docket Nos. R-2018-3002645 and R-2018-3002647
64. Joint Application of Aqua America, Inc. et al., Acquisition of Peoples Natural Gas Company LLC, et al., Docket Nos. A-2018-3006061, A-2018-3006062, and A-2018-3006063
65. Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority, Docket Nos. M-2018-2640802 and M-2018-2640803
66. Philadelphia Gas Works 1307(f), Docket No. R-2019-3007636
67. People Natural Gas Company, LLC, Docket No. R-2018-3006818
68. Application of Pennsylvania American Water Company Acquisition of the Steelton Borough Authority, Docket No. A-2019-3006880
69. Application of Aqua America, Inc. et al., Acquisition of the Wastewater System Assets of the Township of Cheltenham, Docket No. A-2019-3006880
70. Philadelphia Gas Works, Docket No. R-2019-3009016
71. Wellsboro Electric Company, Docket No. R-2019-3008208
72. Valley Energy, Inc., Docket No. R-2019-3008209
73. Citizens’ Electric Company of Lewisburg, Pa, Docket Non. R-2019-3008212
74. Application of Aqua America, Inc. et al., Acquisition of the Wastewater System Assets of the East Norriton Township, Docket No. A-2019-3009052
75. Peoples Natural Gas Company, LLC 1307(f), Docket No. R-2020-3017850
76. Peoples Gas Company, LLC 1307(f), Docket No. R-2020-3017846

77. Philadelphia Gas Works, Docket No. R-2020-3017206
78. Pittsburgh Water and Sewer Authority, Docket Nos. R-2020-3017951 et al.
79. Columbia Gas of Pennsylvania, Docket No. R-2020-3018835
80. Pennsylvania America Water Company, Docket Nos. R-2020-3019369 and R-2020-3019371
81. PECO Energy Company – Gas Division, Docket No. R-2020-3019829
82. PGW 1307(f), Docket No. R-2021-3023970
83. Peoples Natural Gas Company, LLC 1307(f), Docket No. R-2021-3023965
84. Peoples Gas Company, LLC 1307(f), Docket No. R-2021-3023967
85. UGI Utilities, Inc. – Electric Division, Docket No. R-2021-3023618
86. Columbia Gas of Pennsylvania, Inc., Docket No. R-2021-3024926
87. Duquesne Light Company, Docket No. R-2021-3024750
88. UGI Utilities, Inc. – Gas Division 1307(f), Docket No. R-2021-3025652

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Exhibit to Accompany

the

Direct Testimony

of

Ethan H. Cline

Bureau of Investigation and Enforcement

Concerning:

**Class Cost of Service Study
Prospective Revenues
Water and Wastewater Rate Structure
Stormwater Operations
Stormwater Credit
Scale Back of Rates**

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

Request: I&E-RS-8 Identify any efforts PWSA has made and will continue to make to obtain funding available through the American Rescue Plan Act of 2021. If PWSA is awarded federal or state funding and/or infrastructure funding, including but not limited to funding available through the American Rescue Plan Act of 2021, how will PWSA reflect and report any funding awards?

Response:

The PWSA has submitted a request to the City of Pittsburgh to obtain a portion of the Coronavirus Local Fiscal Recovery Funds. The PWSA also plans to submit a request to the Commonwealth of Pennsylvania to obtain a portion of the Coronavirus State Fiscal Recovery Funds. It cannot be assumed that the PWSA will receive any of these recovery funds since the City of Pittsburgh and Commonwealth of Pennsylvania will ultimately decide how much funding, if any, will be awarded to the PWSA.

The PWSA keeps track internally of all funding awards and will continue to do so with future funding awards.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: June 17, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

Request: I&E-RS-10 Reference PWSA’s response to I&E-RS-8. Please provide the following information:

- A. Amount of funding requested from the City of Pittsburgh, its intended use, and the date requested;
- B. A copy of PWSA’s request to the City of Pittsburgh to obtain a portion of the Coronavirus Local Fiscal Recovery Funds;
- C. A copy of any responsive materials that the City of Pittsburgh has provided relative to PWSA’s request; and
- D. Whether PWSA is aware of any timeline in which the City of Pittsburgh will make a determination regarding PWSA’s request. If so, identify that timeline.

Response:

A. \$143,835,000 was requested over the next 3 – 6 years. See part B for the intended uses. These funds were requested on 05/27/2021.

B. See attachment I&E-RS-10b.

C. None.

D. The City provided no guarantee that the PWSA would receive any relief funds given their needs. No timeline was provided on the funding request or the next steps in the City’s review process.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: June 25, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

- Request: I&E-RS-11** Reference PWSA’s response to I&E-RS-8. Please provide the following information:
- A. Whether PWSA has submitted a request to the Commonwealth of Pennsylvania to obtain a portion of the Coronavirus State Fiscal Recovery Funds;
 - B. If the answer to part A is yes, please provide a copy of the request;
 - C. If the answer to part A is no, indicate when PWSA will make the request and thereafter provide a copy when it is submitted;
 - D. Whether PWSA identified the amount of funds it will request from the Commonwealth of Pennsylvania. If yes, identify the amount of funds and its intended use.

Response:

- A. No request was submitted to the Commonwealth of Pennsylvania but the PWSA plans to submit a request to fund lead service line replacements over the next 5 years.
- B. Not applicable.
- C. The PWSA plans to submit the request within the next few weeks.
- D. \$100,000,000 is being requested to replace lead service lines over the next 5 years. The PWSA is not guaranteed to receive any relief funding given the needs of the Commonwealth as well as requests from other special units of government.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: June 25, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), RS - Set I in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

Request: I&E-RS-2 If the Commission were to grant the Company’s fully requested increase, when would PWSA need to file another base rate case in order to fund its Capital Improvement Plan? Does the Company intend to file again in 2023 and/or 2024?

Response:

The PWSA’s future base rate filing plans are to be determined. However, it is anticipated that the PWSA would file another rate case in 2023 or 2024.

Response Provided by: Edward Barca, Director of Finance
The Pittsburgh Water and Sewer Authority

Dated: June 1, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set IV in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

Request: OCA-IV-5 Reference: PWSA St. 4 (Smith), p. 26, line 8 through p. 27, line 11.

- a. Please provide the electronic spreadsheet file(s) used to create the table and develop the percentages that appear in the text.
- b. Did PWSA evaluate the impacts on customers and revenue stability of reducing (rather than eliminating) the minimum usage allowance for any or all meter sizes? If so, please provide all such analyses or evaluations conducted. If not, please explain why not.

Response:

- a. See OCA-IV-5a Attach A and B bill impact models
- b. PWSA discussed and ultimately dismissed the consideration of evaluating a partial reduction of the minimum allowance based on fairness and equity. PWSA only bills in 1,000 gallon increments and the 5/8” meter has an allowance of only 1,000 gallons. Any reduction of minimum allowances for all meter sizes would eliminate the allowance for the 5/8” metered customers (and potentially other meter sizes), and thus result in an issue of fairness and equity if some meter sizes still had allowances of any levels while others had no allowance.

Response Provided by: Harold J. Smith, Vice President, Raftelis Financial Consultants
Consultant to The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set V in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

Request: OCA-V-8 Reference: PWSA Exh. TI-4 (proposed stormwater tariff). Please confirm that a property (either residential or non-residential) with less than 400 square feet of impervious area will not be charged a fee for stormwater service. If this is confirmed, please explain how the 400 square foot threshold was developed. If this is not confirmed, please correct the statement.

Response:

Confirmed. This threshold was developed upon review of the delineated impervious area data. In many cases, parcel misalignment with the aerial imagery caused small slivers of impervious area on one property to appear to be on another. These slivers tended to be less than 400 square feet. To avoid billing vacant properties for small slivers of neighboring impervious area, the 400 square foot minimum threshold was incorporated into the rate structure.

Response Provided by: Keith Readling, Executive Vice President, Raftelis Financial Consultants
Consultant to The Pittsburgh Water and Sewer Authority

Dated: May 27, 2021

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Office of Consumer Advocate (“OCA”), Set IV in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

Request: OCA-IV-9 Reference: PWSA St. 4 (Smith), p. 44, lines 14-18. Please explain in detail why the costs of the stormwater credit program for non-residential customers are being allocated among all customer classes (including classes not eligible for the program).

Response:

All customer classes are eligible for the stormwater credit program and the cost of the credits program is allocated across all customer classes. It is anticipated that non-residential customers will get the majority of credits and thus a percentage of the non-residential revenue was used as a proxy to develop a preliminary estimate of the cost of the program. Only after implementation will PWSA know the true cost of the stormwater credit program and the cost from each class. The cost of the credit program is allocated to all customer classes because the credit program represents a refinement in units of service, reflects mitigation of overall stormwater for the system, and represents the reallocation of cost among all customers.

Response Provided by: Keith Readling, Executive Vice President, Raftelis Financial Consultants
Consultant to The Pittsburgh Water and Sewer Authority

Dated: May 18, 2021

**Response of the Pittsburgh Water and Sewer Authority (“PWSA”)
to the Interrogatories of the Office of Small Business Advocate (“OSBA”), Set III in
Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater)
and R-2021-3024779 (stormwater)**

Request: OSBA-III-7 Reference page 26 of PWSA Statement No. 7, at lines 15-24. Has PWSA estimated the number of non-residential properties that currently meet either the 2016 or 2019 City of Pittsburgh stormwater standards? If so, please provide a breakdown of the expected amount of annual credits such properties would be qualified to earn under PWSA's proposed credit program, by the 2016 and 2019 standards. Provide information that includes (i) the number of properties, by standard year, and (ii) the annual stormwater fee owed before and after eligible credits.

Response:

No, PWSA has not estimated the number of non-residential properties that currently meet either the 2016 or 2019 City of Pittsburgh stormwater standards. It should also be noted that it is likely that not all impervious area on a property will be treated. Most of the properties that do meet the standards will do so for treatment of only a portion of their impervious area due to the prevalence of incremental development and redevelopment, instead of “greenfield” development.

Response Provided by: Tony Igwe, Senior Group Manager – Stormwater
The Pittsburgh Water and Sewer Authority

Dated: July 1, 2021

**I&E Statement No. 4
Witness: Israel E. Gray**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2021-3024733, R-2021-3024774 & R-2021-3024779

Direct Testimony

of

Israel E. Gray

Bureau of Investigation & Enforcement

Concerning:

**Valve Inspection & Maintenance Procedures
Record Keeping**

1 **Q. PLEASE STATE YOUR NAME, OCCUPATION AND BUSINESS**
2 **ADDRESS.**

3 A. My name is Israel E. Gray. I am a Fixed Utilities Valuation Engineer in the Safety
4 Division of the Pennsylvania Public Utility Commission's (PA PUC or
5 Commission) Bureau of Investigation and Enforcement (I&E). My business
6 address is Pennsylvania Public Utility Commission, Commonwealth Keystone
7 Building, 400 North Street, Harrisburg, PA 17120.

8
9 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT EXPERIENCE?**

10 A. I attended the University of Pittsburgh and earned a Bachelor of Science Degree in
11 Civil Engineering in 1995. I joined the Commission's Safety Division in
12 September of 2014. Prior to 2014, I worked for the Pennsylvania Department of
13 Environmental Protection (PA DEP) from 2011 to 2014, where I worked in Water
14 Quality.

15
16 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

17 A. The purpose of my Direct Testimony is to address Pittsburgh Water and Sewer
18 Authority's (PWSA) rate request to ensure that any money requested is prudently
19 spent. More specifically, I will address PWSA's need to: (1) establish valve
20 inspection and maintenance procedures; (2) establish records to be kept as part of
21 the valve inspection and maintenance procedure.

1 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

2 A. Yes. I&E Exhibit No. 4 contains schedules relating to my direct testimony.

3

4 **Q. DO YOU WISH TO MAKE ANY COMMENTS REGARDING THE**
5 **OVERALL SCOPE OF YOUR DIRECT TESTIMONY?**

6 A. Yes. I will be addressing some but certainly not all the issues facing PWSA as it
7 is brought under PA PUC jurisdiction. It is important to note that the fact that I
8 have not addressed a certain issue should not be interpreted as my agreement
9 regarding PWSA's position or as a waiver of that issue for future cases. I&E
10 reserves the right to make further recommendations in future proceedings on any
11 safety or operational issues.

12

13 **Q. HAVE ANY INQUIRIES BEEN MADE REGARDING PWSA'S VALVE**
14 **MAINTENANCE PLAN?**

15 A. Yes. On April 30, 2021, PA PUC Commissioner Ralph V. Yanora made certain
16 inquiries into this case by way of a letter to Secretary Chiavetta.¹ One of the
17 inquiries that Commissioner Yanora made was regarding PWSA's valve
18 maintenance program. More specifically, Commissioner Yanora made an inquiry
19 into the number of valves that PWSA exercised in 2020, and the frequency of
20 valve maintenance moving forward.²

¹ Commissioner Ralph V. Yanora's April 30, 2021 Letter to Secretary Chiavetta, *Pa. PUC v. Pittsburgh Water and Sewer Authority*, R-2021-3024773 et al ("Commissioner Yanora's Inquiry").

² Commissioner Yanora's Inquiry, Question No. 4.

1 **Q. DID PWSA’S FILING DISCUSS ITS PLAN TO PERFORM ROUTINE**
2 **MAINTENANCE ON MAINLINE VALVES IN THE WATER**
3 **DISTRIBUTION SYSTEM?**

4 A. Yes. PWSA witness King indicated that PWSA plans to dedicate two (2) crews to
5 focus on inspecting and exercising isolation valves. According to witness King,
6 these two (2) crews will, along with the daily activity of exercising valves for
7 leaks and other scheduled shuts, allow PWSA to inspect one-fifth of its system
8 valves each year. PWSA will track the valves that get exercised each year so they
9 can focus on valves that have not been operated.³ This will allow PWSA to
10 complete exercising all the valves in the system within a five-year period.

11
12 **Q. DO YOU HAVE ANY CONCERNS REGARDING PWSA’S VALVE**
13 **INSPECTION AND MAINTENANCE PLAN?**

14 A. Yes. After reviewing valve manufacturer specifications that I&E requested from
15 PWSA,⁴ I do not believe PWSA’s plan to exercise one-fifth of the isolation valves
16 annually is thorough enough. The manufacturers’ specifications did not provide
17 the exact frequency at which the valves should be exercised; however, the
18 specifications did indicate that valves should be exercised at regular intervals and
19 the frequency should depend on things such as the length of time the valve has
20 been in operation, and on the service condition of the valve.⁵ Additionally, I am

³ PWSA St. No. 5, p. 17.

⁴ I&E Exhibit No. 4, Sch. 1

⁵ I&E Exhibit No. 4, Sch. 2-4.

1 concerned that PWSA has no criteria for prioritizing which valves should be
2 exercised each year. PWSA's current valve maintenance plan gives every valve
3 equal priority. The Kennedy Rotating Disc Gate Valve specifications that PWSA
4 provided through discovery state that all valves should be operated on a quarterly
5 basis, if possible.⁶ The American Series 2500 Wedge Gate Valve specifications
6 state that valves should be operated at a minimum of once per year, but also allows
7 for what is recommended by the American Water Works Association (AWWA).⁷
8

9 **Q. ARE YOU AWARE OF HOW OTHER CITIES HANDLE THEIR VALVE**
10 **MAINTENANCE PROGRAM?**

11 A. Yes. While researching valve maintenance programs, I found the Standard
12 Operating Procedure (SOP) for valve maintenance, for the City of Flint, Michigan.
13 Flint's SOP for valve exercising and maintenance is performed in accordance with
14 AWWA Manual, M44.⁸ The Scope / Purpose of Flint's SOP states that care
15 should be taken to prioritize maintenance on those valves that are most critical to
16 distribution system performance and those impacting sensitive populations, while
17 continuing a three (3) to five (5) year rotation schedule for all gate valves. Valves
18 affecting hospitals, schools, and valves on water mains of diameter 16-inches or
19 greater should be given priority, and they should be exercised once per year.

⁶ I&E Exhibit No. 4, Sch. 3, p. 10.

⁷ I&E Exhibit No. 4, Sch. 4, p. 2.

⁸ https://www.michigan.gov/documents/flintwater/SOP331_Valve_Inspection_Exercising_and_Maintenance_FINAL_613061_7.pdf

1 **Q WITH REGARDS TO PWSA’S VALVE MAINTENANCE PROGRAM**
2 **AND RECORDS PWSA SHOULD BE KEEPING, WHAT IS YOUR**
3 **RECOMMENDATION?**

4 **A.** I recommend that PWSA develop a valve maintenance program that prioritizes
5 valves most critical to system performance. Valve maintenance schedules should
6 be based on criteria such as size, location, age and operational history of the
7 valves. PWSA should also develop a thorough record keeping procedure for valve
8 maintenance. Information such as: valve location (GPS coordinates), age, size of
9 the valve, the valve manufacturer, valve serial number, the number of rotations to
10 fully open and fully close the valve, and the overall condition of the valve. These
11 records will provide insight when it comes to scheduling future valve
12 maintenance, valve replacement, and highlight any reliability issues with specific
13 valve manufacturers and/or models.

14

15 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

16 **A.** Yes.

**I&E Exhibit No. 4
Witness: Israel E. Gray**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2021-3024733, R-2021-3024774 & R-2021-3024779

Exhibit to Accompany

the

Direct Testimony

of

Israel E. Gray

Bureau of Investigation & Enforcement

Concerning:

**Valve Inspection & Maintenance Procedures
Record Keeping**

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement (“I&E”), PS - Set I in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

Request: I&E-PS-4 Reference PWSA Statement No. 5, p. 17, where witness King discusses PWSA’s valve maintenance protocol. Provide a copy of the manufacturer’s recommended schedule regarding maintenance of isolation valves utilized in PWSA’s distribution system.

Response: See I&E-PS-4 Attach A through Attach C.

Response Provided by: Barry King, PE, Director of Engineering
The Pittsburgh Water and Sewer Authority

Dated: June 1, 2021

MUELLER®

2300 Series Resilient Wedge Gate Valve

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⚠ WARNING:

1. Read and follow instructions carefully. Proper training and periodic review regarding the use of this equipment is essential to prevent possible serious injury and/or property damage. The instructions contained herein were developed for using this equipment on fittings manufactured by Mueller Co. only, and may not be applicable for any other use.
2. Do not exceed the pressure ratings of any components or equipment. Exceeding the rated pressure may result in serious injury and/or property damage.
3. Safety goggles and other appropriate protective gear should be used. Failure to do so could result in serious injury.

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MUELLER® 2300 Series Resilient Wedge Gate Valve

Application/Maintenance/Installation

APPLICATION

Mueller® 2300 Series Resilient Wedge Gate Valves are intended for use in potable water distribution or fire protection systems. One or more of the following publications may be applicable to the installation or testing of the valve:

1. AWWA C-509 Thick Wall Resilient Seated Gate Valves 2" through 12" Nominal Pipe Size
2. AWWA C-515 Thin Wall Resilient Seated Gate Valves 3" through 54" Nominal Pipe Size
3. AWWA C-600 Installation of Ductile Iron Water Mains and Main Appurtenances
4. All installation, operation and maintenance instructions issued by the manufacturer of the pipe and the valves.
5. Valve user guide as published by MSS.
6. AWWA M-44 Distribution Valves: Selection, Installation, Field Testing and Maintenance.
7. NFPA-24 – Standard for the installation of Private Fire Service Mains and their appurtenances.

ROUTINE MAINTENANCE

Mueller® Resilient Wedge Valves include design features that ease operation, minimize wear on the working parts of the valve, and contribute to a long service life without routine maintenance – other than following the recommendations in AWWA

Publication M-44, Distribution Valves: Selection, Installation, Field Testing and Maintenance for valves in water works applications. As recommended by that publication, every valve should be operated through a full close and open cycle on a regular schedule to clear the

operating stem and wedge guides of naturally occurring encrustation or other debris.

For valves in fire protection applications, guidelines from the National Fire Protection Association (NFPA) should be followed.

INSTALLATION

Adhere to guidelines provided by AWWA M-44 or NFPA publications, depending upon the valve application, as they might be amended by the distribution or fire protection system owner.

properly. Also check opening direction against the order instruction.

4. Any problems should be reported immediately to Trucker and noted on bill of lading, and signed by the driver on customer's copy.

4. When stored outside, valve stem should be in a vertical position, and whenever possible, valves should be covered with a water-proof covering.

5. Protect all parts of the valve at all times.

6. Protect rubber seat of resilient wedge valves from ozone and hydrocarbons (solvents, paints and oils, etc.).

Inspection On Delivery

1. Check for possible damage in shipment, conformance to specifications, opening direction, shortages, etc.
2. Carefully unload all valves - do not drop valve – do not lift valve using gearing, bypass or other appendage as a hook.
3. Valve should be opened and then closed to make sure it works

Storage

1. Valves should be stored in a partially open position.
2. When possible, keep valves out of the weather.
3. In cold climates the inside of the valve must be kept drained of any water to prevent freezing.

MUELLER® 2300 Series Resilient Wedge Gate Valve

Installation/Operation

INSTALLATION (cont.)

Inspection Before Installation

1. Check to see the valve end-joints are clean.
2. Check valve for damage.
3. Open and close valve - make sure it works properly.
4. Keep valve closed when placing in trench.
5. Inspect casting for damage.
6. Inspect epoxy coating and repair breaks using compatible coating material.

Installation

1. Flush the water line completely.
2. Handle valve carefully.
3. Prepare pipe ends in accordance with pipe manufacturers' instructions.

4. Install valve using appropriate instructions for the specified joint (flanged, mechanical joint, slip-on, etc.).
5. Water piping should be properly supported to avoid line stress on valve.
6. In buried applications, make sure that the valve box does not transmit traffic loads or other stress to the valve.
7. Do not use valves to force a pipeline into position.
8. Do not deflect any valve/pipe joint.
9. Protect exterior epoxy coating during backfill.

Testing

1. Do not backfill valves before hydrostatic system test. Leave the valves exposed while the pipeline is being pressurized. Check to see that all valve joints and pressure containing bolting, including bonnet bolts, are tight.
2. Valves can be shell tested (but not operated) at two times the rated pressure of the valve.
3. After testing, steps should be taken to relieve any trapped pressure in body of valves.

OPERATION

The operation of a resilient wedge valve will "feel" different to the valve operator compared to an older style double-disc gate valve. In normal

circumstances, less operating torque is required as the resilient wedge valve just closes, or on opening. Valve operators should be instructed

to adhere to the 'number of turns to open' for the size of valve in question rather than rely only upon the feel of the valve.

Number of Turns & Max. Torque in ft.-lbs. to Close Mueller Resilient Wedge Gate Valves*

Valve Size	2"	2½"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"	54"
	8 20	11 28	11 52	14 75	21 110	27 150	33 185	39 225	44 225	49 275	57 275	63 300	75 325	93 450	111 550	131 700	149 800	149 1000
Spur Gearing	-- --	-- --	-- --	28 41	41 60	53 82	66 101	77 123	178 61	201 75	234 75	258 81	308 88	381 122	455 149	524 199	596 227	596 284
Bevel Gearing	-- --	-- --	22 31	28 44	41 65	53 88	66 109	77 132	174 66	196 81	228 81	252 88	300 96	372 132	444 162	524 206	596 235	596 294

*Always refer to the current catalog for accurate "turns to close" information – all numbers in chart are for valves without actuators. All valves 30" and larger require the use of actuators. Torque values are for dry (no flow) conditions per accepted industry practice – and refer to torque required to affect a seal. Torque under flow conditions are typically less than the values shown.

MUELLER® 2300 Series Resilient Wedge Gate Valve

Repairs

REPAIRS

Mueller valves are designed to operate without requiring rebuild or repair through their normal service life, therefore Mueller Co. does not recommend stocking valve parts. However, it is possible to replace Bonnet O-rings, Dirt Seal (4"-12" valves), the Stem or Wedge (or packing on OS&Y valves), although it is very unlikely such repairs will ever be needed. Refer to the Mueller Water Distribution Products Catalog for parts listings and provide the following information if parts are ordered:

1. Type of valve (NRS, OS&Y) and model number on Bonnet
2. Year date (cast in valve body)
3. Valve size (cast in valve body)

NRS Stem O-rings and Dirt Seal

There is a Dirt Seal (4"-12" valves) and two O-rings above the thrust collar that can be replaced with the valve in service (a third O-ring below the Thrust Collar can only be replaced if the main is shut down and drained).

1. Turn the Stem in the opening direction until the valve is fully opened and tighten firmly.
2. Remove the Operating Nut, and the bolts holding the Stuffing Box.
3. Clean the exposed Stem to remove all debris and grit.
4. Carefully pry the Stuffing Box loose, avoiding damaging the valve's exterior coating – slide the Stuffing Box off the Stem. (At this point, avoid getting dirt into the thrust collar area – cover the exposed thrust collar area with sheet plastic or a clean rag to exclude contamination.)
5. Remove the Dirt Seal from the Stuffing Box, the two O-rings from the exposed stem, and the Stuffing Box Seal inside the top of the valve Bonnet.

6. Wipe the Stem and inside bore of the Stuffing Box, then liberally lubricate these areas, especially the flat surface on the bottom of the Stuffing Box that will contact the Thrust Collar.

7. Lubricate the new Dirt Seal in the Stuffing Box and/or O-rings and install them on the Stem.

8. Lubricate and install a new Stuffing Box seal O-ring in the top of the Bonnet.

9. Reinstall the Stuffing Box and its bolts, and uniformly tighten the bolts to the torque shown below, so the gap between the Stuffing Box and Bonnet is even all around. Check the Stem for binding.

10. Replace the Operating Nut.

Valve Size	Stuffing Box Bolt Size	Torque (ft-lbs)	
		Carbon (Grade 2)	Stainless
2"	1/2"	45	45
2 1/2"	1/2"	45	45
3"	1/2"	45	45
4"	5/8"	90	90
6"	5/8"	90	90
8"	5/8"	90	90
10"	5/8"	90	90
12"	5/8"	90	90
14"	3/4"	150	125
16"	3/4"	150	125
18"	3/4"	150	125
20"	3/4"	150	125
24"	3/4"	150	125
30"	7/8"	200	200
36"	7/8"	200	200
42"	1"	300	260
48"	1"	300	260
54"	1"	300	260

OS&Y Packing

Try adjusting the Packing Gland before resorting to replacing the Packing by tightening both Gland Bolts equal amounts.

1. Turn the Stem in the opening direction until the valve is fully opened and tighten firmly.
2. Remove the nuts from both Gland Bolts.
3. Lift the Packing Gland up the valve Stem and secure it out of the way using string or wire.
4. Remove and replace the Packing.
5. Lower the Gland against the new packing, reinstall the Gland Bolts and tighten securely.

If necessary to compact the new packing sufficiently to install the Gland Bolts, temporarily install longer bolts or short lengths of threaded rod and tighten them, then reinstall the standard Gland Bolts.

MUELLER® 2300 Series Resilient Wedge Gate Valve

Repairs

Stem or Wedge Replacement

It will be necessary to shut down and drain the main, but the valve can remain in the line. Because it is so unusual to have to replace a Stem or Wedge, first reconfirm that the valve is properly and tightly closed. Open and close the valve repeatedly to attempt to flush away debris from the seating area that might hinder the valve from closing fully.

1. Shut down and drain the main in the area of the valve.
2. Operate the stem in the opening direction several turns.
3. Remove the Bonnet Bolts and lift the Bonnet-Stem-Wedge assembly from the valve Body.
4. Replace the Stem and/or Wedge. (If necessary, transfer or install new Guide Cap Bearings on each side of the new Wedge.)
5. Wipe debris from the top flange of the valve Body and replace the

Bonnet O-ring (or flat Gasket if used) if necessary.

6. Replace the Bonnet-Stem-Wedge assembly, taking care to align the Wedge Guides into their slots on each side of the Body cavity.

7. Install the Bonnet Bolts and Nuts, and tight each finger tight until the Bonnet casting is evenly seated on top of the valve body all around.

8. Snug two Bonnet Bolts on diagonally opposite sides of the valve. Then tighten two other diagonally opposite bolts more tightly than the first two. Finally tighten all bolts, working diagonally side to side and all around until all bolts are tightened to the torque shown on right.

9. Operate the valve fully open to fully closed counting the number of turns and compare the number to the chart value elsewhere in this manual to verify correct operation.

Valve Size	Bonnet Bolt Size	Torque (ft-lbs)	
		Carbon (Grade 2)	Stainless
2"	1/2"	45	45
2 1/2"	1/2"	45	45
3"	1/2"	45	45
4"	1/2"	45	45
6"	1/2"	45	45
6"*	5/8"	90	90
8"	5/8"	90	90
8"*	3/4"	150	125
10"	3/4"	150	125
12"	3/4"	150	125
14"	3/4"	150	125
16"	3/4"	150	125
18"	7/8"	200	200
20"	7/8"	200	200
24"	7/8"	200	200
30"	1"	300	260
36"	1"	300	260
42"	1 1/4"	660	480
48"	1 1/4"	660	480
54"	1 1/4"	660	480

*2365 series valve only

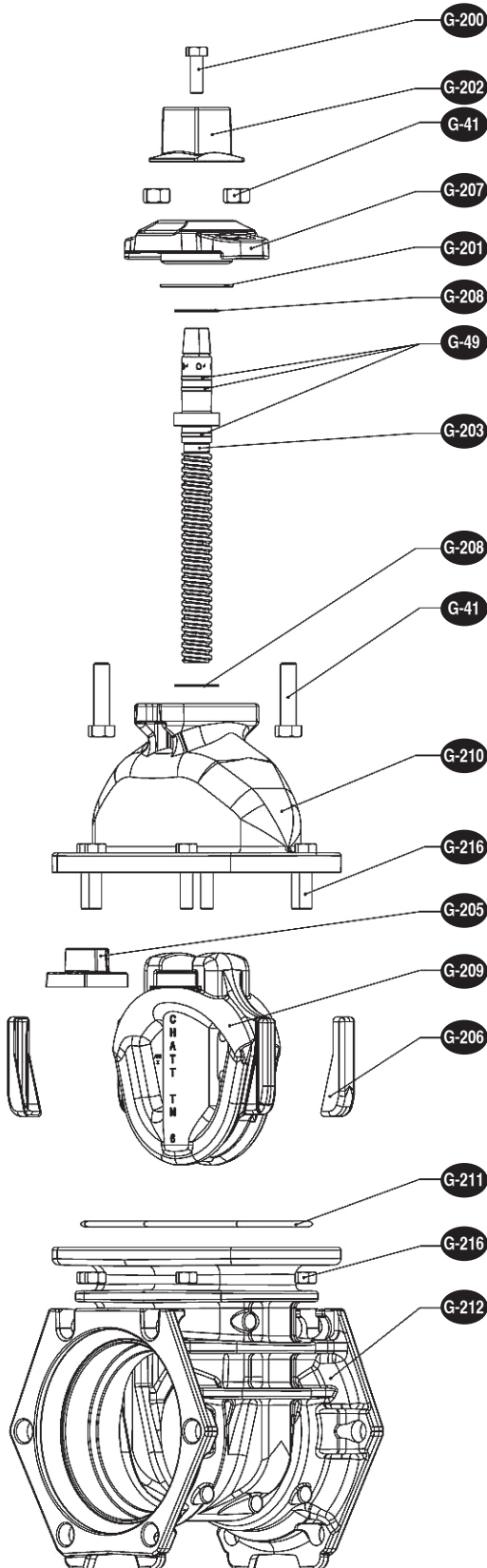
ANSI B16.1 Class 125 Flange Dimensions – inches

Nominal Pipe Size	Diameter of Flange	Diameter of Bolt Circle	Number of Bolts	Diameter of Bolts	Diameter of Bolt Holes	Length of Bolts
2"	6	4 3/4	4	5/8	3/4	2 1/4
2 1/2"	7	5 1/2	4	5/8	3/4	2 1/2
3"	7 1/2	6	4	5/8	3/4	2 1/2
4"	9	7 1/2	8	5/8	3/4	3
6"	11	9 1/2	8	3/4	7/8	3 1/4
8"	13 1/2	11 3/4	8	3/4	7/8	3 1/2
10"	16	14 1/4	12	7/8	1	3 1/2
12"	19	17	12	7/8	1	3 3/4
14"	21	18 3/4	12	1	1 1/8	4 1/4
16"	23 1/2	21 1/4	16	1	1 1/8	4 1/2
18"	25	22 3/4	16	1 1/8	1 1/4	4 3/4
20"	27 1/2	25	20	1 1/8	1 1/4	5
24"	32	29 1/2	20	1 1/4	1 3/8	5 1/2
30"	38 3/4	36	28	1 1/4	1 3/8	6 1/4
36"	46	42 3/4	32	1 5/8	1 5/8	7
42"	53	49 1/2	36	1 5/8	1 5/8	7 1/2
48"	59 1/2	56	44	1 5/8	1 5/8	7 3/4
54"	66 1/4	62 3/4	44	1 3/4	2	8 1/2

MUELLER® 2300 Series Resilient Wedge Gate Valve

RW Gate Valve A-2361 (350 psi) Parts

PARTS LIST

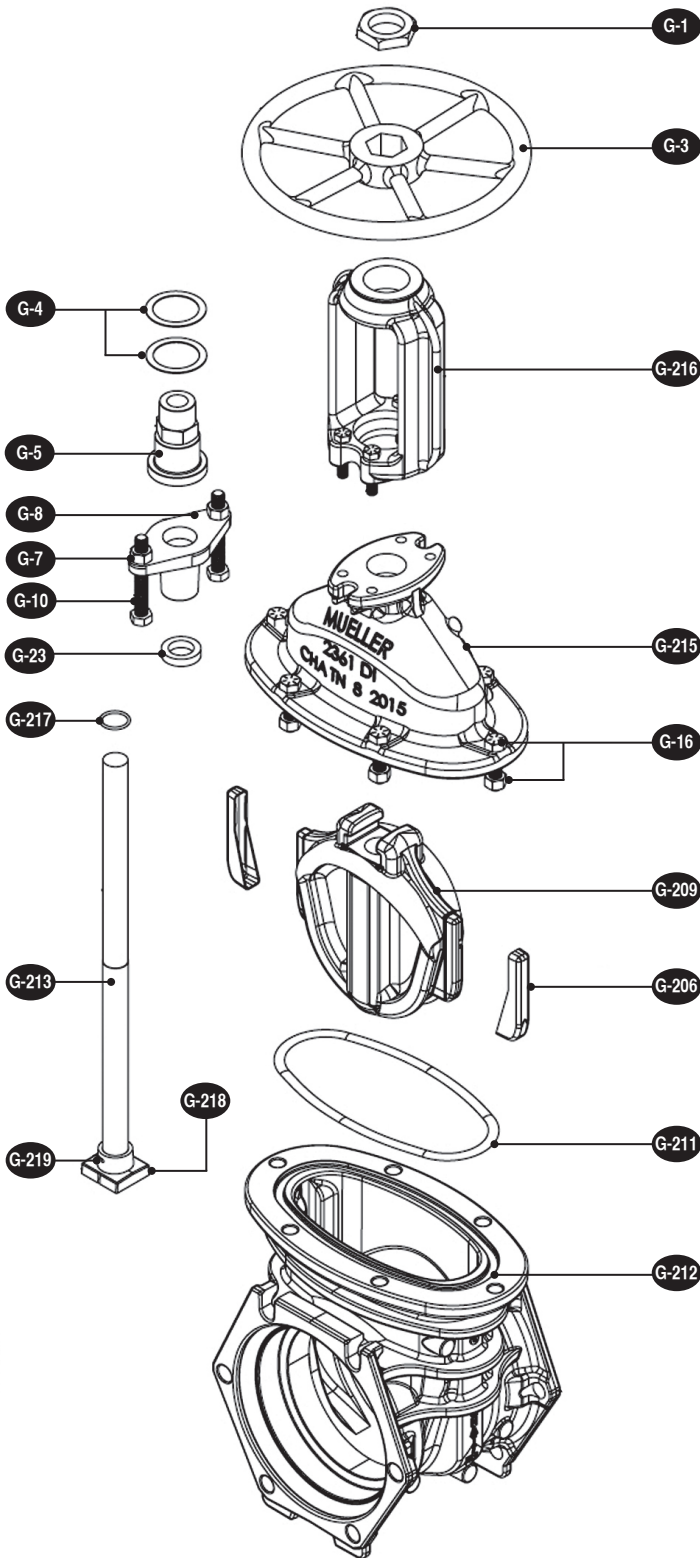


ID	DESCRIPTION	MATERIAL
G-41	Stuffing Box Bolts & Nuts	316 Stainless Steel
G-49	Stem O-Rings (3)	Nitrile
G-200	Wrench Nut Cap Screw	316 Stainless Steel
G-201	Stuffing Box Seal	Nitrile
G-202	Wrench Nut	Ductile Iron ASTM A536
G-203	Stem	Bronze ASTM B138
G-204	Hand Wheel (not shown)	Cast Iron ASTM A126 CL.B
G-205	Stem Nut	Bronze ASTM B584
G-206	Guide Cap Bearings	Acetal
G-207	Stuffing Box w/dirt seal	Ductile Iron ASTM A536
G-208	Anti-friction Washer (2)	Acetal
G-209	Wedge	Ductile Iron ASTM A536 Rubber Encapsulation, SBR
G-210	Bonnet	Ductile Iron ASTM A536
G-211	Bonnet O-Ring	Nitrile
G-212	Body	Ductile Iron ASTM A536
G-216	Bonnet Bolts & Nuts	316 Stainless Steel

MUELLER® 2300 Series Resilient Wedge Gate Valve

OS&Y RW Gate Valve R-2361 Parts

PARTS LIST

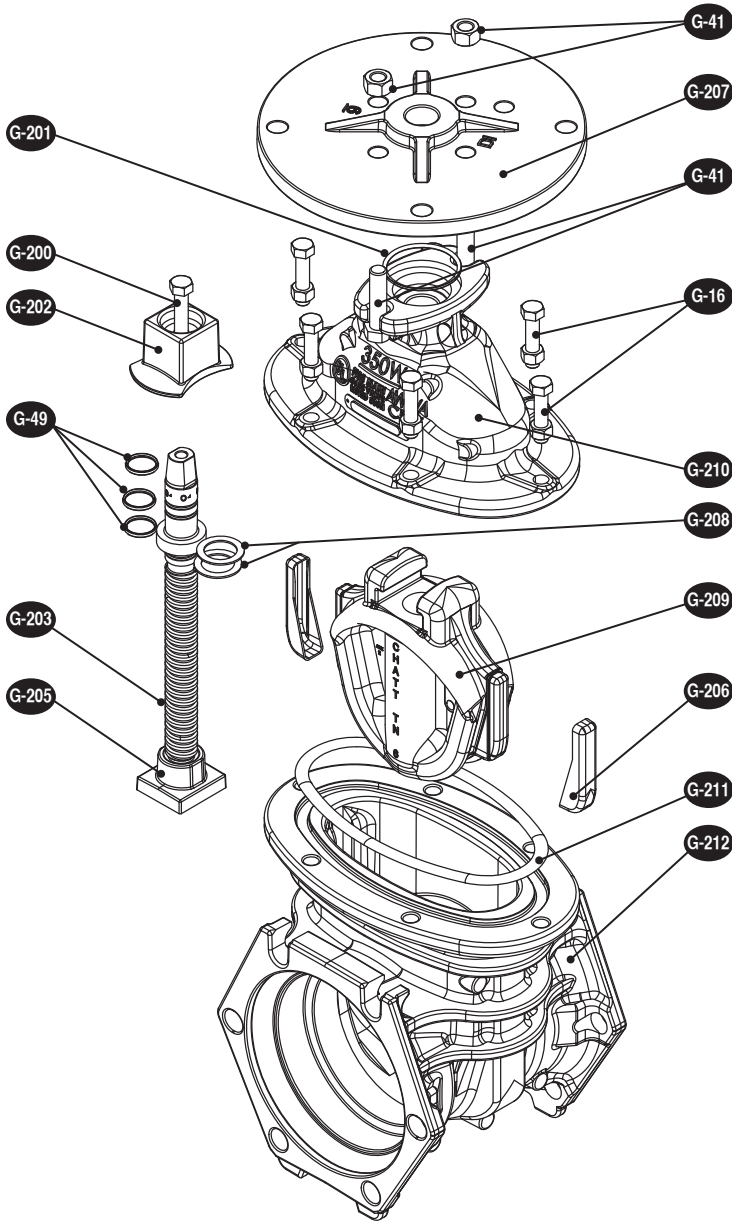


ID	DESCRIPTION	MATERIAL
G-1	Cap Nut	Bronze ASTM B62
G-3	Hand Wheel	Ductile Iron ASTM A536
G-4	Washer	Brass
G-5	Bush Nut	Bronze ASTM B62
G-7	Gland Nut	Bronze ASTM B21 Alloy 464
G-8	Packing Gland	Ductile Iron ASTM A536
G-10	Gland Bolt	316 Stainless Steel
G-16	Bonnet Bolts & Nuts	316 Stainless Steel
G-23	Stem Packing	Lubricated Flax
G-206	Guide Cap Bearings	Acetal
G-209	Wedge	Rubber Encapsulated – SBR Ductile Iron* ASTM A536
G-211	Bonnet O-Ring	Nitrile ASTM D2000
G-212	Body	Ductile Iron ASTM A536
G-213	Stem	Manganese Bronze ASTM B138
G-215	Bonnet	Ductile Iron ASTM A536
G-216	Yoke	Ductile Iron ASTM A536
G-217	O-Ring	Nitrile ASTM D2000
G-218	Disc Nut	Bronze ASTM B584
G-219	Stem Nut Pin	316 Stainless Steel

*Fully encapsulated in molded rubber with no iron exposed

MUELLER® 2300 Series Resilient Wedge Gate Valve

RW Gate Valve P-2361 (350 psi) Parts

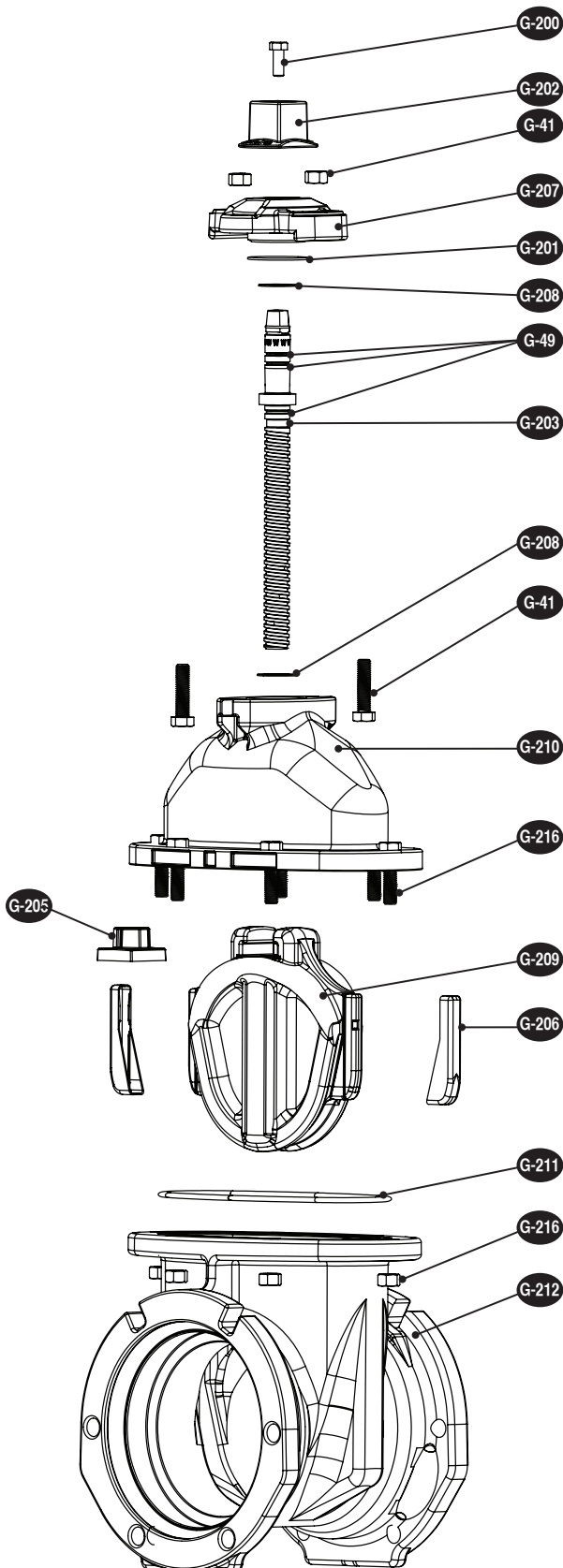


PARTS LIST

ID	DESCRIPTION	MATERIAL
G-16	Bonnet Bolts & Nuts	316 Stainless Steel
G-41	Stuffing Box Bolts & Nuts	316 Stainless Steel
G-49	Stem O-Rings (3)	Nitrile
G-200	Wrench Nut Cap Screw	316 Stainless Steel
G-201	Stuffing Box Seal	Nitrile
G-202	Wrench Nut	Ductile Iron ASTM A536
G-203	Stem	Bronze ASTM B138
G-205	Stem Nut	Bronze ASTM B584
G-206	Guide Cap Bearings	Acetal
G-207	Stuffing Box w/dirt seal	Ductile Iron ASTM A536
G-208	Anti-friction Washer (2)	Acetal
G-209	Wedge	Ductile Iron ASTM A536 Rubber Encapsulation, SBR
G-210	Bonnet	Ductile Iron ASTM A536
G-211	Bonnet O-Ring	Nitrile
G-212	Body	Ductile Iron ASTM A536

MUELLER® 2300 Series Resilient Wedge Gate Valve

RW Gate Valve A-2362 (350 psi) Parts



PARTS LIST

ID	DESCRIPTION	MATERIAL
G-41	Stuffing Box Bolts & Nuts	316 Stainless Steel
G-49	Stem O-Rings (3)	Nitrile
G-200	Wrench Nut Cap Screw	316 Stainless Steel
G-201	Stuffing Box Seal	Nitrile
G-202	Wrench Nut	Ductile Iron ASTM A536
G-203	Stem	Bronze ASTM B138
G-204	Hand Wheel (not shown)	Cast Iron ASTM A126 CL.B
G-205	Stem Nut	Bronze ASTM B584
G-206	Guide Cap Bearings	Acetal
G-207	Stuffing Box w/dirt seal	Ductile Iron ASTM A536
G-208	Anti-friction Washer (2)	Acetal
G-209	Wedge	Ductile Iron ASTM A536 Rubber Encapsulation, SBR
G-210	Bonnet	Ductile Iron ASTM A536
G-211	Bonnet O-Ring	Nitrile
G-212	Body	Ductile Iron ASTM A536
G-216	Bonnet Bolts & Nuts	316 Stainless Steel

MUELLER® 2300 Series Resilient Wedge Gate Valve

Notes

MUELLER® 2300 Series Resilient Wedge Gate Valve

Notes



Reliable Connections[®]

Water (U.S.)
1.800.423.1323
www.muellercompany.com
moreinfo@muellercompany.com

Water (Canada)
1.705.719.9965
www.muellercanada.com
more-info@muellercanada.com

International
1.423.490.9555
www.mueller-international.com
international@muellercompany.com

KENNEDY VALVE
2" – 54" ROTATING DISC
GATE VALVE

OPERATION & MAINTENANCE
MANUAL



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GENERAL

This manual is issued as a recommendation to the customer concerning the proper use of gate valves. Valves should always be installed and operated by authorized personnel. For additional information on these valves, please reference the AWWA C500 standard.

RECEIPT & INSPECTION

Valves should be inspected for damage before being removed from the delivery vehicle or signing the delivery receipt

Care should be taken to ensure proper rigging of the valve for lifting and appropriate lifting equipment is being used. Valves should never be lifted by the stem, hand wheel, 2" operating nut, gearing, electric motor operator, and/or bypass valve.

We recommend that you make the following checks before installing this valve:

- Recheck the valve for damage.
- Check all fasteners to make sure they are properly tightened.
- Check direction of opening for compliance with other valves in the system.
- Check to see that the valve end-joints are clean.
- Check inside the valve to remove all contaminants that may affect water system purity, cause the valve to not operate properly or seal tightly.
- Open and close the valve to make sure it works properly.

Keep the valve closed when placing it in the trench. Do not backfill around the valve prior to completion of the hydrostatic system test. Check to see that all valve joints and pressure containing bolting are tight. Leave the valve exposed while the pipeline is being pressurized.



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GATE VALVE RECOMMENDED STORAGE & HANDLING

Indoor Storage:

Whenever possible, Kennedy Valve metal seated gate valves should be stored inside. If stored inside, the valves should be in the fully closed position and may be stored with the flanges in the horizontal orientation. In order to reduce the risk of damage to the flanged surfaces and the valve internals, the valves should be kept in the original crating and covered with a tarp to mitigate damage from dirt and debris. Special care should be taken to store the valves in a location where they will not be damaged by collision from vehicles, lift trucks or falling items.

Outdoor Storage:

Should indoor storage not be possible or feasible, some outdoor protection must be provided. The valves must be stored in such a manner to protect them from weather, blowing dirt and debris. A tarp covering will minimize exterior coating damage from these elements and reduce fading or chalking due to exposure to the sun. The valves should also be placed in a location where they will not be damaged by collision from vehicles, lift trucks or falling items. Valves should be stored with the end flanges vertical so that water does not stand on or between the discs. If valves are received in crates with the flanges horizontal, they should be placed with the flanges vertical before storage. In cold climates, if water is allowed to freeze in the valve, severe damage to the valve components could result. The valves are shipped in the closed position and should remain in the closed position during long term storage. Any packaging removed for inspection of the valves should be replaced prior to placing the valves into long term storage.


Handling:

Proper slinging and handling methods should be used when moving valves. The valves should be handled only with an apparatus that will safely support the full valve weight. Do not place slings or other devices around operating stem, around the actuator or through the valve port opening.



INSTALLATION

1. Verify correct valve orientation prior to installation. Valves for horizontal installations in horizontal pipelines must be installed with tracks, and scrapers in the “down” location. Valves for horizontal installations in vertical pipelines must be installed with disc face tracking in the “down” location. Reference approved submittal drawings for verification. Contact Kennedy Valve immediately for clarification of proper installation orientation.
2. Tighten any loose fasteners.
3. Open the valve and check the seating surfaces to make sure they are clean and not damaged. Remove any foreign material inside the valve body. Close the valve before installation.
4. Clean all foreign material from the line such as cement, tools, sand, dirt, wire, etc.
5. Handle the valve carefully into position.
6. Make sure the valve and the line are adequately supported and in line to prevent strain on the valve.

 *Do not use the valve as final joint to correct any error in alignment or spacing of piping.*
7. Proper gasket material, size/ type of fasteners and torque shall be selected and coordinated by the installing contractor.
8. Only like flange types should be joined together. Bolting different types of flanges configurations or materials of construction together requires special consideration by the contractor or owner.
9. If a valve box is used over the valve, make sure the box does not transmit traffic load or other stress to the valve. Also make sure the box is centered over the valve stem and parallel to the valve stem axis.
10. Be sure any valve installed at the end of the line or a stub is restrained to prevent blow off.
11. Check for proper operating/maintenance clearance around the valve when it is installed.
12. On valves with wrench nuts and valve boxes, be sure operating key is kept vertical during operation.



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13. Keep the valve closed when placing it in the trench. Do not backfill around the valve prior to completion of the hydrostatic system test. Leave the valve exposed while the pipeline is being pressurized. Check to see that all valve joints and pressure containing bolting are tight.
14. We recommend that protection of some sort be utilized to protect the stem and keep debris from being packed against it on buried valves. Failure to do this may result in problems with operation.

Refer to AWWA C500 and AWWA M44 for additional installation guidelines and information.



OPERATION

START-UP AND BREAK-IN PROCEDURES:

1. Operate the valve from closed to full open and back to the closed position before applying pressure. Check and record number of turns to open.
2. The direction to open valve is indicated by an arrow cast on the wrench nut or hand wheel.
3. Slowly open and close valves against pressure to avoid damage from surge or water hammer.
4. Never force a valve open or closed. If there is difficulty, contact the manufacturer.

SHUT DOWN:

1. Close the valve in the proper direction based on indication on the wrench nut or the hand wheel.
2. Slowly close the valve against pressure to avoid damage from surge or water hammer.
3. Verify the valve is completely closed by counting number of turns as recorded during initial start-up.

EMERGENCY OPERATION:

Not applicable.

SEASONAL OPERATION

When valves are exposed to freezing temperatures, suitable precautions need to be taken to avoid freeze damage.



FIELD TESTING PROCEDURE

1. The trench may only be backfilled up to the area between joints, leaving the joints exposed so that leaks can be easily seen. Do this before testing to prevent pipe movement and permit joint inspection during test.
2. The system should be stabilized for the test 24 hours prior to testing by filling it with water. The system shall have provisions to vent off all air and for pressurizing to test pressure. This should minimize losses due to entrapped air, changes in water temperature, distension of components under pressure, movement of gaskets, absorption of air by water or water by pipe wall and filling of gate valves.
3. After stabilization and at the time of test, raise pressure in 50 PSI increments to the desired test pressure. After each pressure increment, observe stability of the joints looking for gasket extrusion, joint movement, gasket movement and leakage.
4. Seat leakage shall be evaluated per AWWA C500 allowable leakage requirements.

SAFETY

1. The valve body is a rugged structure but is not intended to be a means of aligning pipe. Care must be taken to ensure that any stresses caused by improper alignment are relieved elsewhere in the piping system. Large valves should be independently supported.
2. The following general rules should be followed when installing the valve in the pipeline.
 - a) Handle valve only with an apparatus that will adequately support it, using safe and proper techniques.
 - b) Install the valve using good piping practices as governed by the applicable code or specification.
 - c) The pipeline and valve must be cleaned of all foreign materials.
 - d) Do not tighten bolts in sequence. They must be tightened in a crossover, star pattern to load the bolts evenly.



To avoid personal injury, prior to troubleshooting or disassembling, isolate valve and purge all internal pressure.



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MAINTENANCE & INSPECTION

During inspection, the valve should be open and closed on a filled and pressurized pipeline. The valve should function freely with no binding or vibration. Count the number of turns to full closed, this will reveal an obstruction if correct number of turns are not achieved.

VALVE SIZE	VALVE STEM TURNS TO OPEN ($\pm 2\%$)	<u>STANDARD BEVEL</u> GEAR INPUT TURNS TO OPEN ($\pm 2\%$)	<u>STANDARD SPUR</u> GEAR INPUT TURNS TO OPEN ($\pm 2\%$)
3	11	22	22
4	14	27	28
6	20	40	41
8	26	53	54
10	33	65	67
12	39	77	79
14	46	92	94
16	53	211	216
18	59	234	240
20	65	261	522
24	78	466	466
30	65	1059	792
36	76	1877	1119
42	89	2926	2959
48	102	4987	5043
54	115	8251	8389

Notes:

- 1) Turns shown above may differ from customer specified requirements.
*** Refer to job specific submittal documentation as needed.
- 2) For valves with motors, refer to the actuator data sheet included with wiring diagrams. Attached actuators should be inspected per the manufacturers recommendations provided with those units.
- 3) For valves larger than 54", contact Kennedy Valve for additional information.



RECOMMENDED MAINTENANCE & INSPECTION

1. Operate the gate valve from full open to full close at regular intervals. The length of time between operations depends on the service conditions.
2. On OS&Y valves, lubricate the valve stem with food grade anti-seize lubricant. Stems should be wiped clean of any foreign debris prior to operation.
3. On valves with stem seal packing, check regularly for packing leakage and lubricate packing with food grade lubricant. If leakage is detected, tighten packing gland bolts evenly. Should leakage persist, replace packing.
4. When repacking valve, be sure to use proper packing for the service. Should replacement packing be needed, contact Kennedy and include the valve type, size and year of manufacture.
5. When replacing valve packing, operate the valve to the full open position (wedge should be positioned firmly against the interior of the bonnet). It will then be possible to repack with only slight or no leakage even under pressure.

Periodic Inspections:

1. End Flange fasteners and Bonnet fasteners should be inspected on a quarterly basis.
2. For OS&Y valves, stem threads should be inspected for foreign matter, cleaned and then lubricated with food-grade grease. Lubrication should be performed as required or per annum as a minimum.
3. All valves should be operated on a quarterly basis if possible. Record any unusual conditions during cycling and maintain record of operation.
4. Inspect packing or O-ring seals if exposed at a quarterly basis.



1021 East Water Street
Elmira, New York 14901
Telephone (607) 734-2211
Fax (607) 734-3288

RECORDS

A permanent inspection record should be kept for each valve. Below is an example of suggested information that should be recorded by the end user at time of installation.

1. **Model / Series Number(s):** _____

2. **Manufacturer:** Kennedy Valve

Address: 1021 East Water St, Elmira, NY 14901

Tel: 607-734-2211

3. **Valve Tag Number(s):** _____

4. **Actuation Tag Information (supplier, model, hp, voltage, speed, etc.):** _____

5. **Manufacturer's Local Representative:** _____

Name: _____

Address: _____

Tel: _____

6. **Special Maintenance Requirements (if any):** _____



DISASSEMBLY & REASSEMBLY INSTRUCTIONS

DISASSEMBLY INSTRUCTIONS FOR REPLACING DISC:

1. Isolate the valve from line pressure and assure no internal pressure is contained between the disc assembly.
2. Position the valve in an approximate midpoint of travel position, starting from the fully closed position.
3. Match mark the ends of the bonnet flange and the body flange to assure proper re-assembly of the components.
4. Remove the bonnet fasteners and set them aside. Lift the bonnet assembly until the discs center is level with body flange. Match mark the disc faces to assure proper re-assembly. Place two vise grip clamps, on opposite sides of the disc, to prevent them from dislodging from the wedges.
Use vise grip clamps, such as Matco Tools Model# V18R.
5. Continue to lift the bonnet assembly until the discs clear the body completely. Set the disc assembly on secure worktable as this unit weighs in excess of 500lbs. When handling the discs, use only nylon strapping to prevent scratching of disc face.
6. Remove the vise grip clamps and replace the discs with new discs as required. Re-position the vise grip clamps on the discs and secure.

REASSEMBLY INSTRUCTIONS:

1. Remove the old gasket and position the new gasket on the body flange.
2. Lift the bonnet assembly and position over the valve body. Confirm the position of the bonnet by the match marks on the body and bonnet flanges.
3. Lower the bonnet assembly into the body assembly, until the clamps are above the body flange. Carefully remove the vise grip clamps and lower the bonnet assembly onto the body.
4. Re-install the bonnet fasteners. Tighten by hand all bonnet fasteners. Torque all fasteners to 100 [ft. lbs.] all around the body and bonnet flange, making sure to do so in a star pattern.
5. Operate the electric motor or gear and test valve and inspect for leaks around body to bonnet flange. Tighten fasteners if any leaks exist.



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TROUBLESHOOTING ROTATING DISC GATE VALVES

POSSIBLE MALFUNCTION	SYMPTOMS - CAUSES	CORRECTIVE ACTION
Joint Leakage	Fastener Tension Relaxing	Tighten fasteners
Seat Leakage	Foreign Material caught in seat	Operate valve to flush out debris
	Seats Dirty/ Corroded	Flush or dis-assemble & clean
	Seats Damaged	Inspect-repair or Replace
Leak Past Stem	Fasteners Loose	Tighten fasteners
	O-rings worn/ damaged (NRS)	Inspect/ Replace
	Packing worn/ damaged (OS&Y)	Inspect/ Replace

For service contact the local manufacturer's representative.

SPARE PARTS

In normal operating conditions, no spare parts are needed. The only spare parts for a gate valve would be a bonnet gasket and packing or O-rings.

**** For parts contact the local manufacturer's representative.*

OPERATION AND MAINTENANCE MANUAL

2" - 66" SERIES 2500 RESILIENT WEDGE GATE VALVE



AMERICAN

FLOW CONTROL

THE RIGHT WAY



INDEX

SERIES 2500 DUCTILE IRON RESILIENT WEDGE GATE VALVE OPERATION and MAINTENANCE MANUAL

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SERIES 2500 - OPERATION & MAINTENANCE

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.

Operation

1. Direction of opening is normally indicated by an arrow cast on the handwheel or wrench nut of the valve.
2. Operate gate valves from full closed to full open position and back before applying pressure.
3. Close gate valve slowly against pressure to avoid damage from surge or water hammer.
4. Valves installed on liquid service subject to freezing conditions should be protected to prevent trapping of liquid in the bonnet cavity, expansion on freezing and subsequent damage. The same is true of valves that are subject to considerable temperature increases. Trapped pressure should be vented back to the upstream side to prevent buildup of pressure in the valve bonnet due to high temperature expansion.
5. Valves should be opened and closed without the use of excessive torque applied to the handwheel or wrench nut. Excessive torque may damage the valve.
6. Gate valves are designed for open and close service. Their multi-turn design is not intended for throttling. As such, the valve should never be left in a partial open or closed position for extended periods.

Maintenance

1. Operate valves at regular intervals. The necessary length of time between the operation of the valve depends upon the time the valve has been in service and the service conditions, but more specifically whatever time period is found to be satisfactory based on local experience. Operation should occur as a minimum of once per year, but in general as detailed in Section A.6, of Appendix A, of ANSI/AWWA C515.
2. Should disassembly or operation require additional lubrication, use an AMERICAN Flow Control recommended food grade grease for the stem threads and thrust collar.
3. Chipped spots in the epoxy coating should be repaired with a liquid two-part epoxy.

Spare Parts

Under most conditions, the only spare parts needed for the valve would be upper and lower stem O-rings. Under rigorous service, stems, wedges, upper and lower stem O-rings and thrust washers should be carried as spare parts.

Use parts list drawings as a guide for disassembly and ordering repair parts. Also refer to disassembly/reassembly instructions.

Typical Operating Torque At Rated Working Pressure

Valve Size	Closing Torque Ft-lbs	Opening Torque Ft-lbs
2"	15-20	15-20
2-1/2"	15-20	15-20
3"	30-40	30-40
4"	30-40	30-40
6"	50-60	50-80
8"	70-80	60-90
10"	90-100	125-150
12"	100-125	140-175
14"	Contact Factory	
16"	Contact Factory	
18"	Contact Factory	
20"	Contact Factory	
24"	Contact Factory	
30"	Contact Factory	
36"	Contact Factory	
42"	Contact Factory	
48"	Contact Factory	
54"	Contact Factory	
60"	Contact Factory	
66"	Contact Factory	

SERIES 2500 - TROUBLESHOOTING GUIDE



Problem	Solution																																																													
Leakage	<p>Depending on the location of the leakage, the following should be examined.</p> <ol style="list-style-type: none"> 1. SEAT: Foreign material may be stuck under the valve wedge. Open valve only enough to get high velocity flow to flush out valve. Repeat several times until leak stops. If this does not solve the problem, it is then necessary to open the valve and check for damage to the rubber encapsulated wedge. If it is damaged or severely cut, replace the wedge. 2. STEM: The stem seals are of the O-ring type and the valve has a thrust collar (electric actuated valves normally do not have thrust collars). Always relieve pressure before working on any valve. Check all O-ring seals for leakage and replace as necessary. On OS&Y valves leakage can be stopped by evenly tightening the packing gland bolts. If leakage cannot be stopped, the valve should be repacked. 3. BODY: Check for cracked or damaged valve body or bonnet. If damage has occurred, contact manufacturer for further instructions. 4. BOLTED CONNECTIONS: Check for loose bonnet-to-body bolts, stuffing box bolts or end joint bolts and tighten as necessary. This should be done prior to pressurization of the line. If line is pressurized, pressure should be relieved prior to tightening any bolts. Do not tighten bolts past the yield strength of the bolt. Reinstall all bolts and nuts and tighten alternately to 70-90 ft-lbs of torque. 																																																													
Valve is Hard to Operate or Is Inoperable	<ol style="list-style-type: none"> 1. A valve can become inoperable or hard to operate during testing of the pipeline. Prior to relieving pipeline pressure, the valve should be opened to relieve any trapped pressure. 2. The application of excessive torque on a valve can cause permanent damage to the operating parts. A common source of excessive torque is from the use of portable power actuators. Output torques generated by these machines should be adjusted to be suitable for the valve size. The last or first turns of operation should be done by hand. <p style="text-align: center;">Number of Turns to Open/Close</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="3">Series 2500</th> <th colspan="6">Series 2500-1</th> <th colspan="10">Series 2500</th> </tr> <tr> <th>2"</th><th>2-1/2"</th><th>3"</th> <th>2"</th><th>4"</th><th>6"</th><th>8"</th><th>10"</th><th>12"</th><th>14"</th><th>16"</th><th>18"</th><th>20"</th><th>24"</th><th>30"</th><th>36"</th><th>42"</th><th>48"</th><th>54"</th><th>60"</th><th>66"</th> </tr> </thead> <tbody> <tr> <td>9</td><td>11</td><td>13</td> <td>9</td><td>14</td><td>20</td><td>26</td><td>32</td><td>38</td><td>44</td><td>50</td><td>56</td><td>62</td><td>76</td><td>379</td><td>448</td><td>694</td><td>789</td><td>789</td><td>984</td><td>984</td> </tr> </tbody> </table> <p>Note: 24" and smaller reflect non-gearred valves. 30" and larger reflect geared valves</p> <ol style="list-style-type: none"> 3. If valve has not been operated periodically, excessive buildup could occur that would affect valve operation. The valve should be exercised one turn at a time and cycled from open to closed as necessary to attempt removal of internal buildup. 	Series 2500			Series 2500-1						Series 2500										2"	2-1/2"	3"	2"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	36"	42"	48"	54"	60"	66"	9	11	13	9	14	20	26	32	38	44	50	56	62	76	379	448	694	789	789	984	984
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Valve Leaks During Testing	<ol style="list-style-type: none"> 1. Resilient seated gate valves per ANSI/AWWA C515 have a zero allowable leakage rate. If a leak is detected while testing, it is necessary to find the cause. 2. If seat leakage is detected, it may be due to foreign material or trapped air in the line. Open the valve enough to get high velocity flow to flush out valve. Repeat several times until leakage stops. 3. If testing between valves, allow enough time to fill the valve and vent off air. 																																																													

SERIES 2500 - STANDARD NRS REPAIRS, 2", 2-1/2" & 3"



WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.

Disassembly

1. Remove bolts and nuts that attach operating nut and stuffing box.
2. Remove operating nut and stuffing box.
3. Back stem out of bonnet by turning in the closing direction.
4. Inspect O-rings and, if damaged, remove from stuffing box and stem. Replace with new O-rings and lubricate with food grade grease.
5. Inspect thrust washers and stuffing box gasket (O-ring) and replace if damaged.
6. Remove bolts and nuts that attach bonnet to valve body. Remove bonnet to inspect bonnet gasket, wedge and interior of valve body. Replace parts if damaged.

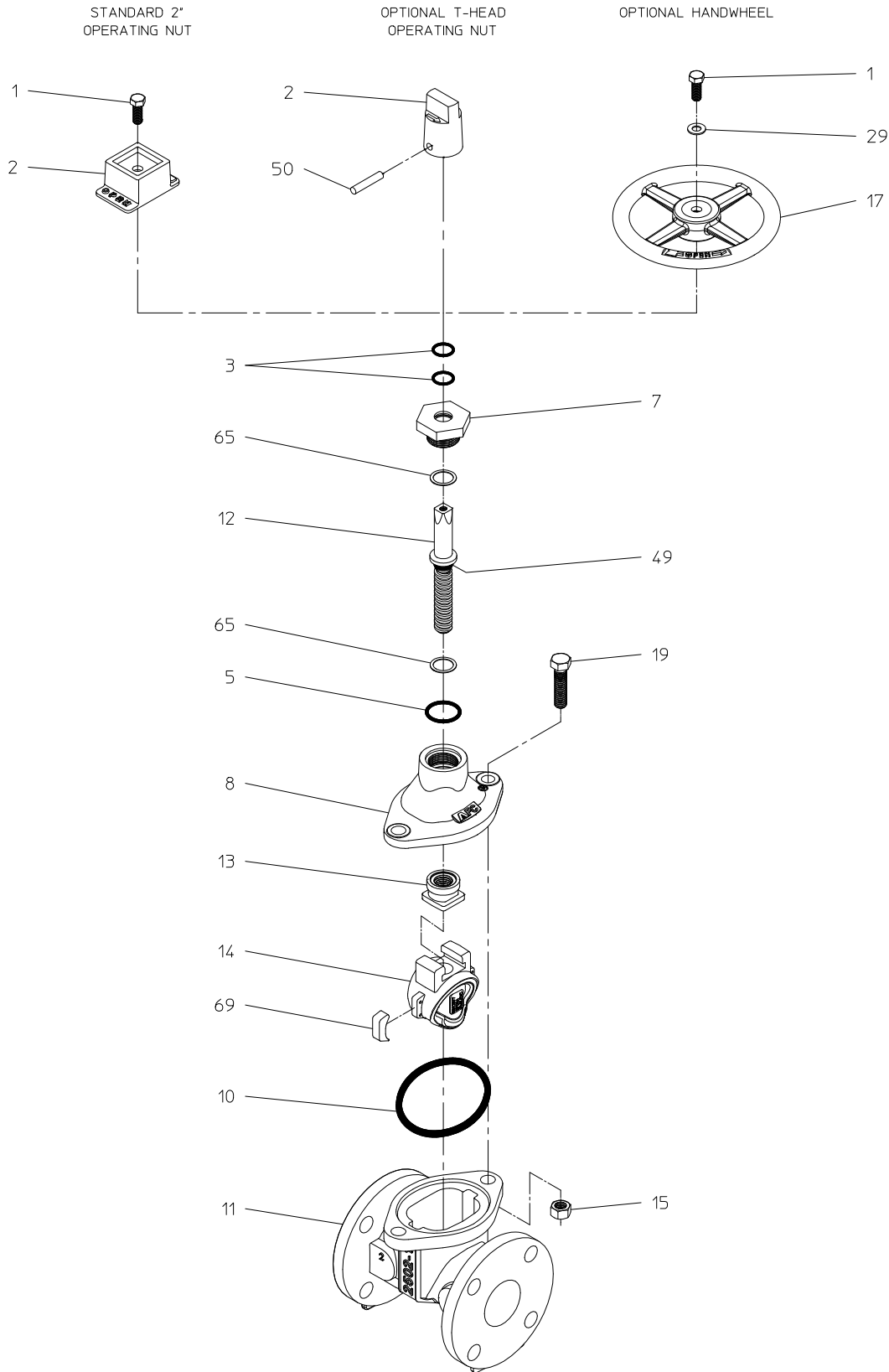
Reassembly

Reassembly is the reverse of disassembly while paying attention to the following points.

1. Make sure the bonnet gasket is positioned correctly on the valve body flange when bonnet is assembled onto valve body.
2. Lubricate stem threads with an AMERICAN Flow Control recommended food grade grease before installing into bonnet and threading into wedge nut. Turn stem in opening direction.
3. Position stuffing box gasket in top of bonnet and slide stuffing box onto stem being careful not to cut the stem seal O-rings.
4. Reinstall all bolts and nuts and tighten alternately to 70-90 ft-lb of torque.



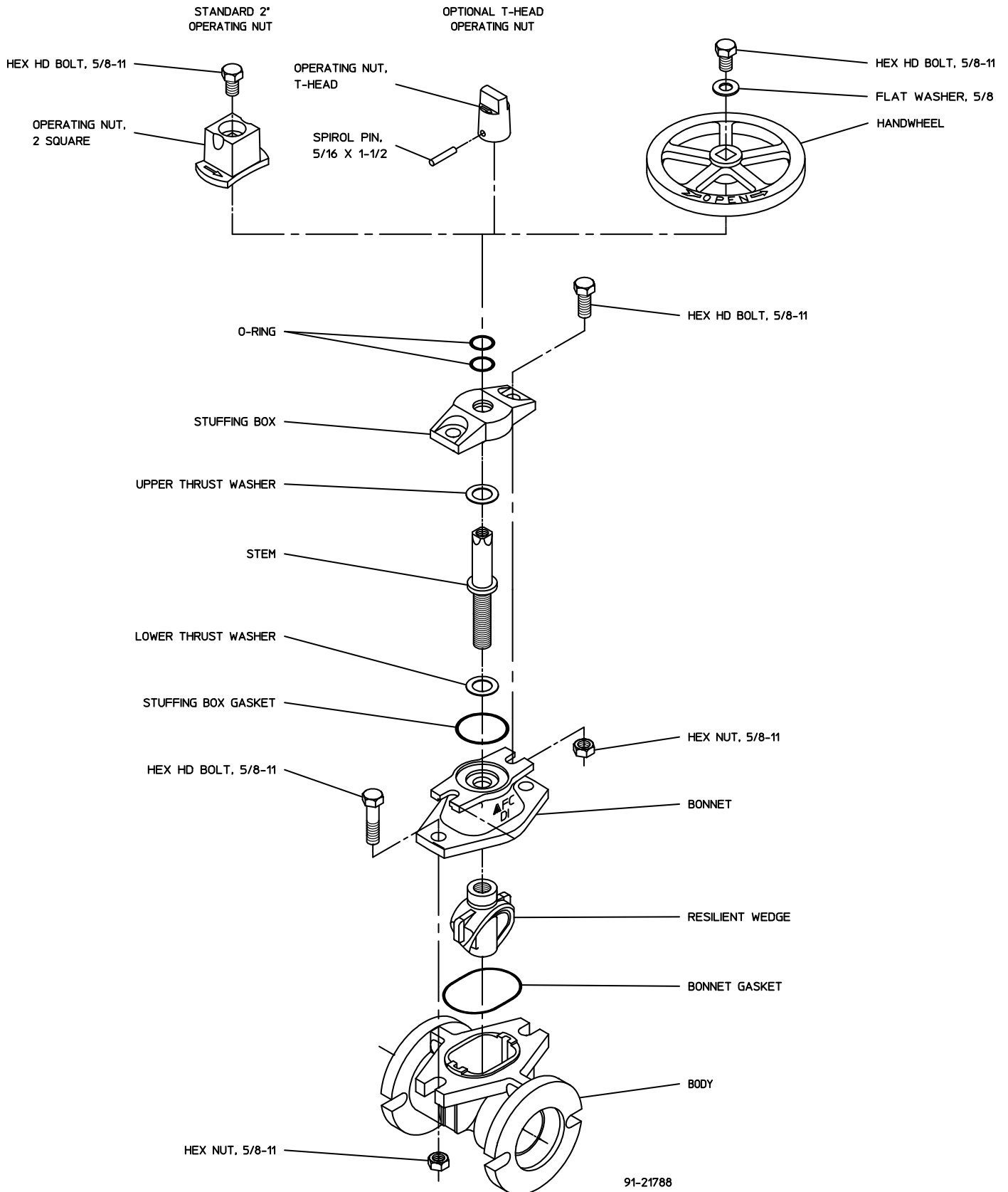
SERIES 2500 - STANDARD NRS REPAIRS, 2"



IL4182



SERIES 2500 - STANDARD NRS REPAIRS, 2-1/2" & 3"



91-21788



SERIES 2500 - STANDARD NRS REPAIRS, 4" – 8"

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.

Disassembly

1. Remove bolts and nuts that attach operating nut and stuffing box.
2. Remove operating nut and stuffing box.
3. Back stem out of bonnet by turning in the closing direction.
4. Inspect O-rings and, if damaged, remove from stuffing box and stem. Replace with new O-rings and lubricate with food grade grease.
5. Inspect thrust washers and stuffing box gasket (O-ring) and replace if damaged.
6. Remove bolts and nuts that attach bonnet to valve body. Remove bonnet to inspect bonnet gasket, wedge nut, wedge and interior of valve body. Replace parts if damaged.

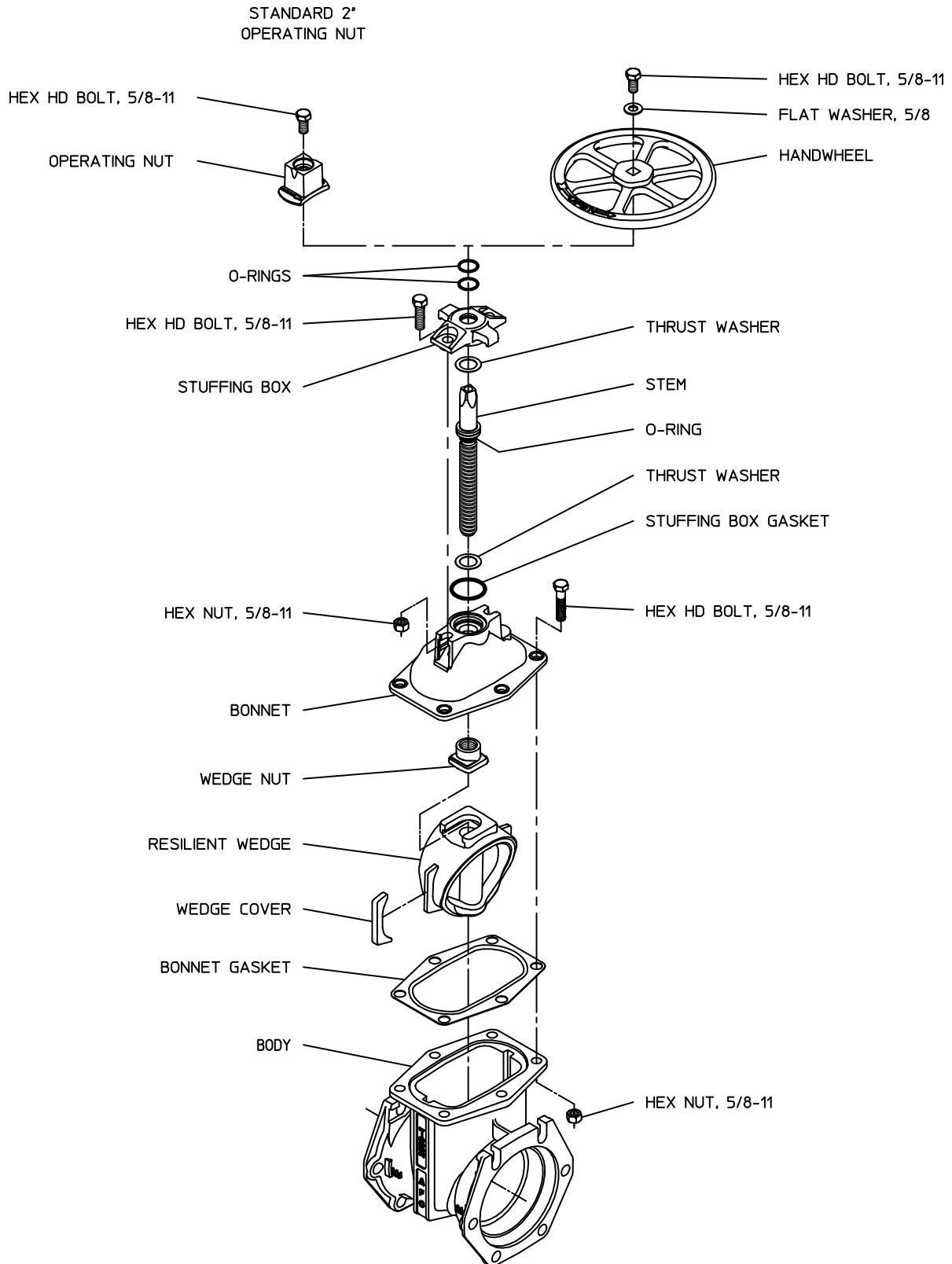
Reassembly

Reassembly is the reverse of disassembly while paying attention to the following points.

1. Make sure wedge nut is seated fully into slot in wedge.
2. Make sure the bonnet gasket is positioned correctly on the valve body flange when bonnet is assembled onto valve body.
3. Lubricate stem threads with an AMERICAN Flow Control recommended food grade grease before installing into bonnet and threading into wedge nut. Turn stem in opening direction.
4. Position stuffing box gasket in top of bonnet and slide stuffing box onto stem being careful not to cut the stem seal O-rings.
5. Reinstall all bolts and nuts and tighten alternately to 70-90 ft-lb of torque.



SERIES 2500 - STANDARD NRS REPAIRS, 4" – 8"



91-21789



SERIES 2500 - STANDARD NRS REPAIRS, 10" & 12"

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.

Disassembly

1. Remove bolts and nuts that attach operating nut and stuffing box.
2. Remove operating nut and stuffing box.
3. Back stem out of bonnet by turning in the closing direction.
4. Inspect O-rings and, if damaged, remove from stuffing box and stem. Replace with new O-rings and lubricate with food grade grease.
5. Inspect thrust washers and stuffing box gasket (O-ring) and replace if damaged.
6. Remove bolts and nuts that attach bonnet to valve body. Remove bonnet to inspect bonnet gasket, wedge nut, wedge and interior of valve body. Replace parts if damaged.

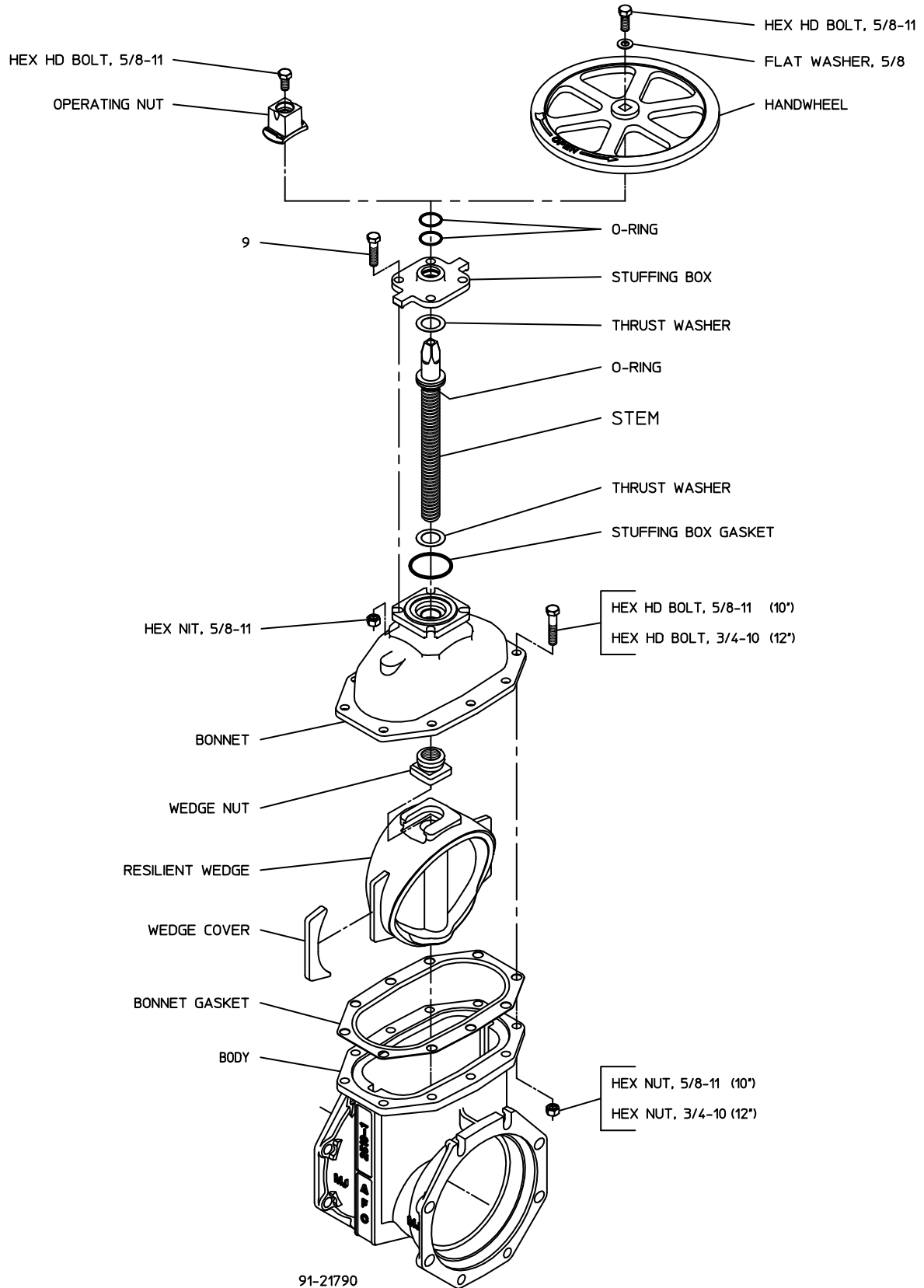
Reassembly

Reassembly is the reverse of disassembly while paying attention to the following points.

1. Make sure wedge nut is seated fully into slot in wedge.
2. Make sure the bonnet gasket is positioned correctly on the valve body flange when bonnet is assembled onto valve body.
3. Lubricate stem threads with an AMERICAN Flow Control recommended food grade grease before installing into bonnet and threading into wedge nut. Turn stem in opening direction.
4. Position stuffing box gasket in top of bonnet and slide stuffing box onto stem being careful not to cut the stem seal O-rings.
5. Reinstall all bolts and nuts and tighten alternately to 70-90 ft-lb of torque.



SERIES 2500 - STANDARD NRS REPAIRS, 10" & 12"



SERIES 2500 - NRS WITH ENCLOSED MITER GEARING REPAIRS 3"—12"



Disassembly

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.

Disassembling Miter gearing

1. Remove bolts and nuts that attach gear housing cover.
2. Remove bolt that attaches miter gear to gear shaft. Slide shaft out of opening in the gear housing.
3. Remove bolt that attaches miter gear to valve stem and pull miter gear from stem.
4. Remove gear housing from valve.
5. Inspect O-rings and if damaged, remove from gear housing and stem. Replace with new O-rings and lubricate with an AMERICAN Flow Control recommended food grade grease.

Disassembling Valve

1. Back stem out of bonnet by turning in the closing direction.
2. Inspect O-rings and, if damaged, remove from gear housing and stem. Replace with new O-rings and lubricate with food grade grease.
3. Inspect thrust washers and stuffing box gasket (O-ring) and replace if damaged.
4. Remove bolts and nuts that attach bonnet to valve body. Remove bonnet to inspect bonnet gasket, wedge nut (4"—12"), wedge and interior of valve body. Replace parts if damaged.

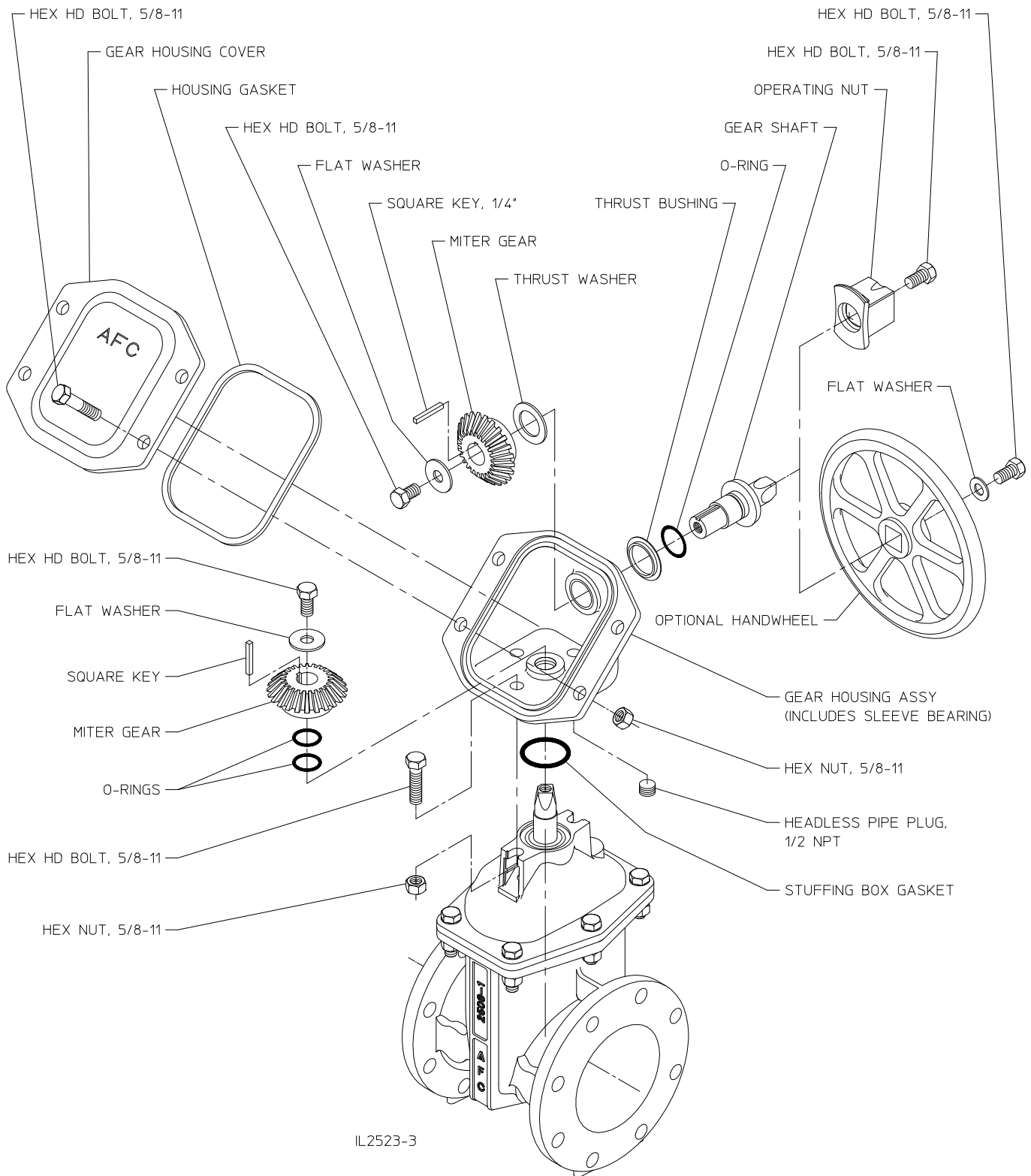
Reassembly

Reassembly is the reverse of disassembly while paying attention to the following points.

1. Make sure wedge nut (4"—12") is seated fully into slot in wedge.
2. Make sure the bonnet gasket is positioned correctly on the valve body flange when bonnet is assembled onto valve body.
3. Lubricate stem threads with an AMERICAN Flow Control recommended food grade grease before installing into bonnet and threading into wedge nut. Turn stem in opening direction.
4. Position stuffing box gasket in top of bonnet and slide gear housing onto stem being careful not to cut the stem seal O-rings.
5. Reinstall all bolts and nuts and tighten alternately to 70-90 ft-lb of torque.
6. Make sure the thrust washer is on the pilot of the miter gear when it is assembled onto the gear shaft. A dab of an AMERICAN Flow Control recommended food grade grease on the thrust washer will hold it on the gear.
7. The gear housing should be filled approximately half-full with food grade grease.



SERIES 2500 - NRS WITH ENCLOSED MITER GEARING REPAIRS 3"–12"





SERIES 2500 - OS & Y REPAIRS, 2" SIZE

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.

Disassembly

1. Turn the handwheel to fully close the valve.
2. Loosen the packing gland nuts and remove the 2 bolts fastening the bonnet to the valve body.
3. Turn the handwheel to raise the bonnet away from the valve body and unthread the stem assembly from the stem.
4. Pull the wedge and stem assembly out the valve throat.
5. Remove the packing gland nuts, gland, gland follower and packing rings if necessary.
6. Loosen and remove the handwheel nut and yoke nut to remove handwheel. Do not lose the square key.
7. Drive out the pin in the wedge and unscrew the stem from the wedge.

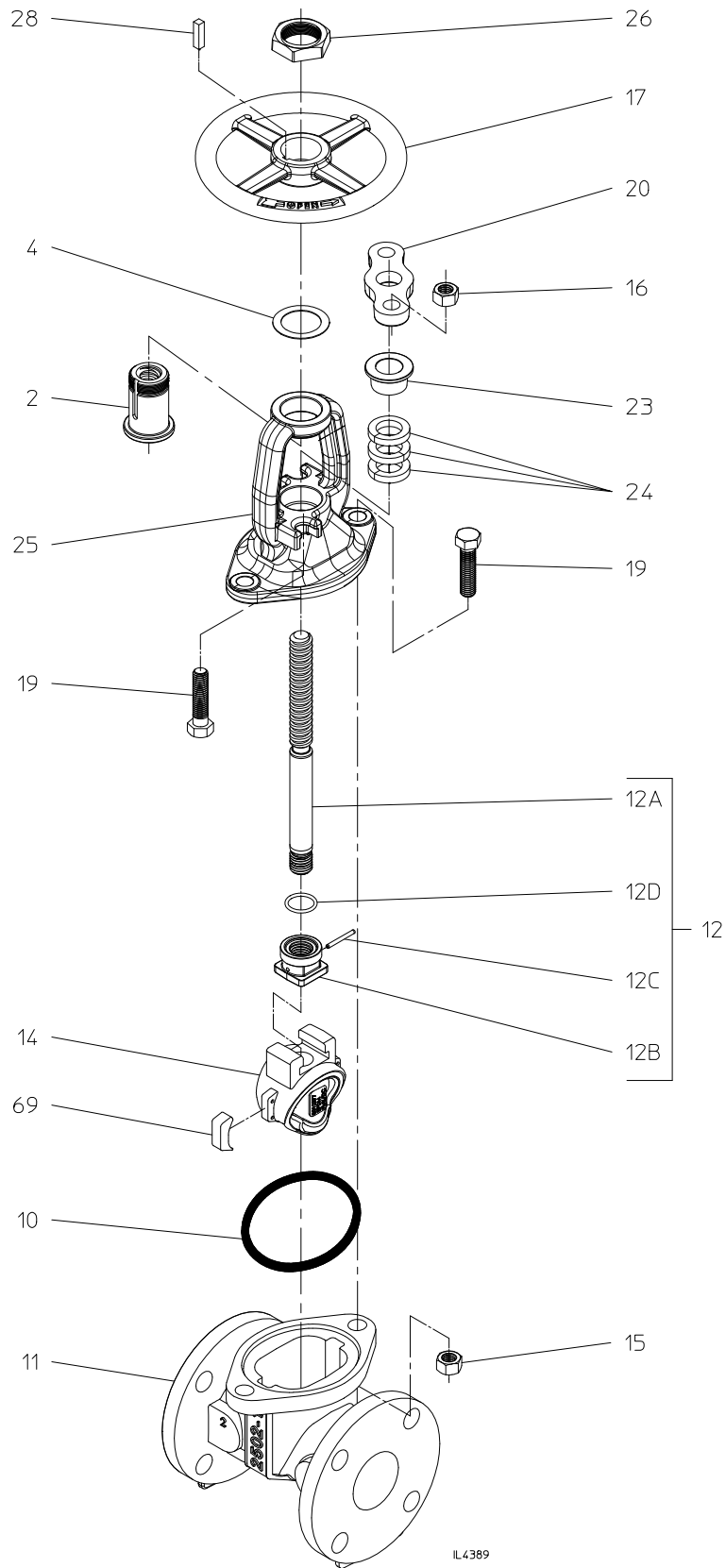
Reassembly

Reassembly is the reverse of disassembly with the following notes:

1. Carefully inspect and replace any damaged components. Lubricate all O-rings with an AMERICAN Flow Control recommended food grade grease.
2. Make sure the bonnet gasket is properly positioned on the valve body flange when the bonnet is assembled onto the valve body. Make sure the wedge nut is fully seated into the slot of the wedge.
3. Place the bonnet part-way onto the stem and insert the gland and gland-follower onto the stem. Raise the bonnet again and thread the yoke nut partially onto the stem.
4. Place the bonnet onto the yoke nut and turn the yoke nut and bonnet onto the stem until the bonnet contacts the throat gasket.
5. Using 2 hex head bolts, fasten the bonnet to the valve body.
6. Place the handwheel washer over the stem and onto the top of the yoke.
7. Slip the handwheel over the stem and onto the yoke nut. Insert the square key and replace the handwheel nut, tightening securely.
8. Raise the gland and gland-follower and replace the packing rings so that the joints in the rings are not aligned. Use the same number of packing rings as were removed.
9. Replace the gland-follower nuts and tighten only enough to prevent leakage of water past the stem.



SERIES 2500 - OS & Y REPAIRS, 2" SIZE



IL4389



SERIES 2500 - OS & Y REPAIRS, 2-1/2" & 3" SIZES

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.

Disassembly

1. Turn the handwheel to fully close the valve.
2. Mark the 2 stem nuts in line with each other - one mark on the top of the upper stem nut and one mark on the same side of the lower stem nut flange.
3. Remove the 2 hex-head bolts from the bonnet.
4. Loosen the gland-follower nuts.
5. Turn the handwheel in the closing direction to unscrew the pair of stem nuts from the stem. The handwheel, bonnet and handwheel washer will also be removed as they are trapped between the stem nuts. When the upper stem nut is fully unthreaded from the stem, the handwheel can be removed. When the lower stem nut is unthreaded from the stem, the bonnet, gland and gland-follower can be removed.
6. Grasping the stem, withdraw the stem and wedge assembly from the valve.
7. Drive the groove pin out of the wedge and unscrew the stem from the wedge .

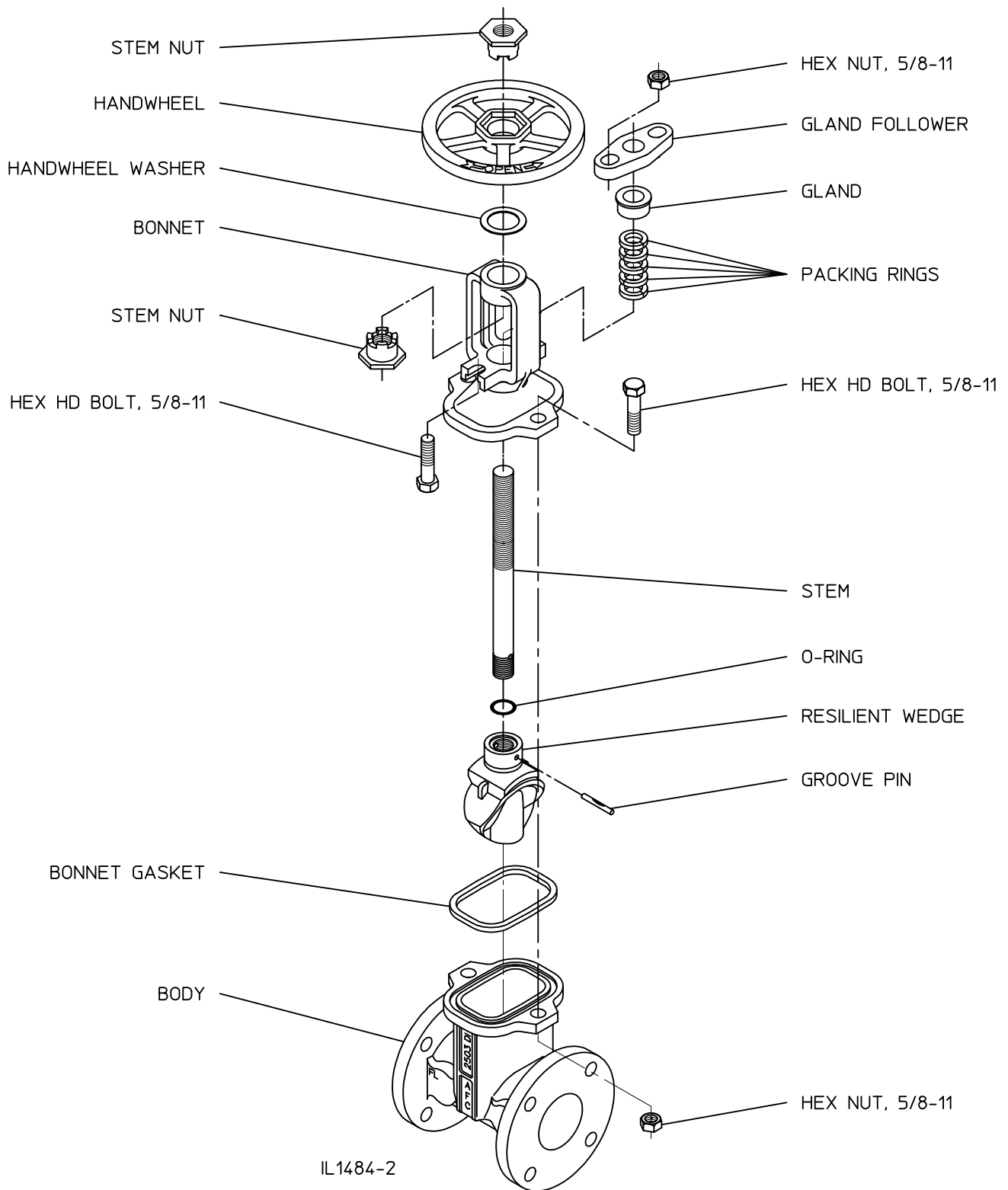
Reassembly

Reassembly is the reverse of disassembly with the following notes:

1. Carefully inspect and replace any damaged components. Lubricate all O-rings with an AMERICAN Flow Control recommended food grade grease.
2. Make sure the bonnet gasket is properly positioned on the valve body flange when the bonnet is assembled onto the valve body.
3. Place the bonnet part-way onto the stem tipping the top of the bonnet's yoke to the side. Raise the yoke off the top of the stem and place the gland and gland follower onto the stem. Raise the yoke again and thread the lower stem nut partially onto the stem. Note the position of the alignment mark and place the yoke onto the lower stem nut.
4. Place the handwheel washer on the top of the yoke.
5. Note the location of the alignment mark on the upper stem nut and place the nut in the handwheel. Place the handwheel and upper stem nut onto the yoke, engaging the teeth of the stem nuts so that the marks are aligned.
6. Turn the handwheel and yoke as a unit onto the stem until the yoke is nearly touching the bonnet.
7. Using 2 hex head bolts, fasten the bonnet to the valve body.
8. Raise the gland and gland-follower and replace the packing rings so that joints in the rings are not aligned. Use the same total number of packing rings as were removed.
9. Replace the gland-follower nuts and tighten only enough to prevent leakage of water past the stem.



SERIES 2500 - OS & Y REPAIRS, 2-1/2" & 3" SIZES





SERIES 2500 - OS & Y REPAIRS, 4" - 8" SIZES

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.

Disassembly

1. Turn the handwheel to fully close the valve.
2. Mark the 2 stem nuts in line with each other, one mark on the top of the upper stem nut and one mark on the same side of the lower stem nut flange.
3. Remove the 2 hex-head bolts from the yoke.
4. Loosen the gland-follower nuts.
5. Turn the handwheel in the closing direction to unscrew the pair of stem-nuts from the stem. The handwheel, yoke and handwheel washer will also be removed as they are trapped between the stem-nuts. When the upper stem nut is fully unthreaded from the stem, the handwheel can be removed. When the lower stem nut is unthreaded from the stem, the yoke, gland and gland follower can be removed.
6. Remove the bonnet bolts and grasping the stem, withdraw the bonnet and wedge assembly from the valve.
7. Withdraw the stem and wedge assembly from the bonnet and remove the wedge from the stem by sliding the wedge nut out the side of the wedge slot.
8. Drive the groove pin out of the wedge nut and unscrew the stem from the wedge nut.

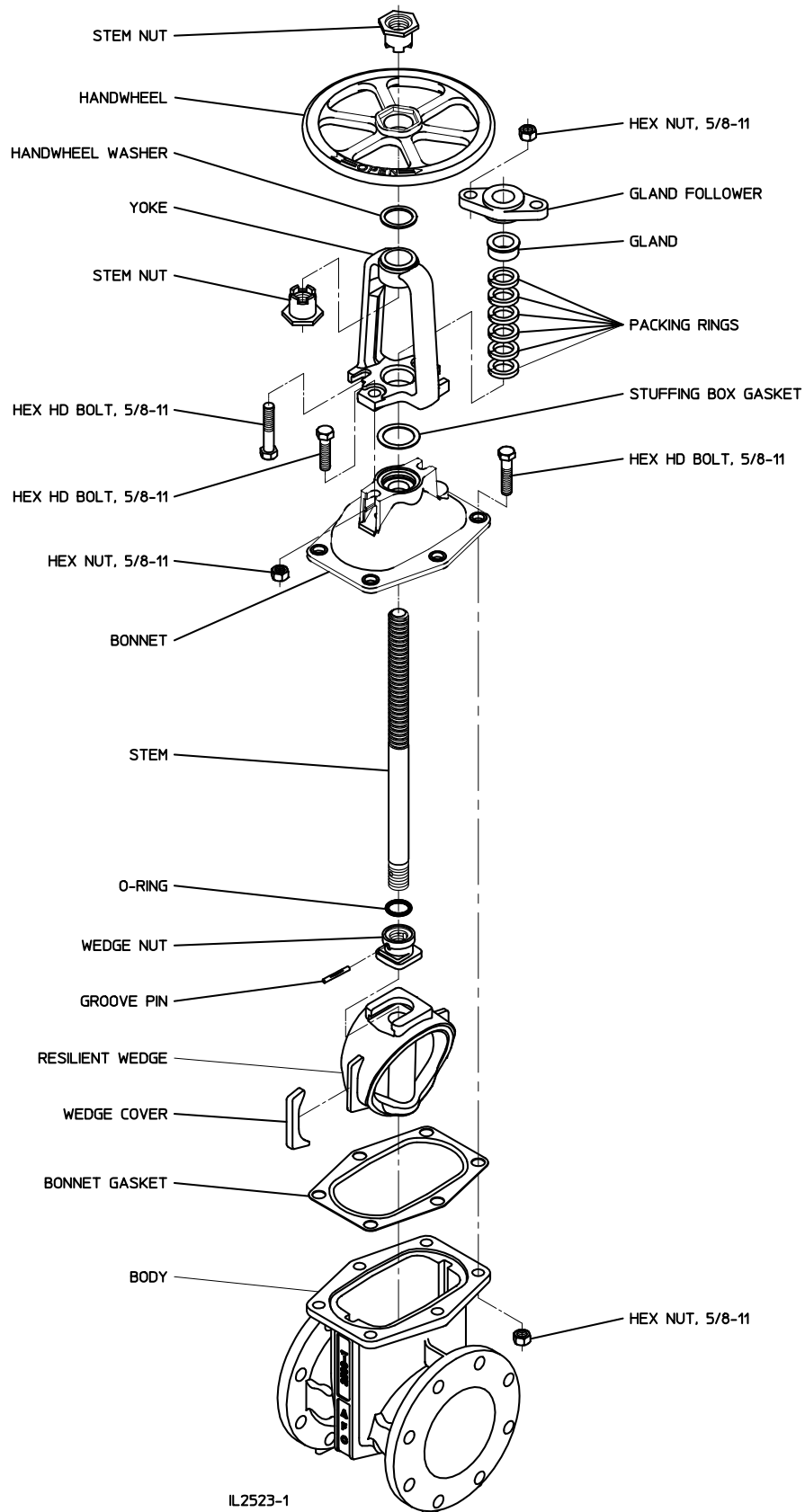
Reassembly

Reassembly is the reverse of disassembly with the following notes:

1. Carefully inspect and replace any damaged components. Lubricate all O-rings with an AMERICAN Flow Control recommended food grade grease.
2. Make sure the wedge nut is fully seated into the slot in the wedge.
3. Make sure the bonnet gasket is properly positioned on the valve body flange when the bonnet is assembled onto the valve body.
4. After installing the wedge assembly and bonnet, place one packing ring in the bonnet then position the stuffing box gasket in the bonnet recess.
5. Place the yoke part-way onto the stem tipping the top of the yoke to the side. Raise the yoke off of the top of the stem and place the gland and gland-follower onto the stem. Raise the yoke again and thread the lower stem nut partially onto the stem. Note the position of the alignment mark and place the yoke onto the lower stem nut.
6. Note the position of the alignment mark and place the yoke onto the lower stem nut.
6. Place the handwheel washer on the top of the yoke.
7. Note the location of the alignment mark on the upper stem nut and place the nut in the handwheel. Place the handwheel and upper stem nut onto the yoke, engaging the teeth of the stem nuts so that the marks are aligned.
8. Turn the handwheel and yoke as a unit onto the stem until the yoke is nearly touching the bonnet.
9. Using 2 hex head bolts, fasten the yoke to the bonnet.
10. Raise the gland and gland-follower and replace the packing rings so that joints in the rings are not aligned. Use the same total number of packing rings as were removed.
11. Replace the gland-follower nuts and tighten only enough to prevent leakage of water past the stem.



SERIES 2500 - OS & Y REPAIRS, 4" - 8" SIZES





SERIES 2500 - OS & Y REPAIRS, 10"-24" SIZES

WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. Do not make repairs while valve is under pressure.

Disassembly

1. Turn the handwheel to fully close the valve.
2. Loosen the packing gland nuts and remove the 4 bolts fastening the yoke to the bonnet.
3. Turn the handwheel to raise the yoke away from the bonnet and unthread the assembly from the stem. Do not lose the square key.
4. Remove the bolts from the bonnet and lift the bonnet over and off of the stem.
5. Disengage the stem and wedge nut from the wedge by sliding the nut out of the slot in the wedge.
6. Drive out the pin in the wedge nut and unscrew the stem from the wedge nut.
7. Pull the wedge out of the valve throat.

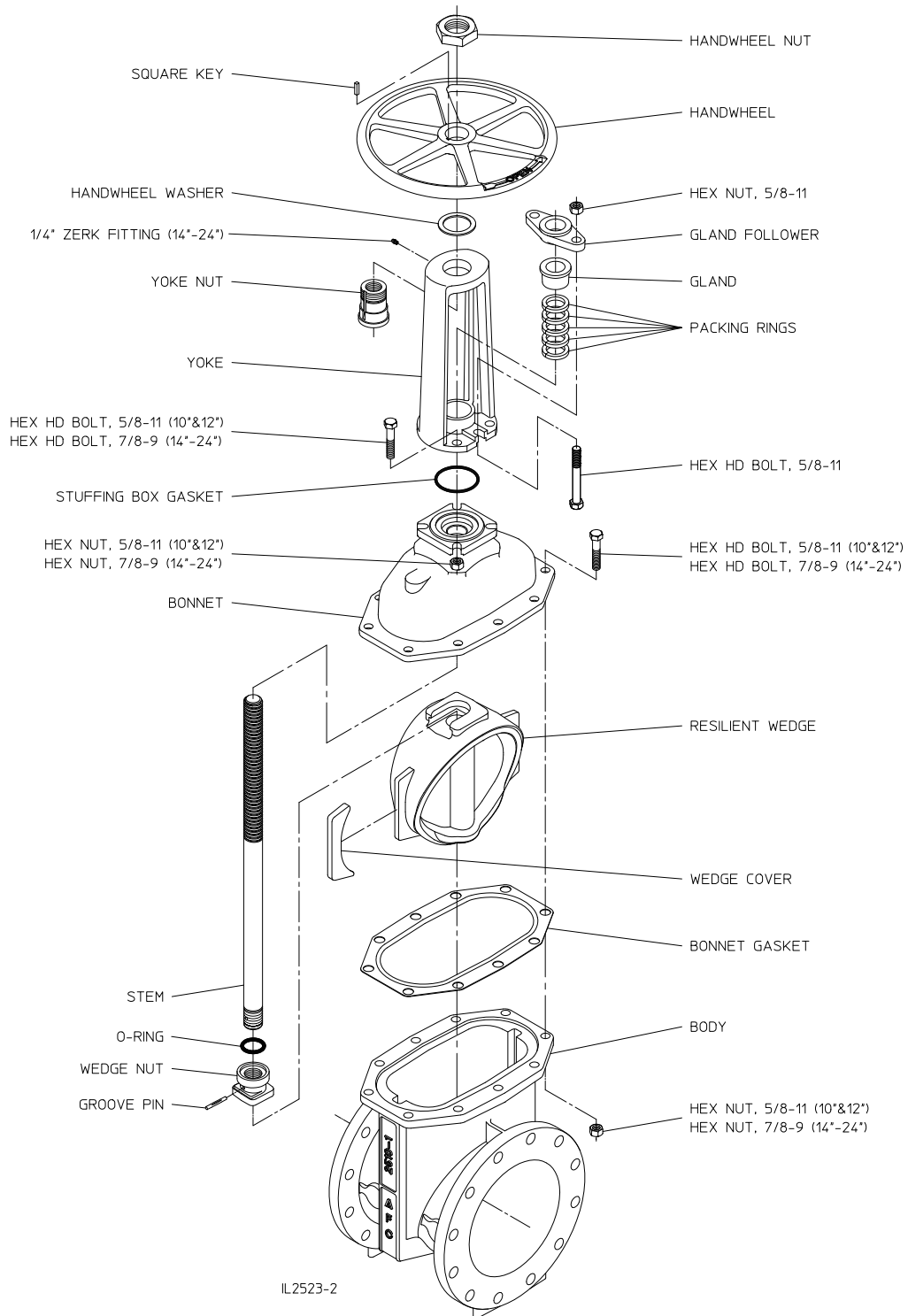
Reassembly

Reassembly is the reverse of disassembly with the following notes:

1. Carefully inspect and replace any damaged components. Lubricate all O-rings with an AMERICAN Flow Control recommended food grade grease.
2. Make sure the wedge nut is fully seated into the slot in the wedge.
3. Make sure the bonnet gasket is properly positioned on the valve body flange when the bonnet is assembled onto the valve body.
4. After installing the stem and wedge assembly and bonnet, position the stuffing box gasket in the bonnet recess.
5. Place the yoke part-way onto the stem tipping the top of the yoke to the side. Raise the yoke off the top of the stem and place the gland and gland follower onto the stem. Raise the yoke again and thread the yoke nut partially onto the stem. Place the yoke onto the yoke nut.
6. Turn the yoke nut and yoke onto the stem until the yoke contacts the bonnet.
7. Using 4 hex head bolts, fasten the yoke to the bonnet.
8. Place the handwheel washer over the stem and onto the top of the yoke.
9. Slip the handwheel over the stem and onto the yoke nut. Insert the square key and replace the handwheel nut, tightening securely.
10. Raise the gland and gland-follower and replace the packing rings so that joints in the rings are not aligned. Use the same number of packing rings as were removed.
11. Replace the gland-follower nuts and tighten only enough to prevent leakage of water past the stem.



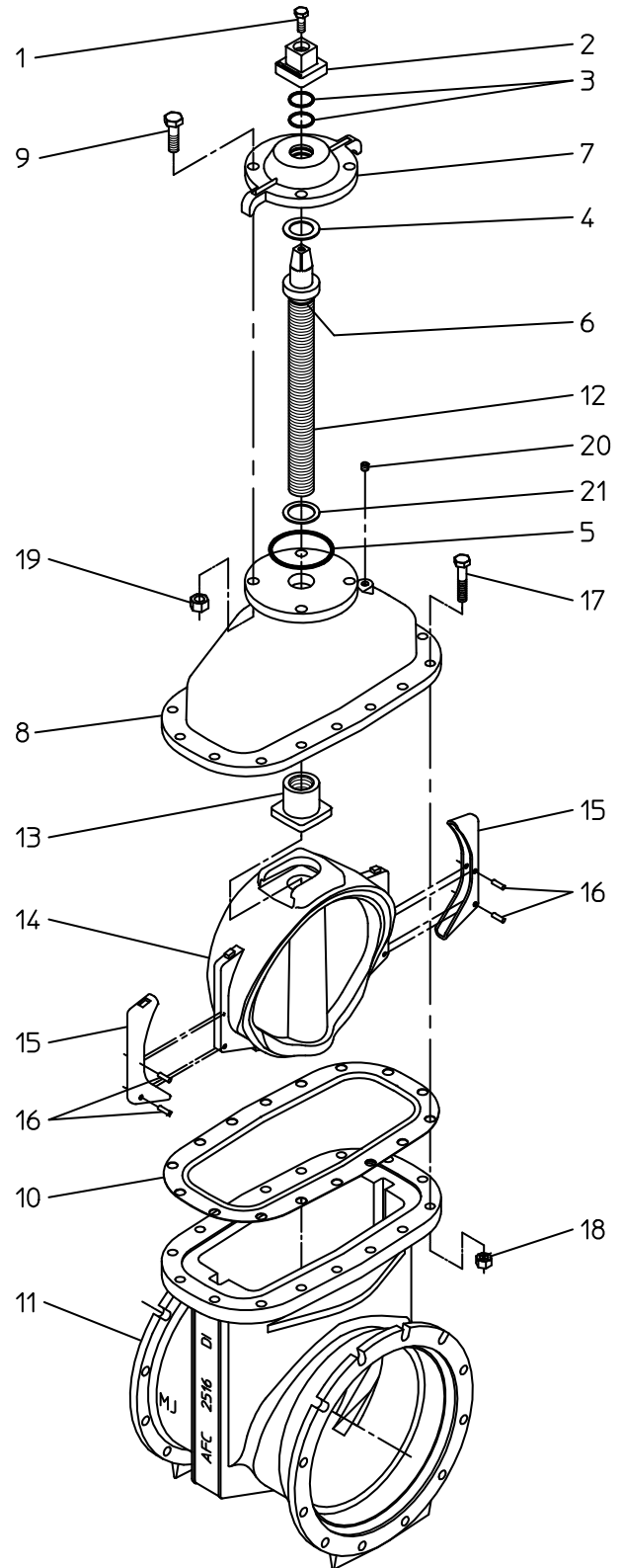
SERIES 2500 - OS & Y REPAIRS, 10"-24" SIZES





SERIES 2500 - STANDARD NRS PARTS LIST, 14" -24" SIZES

Ref No.	Description	Material	Qty.				
			Series 2500				
			14"	16"	18"	20"	24"
1	Hex Head Bolt, 5/8-11 x 1-3/4"	Stainless Steel	1	1	1	1	1
2	Operating Nut, 2" Square	Ductile Iron	1	1	1	1	1
3	O-ring	Rubber	2	2	2	2	2
4	Upper Thrust Washer	Delrin	1	1	1	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1	1	1	1
6	O-ring	Rubber	1	1	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1	1	1
8	Bonnet	Ductile Iron	1	1	1	1	1
9	Hex Head Bolt, 7/8-9 x 3"	Stainless Steel	4	4	4	-	-
9	Hex Head Bolt, 7/8-9 x 4"	Stainless Steel	-	-	-	4	4
10	Bonnet Gasket	Rubber	1	1	1	1	1
11	Body	Ductile Iron	1	1	1	1	1
12	Stem	Bronze	1	1	1	1	1
		Stainless Steel (Optional)					
13	Wedge Nut	Bronze	1	1	1	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1	1	1	1
15	Wedge Cover	Polymer	2	2	2	2	2
16	Wedge Cover Pin	Polymer	2	4	4	2	2
17	Hex Head Bolt, 3/4-10 x 3-1/2"	Stainless Steel	14	16	-	-	-
17	Hex Head Bolt, 7/8-9 x 4"	Stainless Steel	-	-	16	-	-
17	Hex Head Bolt, 7/8-9 x 4-1/2"	Stainless Steel	-	-	-	18	-
17	Hex Head Bolt, 7/8-9 x 5"	Stainless Steel	-	-	-	-	20
18	Hex Nut, 3/4-10	Stainless Steel	14	16	-	-	-
18	Hex Nut, 7/8-9	Stainless Steel	-	-	16	18	20
19	Hex Nut, 7/8-9	Stainless Steel	4	4	4	4	4
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1	1	1	
21	Lower Thrust Washer	Delrin	1	1	1	1	1

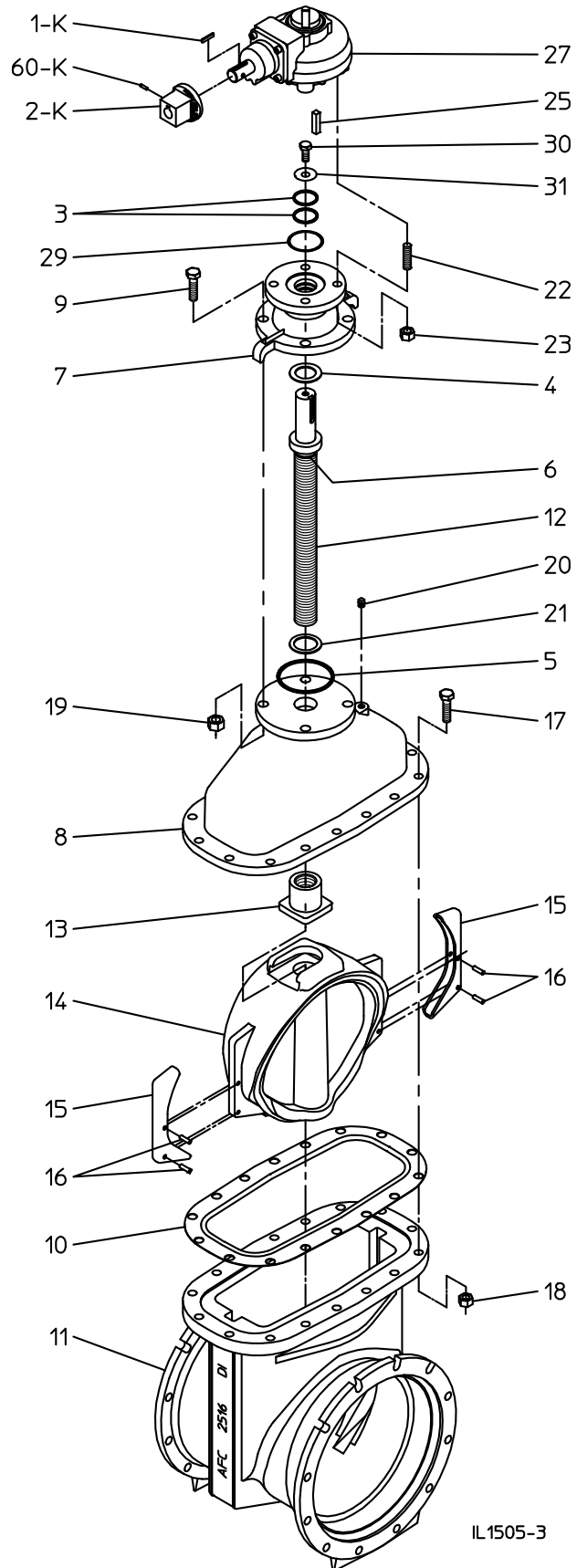


IL1507-2

SERIES 2500 - NRS WITH BEVEL GEARING PARTS LIST, 14" - 18" SIZES



Ref No.	Description	Material	Qty.		
			Series 2500		
			14"	16"	18"
1-K	Key 8 mm x 7 mm x 40 mm	Steel	1	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1	1
3	O-ring	Rubber	2	2	2
4	Upper Thrust Washer	Delrin	1	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1	1
6	O-ring	Rubber	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1
8	Bonnet	Ductile Iron	1	1	1
9	Hex Head Bolt, 7/8-9 x 3"	Stainless Steel	4	4	4
10	Bonnet Gasket	Rubber	1	1	1
11	Body	Ductile Iron	1	1	1
12	Stem	Bronze	1	1	1
		Stainless Steel (Optional)			
13	Wedge Nut	Bronze	1	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1	1
15	Wedge Cover	Polymer	2	2	2
16	Wedge Cover Pin	Polymer	2	4	4
17	Hex Head Bolt, 3/4-10 x 3-1/2"	Stainless Steel	14	16	-
17	Hex Head Bolt, 7/8-9 x 4"	Stainless Steel	-	-	16
18	Hex Nut, 3/4-10	Stainless Steel	14	16	-
18	Hex Nut, 7/8-9	Stainless Steel	-	-	16
19	Hex Nut, 7/8-9	Stainless Steel	4	4	4
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1	1
21	Lower Thrust Washer	Delrin	1	1	1
22	Stud, 5/8-11 x 2-3/4"	Stainless Steel	4	4	4
23	Hex Nut, 5/8-11	Stainless Steel	4	4	4
25	Square Key, 5/16 x 2-1/2	Hardened Steel	1	1	1
27	Bevel Gear Operator 2:1	Rotork IB5	1	1	1
29	Actuator Gasket	Rubber O-ring	1	1	1
30	Hex Head Bolt, 3/8-16 x 3/4"	Zinc Plated Steel	1	1	1
31	Washer	Steel	1	1	1
60-K	Spring Pin, 1/4 x 3/4"	Stainless Steel	1	1	1

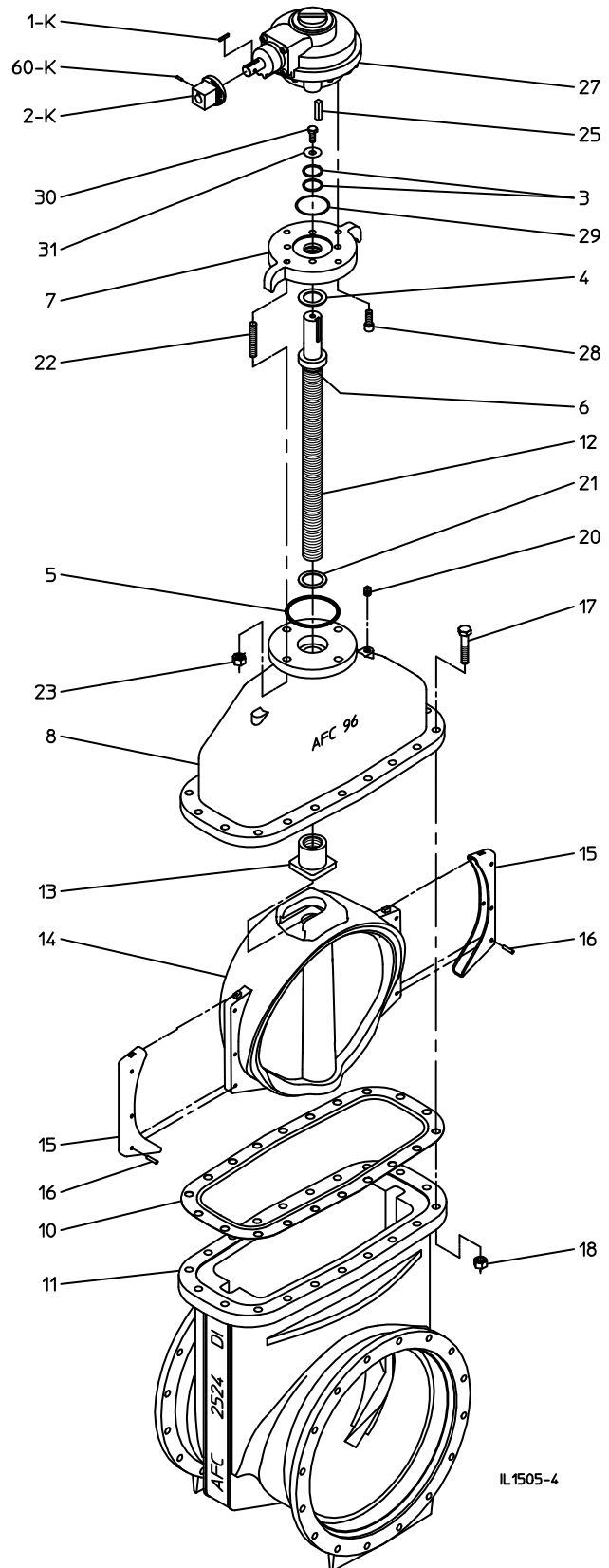


IL1505-3



SERIES 2500 - NRS WITH BEVEL GEARING PARTS LIST, 20" & 24" SIZES

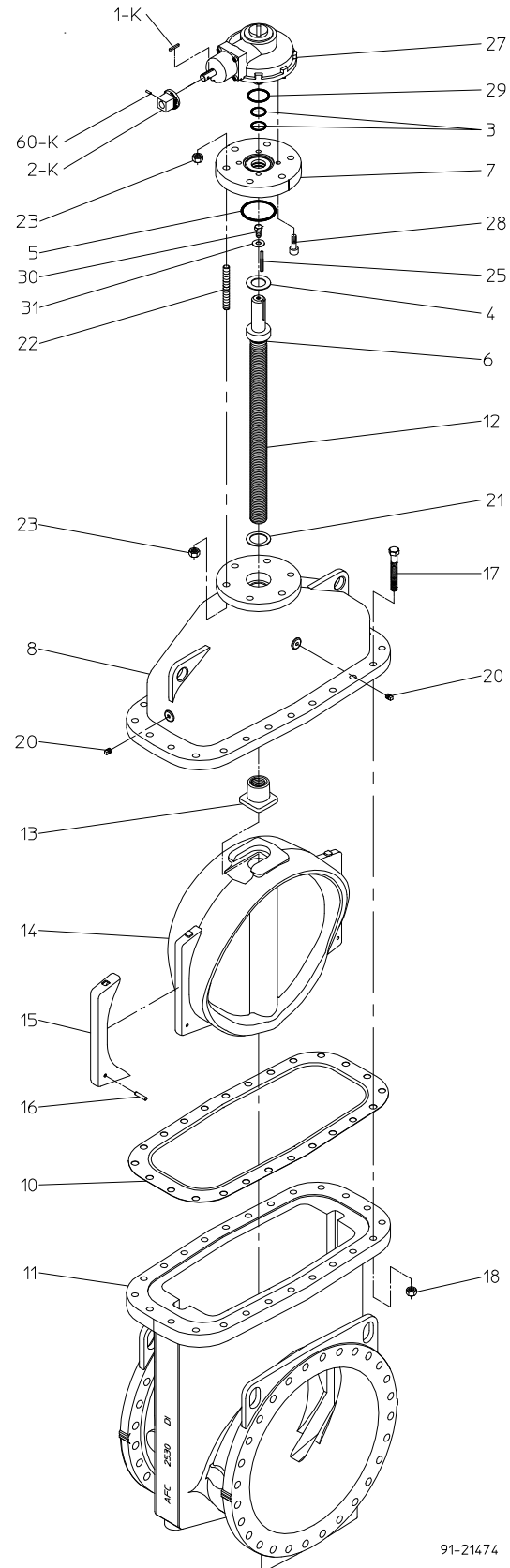
Ref No.	Description	Material	Qty.	
			Series 2500	
			20"	24"
1-K	Key 8 mm x 7 mm x 40 mm	Steel	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1
3	O-ring	Rubber	2	2
4	Upper Thrust Washer	Delrin	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1
6	O-ring	Rubber	1	1
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem	Bronze Stainless Steel (Optional)	1	1
13	Wedge Nut	Bronze	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1
15	Wedge Cover	Polymer	2	2
16	Wedge Cover Pin	Polymer	2	2
17	Hex Head Bolt, 7/8-9 x 4-1/2"	Stainless Steel	18	-
17	Hex Head Bolt, 7/8-9 x 5"	Stainless Steel	-	20
18	Hex Nut, 7/8-9	Stainless Steel	18	20
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1
21	Lower Thrust Washer	Delrin	1	1
22	Stud, 7/8-9 x 3-1/2"	Stainless Steel	4	4
23	Hex Nut, 7/8-9	Stainless Steel	4	4
25	Square Key, 1/2 x 2-3/4"	Hardened Steel	1	1
27	Bevel Gear Operator 3:1	Rotork IB7	1	1
28	Socket Head Cap Screw 3/4-10 x 2"	Stainless Steel	4	4
29	Actuator Gasket	Rubber O-ring	1	1
30	Hex Head Bolt, 1/2-13 x 1"	Zinc Plated Steel	1	1
31	Washer	Steel	1	1
60-K	Spring Pin, 1/4 x 3/4"	Stainless Steel	1	1





SERIES 2500 - NRS WITH BEVEL GEARING PARTS LIST, 30" & 36" SIZES

Ref No.	Description	Material	Qty.	
			Series 2500	
			30"	36"
1-K	Key 8 mm x 7 mm x 40 mm	Steel	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1
3	O-ring	Rubber	2	2
4	Upper Thrust Washer	Delrin	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1
6	O-ring	Rubber	1	1
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	Rubber	1	-
10	Bonnet Gasket	EPDM Rubber	-	1
11	Body	Ductile Iron	1	1
12	Stem	Bronze	1	1
		Stainless Steel (Optional)		
13	Wedge Nut	Bronze	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1
15	Wedge Cover	Polymer	2	2
16	Wedge Cover Pin	Polymer	2	2
17	Hex Head Bolt, 1-8 x 6"	Stainless Steel	24	-
17	Hex Head Bolt, 1-1/4-7 x 7"	Stainless Steel	-	28
18	Hex Nut, 1"-8	Stainless Steel	24	-
18	Hex Nut, 1-1/4-7	Stainless Steel	-	28
20	Pipe Plug, 3/8 NPT	Stainless Steel	4	4
21	Lower Thrust Washer	Delrin	1	1
22	Stud, 1"-8 x 6"	Stainless Steel	6	-
22	Stud, 1"-8 x 6-1/2"	Stainless Steel	-	8
23	Hex Nut, 1"-8	Stainless Steel	12	16
25	Square Key, 1/2 x 3-1/2	Hardened Steel	1	-
25	Square Key, 5/8 x 4"	Hardened Steel	-	1
27	Bevel Gear Operator 4:1	Rotork IB8	1	-
27	Bevel Gear Operator 4:1	Rotork IB10	-	1
28	Socket Head Cap Screw 3/4-10 x 2"	Stainless Steel	4	-
28	Socket Head Cap Screw 5/8-11 x 2"	Stainless Steel	-	8
29	Actuator Gasket	Rubber O-ring	1	1
30	Hex Head Bolt, 3/4-10 x 1"	Zinc Plated Steel	1	1
31	Washer	Steel	1	1
60-K	Spring Pin, 1/4 x 3/4"	Stainless Steel	1	1

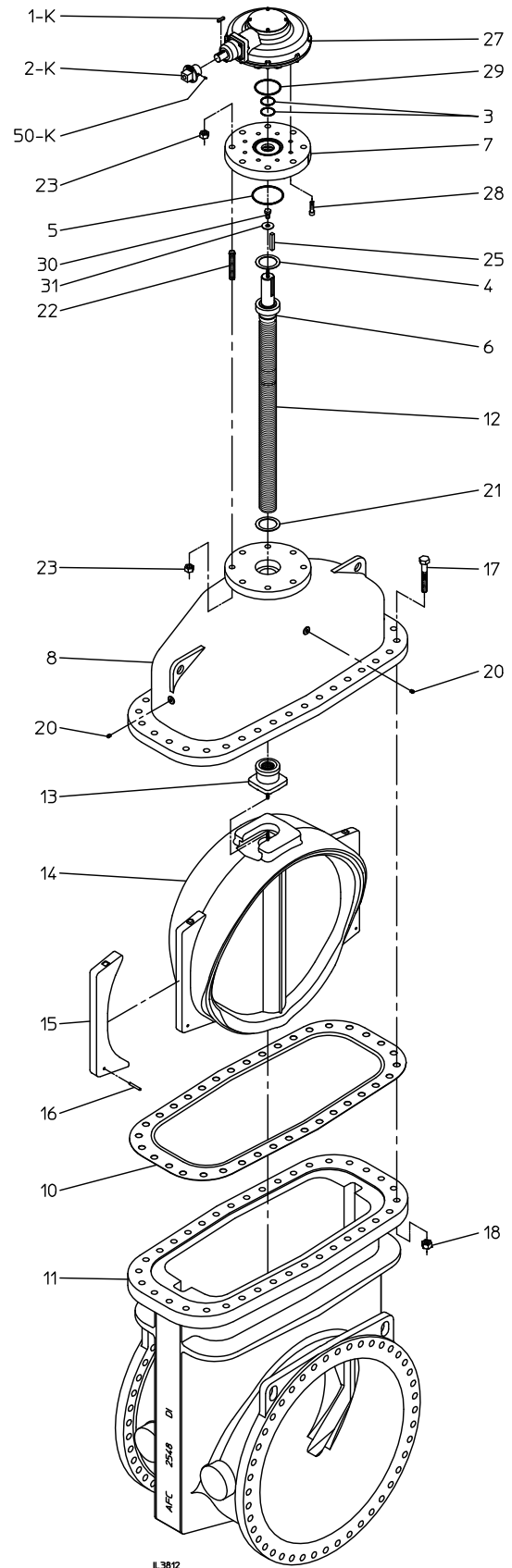


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SERIES 2500 - NRS WITH BEVEL GEARING PARTS LIST, 42" - 54" SIZES

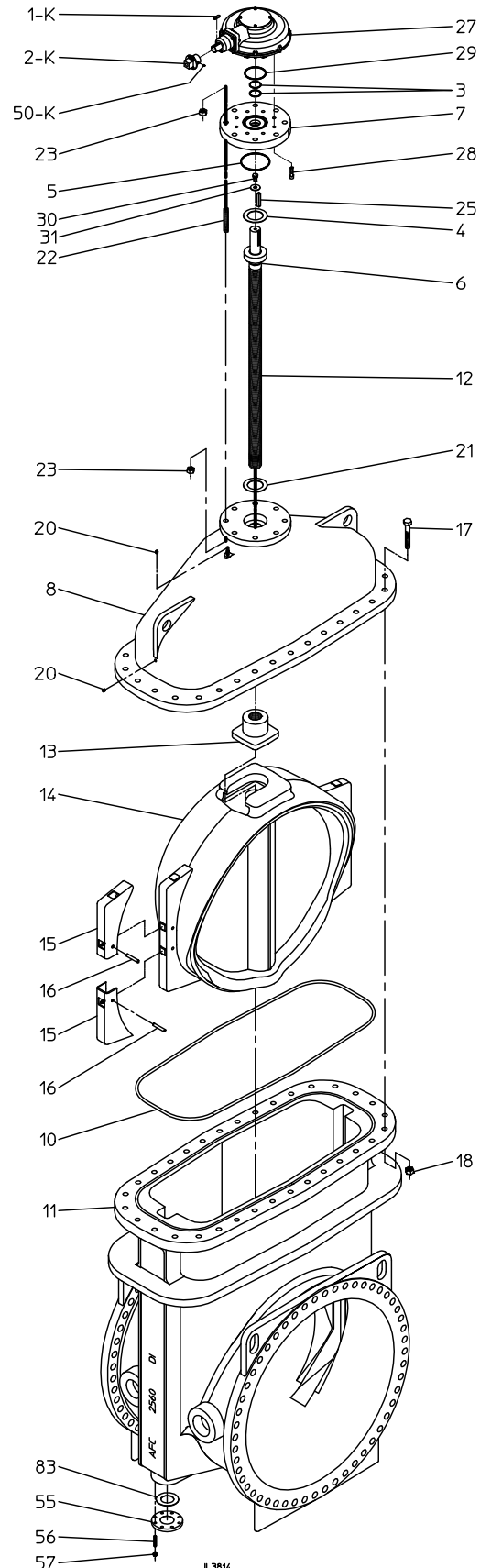
Ref No.	Description	Material	Qty.		
			Series 2500		
			42"	48"	54"
1-K	Key 14 mm x 9 mm x 54 mm	Steel	1	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1	1
3	O-ring	Rubber	2	2	2
4	Upper Thrust Washer	Delrin	1	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1	1
6	O-ring	Rubber	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1
8	Bonnet	Ductile Iron	1	1	1
10	Bonnet Gasket	EPDM Rubber	1	1	1
11	Body	Ductile Iron	1	1	1
12	Stem	Bronze	1	1	1
		Stainless Steel (Optional)			
13	Wedge Nut	Bronze	1	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1	1
15	Wedge Cover	Polymer	2	2	2
16	Wedge Cover Pin	Polymer	2	2	2
17	Hex Head Bolt, 1-1/4-7 x 7-1/2"	Stainless Steel	32	-	-
17	Hex Head Bolt, 1-3/8-6 x 8-1/2"	Stainless Steel	-	36	36
18	Hex Nut, 1-1/4-7	Stainless Steel	32	-	-
18	Hex Nut, 1-3/8-6	Stainless Steel	-	36	36
20	Pipe Plug, 1/2 NPT	Stainless Steel	4	4	4
21	Lower Thrust Washer	Delrin	1	1	1
22	Stud, 1-1/4-7 x 7-1/2"	Stainless Steel	8	-	-
22	Stud, 1-1/4-7 x 7-3/4"	Stainless Steel	-	8	8
23	Hex Nut, 1-1/4-7	Stainless Steel	16	16	16
25	Square Key, 3/4 x 4-1/2"	Hardened Steel	1	1	1
27	Bevel Gear Operator 8:1	Rotork IB12	1	1	1
28	Socket Head Cap Screw 3/4-10 x 2-1/2"	Stainless Steel	8	8	8
29	Actuator Gasket	Rubber O-ring	1	1	1
30	Hex Head Bolt, 7/8-9 x 1-1/2"	Zinc Plated Steel	1	1	1
31	Washer	Steel	1	1	1
50-K	Set Screw 5/16-18 x 3/4"	Stainless Steel	1	1	1





SERIES 2500 - NRS WITH BEVEL GEARING PARTS LIST, 60" & 66" SIZES

Ref No.	Description	Material	Qty.	
			Series 2500	
			60"	66"
1-K	Key 14 mm x 9 mm x 54 mm	Steel	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1
3	O-ring	Rubber	2	2
4	Upper Thrust Washer	Delrin	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1
6	O-ring	Rubber	1	1
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	EPDM Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem	Stainless Steel	1	1
13	Wedge Nut	Bronze	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1
15	Wedge Cover	Polymer	4	4
16	Wedge Cover Pin	Polymer	4	4
17	Hex Head Bolt, 1-3/8-6 x 8-1/2"	Stainless Steel	32	32
18	Hex Nut, 1-3/8-6	Stainless Steel	32	32
20	Pipe Plug, 1/2 NPT	Stainless Steel	4	4
21	Lower Thrust Washer	Delrin	1	1
22	Stud, 1-1/4-7 x 7-1/2"	Stainless Steel	8	8
23	Hex Nut, 1-1/4-7	Stainless Steel	16	16
25	Square Key, 3/4 x 4-1/2	Hardened Steel	1	1
27	Bevel Gear Operator 8:1	Rotork IB12	1	1
28	Socket Head Cap Screw 3/4-10 x 2-1/2"	Stainless Steel	8	8
29	Actuator Gasket	Rubber O-ring	1	1
30	Hex Head Bolt, 7/8-9 x 1-1/2"	Plated Steel	1	1
31	Washer	Steel	1	1
50-K	Set Screw 5/16-18 x 3/4"	Stainless Steel	1	1
55	Blind Flange**	Ductile Iron	1	1
56	Stud, 5/8-11 x 3"	Stainless Steel	8	8
57	Hex Nut, 5/8-11	Stainless Steel	8	8
83	Blind Flange Gasket	Rubber	2	2

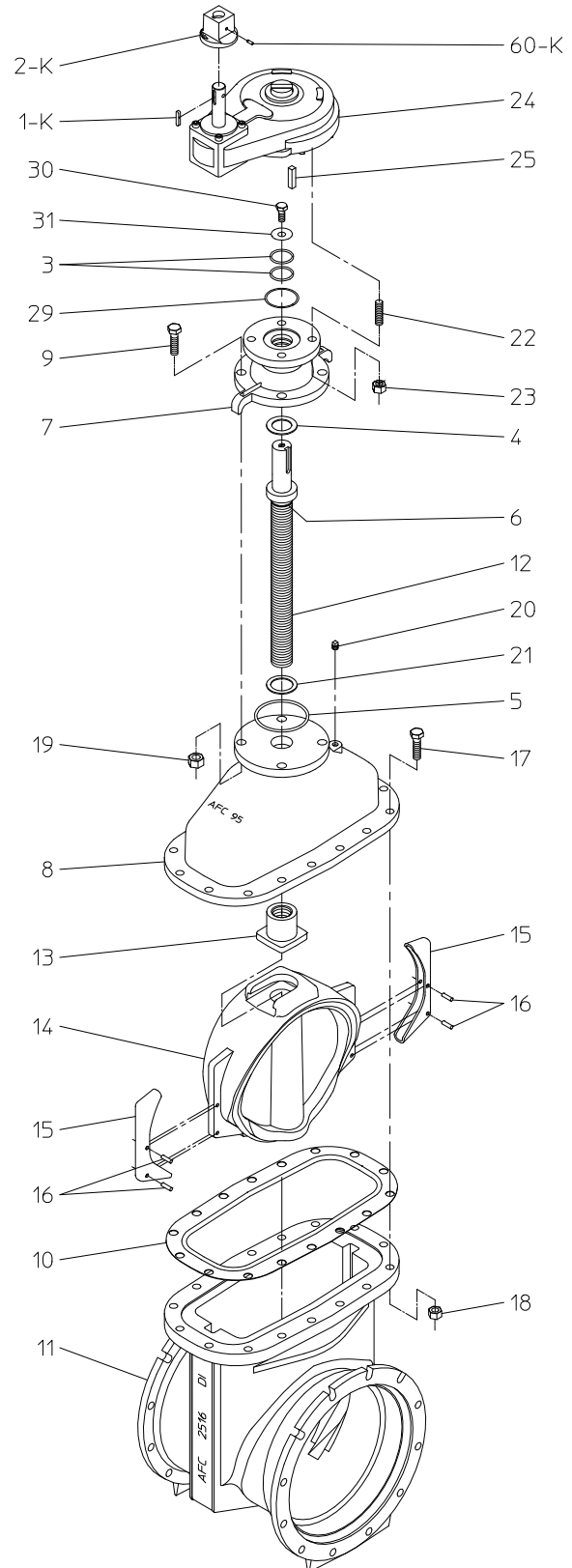


** On horizontal configurations, the blind flange (Ref. # 55) will be located on the bottom of the valve guide track, opposite the direction in which the bevel gear input shaft is installed.



SERIES 2500 - NRS WITH SPUR GEARING PARTS LIST, 14" - 18" SIZES

Ref No.	Description	Material	Qty.		
			Series 2500		
			14"	16"	18"
1-K	Key 8 mm x 7 mm x 40 mm	Steel	1	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1	1
3	O-ring	Rubber	2	2	2
4	Upper Thrust Washer	Delrin	1	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1	1
6	O-ring	Rubber	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1
8	Bonnet	Ductile Iron	1	1	1
9	Hex Head Bolt, 7/8-9 x 3"	Stainless Steel	4	4	4
10	Bonnet Gasket	Rubber	1	1	1
11	Body	Ductile Iron	1	1	1
12	Stem	Bronze	1	1	1
		Stainless Steel (Optional)			
13	Wedge Nut	Bronze	1	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1	1
15	Wedge Cover	Polymer	2	2	2
16	Wedge Cover Pin	Polymer	2	4	4
17	Hex Head Bolt, 3/4-10 x 3-1/2"	Stainless Steel	14	16	-
17	Hex Head Bolt, 7/8-9 x 4"	Stainless Steel	-	-	16
18	Hex Nut, 3/4-10	Stainless Steel	14	16	-
18	Hex Nut, 7/8-9	Stainless Steel	-	-	16
19	Hex Nut, 7/8-9	Stainless Steel	4	4	4
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1	1
21	Lower Thrust Washer	Delrin	1	1	1
22	Stud, 5/8-11 x 2-3/4"	Stainless Steel	4	4	4
23	Hex Nut, 5/8-11	Stainless Steel	4	4	4
24	Spur Gear Operator 2:1	Rotork IS5	1	1	1
25	Square Key, 5/16 x 2-1/2	Hardened Steel	1	1	1
29	Actuator Gasket	Rubber O-ring	1	1	1
30	Hex Head Bolt, 3/8-16 x 3/4"	Plated Steel	1	1	1
31	Washer	Steel	1	1	1
60-K	Spring Pin, 1/4 x 3/4"	Stainless Steel	1	1	1

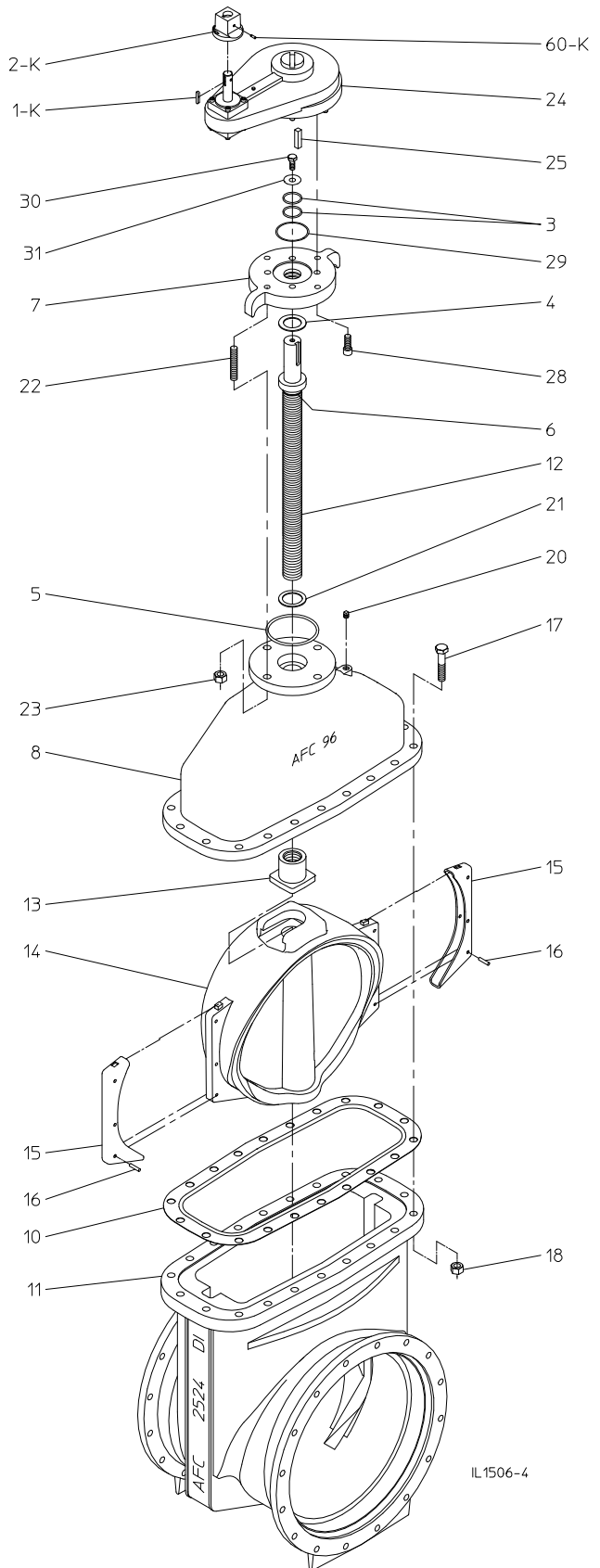


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SERIES 2500 - NRS WITH SPUR GEARING PARTS LIST, 20" & 24" SIZES

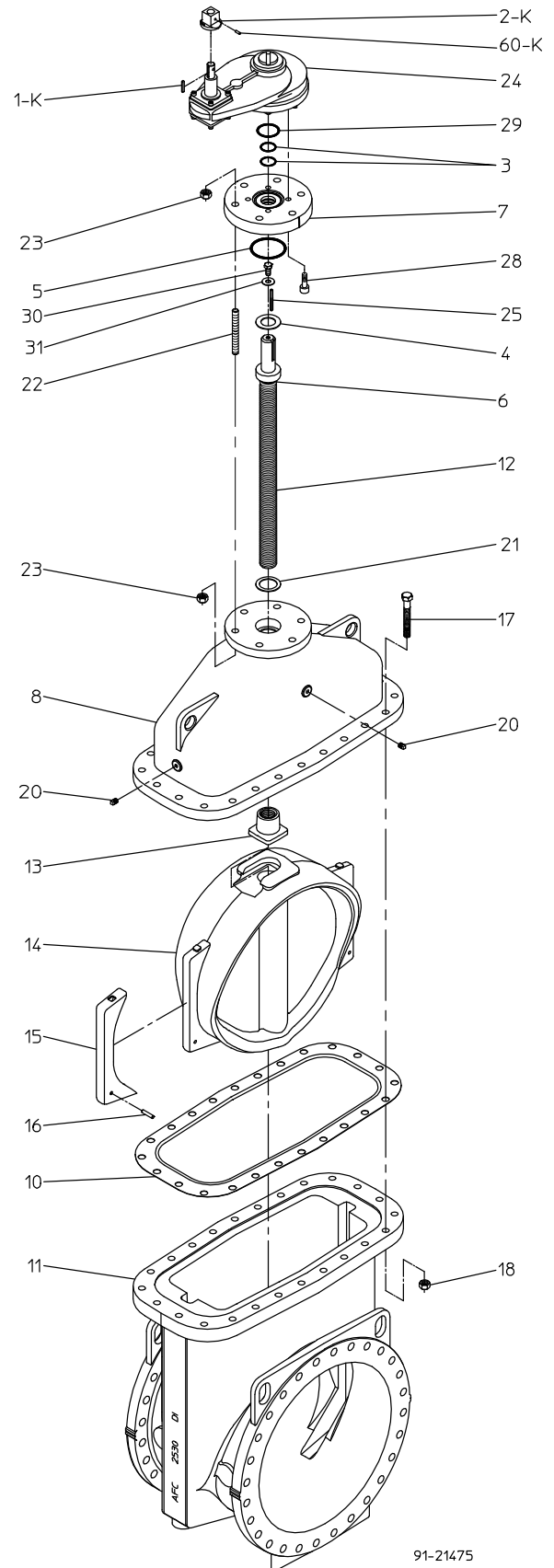
Ref No.	Description	Material	Qty.	
			Series 2500	
			20"	24"
1-K	Key 8 mm x 7 mm x 40 mm	Steel	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1
3	O-ring	Rubber	2	2
4	Upper Thrust Washer	Delrin	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1
6	O-ring	Rubber	1	1
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem	Bronze	1	1
		Stainless Steel (Optional)		
13	Wedge Nut	Bronze	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1
15	Wedge Cover	Polymer	2	2
16	Wedge Cover Pin	Polymer	2	2
17	Hex Head Bolt, 7/8-9 x 4-1/2"	Stainless Steel	18	-
17	Hex Head Bolt, 7/8-9 x 5"	Stainless Steel	-	20
18	Hex Nut, 7/8-9	Stainless Steel	18	20
20	Pipe Plug, 3/8 NPT	Stainless Steel	1	1
21	Lower Thrust Washer	Delrin	1	1
22	Stud, 7/8-9 x 3-1/2"	Stainless Steel	4	4
23	Hex Nut, 7/8-9	Stainless Steel	4	4
24	Spur Gear Operator 3:1	Rotork IS7	1	1
25	Square Key, 1/2 x 2-3/4	Hardened Steel	1	1
28	Socket Head Cap Screw 3/4-10 x 2"	Stainless Steel	4	4
29	Actuator Gasket	Rubber O-ring	1	1
30	Hex Head Bolt, 1/2-13 x 1"	Zinc Plated Steel	1	1
31	Washer	Steel	1	1
60-K	Spring Pin, 1/4 x 3/4"	Stainless Steel	1	1





SERIES 2500 - NRS WITH SPUR GEARING PARTS LIST, 30" & 36" SIZES

Ref No.	Description	Material	Qty.	
			Series 2500	
			30"	36"
1-K	Key 8 mm x 7 mm x 40 mm	Steel	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1
3	O-ring	Rubber	2	2
4	Upper Thrust Washer	Delrin	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1
6	O-ring	Rubber	1	1
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	Rubber	1	-
10	Bonnet Gasket	EPDM Rubber	-	1
11	Body	Ductile Iron	1	1
12	Stem	Bronze	1	1
		Stainless Steel (Optional)		
13	Wedge Nut	Bronze	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1
15	Wedge Cover	Polymer	2	2
16	Wedge Cover Pin	Polymer	2	2
17	Hex Head Bolt, 1"-8 x 6"	Stainless Steel	24	-
17	Hex Head Bolt, 1-1/4-7 x 7"	Stainless Steel	-	28
18	Hex Nut, 1"-8	Stainless Steel	24	-
18	Hex Nut, 1-1/4-7	Stainless Steel	-	28
20	Pipe Plug, 3/8 NPT	Stainless Steel	4	4
21	Lower Thrust Washer	Delrin	1	1
22	Stud, 1"-8 x 6"	Stainless Steel	6	-
22	Stud, 1"-8 x 6-1/2"	Stainless Steel	-	8
23	Hex Nut, 1"-8	Stainless Steel	12	16
24	Spur Gear Operator 4:1	Rotork IS8	1	-
24	Spur Gear Operator 4:1	Rotork IS10	-	1
25	Square Key, 1/2 x 3-1/2	Hardened Steel	1	-
25	Square Key, 5/8 x 4"	Hardened Steel	-	1
28	Socket Head Cap Screw 3/4-10 x 2"	Stainless Steel	4	-
28	Socket Head Cap Screw 5/8-11 x 2"	Stainless Steel	-	8
29	Actuator Gasket	Rubber O-ring	1	1
30	Hex Head Bolt, 3/4-10 x 1"	Zinc Plated Steel	1	1
31	Washer	Steel	1	1
60-K	Spring Pin, 1/4 x 3/4"	Stainless Steel	1	1

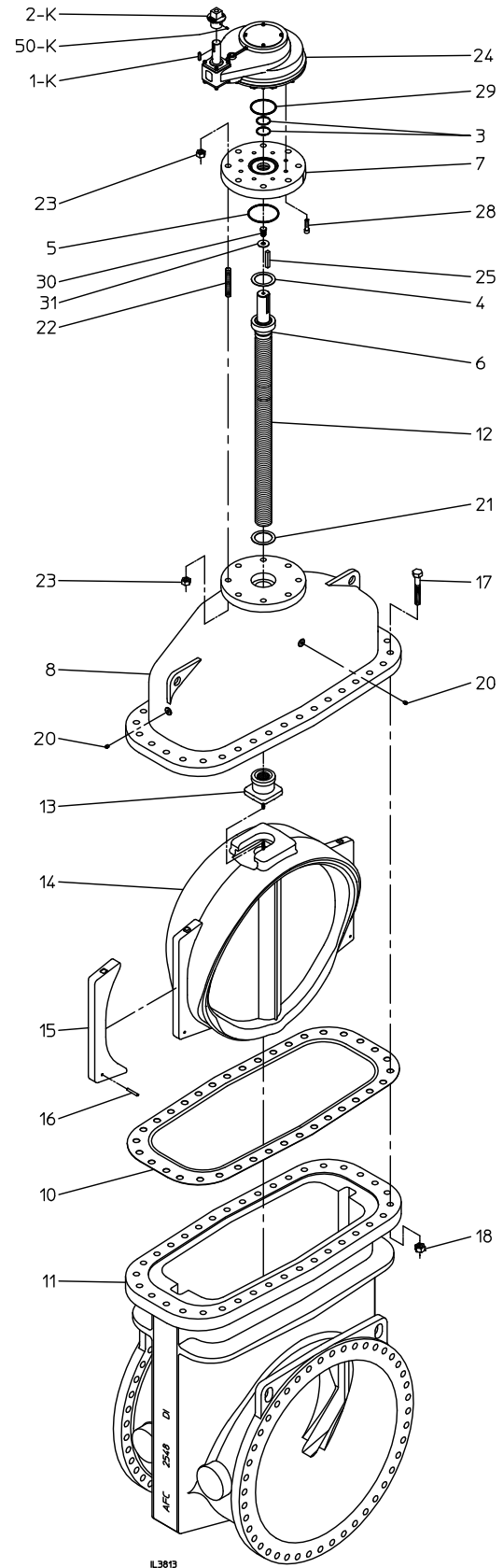


91-21475



SERIES 2500 - NRS WITH SPUR GEARING PARTS LIST, 42"-54" SIZES

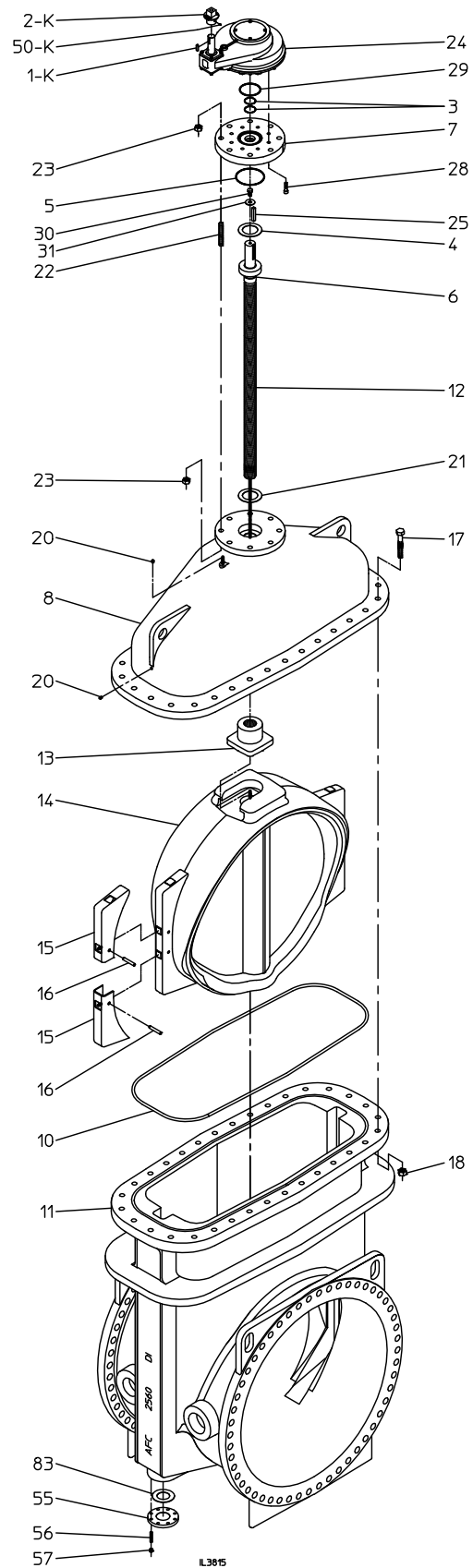
Ref No.	Description	Material	Qty.		
			Series 2500		
			42"	48"	54"
1-K	Key 14 mm x 9 mm x 54 mm	Steel	1	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1	1
3	O-ring	Rubber	2	2	2
4	Upper Thrust Washer	Delrin	1	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1	1
6	O-ring	Rubber	1	1	1
7	Stuffing Box	Ductile Iron	1	1	1
8	Bonnet	Ductile Iron	1	1	1
10	Bonnet Gasket	EPDM Rubber	1	1	1
11	Body	Ductile Iron	1	1	1
12	Stem	Bronze	1	1	1
		Stainless Steel (Optional)			
13	Wedge Nut	Bronze	1	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1	1
15	Wedge Cover	Polymer	2	2	2
16	Wedge Cover Pin	Polymer	2	2	2
17	Hex Head Bolt, 1-1/4-7 x 7-1/2"	Stainless Steel	32	-	-
17	Hex Head Bolt, 1-3/8-6 x 8-1/2"	Stainless Steel	-	36	36
18	Hex Nut, 1-1/4-7	Stainless Steel	32	-	-
18	Hex Nut, 1-3/8-6	Stainless Steel	-	36	36
20	Pipe Plug, 1/2 NPT	Stainless Steel	4	4	4
21	Lower Thrust Washer	Delrin	1	1	1
22	Stud, 1-1/4-7 x 7-1/2"	Stainless Steel	8	-	-
22	Stud, 1-1/4-7 x 7-3/4"	Stainless Steel	-	8	8
23	Hex Nut, 1-1/4-7	Stainless Steel	16	16	16
24	Spur Gear Operator 8:1	Rotork IS12	1	1	1
25	Square Key, 3/4 x 4-1/2	Hardened Steel	1	1	1
28	Socket Head Cap Screw 3/4-10 x 2-1/2"	Stainless Steel	8	8	8
29	Actuator Gasket	Rubber O-ring	1	1	1
30	Hex Head Bolt, 7/8-9 x 1-1/2"	Plated Steel	1	1	1
31	Washer	Steel	1	1	1
50-K	Set Screw 5/16-18 x 3/4"	Stainless Steel	1	1	1





SERIES 2500 - NRS WITH SPUR GEARING PARTS LIST, 60" & 66" SIZES

Ref No.	Description	Material	Qty.	
			Series 2500	
			60"	66"
1-K	Key 14 mm x 9 mm x 54 mm	Steel	1	1
2-K	Operating Nut, 2" Square	Ductile Iron	1	1
3	O-ring	Rubber	2	2
4	Upper Thrust Washer	Delrin	1	1
5	Stuffing Box Gasket	Rubber O-ring	1	1
6	O-ring	Rubber	1	1
7	Stuffing Box	Ductile Iron	1	1
8	Bonnet	Ductile Iron	1	1
10	Bonnet Gasket	EPDM Rubber	1	1
11	Body	Ductile Iron	1	1
12	Stem	Stainless Steel	1	1
13	Wedge Nut	Bronze	1	1
14	Resilient Wedge	Ductile Iron, Coated With EPDM Rubber	1	1
15	Wedge Cover	Polymer	4	4
16	Wedge Cover Pin	Polymer	4	4
17	Hex Head Bolt, 1-3/8-6 x 8-1/2"	Stainless Steel	32	32
18	Hex Nut, 1-3/8-6	Stainless Steel	32	32
20	Pipe Plug, 1/2 NPT	Stainless Steel	4	4
21	Lower Thrust Washer	Delrin	1	1
22	Stud, 1-1/4-7 x 7-1/2"	Stainless Steel	8	8
23	Hex Nut, 1-1/4-7	Stainless Steel	16	16
24	Spur Gear Operator 8:1	Rotork IS12	1	1
25	Square Key, 3/4 x 4-1/2	Hardened Steel	1	1
28	Socket Head Cap Screw 3/4-10 x 2-1/2"	Stainless Steel	8	8
29	Actuator Gasket	Rubber O-ring	1	1
30	Hex Head Bolt, 7/8-9 x 1-1/2"	Plated Steel	1	1
31	Washer	Steel	1	1
50-K	Set Screw 5/16-18 x 3/4"	Stainless Steel	1	1
55	Blind Flange	Ductile Iron	1	1
56	Stud, 5/8-11 x 3"	Stainless Steel	8	8
57	Hex Nut, 5/8-11	Stainless Steel	8	8
83	Blind Flange Gasket	Rubber	2	2





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**I&E Statement No. 2-R
Witness: D. C. Patel**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Rebuttal Testimony

of

D. C. Patel

Bureau of Investigation & Enforcement

Concerning:

**SUSPENSION OF SERVICE TERMINATION
WINTER SHUT-OFF MORATORIUM FOR SENIORS**

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1 **INTRODUCTION OF WITNESS**

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

3 A. My name is D. C. Patel, and my business address is Pennsylvania Public Utility
4 Commission, Commonwealth Keystone Building, 400 North Street, Harrisburg,
5 PA 17120.

6

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

8 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
9 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
10 Analyst.

11

12 **Q. ARE YOU THE SAME D. C. PATEL WHO IS RESPONSIBLE FOR THE**
13 **DIRECT TESTIMONY CONTAINED IN I&E STATEMENT NO. 2 AND**
14 **THE SCHEDULES IN I&E EXHIBIT NO. 2?**

15 A. Yes.

16

17 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

18 A. The purpose of my rebuttal testimony is to address the direct testimonies of:
19 (1) Office of Consumer Advocate (OCA) witness Barbara R. Alexander
20 recommending suspension of the termination of water service by Pittsburgh Water
21 and Sewer Authority (PWSA) for nonpayment until its customer protection
22 policies are brought into compliance with Chapter 56 of the Commission's

1 regulations¹ (OCA Statement No. 5, pp. 26-27 and p. 37); and (2) Pittsburgh
2 United witness Harry Geller concerning his (a) recommendation to extend
3 PWSA’s moratorium on residential terminations until at least April 1, 2022,
4 following expiration of the winter moratorium (Pittsburgh United Statement No. 1,
5 pp. 26-27), and (b) his support for PWSA’s proposed expansion of the Winter
6 Shut Off Moratorium to all seniors (customers who are 65 years or older),
7 regardless of their income level (Pittsburgh United Statement No. 1, p. 46).

8
9 **RESPONSE TO OCA WITNESS BARBARA R. ALEXANDER**

10 **Q. SUMMARIZE OCA WITNESS BARBARA R. ALEXANDER’S**
11 **TESTIMONY REGARDING TERMINATION OF CUSTOMERS’ WATER**
12 **SERVICE.**

13 A. Ms. Alexander recommends that PWSA should not be allowed to pursue
14 termination of service to customers for nonpayment of bills until the vital policies
15 and practices that are essential under Chapter 56 concerning the consumer
16 protections are resolved in the Stage 2 Compliance Plan proceeding (OCA
17 Statement No. 5, p. 26).

18
19 **Q. WHAT IS THE BASIS FOR MS. ALEXANDER’S RECOMMENDATION?**

20 A. Ms. Alexander alleges that PWSA’s current policies do not conform to Chapter 56

¹ According to Ms. Alexander, this includes an obligation to attempt personal contact with the customer “immediately prior” to termination of service in the Stage 2 Compliance Plan proceeding.

1 of the Commission’s regulations relating to PWSA’s obligation to attempt
2 personal contact with the customer “immediately prior” to the actual termination
3 of service because PWSA does not currently train its field personnel on the
4 Chapter 56 contact procedures and customer rights or how to respond to these
5 rights should they be encountered in the field (OCA Statement No. 5, p. 26). Ms.
6 Alexander’s assertion of PWSA’s failure to train its field personnel on the Chapter
7 56 contact procedures and customer rights is based on her discovery in the prior
8 rate case at Docket No. R-2020-3017951 et al. (OCA Statement No. 5, p. 26).

9
10 **Q. WHAT IS THE PRACTICAL REALITY OF MS. ALEXANDER’S**
11 **RECOMMENDATION FROM A TIMING PERSPECTIVE?**

12 A. From a timing perspective, the practical reality of Ms. Alexander’s
13 recommendation is that PWSA would not be able to terminate any customers’
14 service until sometime in the mid to late fall of 2022, at the earliest. My
15 estimation of the timing is based on the fact that the Commission has indicated
16 that a Recommended Decision for PWSA’s Stage 2 Compliance Plan, focusing on
17 *Chapters 14 & 56, the Discontinuance of Service to Leased Premises Act, and*
18 *Collections*, is due to be issued no later than May 25, 2022.² Once the
19 Recommended Decision is entered, counsel advises me that it is likely that the
20 Commission’s Final Order in that case will not be issued until several months

² *Implementation of Chapter 32 of the Public Utility Code Regarding Pittsburgh Water and Sewer Authority- Stage1- Chapters 14 & 56*, Docket No. M-2018-2640802 et al., p. 22 (Issued on May 20, 2021).

1 later, meaning that the practical reality of Ms. Alexander's recommendation is that
2 PWSA would not be able to terminate service until sometime in the mid-late fall
3 of 2022. Counsel advises me that PWSA, or other parties to the Stage 2
4 Compliance Plan case, could seek to appeal the Commission's final decision. If
5 an issue related to PWSA's termination practices were to be appealed, the
6 timeframe for resolution could take much longer, and may leave PWSA without
7 any ability to terminate service for a lengthy, indeterminate amount of time.

8
9 **Q. DO YOU AGREE WITH MS. ALEXANDER THAT PWSA SHOULD NOT**
10 **BE ALLOWED TO PURSUE TERMINATION OF SERVICE TO**
11 **CUSTOMERS UNTIL THE CHAPTER 56 POLICIES AND PRACTICES**
12 **CONCERNING THE CONSUMER PROTECTIONS ARE RESOLVED IN**
13 **THE STAGE 2 COMPLIANCE PLAN PROCEEDING?**

14 A. No. I disagree with Ms. Alexander's recommendation that PWSA should not be
15 allowed to pursue water service termination until the Chapter 56 consumer
16 protections policies and procedures are resolved in the Stage 2 Compliance Plan.

17
18 **Q. ASIDE FROM THE TIMING CONCERN, WHAT IS THE BASIS OF**
19 **YOUR DISAGREEMENT?**

20 A. As mentioned above, there is a separate and ongoing Stage 2 Compliance Plan
21 case underway, and it will focus on PWSA's collection policies. I understand
22 from counsel that PWSA's termination practices and policies will be a subject of

1 that case, so taking away PWSA's ability to terminate service until at least fall of
2 2022 would not be prudent. Depriving PWSA of any ability to terminate service
3 as part of this rate case proceeding, without any ability to gauge how it would
4 financially impact PWSA's level of uncollectible accounts, which all customers
5 must absorb, would also be imprudent.

6
7 **Q. COULD PWSA AND ITS RATEPAYERS BE NEGATIVELY IMPACTED**
8 **IF MS. ALEXANDER'S RECOMMENDATION IS ADOPTED?**

9 A. Yes. Deferring service termination (for nonpayment of bills) indefinitely until the
10 indeterminable conclusion of the Stage 2 Compliance Plan proceeding will impede
11 PWSA's efforts to reduce uncollectibles and bad debt expense and to improve its
12 financial condition. Additionally, suspension of service termination could
13 encourage more and more customers, regardless of their income level, to ignore or
14 delay paying their bills. An increase in unpaid bills would increase the use of
15 PWSA's time and resources, and increase its costs, to monitor customers bill
16 collection activities, and it would also ultimately increase uncollectible accounts.
17 As mentioned above, ratepayers will ultimately have to be responsible for
18 absorbing the uncollectible expenses, so increasing the level of such expense
19 unnecessarily is not in the best interest of PWSA and its customers.

1 **Q. ARE THERE OTHER REASONS WHY YOU DISAGREE WITH MS.**
2 **ALEXANDER’S RECOMMENDATION?**

3 A. Yes. The Commission has recently determined that utility termination processes
4 that were halted in response to the COVID-19 pandemic should be reinstated. In
5 its March 18, 2021 Order regarding the Public Utility Service Termination
6 Moratorium, the Commission indicated that based upon the commentary and
7 monthly account data filed by jurisdictional utilities, as well as Pennsylvania’s
8 COVID-19 and employment statistics, that as of April 1, 2021, it was time to
9 return to the regular collections process as set forth in the Public Utility Code and
10 the Commission’s regulations, albeit with some modifications.³

11
12 **Q. WHAT TYPE OF MODIFICATIONS DID THE COMMISSION MAKE TO**
13 **UTILITIES’ REGULAR COLLECTIONS PROCESSES?**

14 A. The Commission imposed new required payment plan arrangements as follows:⁴
15 1. For residential customers with incomes below 250% of the Federal Poverty
16 Level (FPL), a utility is required to offer a payment arrangement for a
17 minimum length of 5 years while allowing the customer to agree to or
18 request a shorter payment arrangement and the utility to agree to a longer
19 payment arrangement.
20
21 2. For residential customers with incomes between 250% and 300% of FPL, a
22 utility is required to offer a payment arrangement for a minimum length of
23 2 years while allowing the customer to agree to or request a shorter
24 payment arrangement and the utility to agree to a longer payment
25 arrangement.

³ Public Utility Service Termination Moratorium, Order, M-2020-3019244, p. 2, (entered on March 18, 2021).

⁴ Public Utility Service Termination Moratorium, Order, M-2020-3019244, p. 4, (entered on March 18, 2021).

1 3. For residential customers with incomes over 300% of FPL, a utility is
2 required to offer a payment arrangement for a minimum length of 1 year
3 while allowing the customer to agree to or request a shorter payment
4 arrangement and the utility to agree to a longer payment arrangement.
5

6 4. For small business customers, a utility is required to offer a payment
7 arrangement for a minimum length of 18 months while allowing the
8 customer to agree to or request a shorter payment arrangement and the
9 utility to agree to a longer payment arrangement.
10

11 I note that on July 15, 2021, the Commission revised its March 18, 2021 Order to
12 indicate that after September 30, 2021, payment arrangements must once again
13 revert to adhering to the provisions of the Public Utility Code and Commission
14 regulations. However, an important caveat is that the payment arrangements
15 outlined above will continue to be available for residential and small business
16 customers as long as they are established by September 30, 2021.⁵
17

18 **Q. WILL PWSA'S CUSTOMERS BE ENTITLED TO THE PAYMENT**
19 **ARRANGEMENTS OUTLINED ABOVE?**

20 A. Yes. PWSA is required to offer these arrangements to its customers until
21 September 30, 2021. While Ms. Alexander does not appear to have factored these
22 new required arrangements into her analyses, the new arrangement opportunities
23 do provide PWSA's customers with additional tools to combat termination.

24 Combined with the comprehensive customer assistance programming that PWSA

⁵ Public Utility Service Termination Moratorium; COVID-19 Cost Tracking and Creation of Regulatory Asset, Order, M-2020-3019244, p. 3, (entered on March 18, 2021).

1 has implemented, ratepayers do have a number of resources available to them if
2 they are experiencing financial hardship and are in danger of having their service
3 terminated. However, continuing the termination moratorium as Ms. Alexander
4 recommends would allow customers to continue to accrue arrearages beyond the
5 period wherein the Commission mandated extended payment arrangements are
6 available. Those balances accrued under a termination moratorium after the
7 extended payment period lapses may prove to be extremely unmanageable for
8 customers under conventional payment plan requirements and could easily
9 become bad debts, which impacts all customer rates.

10
11 **Q. IS PWSA ALREADY EXPERIENCING SIGNIFICANT CUSTOMER**
12 **ARREARAGES AS A RESULT OF THE COVID-19 PANDEMIC SERVICE**
13 **TERMINATION MORATORIUM?**

14 A. Yes. PWSA recently supplied the Commission with updated arrearage data
15 indicating that, as of June 2021, it had total aggregate dollars of residential
16 customers arrears of \$7,615,511.46. Additionally, PWSA calculated
17 \$1,219,651.37 of non-residential customer arrears for the same time period.⁶ This
18 data reveals that PWSA, a cash flow company without any shareholders to absorb
19 this impact, and its customers must already grapple with significant arrearage
20 amounts that may convert to uncollectible accounts.

⁶ PWSA Letter of July 2, 2021 Re: Temporary Reporting Requirements: At-Risk Accounts, Docket No. M-2020-3019244.

1 **RESPONSE TO PITTSBURGH UNITED WITNESS HARRY GELLER**

2 **Service Termination**

3 **Q. SUMMARIZE MR. GELLER’S TESTIMONY REGARDING**
4 **TERMINATION OF CUSTOMERS’ WATER SERVICE.**

5 A. In response to the COVID-19 pandemic, Mr. Geller recommends that PWSA
6 extend its moratorium on residential terminations until at least April 1, 2022
7 following expiration of the winter moratorium. The reason for his
8 recommendation is that he believes it would allow time for the Low-Income
9 Household Water Assistance Program (LIHWAP) and the Homeowner Assistance
10 Fund (HAF) [COVID-19 federal relief programs] to be implemented to help or
11 address the unprecedented levels of water and wastewater debts accrued through
12 the pandemic (Pittsburgh United Statement No. 1, p. 26). Mr. Geller estimates
13 that LIHWAP assistance is expected to be launched in December 2021 and he
14 notes that the HAF program is under design and implementation by the
15 Pennsylvania Housing Finance Agency (Pittsburgh United Statement No. 1, p. 26).
16 He, therefore, recommends that PWSA should not terminate service to residential
17 customers when millions of dollars in federal relief are still making their way to
18 struggling Pennsylvanians (Pittsburgh United Statement No. 1, p. 26).

19
20 **Q. ARE THERE ANY DIFFERENCES BETWEEN MR. GELLER’S**
21 **RECOMMENDATION AND MS. ALEXANDER’S RECOMMENDATION?**

22 A. Yes. I do note that Mr. Geller’s recommendation would permit PWSA to resume

1 terminations on an earlier, defined date: April 1, 2022. Additionally, Mr. Geller's
2 recommendation is tied to customers' potential receipt of anticipated relief funding
3 and not to the outcome of PWSA's Stage 2 Compliance Plan case.
4

5 **Q. DO YOU AGREE WITH MR. GELLER THAT PWSA SHOULD NOT**
6 **TERMINATE WATER SERVICE TO RESIDENTIAL CUSTOMERS**
7 **UNTIL APRIL 1, 2022?**

8 A. No. I disagree with Mr. Geller's recommendation that PWSA extend its
9 moratorium on residential terminations until at least April 1, 2022.
10

11 **Q. WHAT IS THE BASIS OF YOUR DISAGREEMENT?**

12 A. Although Mr. Geller's recommendation is shorter in duration than Ms.
13 Alexander's and its basis is tied to anticipated ratepayer relief funding instead of
14 the outcome of another Commission proceeding, I still disagree with Mr. Geller's
15 recommendation for the same reasons I disagreed with Ms. Alexander's
16 recommendations above.
17

18 **Q. HOW DO YOU RESPOND TO MR. GELLER'S POSITION THAT**
19 **WAITING UNTIL APRIL OF 2022 TO RESUME TERMINATIONS**
20 **WOULD ALLOW RELIEF FUNDING TO REACH STRUGGLING**
21 **CUSTOMERS?**

22 A. As I&E witness Ethan Cline indicated in his direct testimony, I&E also anticipates

1 the possibility that relief funding may become available (I&E Statement No. 3, pp
2 6-8). However, the timeline, terms, and conditions for any relief have not been
3 clearly established. While that uncertainty exists, and as I explained above,
4 prohibiting PWSA from reinstating service termination, an important collection
5 practice, will continue to be harmful to PWSA and all of its customers. I do
6 accept Mr. Geller's point that it is important for all customers to have access to
7 service⁷, but as I also explained above, the new Commission-ordered payment
8 arrangements that are mandated until September 30, 2021, as well as the
9 comprehensive customer assistance programming that PWSA has implemented,
10 are available options for customers who are experiencing a financial hardship.

11
12 **Winter Shut Off Moratorium to all Seniors**

13 **Q. SUMMARIZE MR. GELLER'S TESTIMONY REGARDING THE**
14 **EXPANSION OF PWSA'S WINTER SHUT OFF MORATORIUM**
15 **PROGRAM TO SENIORS (CUSTOMERS 65 YEARS OR OLDER)**
16 **REGARDLESS OF THEIR INCOME LEVEL.**

17 **A.** Mr. Geller states that the number of low-income customers receiving protection
18 from the Winter Shut-Off Moratorium program remains very low despite PWSA
19 extending the protection to customers at or below 300% of the federal poverty line
20 in the last base rate proceeding. Therefore, he commends PWSA's proposed

⁷ Pittsburgh United St. No. 1, p. 8.

1 extension of the winter shut off moratorium to all senior customers regardless of
2 the income level (Pittsburgh United Statement No. 1, p. 26).

3
4 **Q. DO YOU AGREE WITH MR. GELLER'S SUPPORT FOR PWSA'S**
5 **EXTENSION OF THE WINTER MORATORIUM TO ALL SENIORS**
6 **REGARDLESS OF THE INCOME LEVEL?**

7 A. No. I disagree with Mr. Geller endorsing PWSA's proposed expansion of the
8 winter shut off moratorium to all senior customers regardless of their income level
9 (Pittsburgh United Statement No. 1, p. 26).

10
11 **Q. WHAT IS THE BASIS OF YOUR DISAGREEMENT?**

12 A. First, Mr. Geller does not categorically discuss or recommend the expansion of the
13 winter shut off moratorium to all senior customers regardless of income level.
14 Instead, Mr. Geller just noted that he is encouraged to see that PWSA is taking
15 steps to expand its winter shut off moratorium considering the low participation in
16 2019 and 2020. However, considering his affirmative support for PWSA's
17 proposal, I disagree with Mr. Geller for the reasons discussed at length in my
18 direct testimony. The main points are briefly described below (I&E Statement No.
19 2, pp. 54-57):

- 20 • PWSA does offer a bill discount program and hardship grant program
21 based on federal poverty income level, which are available to all eligible
22 fixed income senior citizens in addition to the winter shutoff moratorium.

- 1 • PWSA did not conduct any studies or surveys and impact of this proposal
2 rather just relied on interaction with some senior customers.
- 3 • PWSA does not currently have an identifier for senior citizens in its
4 Customer Information System that would permit determining the cost
5 impact due to the enhancement of this program.
- 6 • The Commission’s policy statement regarding the scope of customer
7 assistance programs (CAPs) expressly indicates that “CAPs should be
8 targeted to low-income customers.” PWSA’s age-based winter shut off
9 moratorium proposal directly departs from the Commission’s directive.
- 10 • Per advice of I&E counsel, PWSA’s age-based eligibility criteria offends
11 Section 1304 of the Public Utility Code’s prohibition against rate
12 discrimination because it would extend rate protection, in the form of
13 protection against termination for non-payment, to customers based on an
14 unreasonable preference or advantage (age, regardless of income or ability
15 to pay).
- 16 • No other utilities have received permission to implement a “winter shut off
17 moratorium program for senior citizens (65 years or older) regardless of the
18 income level.

19

20 **Q. DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?**

21 A. Yes.

**I&E Statement No. 1-SR
Witness: Anthony Spadaccio**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Surrebuttal Testimony

of

Anthony Spadaccio, CRRA

Bureau of Investigation & Enforcement

Concerning:

Revenue Requirement

Credit Rating Agencies

Days Cash on Hand

Debt Service Coverage Ratio

PAYGO

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DAYS CASH ON HAND 2

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PAYGO 12

SUMMARY OF I&E'S OVERALL POSITION..... 15

1 **INTRODUCTION OF WITNESS**

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

3 A. My name is Anthony Spadaccio. My business address is Pennsylvania Public
4 Utility Commission, Commonwealth Keystone Building, 400 North Street,
5 Harrisburg, PA 17120.

6

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

8 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
9 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
10 Analyst.

11

12 **Q. ARE YOU THE SAME ANTHONY SPADACCIO WHO IS RESPONSIBLE**
13 **FOR THE DIRECT TESTIMONY CONTAINED IN I&E STATEMENT**
14 **NO. 1 AND THE SCHEDULES IN I&E EXHIBIT NO. 1?**

15 A. Yes.

16

17 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

18 A. The purpose of my surrebuttal testimony is to address the rebuttal testimony of
19 Pittsburgh Water & Sewer Authority (PWSA or Authority) witnesses Edward
20 Barca (PWSA Statement No. 2-R), and Thomas F. Huestis (PWSA Statement No.

1 3-R¹). Additionally, I will present I&E's updated recommended revenue
2 requirement for PWSA.

3

4 **Q. DOES YOUR SURREBUTTAL TESTIMONY INCLUDE AN EXHIBIT?**

5 A. Yes. I&E Exhibit No. 1-SR contains schedules that support my surrebuttal
6 testimony.

7

8 **Q. SUMMARIZE THE AUTHORITY'S REBUTTAL TESTIMONY AS IT**
9 **RELATES TO YOUR RECOMMENDATIONS IN DIRECT TESTIMONY.**

10 A. Collectively, the Authority witnesses criticize my recommended debt service
11 coverage ratios (DSCR), proposed days cash on hand (DCOH), recommended
12 disallowance of Pay As You Go (PAYGO) financing, and take issue with my
13 discussion regarding credit ratings.

14

15 **DAYS CASH ON HAND**

16 **Q. SUMMARIZE YOUR POSITION REGARDING DCOH IN DIRECT**
17 **TESTIMONY.**

18 A. In direct testimony I explained that I&E's proposed rates would result in 220.93
19 DCOH. Additionally, I indicated that this metric falls within Moody's range for

¹ As revised on August 4, 2021.

1 the 'Aa' rating category, which is higher than Moody's overall 'A3' rating for
2 PWSA, therefore showing support for its current credit rating.²

3
4 **Q. WHAT WAS PWSA'S RESPONSE TO YOUR DCOH ANALYSIS?**

5 A. Mr. Barca disagrees with my methodology in calculating the number of DCOH.
6 He misrepresents my calculation by implying that I believe \$696,685 less in cash
7 results in 43 more days of cash.³

8 Mr. Huestis disagrees with my position that the fear of a credit downgrade
9 specifically regarding the level of DCOH is unjustified. Additionally, He
10 continues to compare the Authority's DCOH to that of its peers.⁴

11
12 **Q. HAS YOUR DCOH ANALYSIS CHANGED FROM YOUR DIRECT**
13 **TESTIMONY?**

14 A. Yes. As a result of a changes to allow for certain expenses, as discussed in detail
15 by I&E witness D.C. Patel (I&E Statement No. 2-SR), I&E's updated revenue
16 requirement⁵ results in my DCOH being reduced to 199.60.⁶

² I&E Statement No. 1, p. 10, ln. 4 through p. 13, ln. 3.

³ PWSA Statement No. 2-R, p. 15, Footnote 4.

⁴ PWSA Statement No. 3-R, p. 15, ln. 21 through p. 16, ln. 18.

⁵ I&E Exhibit No. 1-SR, Schedule 1.

⁶ I&E Exhibit No. 1-SR, Schedule 2.

1 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S CLAIM REGARDING**
2 **YOUR DCOH ANALYSIS?**

3 A. Mr. Barca’s characterization of my DCOH calculation is incorrect. He simply
4 implies that I believe \$696,685 less in cash results in 43 more days of cash. While
5 he is correct that I use a cash balance that is \$696,685 less than what is included in
6 his calculation, due to I&E’s recommended rejection of the stormwater credit
7 program, he fails to note that I also incorporated a significant reduction to
8 operating expenses per the analysis of I&E witness D.C. Patel (I&E Statement
9 No. 2). For my days cash on hand calculation, I have employed the analyses of
10 I&E witnesses D.C. Patel and Ethan Cline (I&E Statement No. 3) as well as my
11 own analysis included in the “PAYGO” section below in determining the
12 appropriate levels of forecasted expenditures and revenues for PWSA in the Fully
13 Projected Future Test Year (FPFTY). I&E’s updated recommended revenue
14 requirement results in 199.6 or approximately 200 DCOH⁷ as opposed to PWSA’s
15 calculation in rebuttal testimony of approximately 175 DCOH.⁸ These projections
16 are, of course, highly dependent on the actual experienced level of expenditures.
17 As mentioned by both myself and I&E witness D.C. Patel in direct testimony,
18 PWSA has recently had significant miscalculations regarding the experienced
19 operating expenses,⁹ which is largely where we differ in our DCOH calculations.

⁷ I&E Exhibit No. 1-SR, Schedule 2.

⁸ PWSA Exhibit WJP-3.

⁹ I&E Statement No. 1, p. 12, lines 12-15.

1 **Q. DO YOU BELIEVE YOUR DETERMINATION OF 200 DCOH PUTS**
2 **PWSA IN JEOPARDY OF A CREDIT DOWNGRADE AS MR. HUESTIS**
3 **SEEMINGLY SUGGESTS?**

4 A. No. Mr. Huestis acknowledges that both he and I cite to Moody’s November 5,
5 2020 report which notes the Authority’s liquidity has improved from the critically
6 low 29 DCOH in 2017, and is expected to be at roughly 140 DCOH at the end of
7 fiscal year 2020.¹⁰ Obviously, my calculation of 200 DCOH is well above that
8 expectation. Again, as discussed in my direct testimony,¹¹ PWSA’s DCOH at
9 I&E’s proposed rates falls within Moody’s range for the ‘Aa’ rating category,
10 which is higher than Moody’s overall ‘A3’ rating for PWSA.

11 Frankly, I accept that PWSA must strive to achieve a level of DCOH closer
12 to that of its peers. Clearly, the more cash on hand a utility has the better;
13 however, it is important to strike a balance between improving financial metrics
14 and the impact on customers. Unfortunately, the current situation caused by poor
15 financial management of PWSA over so many years cannot be instantaneously
16 remedied by putting an immediate and overwhelming burden on its ratepayers.

¹⁰ PWSA Statement No. 3-R, p. 15, lines 1-5.

¹¹ I&E Statement No. 1, p. 12, lines 1-8.

1 **DEBT SERVICE COVERAGE RATIO**

2 **Q. HAVE PWSA’S REQUESTED DSCRs CHANGED FROM THE ORIGINAL**
3 **FILING?**

4 A. Yes. Due to newly awarded PENNVEST funding, \$38.5 million was able to be
5 removed from PWSA’s projected revenue bonds and replaced with a low-cost loan
6 of \$35.5 million and a grant of \$3.0 million. Although the interest rate is lower,
7 the repayment term is also shorter, resulting in the requested DSCR for senior debt
8 service increasing from 1.46x¹² to 1.50x.¹³ The DSCR request for total debt
9 service coverage remains the same at 1.18x.

10

11 **Q. SUMMARIZE YOUR DSCR RECOMMENDATION IN DIRECT**
12 **TESTIMONY.**

13 A. In direct testimony, I explained that I&E’s proposed rates would result in DSCRs
14 of 1.43x for senior debt service and 1.16x for total debt service coverage.¹⁴

15

16 **Q. WHAT WAS PWSA’S RESPONSE TO YOUR RECOMMENDED DSCRs?**

17 A. Mr. Barca claims my recommendation does not consider the “Additional Bond
18 Test.”¹⁵ Next, he opines that the only way I can claim PWSA will attain my
19 recommended levels of debt service coverage is to assume that I&E’s other

¹² PWSA Exhibit WJP-1.

¹³ PWSA Exhibit WJP-3.

¹⁴ I&E St. No. 1, p. 16; I&E Exhibit No. 1, Schedule 2.

¹⁵ PWSA Statement No. 2-R, p. 14, ln. 6.

1 witnesses are correct, particularly in their analysis of operating expenditures.¹⁶

2 Finally, Mr. Barca argues that PWSA could have justified a higher rate increase
3 request if it had targeted financial metrics that were comparable to its peers and
4 that the debt service coverage produced by my recommendation is not adequate,
5 nor is it consistent with what is expected from the Authority's peers with similar
6 bond ratings.¹⁷

7 Mr. Huestis also claims that I should have recognized that PWSA could
8 have justified a rate increase above its actual request based upon targeted financial
9 metrics comparable to the Authority's peers¹⁸ and he spends much of his rebuttal
10 testimony attempting to justify a total DSCR of 1.50x.¹⁹ Additionally, Mr. Huestis
11 disagrees with my discussion regarding the Authority's bond rating and suggests if
12 I&E's recommendations are adopted, PWSA may be in danger of a bond rating
13 downgrade which could lead to increased borrowing costs.²⁰ Finally, Mr. Huestis
14 claims my position is that "PWSA should only seek to maintain its existing credit
15 quality."²¹

¹⁶ PWSA Statement No. 2-R, p. 15, ln. 21 through p. 16, ln. 1.

¹⁷ PWSA Statement No. 2-R, p. 16, lines 14-21.

¹⁸ PWSA Statement No. 3-R, p. 3, lines 13-17.

¹⁹ PWSA Statement No. 3-R, p. 6, ln. 14 through p. 13, ln. 2.

²⁰ PWSA Statement No. 3-R, p. 13, ln. 14 through p. 15, ln. 20.

²¹ PWSA Statement No. 3-R, p. 13, lines 15-16.

1 **Q. HAS YOUR DSCR ANALYSIS CHANGED FROM YOUR DIRECT**
2 **TESTIMONY?**

3 A. Yes. As explained above in the DCOH section, I&E's recommended allowance
4 for certain expenses, as discussed in detail by I&E witness D.C. Patel (I&E
5 Statement No. 2-SR), combined with the recent PENNVEST funding award,
6 increases I&E's recommended revenue requirement,²² which results in my DSCR
7 for senior liens increasing from 1.43x²³ to 1.48x,²⁴ while my DSCR for total debt
8 service remains the same at 1.16x.

9

10 **Q. DO YOU AGREE WITH THE AUTHORITY'S CONCLUSIONS**
11 **REGARDING YOUR DSCR RECOMMENDATION?**

12 A. No. Again, I have employed the analysis of I&E witnesses D.C. Patel (I&E
13 Statement No. 2 and I&E Statement No. 2-SR) and Ethan Cline (I&E Statement
14 No. 3) in determining the appropriate levels of forecasted expenditures and
15 revenues for PWSA in the FPFTY. My recommended DSCRs resulting from
16 I&E's proposed rates exceed both the legal covenant requirements of 1.25x for
17 senior debt service and 1.10²⁵ for total debt service. Further, my recommendation
18 also exceeds the Authority's own Financial Management Policy requirements of

²² I&E Exhibit No. 1-SR, Schedule 1.

²³ I&E Exhibit No. 1, Schedule 2.

²⁴ I&E Exhibit No. 1-SR, Schedule 2.

²⁵ Filing Requirement VII.7, Amended and Restated Trust Indenture Between The Pittsburgh Water and Sewer Authority and The Bank of New York Mellon Trust Company, N.A., Amended and Restated as of November 1, 2017, p. 58, Section 7.01(c)(ii).

1 1.35x for senior debt and 1.15x for debt service including subordinate debt.

2 Notably, the policy states that these levels have been set “to provide a margin of
3 safety and flexibility in the PWSA’s financial affairs...”²⁶ and I&E’s
4 recommendation surpasses its requirements.

5
6 **Q. IS MR. BARCA’S ASSERTION CORRECT THAT THE ONLY WAY**
7 **PWSA CAN ATTAIN YOUR RECOMMENDED LEVELS OF DEBT**
8 **SERVICE COVERAGE IS TO ASSUME THAT I&E’S OTHER**
9 **WITNESSES ARE CORRECT IN THEIR ANALYSES, PARTICULARLY**
10 **WHEN IT COMES TO OPERATING EXPENDITURES?**

11 A. Partially. I do rely upon the revenue and expense analyses of the other I&E
12 witnesses for the inputs that impact the recommendations I present. However,
13 generally, operating expenses are matched with revenues dollar for dollar, so the
14 impact of adjustments to operating expenses on DSCRs is minimal. The expense
15 adjustments recommended by I&E, combined with the recommended
16 disallowance of PAYGO funding and the associated Distribution System
17 Improvement Charge (DSIC) revenues, are what is causing the small variance
18 between the I&E and PWSA DSCRs. Again, as Mr. Barca also notes,²⁷ I&E did
19 not recommend any reduction or denial to planned capital improvements or the
20 ability to fund the associated debt service in the FPPTY.

²⁶ PWSA Exhibit EB-6, p. 1.

²⁷ PWSA Statement No. 2-R, p. 51, lines 18-20.

1 **Q. PLEASE COMMENT ON THE “ADDITIONAL BONDS TEST” MR.**
2 **BARCA MENTIONS WHEN DETERMINING APPROPRIATE DSCRs.**

3 A. I agree with Mr. Barca’s summary that the “Additional Bonds Test requires that
4 the PWSA meet its required debt service coverage ratios (i.e., Rate Covenant)
5 taking into account the current rates and the maximum annual debt service of a
6 proposed series of bonds prior to issuing additional bonds.”²⁸ This simply
7 prevents the Authority from over-extending itself from including *potential*
8 *revenues* to justify issuing new bonds, which is a very reasonable standard.

9 It is I&E’s duty to review revenues, expenditures, financial metrics, etc. for
10 the FPFTY. If the Authority experiences a revenue deficiency to the point it is
11 unable to issue additional bonds, it can file another rate case. Given that PWSA is
12 still relatively new to the Commission’s jurisdiction, regular rate filings are
13 anticipated.

14
15 **Q. DO YOU BELIEVE YOUR RECOMMENDED DSCRs FOR PWSA WILL**
16 **BE VIEWED UNFAVORABLY BY CREDIT RATING AGENCIES AS MR.**
17 **HUESTIS SUGGESTS?**

18 A. No. In direct testimony, I cited to the most recent rating reports from both
19 Moody’s and S&P Global.²⁹ Both rating agencies noted the continued
20 improvement in the Authority’s DSCRs. Any DSCRs that are higher than what is

²⁸ PWSA Statement No. 2-R, p. 13, lines 31-34.

²⁹ I&E Statement No. 1, p. 14, ln. 15 through p. 16, ln. 3.

1 legally mandated and exceed the Authority’s own policies, as my
2 recommendations do, should be viewed as favorable by the rating agencies.

3 Further, as mentioned above, PWSA seems to have been successful in continuing
4 to secure low-cost PENNVEST loans and grants that significantly aid in keeping
5 its borrowing costs from increasing.

6
7 **Q. DID YOU CLAIM THAT PWSA SHOULD ONLY SEEK TO MAINTAIN**
8 **ITS EXISTING CREDIT QUALITY?**

9 A. No. In the statement Mr. Huestis refers to, I stated “I believe the DSCRs and
10 DCOH, along with the recently established DSIC, will afford PWSA the
11 opportunity to cover necessary expenses, pay its debt, and maintain, if not improve
12 its current financial position and credit ratings.”³⁰ This statement remains true.

13
14 **Q. BOTH MR. BARCA AND MR. HUESTIS CLAIM THAT PWSA COULD**
15 **HAVE JUSTIFIED A HIGHER RATE INCREASE THAN WHAT WAS**
16 **REQUESTED, WHILE MR. HUESTIS ARGUES THAT THE**
17 **APPROPRIATE “ALL-IN” DSCR IS 1.50X. HOW DO YOU RESPOND TO**
18 **THESE CLAIMS?**

19 A. First, it is PWSA that requested and provided support for a 1.18x “all-in” or total
20 DSCR. Other than my recommendation to disallow PAYGO funding, which is

³⁰ I&E Statement No. 1, p. 23, lines 11-13.

1 more than recuperated by the \$3 million PENNVEST grant, I did not recommend
2 a single reduction to planned capital spending or the ability to fund the associated
3 debt service in the FPFTY. Like my argument in the DCOH section, I agree with
4 Mr. Huestis that it is ideal for PWSA to strive to achieve higher DSCRs that are
5 more in line with its peers. Again, however, it is unreasonable to think ratepayers
6 should be overwhelmed with such a large rate increase to correct the many years
7 of financial mismanagement by the Authority. Mr. Huestis suggests that PWSA
8 would have required a rate increase of an additional \$28 million on top of the
9 requested approximate \$32 million increase to achieve the 1.50x total DSCR.³¹ It
10 would be unreasonable and unjust to the Authority's ratepayers to be forced to
11 take on that burden so quickly.

12
13 **PAYGO**

14 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
15 **REGARDING PWSA'S PROPOSED PAYGO FUNDING INCREASE.**

16 **A.** In direct testimony, I recommended rejecting PWSA's entire \$1,000,000 PAYGO
17 claim in this proceeding.³²

³¹ PWSA Statement No. 3-R, p. 12, ln. 24 through p. 13, ln. 2.

³² I&E Statement No. 1, p. 19, lines 16-18.

1 **Q. WHAT WAS PWSA’S RESPONSE TO YOUR RECOMMENDED**
2 **REJECTION OF THE PROPOSED PAYGO FUNDING IN ITS**
3 **ENTIRETY?**

4 A. Mr. Barca opines, that none of my concerns regarding the Authority’s PAYGO
5 funding are valid.³³ He suggests that I am potentially confused over the
6 terminology by noting that PAYGO funds, like DSIC revenue, are a form of
7 “internally generated funds.” Mr. Barca states that “I&E has never objected to
8 PWSA using its DSIC to directly finance from rates DSIC eligible construction.”³⁴
9 Although he appears to believe I&E’s stance that funds should be tied to
10 identifiable expenditures is unimportant, he insists that the requested PAYGO
11 funds would be just that, as he claims that PWSA intends to use the funds for
12 projects outlined in its Capital Improvement Plan (CIP) and its Long-Term
13 Infrastructure Improvement Plan (LTIIP).³⁵

14 Additionally, Mr. Barca argues that PAYGO funding is cheaper for
15 ratepayers than comparable bond financing due to the associated debt service.³⁶

16
17 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S REBUTTAL**
18 **TESTIMONY REGARDING YOUR PAYGO RECOMMENDATION?**

19 A. First, it is true that I&E believes capital expenditures Mr. Barca references that

³³ PWSA Statement No. 2-R, p. 51, ln. 2.

³⁴ PWSA Statement No. 2-R, p. 50, lines 16-20.

³⁵ PWSA Statement No. 2-R, p. 51, lines 14-24.

³⁶ PWSA Statement No. 2-R, p. 52, lines 1-8.

1 cannot be funded through the DSIC should be tied to actual, identified
2 expenditures in the FPFTY rather than simply having free rein over available
3 funds. In direct testimony, I explained that the expenditures Mr. Barca
4 identified,³⁷ should be normalized over the estimated useful life and included in
5 rates as rationalized by I&E witness D.C. Patel's discussion regarding equipment
6 costs.³⁸ PAYGO funding secures current base rate funds from current customers
7 for long-term capital projects. At some point, this becomes unreasonable from the
8 perspective that current ratepayers are funding capital improvements on a cash
9 basis that will likely remain in service far beyond the period of time that they are
10 customers. When projects are funded with long-term debt, there is some
11 alignment between the plant life and the repayment period so that customers added
12 and removed over the life of that project all share in the cost of the plant that
13 serves them.

14 Next, as previously mentioned, Mr. Barca explains that the Authority was
15 awarded approximately \$35.5 million in low cost PENNVEST loans and
16 approximately \$3 million in the form of a grant to be used for lead service line
17 replacement.³⁹ While the \$3 million grant is reimbursable and must be spent on
18 lead service line replacement, the original dedicated funding is available to be
19 used for projects Mr. Barca claims the PAYGO funding would be used for. While
20 PWSA is certainly not guaranteed to receive additional grants or low-cost loans in

³⁷ I&E Exhibit No. 1, Schedule 6.

³⁸ I&E Statement No. 2, p. 26, ln. 17 through p. 29, ln. 17.

³⁹ PWSA Statement No. 2-R, p. 4, lines 18-21.

1 the future, the cost savings of the already secured PENNVEST funding cannot be
2 ignored. Mr. Barca has also recognized this financial benefit.⁴⁰

3 Finally, PWSA has the DSIC for capital improvements on a cash basis. To
4 simply claim that PAYGO money will be used for CIP and LTIP approved
5 projects would be equivalent to increasing the allowed DSIC rate. Further, it is
6 my understanding per the July 1, 2021 Quarterly DSIC filings⁴¹ that PWSA has
7 not utilized DSIC funding nearly to the extent available. It appears that only
8 \$299,874 (\$12,800 + \$221,215 for Q1 and Q2 of 2021 for water operations & and
9 \$770 + \$65,089 for Q1 and Q2 of 2021 for wastewater operations) in DSIC
10 funding has been utilized. If this is the case, additional internally generated funds
11 in the form of the PAYGO request are certainly not necessary.

12
13 **Q. HAS YOUR RECOMMENDATION TO REJECT PWSA'S ENTIRE**
14 **PAYGO CLAIM IN THIS PROCEEDING CHANGED?**

15 A. No.

16
17 **SUMMARY OF I&E'S OVERALL POSITION**

18 **Q. HAS I&E'S OVERALL RECOMMENDED REVENUE REQUIREMENT**
19 **CHANGED FROM DIRECT TESTIMONY?**

20 A. Yes. I&E's recommended revenue requirement has changed in response to the

⁴⁰ PWSA Statement No. 2-R, p. 4, lines 9-11.

⁴¹ I&E Exhibit No. 1-SR, Schedule 3.

1 slight changes between the Authority's direct and rebuttal rate case tables, noted in
2 I&E Exhibit No. 1-SR, Schedule 1, the newly secured PENNVEST funding, and
3 the O&M adjustments outlined in I&E witness D.C. Patel's surrebuttal testimony
4 (I&E Statement No. 2-SR). As a result of these changes, I&E's total
5 recommended revenue increase to the FPPTY revenues at present rates has risen
6 from \$2,339,804⁴² in direct testimony to \$12,965,791, which results in an updated
7 overall I&E revenue requirement recommendation of \$209,178,213.⁴³

8 As previously indicated in direct testimony, this revenue increase should be
9 allocated 64.30% to water operations, 19.25% to wastewater operations, and
10 16.45% to stormwater operation.⁴⁴ Therefore, the I&E recommendation
11 corresponds to an increase of \$8,337,004 ($\$12,965,791 \times 64.30\%$) to water
12 operations, an increase of \$2,495,915 ($\$12,965,791 \times 19.25\%$) to wastewater
13 operations, and an increase of \$2,132,872 ($\$12,965,791 \times 16.45\%$) to stormwater
14 operations.

15
16 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

17 A. Yes. However, I reserve the right to supplement my testimony if additional issues
18 or facts arise which may impact my recommendation.

⁴² I&E Statement No. 1, p. 7, lines 3-4 and I&E Exhibit No. 1, Schedule 1.

⁴³ I&E Exhibit No. 1-SR, Schedule 1.

⁴⁴ I&E Statement No. 1, p. 7, lines 11-13.

**I&E Exhibit No. 1-SR
Witness: Anthony Spadaccio**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Exhibit to Accompany

the

Surrebuttal Testimony

of

Anthony Spadaccio, CRRA

Bureau of Investigation & Enforcement

Concerning:

Revenue Requirement

Credit Rating Agencies

Days Cash on Hand

Debt Service Coverage Ratio

PAYGO

TABLE I
Pittsburgh Water and Sewer Authority
FPFTY 2022 INCOME SUMMARY
Docket Nos. R-2021-3024773 (Water), R-2021-3024774 (Wastewater), & R-2021-3024779 (Stormwater)

	I&E MODIFIED									
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	
	PWSA	I&E	I&E	PWSA	PWSA	I&E	I&E	Not Applicable	Not Applicable	
	FPFTY 2022 Present Rates	Revenue Adjustments	Adjusted FPFTY 2022 Present Rates	Rate Increase to Meet Revenue Requirements	FPFTY 2022 Proposed Rates	Revenue Requirement Adjustments	Pro Forma Adjusted Rates	Automatic Adjustments to Meet Minimum Financial Metrics	Metric-Adjusted Minimum Required Revenues	
	(1)				(1)	(2)				
	\$	\$	\$	\$	\$	\$	\$	\$	\$	
INCOME SUMMARY										
Beginning Unrestricted Cash	A	59,210,912	0	59,210,912	0	59,210,912	0	59,210,912	0	59,210,912
Revenues:										
Operating Revenues		190,935,177	0	190,935,177	32,213,701	223,148,878	(17,012,400)	205,439,548	0	205,439,548
DSIC Revenues		9,226,815	0	9,226,815	373,163	9,599,978	(695,185)	8,904,793	0	8,904,793
Less: Uncollectible Revenues		(3,949,570)	0	(3,949,570)	(1,770,478)	(5,720,049)	553,920	(5,166,128)	0	(5,166,128)
Stormwater Credit Program Cost		0	0	0	0	0	0	0	0	0
Total Revenues		196,212,422	0	196,212,422	30,816,386	227,028,808	(17,153,665)	209,178,213	0	209,178,213
Revenue Requirements:										
O & M Expense		125,268,731		125,268,731	0	125,268,731	(15,458,480)	109,810,251		109,810,251
Debt Service (Principal & Interest) (3)		89,483,644		89,483,644	0	89,483,644	0	89,483,644	B	89,483,644
Cash-Financed Capital		10,601,532		10,601,532	(1,554)	10,599,978	(1,695,185)	8,904,793		8,904,793
Restricted Reserve Contributions		1,000,000		1,000,000	0	1,000,000	0	1,000,000		1,000,000
Total Revenue Requirements		226,353,908		226,353,908	(1,554)	226,352,354	(17,153,665)	209,198,689	0	209,198,689
Revenue Surplus / (Deficit)		(30,141,485)		(30,141,485)	30,817,940	676,454		(20,476)		(20,476)
Ending Unrestricted Cash Balance		29,069,427				59,887,367		59,190,437		59,190,437
KEY FINANCIAL METRICS										
					PWSA Filing			ALJ Adjusted		
Debt Service Coverage										
Senior (1.25 Requirement)					1.50			1.48		
Total (1.10 Requirement)					1.18			1.16		
Days Cash on Hand (4)					174.7			176.7		
Debt Service Coverage										
Senior (1.25 Requirement)	1.07				1.51			1.48		
Total (1.10 Requirement)	0.85				1.19			1.16		
Days Cash on Hand (4)	85.8				176.7			199.6		
Key Ratio Check (Achieved/Not Achieved)										
Not Achieved										
Achieved										
Not Achieved										
Achieved										
(1) As filed in the FPFTY 2022 Base Rate Case.		\$ 209,178,213		I&E Recommended Revenue		\$ 209,198,689		I&E Total Revenue Requirement		
(2) Revenue adjusted to meet to Revenue Requirements.		\$ 196,212,422		I&E Adjusted Present Rates Rev.		\$ (20,476)		Revenue Surplus / (Deficit)		
(3) Includes Principal and Interest payments on existing and proposed debt.		\$ 12,965,791		Total Revenue Increase		\$ 209,178,213		I&E Recommended Revenue		
(4) Calculated using Operating & Maintenance Expenses (excludes non-operating expenses).		\$223,148,878		PWSA FPFTY 2022 Proposed Rates						
		(\$17,012,400)		I&E Revenue Requirement Adjustments						
		(\$696,930)		Removal of Stormwater Credit Program Cost - See I&E Statement No. 3						
		\$205,439,548								

A \$59,282,643 in direct

B \$89,407,273 in direct - the increase is due to lower cost but shorter term PENNVEST loan which replaced revenue bonds

TABLE I(A)
Pittsburgh Water and Sewer Authority
FPFTY 2022 KEY RATIOS

I&E Exhibit No. 1-SR
Schedule 2

Docket Nos. R-2021-3024773 (Water), R-2021-3024774 (Wastewater), & R-2021-3024779 (Stormwater)

I&E MODIFIED

<u>Key Ratio Breakdown</u>	(A)	(B)	(C)	(D)
	PWSA	PWSA	I&E	I&E
	FPFTY 2022 Present Rates	FPFTY 2022 Proposed Rates	Pro Forma Adjusted Rates	Metric-Adjusted Minimum Required Revenues
	\$	\$	\$	\$
Debt Service Coverage				
Operating Revenues	200,161,992	232,748,857	214,344,342	214,344,342
Less:				
Bad Debt	(3,949,570)	(5,720,049)	(5,166,128)	(5,166,128)
Stormwater Credits	0	0	0	0
Net Collected Revenues	196,212,422	227,028,808	209,178,213	209,178,213
Less:				
Current Expenses	(125,268,731)	(125,268,731)	(109,810,251)	(109,810,251)
Adjustments:				
City Payments	4,780,000	4,780,000	4,780,000	4,780,000
Placeholder				
Placeholder				
Revenues Available for Debt Service	75,723,691	106,540,077	104,147,962	104,147,962
Senior Lien Debt Service	70,546,738	70,546,738	70,546,738	70,546,738
All Other Debt Service	18,936,906	18,936,906	18,936,906	18,936,906
Total Debt Service	89,483,644	89,483,644	89,483,644	89,483,644
Senior Lien Debt Service Coverage	1.07	1.51	1.48	1.48
Total Debt Service Coverage	0.85	1.19	1.16	1.16
Days Cash on Hand				
Ending Cash Balance	29,069,427	59,887,367	59,190,437	59,190,437
Operating Expenses	125,268,731	125,268,731	109,810,251	109,810,251
Adjustments:				
(Loss) / Gain on ALCOSAN Billings	(1,571,968)	(1,571,968)	(1,571,968)	(1,571,968)
Add: Adjustments to ALCOSAN	0	0	0	0
Placeholder				
Net Operating Expenses	123,696,763	123,696,763	108,238,283	108,238,283
Days Cash on Hand (x 365)	85.8	176.71	199.60	199.60

(1) As filed in the FPFTY 2022 Base Rate Case.

(2) Revenue adjusted to meet to Revenue Requirements.

Deanne M. O'Dell
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June 21, 2021

Via Electronic Filing

Rosemary Chiavetta, Secretary
PA Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Pittsburgh Water and Sewer Authority ("PWSA") April 1, 2021 Quarterly Distribution System Improvement Charge ("DSIC") Water – Docket No. M-2021-

Dear Secretary Chiavetta:

Please find supporting schedules for the Pittsburgh Water and Sewer Authority's ("PWSA") July 1, 2021 Quarterly DSIC filing. **There will be no change in the DSIC effective rate of 5%.** As such, no tariff supplement is enclosed. Copies to be served in accordance with the attached Certificate of Service.

Sincerely,



Deanne M. O'Dell

DMO/lww

Enclosure

cc: Cert. of Service w/enc.

CERTIFICATE OF SERVICE

I hereby certify that this date I served a copy of PWSA's July 1, 2021 Quarterly DSIC Water filing upon the persons listed below in the manner indicated in accordance with the requirements of 52 Pa. Code Section 1.54.

Via Email Only

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Dated: June 21, 2021



Deanne M. O'Dell, Esq.

The Pittsburgh Water and Sewer Authority
 July 1, 2021 - QUARTERLY FILING
DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC) - Water

	Annual	Quarterly (Annual / 4)
Projected Recoverable Costs (DSI) \$	5,624,269 \$	1,406,067
2020 Annual Reconciliation (e) \$	-	-
**Total Recoverable Costs (DSI + e) \$	5,624,269 \$	1,406,067
Projected Revenues \$	112,428,000 \$	28,107,000
	PAR	PQR

Distribution System Improvement Charge (DSIC) 5.00%

Formula: The formula for calculation of the DSIC is as follows:

$$DSIC = \frac{DSI + e}{PQR}$$

Where:

- DSI = Projected recoverable quarterly costs
- e = The amount calculated under the annual reconciliation feature or Commission audit.
- PQR = Projected quarterly revenues for distribution service (including all applicable clauses and riders) including any revenue from existing customers plus netted revenue from any customers which will be gained or lost by the beginning of the applicable service period.

** Recoverable costs are invoices due and paid in the calendar year for DSIC-eligible construction projects.

The Pittsburgh Water and Sewer Authority DSIC Projects in 2021

DSIC Water

PWSA Project #	Project Name	Detailed Description	Location	Type	Q1 2021	Q2 2021
2020-325-107-0	2020 Small Meter Replacement	Annual replacement of water meters one inch or less. Regulatory Compliance, Reliability/Operational Flexibility, Level of Service, Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed. Increased system reliability and improved system management. Failure to replace meters annually could result in lost revenue or violate regulatory requirements.	System Wide - City of Pittsburgh	Water	\$ 12,800.00	\$ 211,200.00
2020-325-101-0	2020 Large Water Meter Replacement	Annual replacement of water meters larger than one inch. Regulatory Compliance, Reliability/Operational Flexibility, Level of Service, Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed. Increased system reliability and improved system management. Failure to replace meters annually could result in lost revenue or violate regulatory requirements.	System Wide - City of Pittsburgh	Water	\$ -	\$ 10,014.62
					\$ 12,800.00	\$ 221,214.62

Deanne M. O'Dell
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June 21, 2021

Via Electronic Filing

Rosemary Chiavetta, Secretary
PA Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Pittsburgh Water and Sewer Authority ("PWSA") April 1, 2021 Quarterly Distribution System Improvement Charge ("DSIC") Wastewater – Docket No. M-2021

Dear Secretary Chiavetta:

Please find supporting schedules for the Pittsburgh Water and Sewer Authority's ("PWSA") July 1, 2021 Quarterly DSIC filing. **There will be no change in the DSIC effective rate of 5%.** As such, no tariff supplement is enclosed. Copies to be served in accordance with the attached Certificate of Service.

Sincerely,



Deanne M. O'Dell

DMO/lww

Enclosure

cc: Cert. of Service w/enc.

CERTIFICATE OF SERVICE

I hereby certify that this date I served a copy of PWSA's July 1, 2021 Quarterly DSIC Wastewater filing upon the persons listed below in the manner indicated in accordance with the requirements of 52 Pa. Code Section 1.54.

Via Email Only

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Dated: June 21, 2021



Deanne M. O'Dell, Esq.

The Pittsburgh Water and Sewer Authority
 July 1, 2021 - QUARTERLY FILING
DISTRIBUTION SYSTEM IMPROVEMENT CHARGE (DSIC) - Wastewater

	Annual	Quarterly (Annual / 4)
Projected Recoverable Costs (DSI) \$	3,055,158 \$	763,790
2020 Annual Reconciliation (e) \$	-	-
**Total Recoverable Costs (DSI + e) \$	3,055,158 \$	763,790
Projected Revenues \$	61,072,000 \$	15,268,000
	PAR	PQR
Distribution System Improvement Charge (DSIC)		<u>5.00%</u>

Formula: The formula for calculation of the DSIC is as follows:

$$DSIC = \frac{DSI + e}{PQR}$$

Where:

- DSI = Projected recoverable quarterly costs
- e = The amount calculated under the annual reconciliation feature or Commission audit.
- PQR = Projected quarterly revenues for distribution service (including all applicable clauses and riders) including any revenue from existing customers plus netted revenue from any customers which will be gained or lost by the beginning of the applicable service period.

**Recoverable costs are invoices due and paid in the calendar year for DSIC-eligible construction projects.

The Pittsburgh Water and Sewer Authority DSIC Projects in 2021						
DSIC Wastewater						
PWSA Project #	Project Name	Detailed Description	Location	Type	Q1 2021	Q2 2021
2017-424-100-0	31st Ward Sewer System	Evaluation to identify and locate the source(s) of the infiltration and inflow (I/I), removal of public I/I sources, and rehabilitation/replacement of the Rogers Street and Mifflin Road Pump Station and force main. Both sewage pump stations and the force main that convey flow of the Streets Run Sanitary Truck Sewer were constructed in the late 1940s and are reaching the end of their useful life. Additionally, past studies suggest this sewer shed may be significantly impacted by high levels of infiltration/inflow.	City of Pittsburgh - 31st Ward	Wastewater	\$ 770.00	\$ 65,089.12
					\$ 770.00	\$ 65,089.12

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Surrebuttal Testimony

of

D. C. Patel

Bureau of Investigation and Enforcement

Concerning:

OPERATING AND MAINTENANCE EXPENSES

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1 **INTRODUCTION**

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

3 A. My name is D. C. Patel, and my business address is Pennsylvania Public Utility
4 Commission, Commonwealth Keystone Building, 400 North Street, Harrisburg,
5 PA 17120.

6

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

8 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
9 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
10 Analyst.

11

12 **Q. ARE YOU THE SAME D. C. PATEL WHO SUBMITTED DIRECT AND**
13 **REBUTTAL TESTIMONY IN THIS PROCEEDING?**

14 A. Yes. I submitted I&E Statement No. 2, I&E Exhibit No. 2, and I&E Statement No.
15 2-R.

16

17 **Q. DOES YOUR SURREBUTTAL TESTIMONY INCLUDE AN**
18 **ACCOMPANYING EXHIBIT?**

19 A. No. However, I refer to my direct testimony and its accompanying exhibit in this
20 surrebuttal testimony (I&E Statement No. 2 and I&E Exhibit No. 2).

1 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

2 A. The purpose of my surrebuttal testimony is to respond to the rebuttal testimony of
3 the following Pittsburgh Water and Sewer Authority (PWSA) witnesses:

- 4 • Harrold J. Smith (PWSA Statement No. 4-R) regarding PWSA's rebuttal
5 Class Cost of Service Study (CCOSS).
- 6 • Edward Barca (PWSA Statement No. 2-R) regarding PWSA's claimed
7 revenue requirement and operating and maintenance (O&M) expenses.
- 8 • Julie Quigley (PWSA Statement No. 6-R) regarding the winter shut-off
9 moratorium.

10

11 **Q. WHAT CHANGES DID PWSA MAKE TO ITS CLAIMED REVENUE**
12 **INCREASE AND TOTAL O&M EXPENSES IN REBUTTAL**
13 **TESTIMONY?**

14 A. PWSA witness Harold J. Smith included the rebuttal CCOSS with his rebuttal
15 testimony to correct some errors/changes identified during the discovery process
16 (PWSA Statement No. 4-R, pp. 2-3). PWSA claimed a revision in the fully
17 projected future test year (FPFTY) total annual revenue increase request from
18 \$32,214,664 to \$32,213,701 (Exhibit WJP-3, Updated rate case tables). However,
19 PWSA did not make any corresponding revisions to its FPFTY total direct
20 operating expenses of \$123,696,763 and the gross total operating expenses of
21 \$125,268,731 (Rebuttal CCOSS, FR-I.2, I.3, and FR-III.1).

1 **FPFTY BUDGET**

2 **Q. SUMMARIZE YOUR DISCUSSION FROM DIRECT TESTIMONY**
3 **ABOUT THE ACCURACY, CREDIBILITY, AND REASONABLENESS OF**
4 **PWSA’S FPFTY O&M EXPENSE CLAIMS IN THIS PROCEEDING.**

5 A. As discussed in my direct testimony, PWSA incurred far less actual O&M
6 expenses as compared to the total budgeted O&M expenses in the fiscal years
7 2018, 2019, and 2020 as shown in the table below (I&E Statement No. 2, pp. 4-5):

8

Fiscal Year	Budgeted	Actual	Variance	Variance
2018	\$94,871,427	\$84,496,209	(\$10,375,218)	(10.94%)
2019	\$111,827,727	\$89,531,892	(\$22,295,835)	(19.94%)
2020	\$109,582,585	\$94,539,067	(\$15,043,518)	(13.73%)

9 The average of three years’ underspending was \$15,904,857 (($\$10,375,218 +$
10 $\$22,295,835 + \$15,043,518$) $\div 3$), which is an average yearly variance of 14.87%
11 $(10.94\% + 19.94\% + 13.73\%) \div 3$). This factual data reveals that PWSA’s future
12 test year (FTY) and FPFTY direct O&M expense budgeted and claimed amounts
13 are not fully reliable and produce concerns about the credibility and
14 reasonableness of the budgeted and forecasted amounts in this proceeding (I&E
15 Statement No. 2, pp. 5-6).

16

17 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR POINT?**

18 A. Yes. PWSA witness Edward Barca disagrees with my comment about the

1 credibility and reasonableness of the FPFTY budgeted claims in this proceeding
2 due to underspent budgeted O&M expenses in the last three years (PWSA
3 Statement No. 2-R, pp. 6-10).

4
5 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

6 A. First, Mr. Barca states that I&E raised issue with the FPFTY operating expenses,
7 primarily because PWSA's actual expenditures in the last three years (2018-2020)
8 were less than the budgeted amounts and PWSA was unable to fill all the positions
9 it had budgeted. Therefore, he states, I recommended an adjustment to FPFTY
10 O&M expenses to essentially reflect the levels of expenditures and vacancies that
11 PWSA has experienced in the past (PWSA Statement No. 2-R, p. 6). Then, he
12 explains that 2020 was not a "typical" year due to the COVID-19 pandemic, that
13 PWSA experienced operational delays across the business, and that it was
14 impossible to hire employees for all budgeted positions. Similarly, he asserts that
15 2018 and 2019 are not valid years to judge the reasonableness of PWSA's
16 budgeting, because in 2018 and 2019 PWSA had just initiated a massive effort to
17 ramp up construction expenditures and operations both to comply with a variety of
18 new and continuing regulatory requirements. Therefore, the O&M expense
19 budgets were increased significantly by 56% from 2017 through 2019 (PWSA
20 Statement No. 2-R, pp. 7-8).

21 Second, he states that PWSA was unable to fully meet these expansion
22 projects because of several issues, principally the difficulty it experienced finding

1 and attracting qualified personnel to fill the large number of new positions and the
2 inclusion of future/anticipated regulatory obligations/compliance costs before they
3 were finalized or imposed (PWSA Statement No. 2-R, p. 8).

4 Third, Mr. Barca states that PWSA has learned from its experience in the
5 initial “ramp up” years of 2018 and 2019 and has incorporated a more realistic
6 understanding of what can and cannot be accomplished in its 2021 and 2022
7 budgets. PWSA has already spent \$54,722,956 or approximately 49% of the total
8 2021 Operating Budget amount through June 30, 2021 (PWSA Statement No. 2-R,
9 p. 9).

10 Lastly, he explains that PWSA’s budgeting process that considers
11 operational requirements driven by regulatory mandates imposed by the
12 Pennsylvania Department of Environment (DEP) and the Commission, the
13 projections are then carefully reviewed by Mr. Barca’s team, and then reviewed
14 and vetted by PWSA’s Department Directors, the Chief Operating Officer, the
15 Chief Executive Officer, and the Board. He asserts that this process itself is
16 evidence of the reasonableness of the projections (PWSA Statement No. 2-R, p.
17 10).

18
19 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S COMMENT**
20 **REGARDING THE BUDGETING PROCESS AND REASONABLENESS**
21 **OF THE FPFTY O&M EXPENSE CLAIMS?**

22 A. First, I continue to have concerns about accuracy, credibility, and reasonableness

1 of the FPFTY budgeted claims in this proceeding based on the average three-year
2 underspending of \$15,904,857, which is 14.87% of the budgeted expenses in
3 PWSA's 2018-2020 budgeted versus actual O&M expenses. Per Mr. Barca,
4 PWSA has spent approximately 49% of the 2021 total operating budget amount
5 through June 30, 2021. However, PWSA has yet to achieve a convincing low-
6 level variance between the budgeted and actual O&M expenses in any complete
7 year to establish its credibility and reasonableness of the forecasted or budgeted
8 claims for ratemaking.

9 Second, the lack of realizing budgeted expenses in 2018 through 2020 due
10 to issues like employee hiring for all budgeted positions or other operational
11 constraints may continue in the FPFTY and thereafter, and that may cause or
12 continue to impact future budget spending even though PWSA has ramped up its
13 construction budget for various projects.

14 Third, I disagree in part with Mr. Barca's assertion that my
15 recommendation for downward adjustments in the FPFTY O&M expenses are
16 primarily to reflect the levels of expenditures and vacancies that PWSA has
17 experienced in the past. In this context, I want to clarify that my recommendation
18 for individual line items of O&M expense are based on the merit, reasonableness,
19 and individual assessment of PWSA's responses to I&E interrogatories, including
20 my review of any supporting documentation where PWSA provided it, as
21 discussed throughout in my direct testimony. Additionally, I would like to note
22 that Section 315(a) of the Public Utility Code (66 Pa. C.S. § 315(a)), places the

1 burden of proving the justness and reasonableness of a proposed rate increase
2 squarely on the utility.

3 Lastly, I am not raising concern with the budgeting process itself, my
4 concern arises when the actual expenses are significantly less than the budgeted
5 amounts, as experienced consistently over the last three years.

6
7 **NORMALIZATION/HISTORICAL DATA APPROACH**

8 **Q. SUMMARIZE MR. BARCA’S ASSERTION THAT THE COMMISSION**
9 **SHOULD REJECT THE PARTIES’ NORMALIZATION/HISTORICAL**
10 **DATA APPROACH USED IN RECOMMENDATIONS FOR O&M**
11 **EXPENSE ADJUSTMENTS.**

12 A. First, Mr. Barca states that using historical data to condemn future projections is
13 self-defeating and amounts to a repudiation of PWSA’s efforts to repair the neglect
14 and inadequacies of the past. If PWSA is held to historic spending levels for
15 ratemaking purposes it will be forced to reduce its levels of expenditures to those
16 levels and will not be able to accomplish the myriad of projects and initiatives it
17 has agreed to or has been ordered to address by regulators (PWSA Statement No.
18 2-R, p. 11).

19 Second, Mr. Barca states that PWSA has no “cushion” (such as that
20 produced by a return on equity allowance) to be able to fund its operating budget
21 if it does not receive the revenues it needs to provide that funding. Additionally,
22 he states if PWSA receives a rate increase that only reflects a level of employees

1 that it experienced in 2021, PWSA would not be able to hire additional employees
2 above that level and all the service improvements those additional employees
3 could have provided simply will not occur (PWSA Statement No. 2-R, p. 11).

4 Third, Mr. Barca notes that 100% of the revenues PWSA collects from
5 customers are retained by PWSA and used to support PWSA's continued
6 operation in a safe and reasonable manner and will not go to shareholders or
7 owners. He then states that PWSA would commit to using any excess revenues
8 net of expenses in 2022 to reduce its cost of service by paying down debt or other
9 borrowing, adding the amount to its cash on hand, crediting its reserve fund, and
10 crediting the amounts to its 2023 Budget or advancing other projects. Any of
11 these steps will reduce its revenue requirement and needed rate relief in future
12 years (PWSA Statement No. 2-R, p. 11).

13
14 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S COMMENT THAT THE**
15 **NORMALIZATION/HISTORICAL DATA APPROACH USED IN**
16 **RECOMMENDING O&M EXPENSE ADJUSTMENTS SHOULD BE**
17 **REJECTED?**

18 A. First, I disagree with Mr. Barca's statement that my analysis of PWSA's historical
19 data is to condemn future projections, which is self-defeating and amounts to a
20 denial of PWSA's efforts to repair the neglect and inadequacies of the past. In this
21 context, I would like to reiterate that historically PWSA has underspent its
22 budgeted expenses as discussed in the FPFTY budget section above, and that

1 raised concern about the reliability of FPFTY budgeted amounts. Therefore, when
2 the FPFTY budgeted expenses are significantly overstated or inflated without a
3 detailed basis, breakdown, and supporting documentation as compared to the
4 historic actual expense level, the historic actual expense level is an appropriate
5 measure or tool to evaluate merit and reasonableness of the FPFTY expense claim
6 for ratemaking.

7 Second, I agree that PWSA has no cushion (such as that produced by a
8 return on equity allowance) to be able to fund its operating budget. However, this
9 should not be the basis to support PWSA's expense ratemaking claims. PWSA has
10 been borrowing the required funds from the financial market and also receives
11 government supported funding/loans at concessional interest rates (like
12 PENNVEST) for its various projects and ratepayers are funding the cost of such
13 borrowing in rates. I disagree with Mr. Barca's assertion that if PWSA would
14 receive a rate increase that reflects a level of employees that it experienced in
15 2021, it would then not be able to hire additional employees above that level. In
16 the 2018 and 2020 rate cases, PWSA budgeted or claimed an employee count for
17 payroll and benefits expenses; however, it could not meet the hiring projections as
18 shown in the table below (I&E Statement No. 2 pp, 15-16):

19

	Budgeted count	Average of actual count	Unfilled/vacant positions	Vacancy rate
2018	394	289	105	27%
2019	402	322	80	20%
2020	457	344	113	25%

1 The lack of meeting hiring projections in the last three years should not be solely
2 attributed or linked to inadequate rate funding. It should be noted that PWSA's
3 employee residency requirement was one of the main reasons for unfilled
4 positions in prior years.

5 Third, I accept Mr. Barca's assertion that 100% of revenues collected from
6 ratepayers are retained by PWSA and used to support PWSA's continued
7 operations in a safe and reasonable manner. However, relying on this fact and as a
8 cash flow-based utility, PWSA should not attempt to shield, justify, and support its
9 unsupported, significantly overstated expense claims in ratemaking calculations
10 because as per 66 Pa. C.S. §§ 315(a) and 1301 the burden of proving the
11 reasonableness of every element of expense claims lies with PWSA. In its
12 justification that ultimately any unspent funds will still go to the benefit of
13 ratepayers, PWSA fails to recognize the fact that there are real economic
14 consequences to ratepayers when they are forced to bear the brunt of PWSA's over
15 projections.

16
17 **Q. WHAT IS MR. BARCA'S RESPONSE TO THE THREE-YEAR HISTORIC**
18 **AVERAGE (NORMALIZATION) METHODOLOGY USED AS BASIS TO**
19 **MAKE O&M EXPENSE ADJUSTMENTS TO FPFTY CLAIMS?**

20 A. Mr. Barca opines that normalization or other reductive methodologies "lock in"
21 the past and will create unsustainably low spending levels that will impair PWSA's
22 ability to provide safe and reliable service to customers. He then claims that

1 normalization recommendations tend to ignore future inflation and market
2 conditions. Mr. Barca also concludes that normalization is contrary to the
3 Legislature’s express indication that the FPFTY may include projections of costs
4 and expenses (PWSA Statement No. 2-R, pp. 17-24).

5 Mr. Barca admits that there is always a level of uncertainty in projections.
6 However, he asserts that uncertainty related to budgetary estimates does not render
7 the FPFTY projection unreliable as there will always be the potential of revisions
8 of projections as events develop and trends change. He consistently repeats that
9 PWSA’s FPFTY budgeting process is rigorous and well established, and the
10 FPFTY projection will be a reasonable reflection of what the utility may
11 experience during the future period (PWSA Statement No. 2-R, pp. 17-24).

12
13 **Q. SUMMARIZE YOUR RESPONSE TO MR. BARCA’S ARGUMENTS**
14 **AGAINST NORMALIZED HISTORIC EXPENSES FOR RATEMAKING**
15 **PURPOSES.**

16 A. Normalization is a ratemaking concept that describes the transformation of an
17 expense that recurs at irregular intervals into a “normal” annual test year
18 allowance. Normalization specifically addresses the prospective recovery of an
19 expense that recurs sporadically. It rationalizes the volatility of an expense and
20 provides an appropriate budget estimate that reduces an unreasonable impact or
21 burden in rates, which could result from over-estimation of an expense in the
22 forecast through the inclusion of an intermittent expense at full cost in the test

1 year. For ratemaking purposes, expenses included in the annual revenue
2 requirement should represent the *normal annual level of recurring expense*.
3 Further, normalized expenses are no different than any other O&M expense in that
4 the utility is given the opportunity to achieve full recovery. Finally, allowing the
5 full amount of a cost every single year for an item or expense that is not incurred
6 on an annual basis would allow for significant over-recovery in rates and that
7 needs to be adjusted via normalization in fairness to ratepayers.

8 I have already responded to the comment about PWSA's budgeting process
9 in the FPFTY budget section above. However, I reiterate that, normally,
10 forecasting or budgeting of an expense is dependent on the historic actual expense
11 trend and the future known and measurable plans or changes. In the ratemaking
12 process, normalization of an extraordinary, nonrecurring, or one-time expenses is
13 applied as an accepted method for spreading such expenses over intervening years
14 to reduce an unreasonable impact or burden in customers' rates.

15
16 **Q. DID PWSA HAVE AN OPPORTUNITY TO PROVIDE YOU WITH DATA**
17 **THAT WOULD WARRANT YOU TO RECONSIDER YOUR**
18 **ADJUSTMENTS?**

19 A. Yes. As I will explain below, there were some instances in rebuttal testimony
20 where PWSA recently provided support for some of the claims that I previously
21 adjusted. Where adequate support was provided, I considered that in this
22 testimony. However, where PWSA continually failed to support its claims,

1 normalization provided a reliable avenue for evaluation, and no changes to my
2 position were warranted.

3
4 **SUMMARY OF RECOMMENDED ADJUSTMENTS**

5 **Q. PLEASE SUMMARIZE YOUR RECOMMENDED ADJUSTMENTS AS**
6 **UPDATED HEREIN.**

7 A. I recommend updated O&M expense adjustments as shown below:

8

	PWSA Updated Claim	I&E Updated Recommended Allowance	I&E Updated Adjustment
Rate Case Expense	\$2,040,000	\$1,530,000	(\$510,000)
Materials Expense	\$571,220	\$519,445	(\$51,775)
Equipment	\$7,578,417	\$1,290,460	(\$6,287,957)
Operating Contracts	\$27,106,585	\$22,652,907	(\$4,453,678)
Repairs and Maintenance	\$14,818,843	\$13,545,197	(\$1,273,646)
Lease and Rent	\$1,557,194	\$1,248,134	(\$309,060)
Professional Services	\$24,781,053	\$22,963,137	(\$1,817,916)
Utilities	\$5,293,104	\$5,138,656	(\$154,448)
Miscellaneous Admin. Expense - Claims Deductibles	\$600,000	\$0	<u>(\$600,000)</u>
Total O&M Expense Adjustments			<u>(\$15,458,480)</u>

9
10 **Q. SUMMARIZE YOUR ALLOCATION OF UPDATED EXPENSE**
11 **ADJUSTMENTS BETWEEN THE WATER, WASTEWATER, AND**
12 **STORMWATER SYSTEMS.**

13 A. I continue to allocate the above O&M expense adjustments using a ratio of
14 64.30% for water, 19.25% for wastewater, and 16.45% for stormwater based on

1 PWSA's FPFTY 2022 Cost of Service Study and Rate Design as shown in the
 2 table below (PWSA filing, FPFTY 2022 Cost of Service and Rate Design, RevReq
 3 Allocation tab, Column P, lines 25-27) (I&E Statement No. 2, p. 7):
 4

	<u>I&E Updated Adjustment</u>	<u>Water (64.30%)</u>	<u>Wastewater (19.25%)</u>	<u>Stormwater (16.45%)</u>
Rate Case Expense	(\$510,000)	(\$327,930)	(\$98,175)	(\$83,895)
Materials Expense	(\$51,775)	(\$33,291)	(\$9,967)	(\$8,517)
Equipment	(\$6,287,957)	(\$4,043,156)	(\$1,210,432)	(\$1,034,369)
Operating Contracts	(\$4,453,678)	(\$2,863,715)	(\$857,333)	(\$732,630)
Repairs and Maintenance	(\$1,273,646)	(\$818,954)	(\$245,177)	(\$209,515)
Lease and Rent	(\$309,060)	(\$198,726)	(\$59,494)	(\$50,840)
Professional Services	(\$1,817,916)	(\$1,168,920)	(\$349,949)	(\$299,047)
Utilities	(\$154,448)	(\$99,310)	(\$29,731)	(\$25,407)
Miscellaneous Admin. Expense - Claims Deductibles	<u>(\$600,000)</u>	<u>(\$385,800)</u>	<u>(\$115,500)</u>	<u>(\$98,700)</u>
Total O&M Expense Adjustments	<u>(\$15,458,480)</u>	<u>(\$9,939,802)</u>	<u>(\$2,975,758)</u>	<u>(\$2,542,920)</u>

5
 6 **RATE CASE EXPENSE**
 7 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
 8 **FOR RATE CASE EXPENSE.**

9 A. I recommended an allowance of \$1,530,000 for rate case expense or a reduction of
 10 \$510,000 (\$2,040,000 - \$1,530,000) to PWSA's claim (I&E Statement No. 2,
 11 p. 9). My recommendation to normalize rate case expense over a period of 16
 12 months in contrast to PWSA's full claim in the FPFTY (using a 12-month

1 normalization period) was based on PWSA’s historic rate case filing frequency as
2 discussed in direct testimony (I&E Statement No. 2, pp. 10-13).

3
4 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

5 A. Yes. PWSA witness Edward Barca disagrees with my recommendation to
6 normalize rate case expense over 16 months (PWSA Statement No. 2-R, pp. 24-
7 25).

8
9 **Q. SUMMARIZE MR. BARCA’S RESPONSE.**

10 A. Mr. Barca states that normalization is not feasible for PWSA because as a cash-
11 flow based utility, PWSA needs to have the funds available to pay rate case
12 expenses in the year they are due. He further, states that Philadelphia Gas Works
13 (PGW) has higher debt service coverage and year end cash requirements and goals
14 that permit it to better absorb the “normalization” of certain expenses over a
15 longer period. Additionally, he states that PWSA’s next base rate case filing will
16 be determined on the outcome of this rate case proceeding and considering I&E’s
17 revenue requirement recommendation, PWSA would need to file another base rate
18 case in 2022 (PWSA Statement No. 2-R, pp. 24-25).

19
20 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S ASSERTION?**

21 A. I understand that as a cash-flow based utility, PWSA pays and accounts for all

1 expenses within the year they are incurred but that does not mean PWSA is
2 prohibited from normalizing/spreading any expenses over intervening periods for
3 ratemaking purposes. Further, Mr. Barca did not explain how normalization is not
4 feasible from an accounting and budgeting perspective. My recommendation of
5 normalizing rate case expense (which occurs sporadically) over a 16-month period
6 was based on PWSA's historic filing frequency. The Commission has consistently
7 relied on the subject utility's historic filing frequency as the basis for determining
8 normalization of rate case expense as discussed in my direct testimony (I&E
9 Statement No. 2, pp. 11-12). Furthermore, Mr. Barca ignores the fact that in the
10 2001 PGW rate case (another cash-flow based utility), the Commission approved
11 normalization of rate case expense over a two-year period based on the expected
12 period between PGW's base rate filings (I&E Statement No. 2, p. 13). Therefore,
13 PWSA's status as a cash flow utility is not determinative. Additionally, PWSA's
14 intention to file its next rate case in 2022 is speculative and the actual filing date
15 may be dependent upon any number of factors that are subject to change,
16 including but not limited to its financial conditions.

17
18 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
19 **RATE CASE EXPENSE?**

20 A. No. I continue to recommend a 16-month normalization period for rate case

1 expense, and accordingly, a reduction of \$510,000 (\$2,040,000 - \$1,530,000) to
2 PWSA's claim as discussed above and in my direct testimony (I&E Statement
3 No. 2, pp. 9-13).

4
5 **PAYROLL EXPENSE**

6 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
7 **FOR PAYROLL EXPENSE.**

8 A. I recommended an allowance of \$23,714,529 for payroll expense, or a reduction of
9 \$7,473,648 (\$31,188,177 - \$23,714,529) to PWSA's claim (I&E Statement No. 2,
10 p. 15). My recommendation for payroll expense was based on 104 vacant
11 positions that are budgeted in the FPFTY expense claim as discussed in direct
12 testimony (I&E Statement No. 2, pp. 15-18).

13
14 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

15 A. Yes. PWSA's witness Edward Barca disagrees with my recommended payroll
16 expense adjustment (PWSA Statement No. 2-R, p. 27).

17
18 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

19 A. First, Mr. Barca states that my recommendation based on a three-year historic
20 average formula for vacant positions in payroll expense is not valid or appropriate
21 since PWSA had to implement a temporary hiring freeze in March 2020 due to the

1 COVID-19 pandemic and that the three-year historic average artificially lowered
2 my recommended payroll expense allowance (PWSA Statement No. 2-R, p. 27).

3 Second, he states that between January 1, 2021 and June 30, 2021, payroll
4 and employee benefits combined have increased by 14.61% as compared to the
5 same period in the prior year due to an increasing employee count. PWSA
6 anticipates that this increase to the total employee count will accelerate through
7 the remainder of 2021 and into future years (PWSA Statement No. 2-R, p. 27).

8 Lastly, he states that per Pittsburgh Joint Collective Bargaining Committee
9 (PJCBC), one of PWSA's union groups, the employee residency requirement is
10 diluted, which allows employees to reside in the City of Pittsburgh or in the
11 surrounding 36 communities. However, employees represented by the American
12 Federation of State, County, and Municipal Employees (AFSCME) are still
13 required to live in the City of Pittsburgh, and the AFSCME union collective
14 bargaining agreement is currently being negotiated for this issue (PWSA
15 Statement No. 2-R, p. 28).

16
17 **Q. DOES MR. BARCA AGREE WITH YOUR ANNUAL AVERAGE**
18 **VACANCY RATE OF 24%?**

19 A. No. Mr. Barca disagrees with my recommended vacancy rate. He states that
20 based on the total employee count of 366 as of June 30, 2021, my recommendation
21 for 104 vacant positions would allow a total headcount of 330 in the FPFTY, that
22 results in 36 (366 - 330) fewer employees in the FPFTY (PWSA Statement No. 2-

1 R, p. 29). Additionally, he states that PWSA fully intends to maintain its course in
2 hiring the additional needed employees before and during the FPFTY and will not
3 have fewer employees in the FPFTY than it did in June 2021. Therefore, he
4 claims that my recommended adjustment to payroll expense and employee
5 benefits based on such a vacancy rate is unreasonable and fails to acknowledge
6 that PWSA is in the midst of rehabilitating and expanding its operations and
7 infrastructure, as well as coming into compliance with numerous Commission
8 mandates and requirements that requires additional employees to fulfill the
9 mandatory obligations. Additionally, he states that my recommendation would
10 force PWSA to come to a full stop with these efforts or potentially lay off staff
11 (PWSA Statement No. 2-R, p. 29).

12
13 **Q. DO YOU ACCEPT MR. BARCA'S ASSERTION THAT A VACANCY**
14 **ADJUSTMENT IS NOT APPROPRIATE IN THIS PROCEEDING?**

15 A. Yes. Based on the information presented in Mr. Barca's rebuttal testimony
16 concerning the employee headcount as of June 30, 2021, PWSA's partial lifting of
17 the employee residency requirement, relaxation of the hiring freeze, and the need
18 for additional employees to fulfill its operations and infrastructure expansion
19 including the mandatory obligations, I am persuaded by Mr. Barca's response.

1 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
2 **PAYROLL EXPENSE?**

3 A. Yes. I am withdrawing my recommended reduction of \$7,473,648 (\$31,188,177 -
4 \$23,714,529) to payroll expense (I&E Statement No. 2, p. 15) after considering
5 the additional information provided by PWSA in its rebuttal testimony. However,
6 I note that this issue will be revisited in future cases and may be reintroduced if
7 PWSA does not demonstrate success with its hiring projections in this proceeding.

8
9 **EMPLOYEE BENEFITS**

10 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
11 **FOR EMPLOYEE BENEFITS EXPENSE.**

12 A. I recommended an allowance of \$6,278,225 for employee benefits expense, or a
13 reduction of \$1,978,600 (\$8,256,825 - \$6,278,225) to PWSA's claim (I&E
14 Statement No. 2, p. 20). My recommendation for employee benefits expense was
15 based on 104 vacant positions that are budgeted in the FPFTY expense claim as
16 discussed in my direct testimony (I&E Statement No. 2, p. 20).

17
18 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

19 A. Yes. PWSA witness Edward Barca disagrees with my recommended employee
20 benefits expense adjustment for the same reasons he disagrees with my
21 recommended adjustment to payroll expense (PWSA Statement No. 2-R, p. 27).

1 **Q. SUMMARIZE MR. BARCA’S RESPONSE.**

2 A. Briefly he disagrees with applying my recommended vacancy adjustment for 104
3 employees to employee benefits expense for the reasons explained in the payroll
4 expense section above (PWSA Statement No, 2-R, pp. 27-30).

5
6 **Q. DO YOU ACCEPT MR. BARCA’S ASSERTION THAT THE VACANCY
7 ADJUSTMENT SHOULD NOT BE APPLIED TO EMPLOYEE BENEFITS
8 IN THIS PROCEEDING?**

9 A. Yes. Based on my concurrence with PWSA’s payroll expense claim as discussed
10 above, I accept Mr. Barca’s response to my vacancy adjustment in employee
11 benefits expense and therefore, withdraw my recommendation for a reduction of
12 \$1,978,600 (\$8,256,825 - \$6,278,225) to PWSA’s claim (I&E Statement No. 2,
13 p. 20) as discussed above.

14

15 **CHEMICALS**

16 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY
17 FOR CHEMICALS.**

18 A. I recommended an allowance of \$4,443,467 or a reduction of \$750,407
19 (\$5,193,874 - \$4,443,467) to PWSA’s claim (I&E Statement No. 2, p. 22). My
20 recommendation was based on the forecasted quarterly Consumer Price Index
21 (CPI)¹ inflation factors for 2021 and 2022 applied to the adjusted HTY chemicals

¹ Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, p. 2.

1 in contrast to PWSA's 3% increase in the FPFTY unit cost of *all sub-categories* of
2 chemicals as discussed in my direct testimony (I&E Statement No. 2, pp. 22-23).

3
4 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

5 A. Yes. PWSA witness Edward Barca disagrees with my recommendation for
6 chemicals (PWSA Statement No. 2-R, pp. 30-31).

7
8 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

9 A. First, Mr. Barca states that using a CPI inflation methodology does not take into
10 consideration changes to PWSA's business functions that substantially increase
11 the need for additional chemicals usage (Chlorine Cylinders, Lime, Powdered
12 Active Carbon, and Citric Acid) in the microfiltration plant, which is ramping up to
13 functioning at full capacity (PWSA Statement No. 2-R, pp. 30-31).

14 Second, he states that a comparison of the prior three years budget to
15 actual chemical expense is not an appropriate indicator of PWSA's FPFTY
16 chemical expense requirements. Additionally, he states that PWSA must maintain
17 adequate budget totals for chemicals to prepare for unknown market and water
18 source conditions (PWSA Statement No. 2-R, p. 30).

19
20 **Q. DO YOU ACCEPT MR. BARCA'S EXPLANATION AND DEFENSE OF**
21 **PWSA'S CHEMICALS CLAIM?**

22 A. Yes. First, Mr. Barca explained that the microfiltration plant is still ramping up,

1 which substantiates an increased need for chemicals. In my direct testimony, I
2 believed that the plant reached full capacity in the FTY, but Mr. Barca's rebuttal
3 testimony clarified that it has not yet reached capacity (PWSA Statement No. 2-R,
4 p. 45). Additionally, Mr. Barca's rebuttal testimony specifically identified a 26%
5 markup in the price of PWSA's June 2021 order of Sodium Hypochlorite, and I
6 was not aware of that demonstrated increase when I submitted my direct testimony
7 (PWSA Statement No. 2-R, p. 31). Considering this information, I am
8 withdrawing my recommended reduction of \$750,407 (\$5,193,874 - \$4,443,467)
9 to PWSA's claim for chemicals.as discussed above.

10
11 **MATERIALS EXPENSE**

12 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
13 **FOR MATERIALS EXPENSE.**

14 A. I recommended an allowance of \$519,445 or a reduction of \$51,775 (\$571,220 -
15 \$519,445) to PWSA's claim (I&E Statement No. 2, p. 25). My recommendation
16 was based on the forecasted quarterly CPI² inflation factors for 2021 and 2022
17 applied to the average materials expense incurred in the last three years in contrast
18 to PWSA's projected significant increase of 26.97% in the FTY and a slight
19 reduction of 1.30% in the FPFTY materials claim (I&E Statement No. 2, pp. 25-
20 26).

² Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, p. 2.

1 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

2 A. Yes. PWSA's witness Edward Barca disagrees with my recommended adjustment
3 to materials expense (PWSA Statement No. 2-R, pp. 31-32).

4

5 **Q. SUMMARIZE MR. BARCAS RESPONSE.**

6 A. Mr. Barca states that material expense is expected to increase as PWSA increases
7 the repairs and maintenance of its aging system in the FPFTY. He then states that
8 this expense has already increased by \$40,096 or 19% year-to-date through June
9 30, 2021 as compared to the same time period in 2020 (PWSA Statement No. 2-R,
10 p. 32).

11

12 **Q. ARE YOU PERSUADED BY MR. BARCA'S RESPONSE REGARDING**
13 **MATERIALS EXPENSE?**

14 A. No. First, I disagree with Mr. Barca's statement that materials expense is expected
15 to increase as PWSA increases repairs and maintenance of its aging system in the
16 FPFTY. Historically, PWSA's total actual materials expense increased by 6.68%
17 in 2018, 5.68% in 2019, and declined by 13.01% in 2020. However, it is
18 projecting a significant increase of 26.97% in the FTY and slight reduction of
19 1.30% in the FPFTY over the FTY expense claim without any credible support.
20 Additionally, PWSA incurred less expense than the budgeted amount by 30.90%
21 and 30.37% in 2019 and 2020 respectively as shown in my direct testimony (I&E
22 Statement No. 2, pp. 25-26).

1 Second, Mr. Barca’s claim about an increase in materials expense by
2 \$40,096 or 19% year-to-date through June 30, 2021, as compared to the same time
3 period in 2020 is unidentified or verifiable in PWSA Exhibit EB-12 (attached to
4 his rebuttal testimony), which shows operating expenses by major title (not
5 specific for materials expense) for monthly expenses incurred in the FTY from
6 January 1, 2021 through June 30, 2021, and a monthly projection for the
7 remainder of the year. It is likely that in 2020 materials expense was less than the
8 budgeted amount due to various unknown reasons.

9 Considering the above and as discussed in my direct testimony, my
10 recommendation to apply CPI inflation factors³ to materials expense in the FTY
11 and FPFTY is moderate and fairly reflects the anticipated increase in materials
12 expense (I&E Statement No. 2. pp. 25-26).

13
14 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
15 **MATERIALS EXPENSE?**

16 A. No. I continue to recommend a reduction of \$51,775 (\$571,220 - \$519,445) to
17 PWSA’s claim as discussed above and in my direct testimony (I&E Statement No.
18 2, pp. 22-24).

³ Blue Chip Financial Forecasts, Vol. 40, No. 6, June 1, 2021, p. 2.

1 **EQUIPMENT**

2 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
3 **FOR EQUIPMENT.**

4 A. I recommended an allowance of \$1,290,460 for equipment or a reduction of
5 \$6,287,957 (\$7,578,417 - \$1,290,460) to PWSA's claim (I&E Statement No. 2,
6 p. 27). My recommendation was based on normalization of each type of
7 equipment cost over the useful service life of the respective equipment in contrast
8 to PWSA's claim for the entire projected equipment expense in the FPFTY (I&E
9 Statement No. 2, pp. 27-29).

10

11 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

12 A. Yes. PWSA's witness Edward Barca disagrees with my recommended
13 normalization of equipment expense over its useful service life primarily for the
14 reason that PWSA is a cash flow-based utility (PWSA Statement No. 2-R, p. 32).

15

16 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

17 A. First, Mr. Barca asserts that as a cash flow-based utility, PWSA fully pays for all
18 expenses incurred within the year they are incurred and must have the funds
19 available to do so. Additionally, he asserts that from an accounting and budgeting
20 perspective, normalization is not feasible for PWSA. Moreover, he states that
21 while these items of equipment have useful lives that are longer than one year,
22 PWSA expects to experience the same level of equipment expenditures in each

1 subsequent year (PWSA Statement No. 2-R, p. 32). Second, Mr. Barca states that
2 I assumed all the expenses within equipment expense are eligible to be capitalized
3 per PWSA's Capital Asset Policy (PWSA Statement No. 2-R, pp. 32-33).

4
5 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S ASSERTIONS**
6 **REGARDING EQUIPMENT?**

7 A. First, the equipment costs are typically capital expenditures because they are
8 useful for providing service over a period longer than one year and are not
9 consumable or perishable items like inventory or a commodity. This fundamental
10 fact does not change for a cash flow-based utility. Second, from an accounting
11 and budgeting perspective, normalization may not be feasible for PWSA as a cash-
12 flow based utility; however, for ratemaking purposes, PWSA can present or claim
13 equipment expense after normalizing it over its useful service life to mitigate an
14 unreasonable impact on rates. Third, the fact that PWSA expects to experience the
15 same level of equipment expenditures in each subsequent year does not mean that
16 PWSA is prohibited from normalizing the equipment cost for ratemaking
17 purposes. I disagree with Mr. Barca's unsupported statement that PWSA expects
18 to experience the same level of equipment expenditures in each subsequent year,
19 when equipment bought in the previous years have longer useful service lives until
20 they are disposed of or removed from service.

21 Lastly, Mr. Barca misquoted my statement and states that all equipment
22 expenses are eligible to be capitalized as per PWSA's Capital Asset Policy. In

1 fact, I stated that “equipment’s *useful life* as shown in the table is also in
2 accordance with PWSA’s Capital Asset Policy” (I&E Statement No. 2, p. 28, ln.
3 3-4).

4 Considering the above and as discussed in my direct testimony, spreading
5 the cost of equipment over the normal useful life of the equipment is more
6 appropriate and moderates the cost impact on rates (I&E Statement No. 2. pp. 27-
7 29).

8
9 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
10 **EQUIPMENT?**

11 A. No. I continue to recommend a reduction of \$6,287,957 (\$7,578,417 -
12 \$1,290,460) to PWSA’s claim as discussed above and in my direct testimony (I&E
13 Statement No. 2, pp. 27-29).

14
15 **OPERATING CONTRACTS**

16 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
17 **FOR OPERATING CONTRACTS.**

18 A. I recommended an allowance of \$22,652,907 for operating contracts or a reduction
19 of \$4,453,678 (\$27,106,585 - \$22,652,907) to PWSA’s claim (I&E Statement
20 No. 2, p. 30). My recommendation was based on PWSA’s budgeted FTY claim
21 for its FPFTY allowance in contrast with PWSA’s unsupported significant

1 projected increases in three sub-categories of operating contract costs as discussed
2 in my direct testimony (I&E Statement No. 2, pp. 31-36).

3
4 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

5 A. Yes. PWSA's witness Edward Barca disagrees with my recommended adjustment
6 to operating contracts (PWSA Statement No. 2-R, pp. 35-36).

7
8 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

9 A. First, Mr. Barca states that using PWSA's FTY claim amount as the FPFTY
10 allowance does not acknowledge the increased costs for line locating, pump and
11 motor, manhole and point repairs, CSO flow monitoring, washout disconnection,
12 CCTV and heavy cleaning, trunk line transfer to ALCOSAN, and tank inspection
13 costs (PWSA Statement No. 2-R, p. 35). He then states that CSO flow monitoring
14 and CCTV and heavy cleaning are required per the ongoing consent decree
15 discussions with the EPA related to PWSA's wet weather program. He asserts
16 that the washout disconnection expense is required per PWSA's consent order and
17 agreement with the PA DEP. The remaining costs are preventative maintenance
18 contracts that are required to maintain PWSA's system. Additionally, in response
19 to my noting that PWSA did not provide supporting documentation for claimed
20 increases, Mr. Barca states that I never requested specific information related to
21 these costs (PWSA Statement No. 2-R, p. 35).

1 Second, he states that PWSA also continues to experience significant
2 increases in the urgent water and sewer contract costs that address emergencies in
3 PWSA's aging system (PWSA Statement No. 2-R, p. 36).

4
5 **Q. ARE YOU PERSUADED BY MR. BARCA'S RESPONSE?**

6 A. No. First, Mr. Barca gave a general explanation for the significant increases in
7 three sub-categories of operating contracts, stating that these costs relate to
8 increased expenses for line locating, pump and motor, manhole and plant repair,
9 CSO flow monitoring, washout disconnection, CCTV and heavy cleaning, trunk
10 line transfer to ALCOSAN, and tank inspection costs. I have discussed in detail
11 the basis of my recommendation for each sub-category of operating contracts in
12 direct testimony and relied on PWSA's responses (I&E Statement No. 2, pp. 31-
13 36). Mr. Barca did not provide a breakdown of the projected expenses for each of
14 the above projects nor any supplemental information to substantiate his claim.
15 During the discovery process, I asked PWSA to explain in detail the
16 increases/decreases in the disputed sub-categories of operating contracts and
17 provide a detailed basis, calculations, and supporting documentation for the FTY
18 and FPFTY expense projections. In response to my interrogatory, PWSA's
19 general response was two or three lines long (I&E Exhibit No. 2, Schedule 10, pp.
20 1-3), which is similar to the brief description provided in rebuttal testimony as
21 summarized above.

1 Second, Mr. Barca’s claim that PWSA experienced significant increases in
2 the urgent water and sewer contract cost to address emergencies in PWSA’s aging
3 system is not supported by the historic expenses. Although, I do not disagree with
4 Mr. Barca that PWSA has experienced emergencies in its system, as I have now
5 withdrawn my vacancy adjustment, I believe that PWSA should be able to
6 adequately hire internal employees to start addressing the emergency repairs
7 where possible. Given that I&E’s updated position allows PWSA recovery of all
8 positions claimed, recovery of these unsupported contract expenses is not in the
9 public interest. For the sake of reference, I present below a table showing the
10 operating contract-other cost (a major sub-category of the operating contracts
11 claim) by year from 2018 through 2022, which reveals a significant budgeted
12 increase of 75.16% in the FTY over the HTY 2020 actual expense and 43.26% in
13 the FPFTY over the FTY claim without adequate support and detailed
14 justification:

	Budgeted	Actual	Underspent	Variance
2018	\$6,806,904	\$1,996,527	\$4,810,377	71%
2019	\$6,908,291	\$1,816,157	\$5,092,134	74%
2020	\$8,642,500	\$5,296,671	\$3,345,829	39%
FTY 2021	\$9,277,747	-	-	-
FPFTY 2022	\$13,291,035	-	-	-

16 PWSA’s failure to support its O&M expense claims in this proceeding is
17 especially concerning given that PWSA significantly overestimated its O&M

1 expenses in prior base rate cases. As discussed in my direct testimony, I reiterate
2 that PWSA incurred less total O&M expense compared to its budgeted total O&M
3 expense level and the average of three years' underspending for 2018, 2019, and
4 2020 was \$15,904,857 $((\$10,375,218 + \$22,295,835 + \$15,043,518) \div 3)$, which is
5 14.87% $((10.94\% + 19.94\% + 13.73\%) \div 3)$ less than the budgeted expenses.

6 Allowing PWSA to recover expenses from ratepayers that are not
7 adequately supported and reasonable is not prudent or in the interest of ratepayers.
8 Therefore, my recommendation utilizing PWSA's budgeted FTY claim for its
9 FPFTY allowance is appropriate and recognizes the increased level of expense for
10 mandated projects even though PWSA's budgeted projection for these expenses
11 has historically been overstated.

12
13 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
14 **OPERATING CONTRACTS?**

15 A. No. I continue to recommend a reduction of \$4,453,678 $(\$27,106,585 -$
16 $\$22,652,907)$ to PWSA's total claim for operating contracts as discussed above
17 and in direct testimony (I&E Statement No. 2, pp. 31-36).

18
19 **REPAIRS AND MAINTENANCE**

20 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
21 **FOR REPAIRS AND MAINTENANCE.**

22 A. I recommended an allowance of \$13,545,197 or a reduction of \$1,273,646

1 (\$14,818,843 - \$13,545,197) for repairs and maintenance (I&E Statement No. 2, p.
2 37). My recommendation for the FPFTY was based on normalization of delayed
3 repairs in the FPFTY expense claim in contrast to PWSA's unsupported
4 significant projected increase in two sub-categories of repairs and maintenance
5 expense (I&E Statement No. 2, pp. 38-40).

6
7 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

8 A. Yes. PWSA witness Edward Barca disagrees with my recommended adjustment
9 to repairs and maintenance expense (PWSA Statement No. 2-R, pp. 37-38).

10
11 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

12 A. Mr. Barca states that my recommendation does not account for the increased work
13 and costs for plant repairs and building repairs in the FPFTY nor does it
14 acknowledge that the work anticipated in the HTY 2020 was deferred until the
15 FPFTY. Mr. Barca further states that building repairs relate to the anticipated
16 increase in repairs, notably at the Water Treatment Plant, which were budgeted in
17 the HTY 2020, however, due to the COVID-19 pandemic, these repairs were
18 deferred. Therefore, those repairs are now anticipated to occur in the FPFTY
19 (PWSA Statement No. 2-R, pp. 37-38).

20 He opines that plant repairs have been planned and are necessary to
21 improve safety, ventilation, and aging infrastructure at the Water Treatment Plant.

1 He states that this work was also delayed due to the COVID-19 pandemic and is
2 *not anticipated* to occur in the FPFTY (PWSA Statement No. 2-R, p. 38).

3
4 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S REBUTTAL**
5 **TESTIMONY REGARDING REPAIRS AND MAINTENANCE?**

6 A. In discovery, I&E asked PWSA to explain in detail the basis for its projected
7 increases in building and plant repair expenses, with supporting calculations, and
8 to provide supporting documentation for the FTY and FPFTY expense projections.
9 However, in its response, PWSA stated that the increase in building repairs from
10 the FTY to FPFTY includes an anticipated increase in repairs, notably at the Water
11 Treatment Plant. Similarly, the plant repairs increase from the FTY to the FPFTY
12 includes an anticipated increase in the number of plant repairs that were deferred
13 in the FTY (I&E Exhibit No 2, Schedule 11, pp. 1-4).

14 Notably, PWSA never provided any support for the “anticipated” increases.
15 In the absence of a detailed explanation, breakdown of cost and supplemental
16 information in rebuttal testimony, my recommendation to normalize delayed or
17 postponed building and plant repairs expense as discussed in my direct testimony
18 is appropriate and moderates the impact of work originally planned for the prior
19 year in the FPFTY claim. My adjustment ultimately reduces the unreasonable
20 burden in rates (I&E Statement No. 2, pp. 38-40). Furthermore, as PWSA
21 consistently states, it is a cash flow operation, so those prior year postponed
22 repairs should have been included in the cash received in rates in those years, so,

presumably, PWSA should still have that cash available based on its own position as to how its operations are funded. Under that circumstance, my position to normalize those postponed repairs going forward is generous. For the sake of reference, I present below a table below showing the significance of delayed building and plant repairs expense included/claimed in the FPFTY, which justifies my recommendation for the normalization of additional/deferred repairs expense in determination of the FPFTY allowance (I&E Statement No. 2, p. 38):

	2018	2019	HTY - 2020	FTY - 2021	FPFTY - 2022
Building Repairs	\$224,240	\$188,512	\$173,305	\$126,072	\$1,761,635
Plant Repairs	\$0	\$136,910	\$297,515	\$260,000	\$641,700
Total	<u>\$224,240</u>	<u>\$325,422</u>	<u>\$470,820</u>	<u>\$386,072</u>	<u>\$2,403,335</u>

Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR REPAIRS AND MAINTENANCE?

A. No. I continue to recommend a reduction of \$1,273,646 (\$14,818,843 - \$13,545,197) to PWSA's total repairs and maintenance claim as discussed above and in my direct testimony (I&E Statement No. 2, pp. 38-40).

LEASE AND RENT EXPENSE

Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY FOR LEASE AND RENT EXPENSE.

A. I recommended an allowance of \$1,248,134, or a reduction of \$309,060 (\$1,557,194 - \$1,248,134) for lease and rent expense (I&E Statement No. 2, p.

1 42). My recommendation was based on the FTY expense claim in contrast to
2 PWSA's unsupported significant projected increase in the FPFTY claim for the
3 proposed additional new office space (I&E Statement No. 2, p. 42-43).

4
5 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

6 A. Yes. PWSA witness Edward Barca disagrees with my recommended adjustment
7 for the proposed additional office space included in the total lease and rent
8 expense claim (PWSA Statement No. 2-R, p. 39-40).

9
10 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

11 A. First, Mr. Barca confuses my recommendation concerning an adjustment to lease
12 and rent expense for the proposed additional new office space (to be acquired)
13 with the current administrative office premises leased at 1200 Penn Avenue.
14 Additionally, Mr. Barca claims that PWSA provided the lease agreement and
15 associated amendments to support the FPFTY claim (PWSA Statement No. 2-R, p.
16 39).

17 Second, he states that funding is allocated in the FPFTY claim for another
18 facility to consolidate field staff and the central warehouse. According to Mr.
19 Barca, this claim was made in the last rate case but had to be reduced due to the
20 revenue reduction. This additional facility will allow PWSA to gain efficiencies
21 in operations, increase safety, and address PWSA's need for equipment storage.
22 He also reiterates PWSA witness Jennifer Presutti's statement (made in her

1 rebuttal testimony, PWSA Statement No. 3-R in the last base rate proceeding at
2 Docket Nos. R-2020-3017951, R-2020-3017970, and R-2020-3019019) that “the
3 ability to find this type of large space in the City of Pittsburgh *is very limited* and
4 PWSA must have the funds available to act quickly should PWSA find a suitable
5 location.”

6
7 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA’S CLAIM REGARDING**
8 **LEASE AND RENT EXPENSE?**

9 A. As of now, it appears that PWSA has not identified the new location, space area,
10 approximate rent, etc. for the proposed leasing of an additional space for
11 consolidation of its office and warehouse functions; therefore, PWSA’s claim is
12 purely speculative and unsupported. However, despite this speculation, PWSA
13 claimed a significant increase of 33.85% in office rent expense of \$1,221,960 in
14 the FPFTY in contrast to the FTY expense of \$912,900. There is simply no
15 support for the increased office rent PWSA has projected when Mr. Barca clearly
16 admits that PWSA has not even identified a location. Therefore, my FPFTY
17 recommended allowance based on the FTY office rental expense of \$912,900 is
18 appropriate and reasonable in the absence of information demonstrating a cost
19 basis for additional new space or a lease that PWSA has not even yet pursued.

1 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
2 **LEASE AND RENT EXPENSE?**

3 A. No. I continue to recommend a reduction of \$309,060 (\$1,557,194 - \$1,248,134)
4 to PWSA's claim for lease and rent expense, which includes an office rent expense
5 allowance of \$1,248,134 (\$912,900 (adjusted office rent expense) + \$335,234
6 (unadjusted sub-categories of lease and rent expense) as discussed above and in
7 my direct testimony (I&E Statement No. 2, pp. 42-43).

8

9 **PROFESSIONAL SERVICES**

10 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
11 **FOR PROFESSIONAL SERVICES.**

12 A. I recommended an allowance of \$22,963,137 or a reduction of \$1,817,916
13 (\$24,781,053 - \$22,963,137) for professional services (I&E Statement No. 2, p.
14 44). I recommended adjustments in two sub-categories of professional services
15 (legal-lobbying and professional services-other) discussed individually in direct
16 testimony (I&E Statement No. 2, pp. 45-47).

17

18 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

19 A. Yes. PWSA witness Edward Barca disagrees with my recommendation for
20 professional services (PWSA Statement No. 2-R, pp. 41-42).

1 **Q. SUMMARIZE MR. BARCA’S RESPONSE.**

2 A. **Lobbying expense**

3 Regarding the lobbying expense claim of \$90,000 included in the legal expense
4 claim, Mr. Barca states that he understands and acknowledges the Commission’s
5 general rule with respect to lobbying expense, but he submits that this amount is
6 reasonable for PWSA, a municipal authority. Mr. Barca also claims that PWSA
7 has an obligation to maintain lines of communication with other parts of
8 government. Moreover, he states that PWSA’s government relations professionals
9 assist in obtaining information and appropriate funding from PENNVEST, and
10 accordingly, these expenditures are not so much “lobbying” but government
11 relations expense. Therefore, Mr. Barca concludes that it is inappropriate to
12 exclude PWSA’s claim for lobbying expense in its entirety and I&E’s adjustment
13 should be rejected (PWSA Statement No. 2-R, p. 41). Additionally, he asserts that
14 normal regulatory treatment of lobbying expenses is not appropriate for PWSA.
15 He then states that he is informed by counsel that the Commission can waive
16 provisions of the Public Utility Code if such a waiver would be reasonable
17 considering PWSA’s special circumstances (PWSA Statement No. 2-R, pp. 41-
18 42).

19 **Professional services-other**

20 Mr. Barca rejects my recommended adjustment to professional services-other for
21 the following reasons.

1 First, normalizing professional services expense related to the SCADA
2 upgrade investment is not an option for PWSA as discussed in the equipment
3 section above.

4 Second, Mr. Barca states that I did not request specific documents to
5 provide a basis for PWSA's claim.

6 Third, disputing PWSA's claim on the basis of historic under spending is
7 not appropriate as the year 2020 was not a typical year.

8 Fourth, my recommended reduction to PWSA's claim is hindering PWSA's
9 ability to increase operations at a time when it must do so to satisfy the
10 Commission and other regulatory obligations (PWSA Statement No. 2-R, p. 42).

11
12 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S ASSERTIONS**
13 **REGARDING PROFESSIONAL SERVICES?**

14 **A. Legal (Lobbying Expense)**

15 As discussed in my direct testimony, I reiterate that the lobbying expense claim of
16 \$90,000 (included in the legal expense claim of \$3,410,400) is not necessary for
17 the utility to provide safe and reliable service; therefore, it should not be funded by
18 ratepayers (I&E Statement No. 2, p. 45). Additionally, PWSA maintains
19 appropriate staffing in its public affairs department for public and government
20 relations and it recovers those payroll costs in rates. As advised by counsel, the
21 provision of 66 Pa. C.S. § 1316 prohibits claims for lobbying expense in

1 ratemaking. Therefore, I continue to recommend disallowance of the entire
2 lobbying expense claim of \$90,000.

3 **Professional Services – Other**

4 PWSA claimed significant increases of 44.50% in the FTY claim over the HTY
5 expense and a further increase of 2.45% in the FPFTY claim over the FTY
6 expense citing the proposed remote site SCADA upgrade in the FTY and
7 anticipated increases in services in the FPFTY (I&E Exhibit No. 2, Schedule 13,
8 pp. 1-5). However, as discussed in my direct testimony, PWSA did not provide
9 any basis, calculation, breakdown, or supporting documentation for the significant
10 increases in the FTY and FPFTY claims. I disagree with Mr. Barca's assertion that
11 I did not ask for specific documentation that was sufficient to provide a basis for
12 PWSA's claim. Although, I reject the notion that I have an obligation to ask
13 PWSA to support its claims in order for it to do so, in fact, in I&E-RE-17-D, I
14 specifically requested a detailed basis and a breakdown of expense items with
15 supporting documentation for the FTY and FPFTY expense projections for various
16 sub-categories of professional services. However, PWSA provided only a two-line
17 response (I&E Exhibit No. 2, Schedule 13, pp. 3-4).

18 I continue to reiterate that the SCADA upgrade is possibly of the same
19 nature as the previously discussed equipment costs where this upgrade has a useful
20 life of multiple years that would more appropriately be normalized over the
21 investment's useful life (I&E Statement No. 2, p. 46).

1 Considering the lowest budget underspending of 19% experienced for this
2 expense in HTY 2020 (where 2018 was 25% and 2019 was 43%), I continue to
3 recommend an adjustment of \$1,727,916 ($\$9,094,297 \times 0.19$) to professional
4 services-other. This was determined by applying a reduction of 19% based on the
5 HTY 2020 variance between the budgeted and actual expense to the FPFTY claim
6 of \$9,094,297, which will moderate the unsupported and inflated FPFTY claim for
7 professional services-other (I&E Statement No. 2, pp. 46-47).

8
9 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
10 **PROFESSIONAL SERVICES?**

11 A. No. I continue to recommend a reduction of \$1,817,916 ($\$24,781,053 -$
12 $\$22,963,137$) to PWSA's total professional services claim as discussed above and
13 in my direct testimony (I&E Statement No. 2, pp. 45-47).

14
15 **UTILITIES EXPENSE**

16 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
17 **FOR UTILITIES EXPENSE.**

18 A. I recommended an allowance of \$5,138,656 or a reduction of \$154,448
19 ($\$5,293,104 - \$5,138,656$) to utilities expense (I&E Statement No. 2, p. 48). My
20 recommendation was based on the FTY expense in contrast to PWSA's
21 unsupported projected increase in the FPFTY claims for the electric, natural gas,
22 and cellular and local phone expenses (I&E Statement No. 2, pp. 49-50).

1 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

2 A. Yes. PWSA witness Edward Barca disagrees with my recommended adjustment
3 to utilities expense (PWSA Statement No. 2-R, pp. 45-46).

4

5 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

6 A. First, Mr. Barca claims that electricity and natural gas expenses for the
7 microfiltration plant are continuing to ramp up over time until it reaches full
8 capacity. He then refutes my statement that the microfiltration plant has reached
9 full capacity in the FTY (PWSA Statement No. 2-R, p. 45).

10 Second, he states that as discussed in the payroll expense and employee
11 benefits expense sections regarding PWSA's budgeted staffing levels in the FTY
12 and FPFTY, the phone usage will continue to increase for daily operational needs
13 (PWSA Statement No. 2-R, pp. 45-46).

14

15 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S ASSERTIONS**
16 **REGARDING UTILITIES EXPENSE?**

17 A. First, as discussed in my direct testimony (I&E Statement No. 2, p. 49), PWSA has
18 already factored in the FTY budgeted additional electricity usage for the
19 microfiltration plant and the increase in cost due to the electric contract extension
20 per PWSA's response to I&E-RE-20-D, (I&E Exhibit No. 2, Schedule 14, pp. 1-2).
21 Similarly, PWSA has already factored in the FTY budgeted increase in usage and
22 the cost of natural gas. However, in the FPFTY, PWSA budgeted a flat increase of

1 3.00% in electric and 5.00% increase in natural gas costs, and there is no
2 reasonable detailed basis and support for these increases provided in response to
3 I&E-RE-20-D (I&E Exhibit No. 2, Schedule 14, pp. 1-2).

4 Second, PWSA's flat increases in the FPFTY telemeter and telephone
5 expenses of 1.50% and 3.00% respectively are based on the assumption of an
6 anticipated increased staffing level, which is not reliable and directly linked to the
7 budgeted staffing level. Additionally, the assumption for flat increases in the
8 FPFTY cell phone and local phone plan expense is speculative and unsupported.

9 Therefore, my FPFTY recommended allowance based on the FTY claim of
10 \$5,138,656 for utilities (electric, gas, and cellular phone expenses) is appropriate,
11 reasonable, and will reflect a moderate cost in rates (I&E Statement No. 2, p. 50).

12
13 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
14 **UTILITIES EXPENSE?**

15 A. No. I continue to recommend a reduction of \$154,448 (\$5,293,104 - \$5,138,656)
16 to utilities expense as discussed above and in my direct testimony (I&E Statement
17 No. 2, pp. 49-50).

18
19 **MISCELLANEOUS ADMINISTRATIVE EXPENSES**

20 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
21 **FOR MISCELLANEOUS ADMINISTRATIVE EXPENSES.**

22 A. I recommended disallowance of the entire claims deductible expense of \$600,000,

1 which is included in PWSA's miscellaneous administrative expense claim of
2 (\$9,849,487) (I&E Statement No. 2, p. 52). My recommendation was based on the
3 fact that this expense is dependent or contingent upon the occurrence of
4 unexpected disputes, violations, and litigation outcomes, which are unmeasurable
5 or difficult to estimate and ratepayers should not be required to pay for unknown
6 fines and penalties or for violations of statutory rules and regulations (I&E
7 Statement No. 2, p. 52).

8
9 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

10 A. Yes. PWSA witness Edward Barca disagrees with my recommended disallowance
11 of claims deductible expense of \$600,000 as included in the miscellaneous
12 administrative expense claim (PWSA Statement No. 2-R, p. 46).

13
14 **Q. SUMMARIZE MR. BARCA'S RESPONSE.**

15 A. Mr. Barca states that PWSA's budget for claims deductible expense is volatile and
16 unpredictable. He then gives an example that in July 2020 PWSA settled an
17 unexpected action by the PA Attorney General for \$500,000, which was much less
18 than the \$1.50 million fine (PWSA Statement No. 2-R, p. 46).

19 Mr. Barca asserts that since PWSA is a municipal utility with no profit or
20 return for investors, all expenses incurred, including fines, need to be included in
21 the revenue requirement in the year they are incurred and ultimately recovered
22 from ratepayers (PWSA Statement No. 2-R, p. 46). He also raises concern that

1 acceptance of my position would force PWSA to cut items from operations every
2 time that PWSA face a fine or penalty from the Commission, the PA DEP or
3 otherwise. Such cuts would, in turn, make it more difficult for PWSA to maintain
4 (or exceed) regulatory expectations and could lead to other fines or penalties for
5 non-compliance (PWSA Statement No. 2, pp. 46-47).

6
7 **Q. WHAT IS YOUR RESPONSE TO MR. BARCA'S ASSERTIONS**
8 **REGARDING MISCELLANEOUS ADMINISTRATIVE EXPENSES?**

9 A. Mr. Barca admits that the budgeted FPFTY claims deductible expense of \$600,000
10 is volatile and unpredictable. This supports my assertion that the claims
11 deductible is a legal contingent liability budget for known and unknown legal
12 issues/matters dependent or contingent upon the occurrence of uncertain events,
13 transactions, unexpected disputes, or litigation outcomes, which are unmeasurable
14 or difficult to estimate (I&E Statement No. 2, p. 52). It appears from Mr. Barca's
15 response that he attempts to justify the FPFTY claim by quoting last year's settled
16 fine liability of \$500,000 with the PA Attorney General's Office. However, it is
17 important to note that such liability should not continue to occur in the future since
18 it was a penalty imposed as a result of criminal charges against PWSA for
19 negligently exposing residents to high levels of lead⁴. Therefore, this should not
20 be the basis of support or justification for the significant increase in the FPFTY
21 budgeted claims deductible expense. Additionally, PWSA has incurred

⁴ <https://www.attorneygeneral.gov/taking-action/press-releases/ag-shapiro-pgh-water-and-sewer-authority-ordered-to-pay-500k-hire-independent-corporate-monitor/> (accessed on August 5, 2021).

1 significantly low claims deductibles expense of \$15,000 in 2018, \$108,583 in
2 2019, and \$39,196 in the HTY (I&E Exhibit No. 2, Schedule 15, pp. 1-2), which
3 does not support the FPFTY claim amount of \$600,000.
4

5 **Q. DO YOU HAVE AN ADDITIONAL RESPONSE CONCERNING FINES**
6 **AND PENALTIES TO BE CLAIMED IN PWSA'S REVENUE**
7 **REQUIREMENT CALCULATION?**

8 A. Yes. I am not persuaded by Mr. Barca's argument that due to PWSA being a
9 municipal utility with no profit or return for investors, all expenses incurred,
10 including fines, need to be included in the revenue requirement in the year they are
11 incurred and ultimately recovered from ratepayers.

12 First, fines and penalties by their nature cannot be deemed a reasonable
13 expense or a necessary part of doing business. Second, customers should not be
14 required to subsidize the utility's failure to comply with the Commission and other
15 regulators' statutes and regulations or the Commission's standards of reasonable
16 and efficient service. Finally, allowing the inclusion of fines and penalties in rates
17 does nothing to encourage PWSA to minimize such future occurrences.
18

19 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
20 **MISCELLANEOUS ADMINISTRATIVE EXPENSES?**

21 A. No. I continue to recommend disallowance of the entire claim of \$600,000 from

1 the total miscellaneous administrative expense claim as discussed above and in my
2 direct testimony (I&E Statement No. 2, pp. 52).

3
4 **WINTER SHUTOFF MORATORIUM**

5 **Q. SUMMARIZE YOUR RECOMMENDATION IN DIRECT TESTIMONY**
6 **FOR THE PROPOSED CHANGE IN THE WINTER SHUTOFF**
7 **MORATORIUM PROGRAM FOR SENIOR CITIZENS REGARDLESS OF**
8 **INCOME LEVEL.**

9 A. I disagreed with PWSA's proposed expansion of the winter shutoff moratorium to
10 all senior citizens (65+ age) regardless of their income level in contrast to the
11 current winter shutoff moratorium program that is offered to all residential
12 customers earning less than or equal to 300% of the federal poverty income level
13 during the winter period December 1 through March 31, which was approved in
14 the 2020 base rate proceeding (I&E Statement No. 2, pp. 53-57).

15
16 **Q. DID ANY PWSA WITNESS RESPOND TO YOUR RECOMMENDATION?**

17 A. Yes. PWSA witness Julie Quigley believes that PWSA's initial proposal is valid,
18 appropriate, and should be approved (PWSA Statement No. 6-R, p. 91).

19
20 **Q. SUMMARIZE MS. QUIGLEY'S RESPONSE.**

21 A. Ms. Quigley put forth a couple of reasons in support of expanding the winter shut
22 off moratorium for senior citizens. First, she states that a few consumers testified

1 at the public input hearing and submitted written comments to the Commission
2 noting they are older, on a fixed income, and would benefit from assistance.

3 Second, she claims the winter shutoff moratorium does not have a significant cost
4 impact beyond delayed collections because it does not provide any financial
5 benefit. Third, she recognizes the point that the low-income customer assistance
6 programs are available regardless of the age, but she states that there are seniors
7 living on fixed social security income who would not qualify for the winter shutoff
8 moratorium and do not have other significant financial resources (PWSA
9 Statement No. 6-R, pp. 92-93).

10
11 **Q. DO YOU AGREE WITH MS. QUIGLEY’S ASSERTIONS REGARDING**
12 **THE PROPOSED CHANGE TO THE WINTER SHUTOFF**
13 **MORATORIUM PROGRAM FOR SENIOR CITIZENS?**

14 A. No. Aside from the fact that Ms. Quigley does not address the concerns I raised in
15 my direct testimony, there are other reasons why I disagree as well. First, even
16 though I do not agree that any level of customer “requests” would make PWSA’s
17 proposal acceptable, Ms. Quigley does not even attempt to specify how many
18 senior citizens who are on a fixed income expressed concern and specifically
19 requested expansion of the winter shutoff moratorium.

20 Second, I do not agree that the winter shut off moratorium does not have a
21 significant cost impact beyond delayed collections, as PWSA’s collections

1 practices and the impact of those practices will be subject to further review as part
2 of PWSA's upcoming Stage 2 Compliance Plan case.

3 Additionally, Ms. Quigley's claim that "there are seniors living on fixed
4 social security income who would not qualify for the winter shut off moratorium
5 and do not have other financial resources significantly beyond the 300% of the
6 federal poverty income level" is unsupported due to lack of analysis of relevant
7 data.

8
9 **Q. YOU MENTIONED THAT MS. QUIGLEY FAILED TO ACKNOWLEDGE**
10 **THE BASIS OF YOUR POSITION ON THIS ISSUE IN DIRECT**
11 **TESTIMONY. HOW DID MS. QUIGLEY FAIL TO RESPOND?**

12 A. Ms. Quigley never responded to my position that, as I was advised by counsel,
13 PWSA's requested age-based eligibility criteria conflicts with Section 1304 of the
14 Public Utility Code's prohibition against rate discrimination because it would
15 extend rate protection, in the form of protection against termination for non-
16 payment, to customers based on an unreasonable preference or advantage (age,
17 regardless of income or ability to pay). Ms. Quigley also failed to address my
18 position that other customers (single parents, students, and customers with chronic
19 illnesses who may experience financial hardship that challenges their ability to pay
20 PWSA bills) may find themselves outside of the winter moratorium protection
21 limits, and they may be further burdened by paying additional costs for non-

1 payment troubled customers who are simply, by virtue of their age, offered winter
2 moratorium protection (I&E Statement No. 2, p. 56).

3
4 **Q. DID MS. QUIGLEY SUGGEST ANY MODIFICATIONS TO THE**
5 **PROPOSED WINTER SHUTOFF MORATORIUM?**

6 A. Yes. Ms. Quigley states that if the Commission determines age alone is not
7 appropriate, it could direct that the new eligibility be coupled with a specific
8 amount of social security payments received by the household. This would ensure
9 that those seniors who could most benefit from the winter shut off protections are
10 included without over-including other seniors who have the means to pay (PWSA
11 Statement No. 6-R, p. 93).

12
13 **Q. WHAT IS YOUR RESPONSE TO MS. QUIGLEY'S SUGGESTED**
14 **MODIFICATION?**

15 A. Existing protections for customers based on income levels alone, not considering
16 the age of the customer, should be sufficient in protecting the most vulnerable
17 from winter shutoffs. As I already explained, PWSA has not supported a need for
18 the Commission to develop an age-based preference, let alone develop
19 accompanying social security-based income parameters as a new qualification for
20 winter moratorium eligibility in PWSA's service territory.

1 **Q. DO YOU HAVE ANY CHANGES TO YOUR RECOMMENDATION FOR**
2 **THE PROPOSED CHANGE TO THE WINTER SHUTOFF**
3 **MORATORIUM PROGRAM FOR SENIOR CITIZENS?**

4 A. No. I continue to disagree with PWSA's proposed expansion of winter shutoff
5 moratorium to all senior citizens (65+ age) regardless of their income level.

6

7 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

8 A. Yes.

**I&E Statement No. 3-SR
Witness: Ethan H. Cline**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Surrebuttal Testimony

of

Ethan H. Cline

Bureau of Investigation and Enforcement

Concerning:

**Prospective Revenues
Water and Wastewater Rate Structure
Stormwater Credit**

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STORMWATER CREDIT 11

1 **INTRODUCTION**

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

3 A. My name is Ethan H. Cline. My business address is Pennsylvania Public Utility
4 Commission, 400 North Street, Harrisburg, PA 17120.

5

6 **Q. ARE YOU THE SAME ETHAN H. CLINE WHO SUBMITTED I&E**
7 **STATEMENT NO. 3 AND I&E EXHIBIT NO. 3 ON JULY 8, 2021?**

8 A. Yes.

9

10 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

11 A. The purpose of my surrebuttal testimony is to present a response to the rebuttal
12 testimonies of Pittsburgh Water and Sewer Authority (“PWSA”) witnesses
13 Edward Barca (PWSA St. No. 2-R), Harold J. Smith (PWSA St. No. 4-R), Tony
14 Igwe (PWSA St. No. 7-R), and Keith Readling (PWSA St. No. 8-R).

15

16 **Q. DOES YOUR TESTIMONY INCLUDE AN EXHIBIT?**

17 A. Yes. I&E Exhibit No. 3-SR contains schedules relating to my surrebuttal
18 testimony.

1 **PROSPECTIVE REVENUES**

2 **Q. IN YOUR DIRECT TESTIMONY, DID YOU SUMMARIZE THE**
3 **REQUESTS THAT PWSA RECENTLY MADE FOR RELIEF FUNDING**
4 **THAT WAS NOT CONTEMPLATED IN ITS RATE FILING?**

5 A. Yes. As described on page 4 of I&E Statement No. 3, PWSA made a request to
6 obtain \$143,835,000 over the next three to six years from the Coronavirus Local
7 Fiscal Recovery Funds (“CLFRF”). Additionally, PWSA intended to submit a
8 request to the Commonwealth of Pennsylvania for \$100,000,000 over five years
9 from the Coronavirus State Fiscal Recovery Funds (“CSFRF”), though, at the
10 time, it had not yet submitted the request.

11
12 **Q. WHAT DID YOU RECOMMEND REGARDING THE TREATMENT OF**
13 **ANY POTENTIAL FUNDING FROM THE CLFRF OR CSFRF THAT**
14 **MAY BECOME AVAILABLE BEFORE THE PWSA’S NEXT BASE RATE**
15 **CASE?**

16 A. I recommended that if PWSA receives funds through the CLFRF and/or CSFRF,
17 or similar funding, I recommended that PSWA track the funding, report the
18 funding details to the Commission and implement a credit on the customers’ bill
19 equal to the amount of the funding. The credit should be implemented as soon as
20 practically possible so that customers receive the benefit of this additional funding
21 (I&E St. No. 3, p. 7).

1 **Q. DID PWSA PROVIDE AN UPDATE TO ITS REQUEST FOR COVID-**
2 **RELATED FUNDS?**

3 A. Yes. PWSA witness Barca, on page 58 of PWSA Statement No. 2-R, confirmed
4 that the City of Pittsburgh awarded PWSA a grant of approximately \$17,500,000.
5 However, witness Barca indicated that the actual date these funds will be available
6 for use remains uncertain due to the ongoing negotiations for the associated legal
7 agreement. Witness Barca further indicated that the \$17,500,000 in funds from
8 the City of Pittsburgh will be used to expand PWSA's lead line replacement
9 program beyond what PWSA had budgeted for 2022.

10 Witness Barca also noted that PWSA has not received any feedback
11 regarding the funds requested from the Commonwealth of Pennsylvania.

12
13 **Q. DID PWSA AGREE WITH YOUR RECOMMENDATION TO PROVIDE A**
14 **CREDIT EQUAL TO THE AMOUNT OF FUNDING BACK TO**
15 **RATEPAYERS?**

16 A. No. Witness Barca disagreed with my recommendation for various reasons. First,
17 he believes my recommendation ignores well established rules of ratemaking.
18 Witness Barca then claimed that a credit would not be appropriate if the grant
19 were designated to fund an acceleration of an existing project or unless the grant
20 resulted in PWSA exceeding reasonable levels for its key financial metrics.
21 Furthermore, witness Barca referenced the fact that PWSA is a cash flow company
22 and indicated that any additional funds received between base rate cases should be

1 used to retire existing debt, add to PWSA’s reserve funds, or add to PWSA’s year-
2 end cash balance and improve its debt service coverage, which would decrease
3 PWSA’s required revenue request in a future base rate case (PWSA. St. No. 2-R,
4 pp. 59-60).

5
6 **Q. WHAT DID PWSA PROPOSE REGARDING ITS RECOGNITION OF**
7 **ANY GRANTS THAT ARE AWARDED TO PWSA?**

8 A. Witness Barca indicated that PWSA will provide an update on any grants
9 awarded, including the nature, purpose, and time period covered. He then stated
10 that PWSA would consider requesting that a proceeding be initiated, by PWSA or
11 any other party, to consider how to treat a grant (PWSA St. No. 2-R, p. 60).

12
13 **Q. PLEASE ADDRESS WITNESS BARCA’S CLAIM THAT YOU**
14 **“COMPLETELY IGNORE WELL ESTABLISHED RULES OF**
15 **RATEMAKING.”**

16 A. First, setting aside the fact that Mr. Barca’s position fails to acknowledge that the
17 unprecedented impact of the COVID-19 pandemic does not fit neatly within any
18 “well established rules”, Mr. Barca also provided no detail regarding which “well
19 established rules of ratemaking” that he claimed I ignored.

1 **Q. DOES MR. BARCA’S POSITION ALSO IGNORE RECENT PRECEDENT**
2 **THAT CLEARLY ESTABLISHES JURISDICTIONAL UTILITIES’**
3 **ABILITY TO ISSUE CREDITS IN ORDER TO ACCOUNT FOR SPECIAL**
4 **CIRCUMSTANCES?**

5 A. Yes. Precedent does exist for utilities to provide refunds to customers for
6 revenues collected above the Commission-approved revenue level between base
7 rate cases. Impacted jurisdictional utilities’ recognition of the rate impact of the
8 Tax Cut and Jobs Act of 2017 (“TCJA”) is an example of such a special
9 circumstance. TCJA reduced the corporate Federal Income Tax rate from 35% to
10 21%. The reduction in impacted utilities tax rate produced a windfall which
11 prompted the Commission to order impacted utilities provide bill credits to
12 customers through a negative surcharge.¹

13
14 **Q. ASIDE FROM RECONGNITION OF TCJA, HAS ANOTHER**
15 **JURISDICTIONAL UTILITY RECENTLY PROPOSED TO ISSUE**
16 **CUSTOMERS A BILLING CREDIT TO RECOGNIZE AN OVER-**
17 **RECOUPMENT OF REVENUE?**

18 A. Yes. Recently, on July 22, 2021, National Fuel Gas Distribution Corporation
19 (“NFG”) submitted a filing at Docket No. R-2021-3027406 requesting permission
20 to reduce its base rates and provide a refund to customers due to over-funded

¹ Tax Cut and Jobs Act of 2017, Temporary Rates Order, M-2018-2641242, pp. 22-23 (entered on May 17, 2018).

1 Other Post Employment Benefits trusts (I&E Ex. No. 3-SR, Sch. 1). Although
2 NFG's request is now pending with the Commission and it has not yet been
3 granted, it does illustrate that jurisdictional utilities may propose to issue credits to
4 customers when circumstances result in customers paying more than warranted.
5 Depending on the timing, amount, and purpose of relief funding that PWSA may
6 receive, its ratepayers may end paying rates that are higher than PWSA needs to
7 operate and meet its obligations. It is difficult to imagine that any pandemic-
8 related relief funding that may be awarded to PWSA is intended to result in an
9 overpayment by ratepayers. Therefore, witness Barca's claim that I ignored well
10 established rules of ratemaking has no merit.

11
12 **Q. DID PWSA, IN ITS LAST BASE RATE CASE, COMMIT TO**
13 **PROVIDING INFORMATION REGARDING ITS EFFORTS TO OBTAIN**
14 **PANDEMIC-RELATED RELIEF FUNDING?**

15 A. Yes. As part of the settlement of PWSA's last base rate case, PWSA promised to
16 do the following:

17 PWSA shall exercise prudent efforts to maximize its utilization
18 of and track any government benefits, whether direct grant or
19 other, to minimize costs to be deferred under this paragraph.
20 PWSA shall provide a report detailing its efforts, any amount
21 obtained as part of these efforts and their intended use, and, if
22 denied, the reason for such denial as part of its next base rate
23 case.²

² *Pa. PUC v. Pittsburgh Water and Sewer Authority*, R-2020-3017951 et al., Joint Petition for Settlement, p. 9, Section E(5), COVID-19 Related Costs and Relief Funding, (September 30, 2020).

1 **Q. DID PWSA PROVIDE THE REQUIRED INFORMATION REGARDING**
2 **GRANTS AS PART OF ITS BASE RATE CASE?**

3 A. No. PWSA did not voluntarily provide any report or updates regarding its efforts
4 to obtain any funding. Instead, PWSA only admitted to making efforts to obtain
5 the CLFRF and CSFRF funds after I&E's investigation uncovered this information
6 through the discovery process.

7

8 **Q. DO YOU AGREE WITH PWSA'S RECOMMENDATION TO REPORT**
9 **ANY GRANT FUNDING TO THE COMMISSION AND FOR PWSA AND**
10 **THE PARTIES TO HAVE THE ABILITY TO CONVENE A SEPARATE**
11 **PROCEEDING TO DETERMINE THE APPROPRIATE TREATMENT OF**
12 **ANY GRANTS RECEIVED?**

13 A. Yes, but only if PWSA truly honors that commitment moving forward. PWSA
14 should be mandated to report any grant funding to the Commission and the parties
15 in a timely fashion. Specifically, PWSA should provide a report submitted at the
16 same time as any application detailing the amount sought and from which entity.
17 Every 30 thereafter, PWSA should submit a status update report detailing the
18 status of the application, any funds that were awarded compared to the amount
19 sought, specific purpose for the award, and the timeline of those funds becoming
20 available to PWSA. This will allow other parties and the Commission the
21 opportunity to review the revenue received, how it is used and apply any possible
22 bill credits if necessary.

1 **Q. ARE YOU WITHDRAWING YOUR POSITION THAT IT MAY BE**
2 **APPROPRIATE FOR PWSA TO ISSUE A CREDIT TO CUSTOMERS IF**
3 **IT RECEIVES PANDEMIC RELIEF FUNDING?**

4 A. No. For the reasons mentioned above, my position is that a bill credit may be
5 necessary and appropriate; however, as I have always indicated, the amount,
6 purpose, and timeline of any awards remain uncertain. Without more information,
7 it is not yet appropriate to determine how any awarded funds must be used, but
8 requiring PWSA to fulfill the reporting requirements I outlined will permit that
9 determination to be made if and when it is appropriate.

10

11 **WATER AND WASTEWATER RATE STRUCTURE**

12 **Q. DID THE PWSA PROVIDE A TRADITIONAL CUSTOMER COST**
13 **ANALYSIS IN THIS CASE AS IT AGREED TO IN THE 2020 BASE RATE**
14 **CASE?**

15 A. No. I noted that in its response to OCA-IV-5, which was attached to my direct
16 testimony as I&E Exhibit No. 3, Sch. 5, the Company provided the workpapers for
17 the analysis it included regarding the impact of removing the minimum charge
18 shown on PWSA Statement No. 4, pp. 26-27. However, while the materials that
19 PWSA provided through the discovery do contain more information than what
20 was available in its actual filing, they fall short of a comprehensive customer cost
21 analysis.

1 **Q. HOW DID PWSA RESPOND TO YOUR TESTIMONY THAT IT DID NOT**
2 **PROVIDE A TRADITIONAL CUSTOMER COST ANALYSIS IN ITS**
3 **FILING?**

4 A. Witness Smith disagreed that PWSA failed to perform a traditional customer cost
5 analysis, and he referenced the allocation of O&M and capital costs to customer
6 cost categories consistent with the approach detailed in the AWWA M-1 manual.
7 Mr. Smith further referenced my discovery response which provided an example
8 of the type of information that ought to be included by way of a reference to the
9 customer cost analysis presented by the Pennsylvania American Water Company
10 (“PAWC”) in its 2020 base rate case. Witness Smith claimed that, upon his
11 review of the PAWC case, he determined that PWSA’s approach to determining
12 customer costs is consistent with both the PAWC analysis and the AWWA M-1
13 manual, with the exception that PWSA does not allocate costs to a services
14 component due to a lack of data (PWSA St. No. 4-R, p. 8).

15
16 **Q. PLEASE RESPOND TO WITNESS SMITH’S TESTIMONY REGARDING**
17 **A CUSTOMER COST ANALYSIS.**

18 A. Witness Smith is correct that I provided reference to the customer cost analysis
19 presented by PAWC in its last base rate case, and I have included that response
20 here as I&E Exhibit No. 3-SR, Schedule 2. It should be noted, however, that in its
21 base rate case, PAWC provided two customer cost analyses; one that is based on
22 the AWWA M-1 manual and one that is based on a narrower list of costs which

1 has traditionally preferred by the Commission. The reference I provided in my
2 response to PWSA to I&E-I-3 specifically referenced the narrow, Commission-
3 preferred customer cost analysis. It is this more narrow customer cost analysis
4 upon which PAWC's customer charges are based; therefore, PWSA's reliance on
5 the AWWA M-1 4 manual produced an analysis that was insufficient.

6 Furthermore, in my response to PWSA to I&E-I-4, included as I&E Exhibit No. 3-
7 SR, Schedule 3, I stated that "[b]ased upon the format of PWSA's cost of service
8 study, it is unclear whether or how PWSA factored in direct costs including, but
9 not limited to, meter reading expenses, supervision, customer records and
10 collection, and employee pension and benefits." I continue to recommend that, in
11 its next base rate case, PWSA provide as a separate schedule, a customer cost
12 analysis based only upon the costs typically accepted by the Commission.

13
14 **Q. WHAT DID YOU RECOMMEND PWSA DO REGARDING THE**
15 **MINIMUM CHARGE?**

16 A. I recommended that PWSA provide a plan to transition its rate design away from
17 the use of the minimum usage allowance. I further recommended that PWSA
18 propose the first stage of that plan in its next base rate proceeding. (I&E St. No. 3,
19 p. 22).

1 **Q. DID PWSA AGREE WITH YOUR RECOMMENDATION TO PROVIDE A**
2 **PLAN TO TRANSITION ITS RATE DESIGN AWAY FROM THE USE OF**
3 **THE MINIMUM USAGE ALLOWANCE?**

4 A. Yes. Witness Smith indicated that he is in agreement with my recommendation to
5 explore options for removing the minimum allowance from its Minimum Charge
6 (PWSA St. No. 4-R, p. 8). Further, Mr. Smith noted that one option for removing
7 the minimum allowance from the Minimum Charge that PWSA may consider
8 would involve a phase-out of the allowance over two or more years (PWSA St.
9 No. 4-R, p. 9). This option is similar to what I described on page 20 of I&E
10 Statement No. 3. It should be noted, however, that my recommendation included
11 the specific requirement that PWSA enact the first step of that plan in its next base
12 rate case. Mr. Smith failed to specifically address this requirement when he
13 indicated his agreement with my overall recommendation to transition PWSA rate
14 structure from a minimum charge to a customer charge. However, I continue to
15 stand by that recommendation for all of the reasons indicated in I&E Statement
16 No. 3.

17

18 **STORMWATER CREDIT**

19 **Q. WHAT DID YOU RECOMMEND REGARDING THE COST OF THE**
20 **STORMWATER CREDIT?**

21 A. I recommended that the approximately \$700,000 cost of the stormwater credit

1 program be denied because it is apparent that there is not a well-supported factual
2 basis for PWSA's calculation for cost. (I&E St. No. 3, p. 32).

3
4 **Q. WHY DID YOU RECOMMEND THE APPROXIMATELY \$700,000 COST**
5 **OF THE STORMWATER CREDIT PROGRAM BE DENIED?**

6 A. There were several reasons. First, the true cost of the program is not yet known.
7 The assumptions used to calculate the \$700,000 are not supported. Finally, it is
8 unreasonable to assume full participation of the program in the first year (I&E St.
9 No. 3, pp 30-32).

10
11 **Q. HOW DID PWSA RESPOND TO YOUR RECOMMENDATION**
12 **REGARDING THE STORMWATER CREDIT?**

13 A. PWSA witnesses Readling and Igwe each opposed my recommendation for
14 similar reasons. Each witness responded that it is not possible for PWSA to do the
15 following: (1) predict which properties currently comply with the 2016 or 2019
16 City of Pittsburgh stormwater standards; (2) predict which properties will install
17 measure necessary to earn a credit; and (3) predict which property owners will
18 actually apply for a stormwater credit. (PWSA St. No. 7-R, p. 22 and PWSA St.
19 No. 8-R, pp. 9-10). Beyond those common responses, Witness Readling also
20 stated that PWSA does not know what proportion of the impervious area found on
21 a parcel might be associated with the stormwater controls for which credit can be
22 granted. (PWSA St. No. 8-R, pp. 9-10).

1 **Q. WHAT ADDITIONAL INSIGHT DID PWSA PROVIDE INTO WHY IT**
2 **SELECTED AN ESTIMATED 5% OF REVENUE LOST FROM THE NON-**
3 **RESIDENTIAL RATE BASE?**

4 A. Witness Readling indicated that the approximately \$700,000 cost of the
5 stormwater credit is based on an estimate of 5% revenue lost from the non-
6 residential rate base. He further indicated that the estimated 5% revenue loss from
7 non-residential ratepayers equates to an assumption that approximately 10% of the
8 non-residential impervious area would qualify for a credit. (PWSA St. No. 8-R,
9 pp. 8-9).

10
11 **Q. HOW DID PWSA DETERMINE THAT APPROXIMATELY 10% OF THE**
12 **NON-RESIDENTIAL IMPERVIOUS AREA WOULD QUALIFY FOR A**
13 **CREDIT?**

14 A. Based on witness Readling's testimony, the 10% of non-residential impervious
15 area appears to be based on an assumption that, because PWSA proposed a credit
16 program with what it considers to be limited barriers to entry, it would have higher
17 enrollment and a higher cost due to the associated revenue loss. Witness Readling
18 also indicated that other cities with higher stormwater credit programs that have
19 higher barriers to entry experienced revenue loss of approximately 2-3% (PWSA
20 St. No. 8-R, p. 9).

1 **Q. DID PWSA AGREE WITH YOUR RECOMMENDATION?**

2 A. No. PWSA’s position appears to be that, because the stormwater credit program is
3 new and will be a first of its kind program by a regulated utility in Pennsylvania,
4 PWSA should not be required to support its claim with actual data or projections,
5 and that the approximately \$700,000 cost should simply be included as PWSA
6 originally proposed (PWSA St. No. 7-R, p. 22, PWSA St. No. 8-R, p. 10).

7

8 **Q. DO YOU AGREE THAT THE ASSUMPTION OF 10% OF THE TOTAL**
9 **NON-RESIDENTIAL IMPERVIOUS AREA IS A REASONABLE BASIS**
10 **FOR RECOVERING THE APPROXIMATELY \$700,000 COST OF THE**
11 **STORMWATER CREDIT PROGRAM IN RATES?**

12 A. No. As PWSA’s witnesses continually state, PWSA is a cash flow company.
13 That means that any cost that is included in the revenue requirement must be
14 recovered from customers. It is for this reason that PWSA must be required to
15 fully support its claim and that it not be permitted to fulfill some lower standard
16 as suggested by witnesses Readling and Igwe. As discussed above, witness
17 Readling stated that the \$700,000 estimate for revenue lost from the stormwater
18 program is based on the assumption that the participation in the stormwater credit
19 program will exceed the 2%-3% revenue loss experienced in “other cities” by
20 approximately 230% $((10\% - 3\%) / 3\%)$ based solely on PWSA’s Stormwater
21 Advisory Group’s hope that the perceived lowered barriers for entry will increase

1 participation. This is not any reasonable or supported basis for estimating
2 participation or cost of the stormwater credit program.

3 Additionally, PWSA witness Readling failed to provide any background
4 information regarding the alleged 2-3% revenue lost in other cities that would be
5 necessary to determine whether the comparison to Pittsburgh is reasonable.

6 Information including, but not limited to, the names of the cities being referred to,
7 whether the 2-3% revenue lost is in the first year of the respective program or once
8 the program has been established, a comparison of the other cities' stormwater
9 standards to those of the City of Pittsburgh, and a comparison of the customer
10 bases of the various cities would all be necessary to consider in any determination
11 of whether witness Readling's analysis is reasonable. All of that information is
12 absent here.

13
14 **Q. DO YOU WISH TO CHANGE YOUR RECOMMENDATION?**

15 A. No. PWSA has failed to provide sufficient information to support its assumptions
16 regarding the approximately \$700,000 cost of the stormwater credit program, as
17 discussed above. I fully reject any notion, as PWSA witnesses Readling and Igwe
18 suggest, that my support for the policy goals of a stormwater credit program
19 somehow obligates me to recommend acceptance of PWSA's unsubstantiated
20 claim without any questions asked. As such, despite my agreement with the
21 policy goals of the overall stormwater credit program, due to the completely lack
22 of support for the \$700,000 cost, I continue to recommend that it be denied.

1 Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?

2 A. Yes.

**I&E Exhibit No. 3-SR
Witness: Ethan H. Cline**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Exhibit to Accompany

the

Surrebuttal Testimony

of

Ethan H. Cline

Bureau of Investigation and Enforcement

Concerning:

**Prospective Revenues
Water and Wastewater Rate Structure
Stormwater Credit**



17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
717-731-1970 Main
717-731-1985 Main Fax
www.postschell.com

Anthony D. Kanagy
Principal

akanagy@postschell.com
717-612-6034 Direct
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File #: 157181

July 22, 2021

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

**Re: National Fuel Gas Distribution Corporation Supplement No. 228 to Tariff Gas - Pa.
P.U.C. No. 9
Docket No. R-2021-**

Dear Secretary Chiavetta:

Enclosed for filing on behalf of National Fuel Gas Distribution Corporation (“Distribution” or the “Company”) is Supplement No. 228 to Tariff Gas – Pa. P.U.C. No. 9 (“Supplement No. 228”). Supplement No. 228 is being filed with an issue date of July 22, 2021 and an effective date of October 1, 2021.

In this filing, Distribution is proposing to reduce base rates by \$7,704,085 in order to stop collecting Other Post Employment Benefits (“OPEB”) expenses from customers. The Company is also proposing to refund to customers \$50,000,000 in OPEB expenses paid for by customers that are not needed for future OPEB costs. The Company is proposing to refund \$25,000,000 of this amount through a one-time bill credit and the remaining \$25,000,000 over a 5-year period (\$5,000,000 per year) through a non-reconcilable surcredit.

Distribution’s OPEB expense amount was established in its last base rate proceeding at Docket No. R-00061493. Distribution’s OPEB trusts are currently over-funded, and it proposes to stop collecting OPEB expenses from customers at this time and to begin to refund over-collected expenses to customers. Distribution also believes that given the COVID 19 pandemic and its impact on customers it is an opportune time to reduce customers’ rates. An October 1, 2021 date has been selected in order to effectuate the rate reductions prior to commencement of the winter heating season.

Rosemary Chiavetta, Secretary
July 22, 2021
Page 2

The proposed rate reductions for customers are shown on Exhibits DNK-4 and DNK-5. As shown on Exhibit DNK-5, if the filing is approved, an average Residential customer using 100.3 Mcf per year will experience an annual distribution rate reduction of \$52.56 or approximately a 17% distribution rate reduction, which translates to an approximate 6.31% total bill rate reduction based upon gas costs as of May 1, 2021.

Distribution is also requesting certain OPEB-related accounting approvals as explained in the Direct Testimony of Michael P. Weidner.

The filing is organized as follows:

Appendix A – Statement of Reasons

Appendix B – Company responses to the Commission’s Filing Requirements Concerning Changes in Tariff contained in 52 Pa. Code § 53.52(a) and (b).

Appendix C – Supplement No 228.

Distribution Statement No. 1 – Direct Testimony of Donald N. Koch including Distribution Exhibits DNK-1 through DNK-5.

Distribution Statement No. 2 – Direct Testimony of Michael P. Weidner including Distribution MPW-1.

The Company requests that the following be entered as counsel for the Company in this proceeding:

Michael W. Gang, Esquire (ID # 25670)
Anthony D. Kanagy, Esquire (ID # 85522)
Post & Schell, P.C.
17 North Second Street, 12th Floor
Harrisburg, PA 17101-1601
Phone: 717-731-1970
E-mail: mgang@postschell.com
E-mail: akanagy@postschell.com

Distribution has served a copy of this filing on all active parties in its last base rate proceeding at Docket No. R-00061493. In addition, Distribution is providing notice of this filing to all customers through a bill insert.

Distribution’s counsel is authorized to receive all notices and communications regarding this filing. Please direct any questions regarding this matter to the undersigned.

Rosemary Chiavetta, Secretary
July 22, 2021
Page 3

Respectfully submitted,



Anthony D. Kanagy

ADK/kl
Enclosures

cc: Certificate of Service

**Pennsylvania Public Utility Commission v.
Pittsburgh Water and Sewer Authority
Docket Nos. R-2021-3024773, R-2021-3024774 and R-2021-3024779**

**Responses of the Bureau of Investigation and Enforcement to
the Interrogatories of The Pittsburgh Water and Sewer Authority – Set I
Witness: Ethan H. Cline**

PWSA to I&E-I-3 Reference I&E St. No. 3 at Page 21 (Cline). Please provide each and every element that would be included in a “traditional” customer cost analysis by category and sub-category. Please provide the PUC or other precedent supporting inclusion or exclusion of such costs in a “traditional” customer cost analysis.

Response: **By way of example, in its last base rate case, Pennsylvania-American Water Company provided a customer cost analysis which I&E did not challenge. This customer cost analysis can be found at Docket Nos. R-2020-3019369 and R-2020-3019371, Volume 17, Exhibit 12-A, Appendix A, Attachments RS1j-2021 and RS1j-2022, pp. 2 and 3 of 3.² However, as a cash flow municipal entity, the return, depreciation expense, and tax factor reflected in Pennsylvania American Water Company’s customer cost analysis would not apply to PWSA.**

² [1661692.pdf\(pa.gov\)](#)

**Pennsylvania Public Utility Commission v.
Pittsburgh Water and Sewer Authority
Docket Nos. R-2021-3024773, R-2021-3024774 and R-2021-3024779**

**Responses of the Bureau of Investigation and Enforcement to
the Interrogatories of The Pittsburgh Water and Sewer Authority – Set I
Witness: Ethan H. Cline**

PWSA to I&E-I-4 Reference I&E St. No. 3 at Page 21 (Cline) regarding removal of the minimum charge. Please set forth your definition of “traditional customer cost analysis” and provide specific details about why Mr. Cline finds that the costs provided related to PWSA’s provision of services (which includes water, wastewater conveyance and stormwater) were insufficient to provide a “full customer cost analysis” of removing the minimum charge. To the extent publicly available and/or in Mr. Cline’s possession, please provide reference to any similar customer cost analysis which is consistent with the framework recommended by Mr. Cline.

Response: **A customer cost analysis is a part of a cost of service study that is used to determine the appropriate fixed customer charges for the various classes and meter sizes. It includes customer costs only. Please reference the response to I&E-I-3 for a reference to a customer cost analysis. Some of the costs that should be included in a customer cost analysis are the cost of meters and services, customer installations, meter reading, customer records and collection, other customer accounting expense, employee pension and benefits, and maintenance of meters and services. Based upon the format of PWSA’s cost of service study, it is unclear whether or how PWSA factored in direct costs including, but not limited to, meter reading expenses, supervision, customer records and collection, and employee pension and benefits.**

**I&E Statement No. 4-SR
Witness: Israel E. Gray**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2021-3024773, R-2021-3024774 & R-2021-3024779

Surrebuttal Testimony

of

Israel E. Gray

Bureau of Investigation & Enforcement

Concerning:

**Valve Inspection & Maintenance Procedures
Record Keeping**

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PRIVATE OWNERSHIP OF 6,000 VALVES 10

1 **INTRODUCTION**

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

3 A. My name is Israel E. Gray. My business address is Pennsylvania Public Utility
4 Commission, Commonwealth Keystone Building, 400 North Street, Harrisburg,
5 PA 17120.

6

7 **Q. ARE YOU THE SAME ISRAEL E. GRAY THAT SUBMITTED I&E**
8 **STATEMENT NO. 4 AND I&E EXHIBIT NO. 4 ON JULY 8, 2021?**

9 A. Yes. The documents referenced included my direct testimony in this case and a
10 supporting exhibit.

11

12 **Q. WHAT RECOMMENDATIONS DID YOU MAKE IN YOUR DIRECT**
13 **TESTIMONY?**

14 A. In my direct testimony, I recommended that Pittsburgh Water and Sewer Authority
15 (“PWSA”) develop a valve maintenance program that prioritizes valves most
16 critical to system performance. I explained that valve maintenance schedules
17 should be based on criteria such as size, location, age, and operational history of
18 the valves. Additionally, I recommended that PWSA also develop a thorough
19 record keeping procedure for valve maintenance. As part of that record keeping
20 process, PWSA should be required to track information such as: valve location
21 (GPS coordinates), age, size of the valve, the valve manufacturer, valve serial
22 number, the number of rotations to fully open and fully close the valve, and the

1 overall condition of the valve. These records will provide valuable insight when it
2 comes to scheduling future valve maintenance, valve replacement, and highlight
3 any reliability issues with specific valve manufacturers and/or models.¹
4

5 **Q. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY?**

6 A. The purpose of my surrebuttal testimony is to address the rebuttal testimony of
7 PWSA witness Barry King in response to my recommendations.²
8

9 **Q. HOW DOES MR. KING RESPOND TO YOUR RECOMMENDATION**
10 **THAT PWSA BE REQUIRED TO DEVELOP A PRIORITIZATION PLAN**
11 **FOR VALVE MAINTENANCE?**

12 A. Mr. King states that it is not feasible for PWSA to develop a valve maintenance
13 program that prioritizes valves most critical to system performance. According to
14 Mr. King, my recommendation is not feasible because PWSA would have to
15 identify the locations of hospitals, schools, and other critical locations with valves
16 on water mains of 16-inches or greater and then identify which valves would be
17 needed to isolate those areas. He concludes that compiling that information and
18 developing a plan to inspect/exercise the valves more frequently would be time-
19 consuming and costly for PWSA, and he opines that PWSA's current valve
20 maintenance is sufficient.³

¹ I&E St. No. 4, p. 6.

² PWSA St. No. 5-R.

³ PWSA St. No. 5-R, p. 7.

1 **Q. HOW DOES MR. KING RESPOND TO YOUR RECOMMENDATION**
2 **THAT PWSA BE REQUIRED TO DEVELOP A RECORD-KEEPING**
3 **PROCEDURE FOR VALVE MAINTENACE?**

4 A. Mr. King agrees with my recommendation. However, Mr. King also states that
5 PWSA can only feasibly implement my recommended record-keeping process on
6 a going forward basis.

7
8 **Q. DID MR. KING’S REBUTTAL TESTIMONY PROVIDE ANY NEW**
9 **INFORMATION THAT YOU ALSO WISH TO ADDRESS IN YOUR**
10 **TESTIMONY?**

11 A. Yes. According to Mr. King, PWSA “recently learned” that over 6,000 of the
12 26,000 valves in its system are privately owned. Mr. King explained that PWSA
13 has now concluded that PWSA is only obligated to inspect just over 19,000
14 valves, and that it has now reduced its internal target to exercising 4,000 valves
15 per year.⁴

⁴ PWSA St. No. 5-R, p. 3. I note that on p. 4 of his rebuttal testimony, Mr. King also claims that PWSA will continue to exercise valves beyond this level “to the extent that funding and staffing are available.”

1 **PRIORITIZATION OF VALVE MAINTENANCE**

2 **Q. IS PWSA’S POSITION THAT PRIORITIZATION OF VALVE**
3 **MAINTENANCE IS NOT FEASIBLE INCONSISTENT WITH PREVIOUS**
4 **REPRESENTATIONS PWSA MADE TO THE COMMISSION?**

5 A. Yes. On April 30, 2021, in its Compliance Plan Progress Report for the First
6 Quarter of 2021, PWSA represented a commitment to address valve prioritization
7 as follows:

8 As the data becomes available and PWSA’s GIS is updated,
9 PWSA will provide a comprehensive materials report and
10 updated information regarding types and sizes of valves in
11 future Compliance Plan Progress Reports. PWSA will also
12 provide additional information regarding the prioritization of
13 valve and main replacements and will notify the parties when
14 its Computerized Maintenance Management System (CMMS)
15 project is implemented. Currently, the CMMS implementation
16 is being developed as part of the ERP system.⁵
17

18 **Q. HAS PWSA PROVIDED THE COMMISSION WITH EVEN MORE**
19 **RECENT ASSURANCE THAT IT WILL, IN FACT, PRIORITIZE VALVE**
20 **MAINTENANCE?**

21 A. Yes. In its Compliance Plan Progress Report for the Second Quarter of 2021,
22 provided on July 30, 2021, PWSA indicates that it is updating its GIS, in part, to
23 facilitate valve prioritization data. Specifically, PWSA has represented that it is

⁵ Pittsburgh Water and Sewer Authority Quarterly Compliance Plan Progress Report Consolidated Docket Numbers: M-2018-2640802 (water), M-2018-2640803 (wastewater), P-2018-3005039 (wastewater), PDF page 13, iii. LTIP-Materials Report, Valves, Prioritization, April 30, 2021.

1 taking the following actions:

2 Material, size, and other key attributes of the primary water and
3 sewer assets continue to be updated, primarily for new features
4 at this time. As data becomes available and PWSA’s GIS is
5 updated, PWSA will provide a comprehensive materials report
6 and updated information regarding types and sizes of valves in
7 future Compliance Plan Progress Reports. PWSA will also
8 provide additional information regarding the prioritization of
9 valve and main replacements and will notify the parties when
10 its Computerized Maintenance Management System (CMMS)
11 project is implemented. Currently, the CMMS implementation
12 is being developed as part of the ERP system.⁶

13 In fact, PWSA’s represents that it is “On Target” with its review of the existing
14 system to ensure ample valves as required by Section 65.18 of the Commission’s
15 regulations.⁷

16

17 **Q. IN YOUR OPINION, IS PWSA “ON TARGET” WITH ENSURING AMPLE**
18 **VALVES?**

19 A. No, because according to Mr. King, it is not feasible for PWSA to target the repair
20 or replacement of its valves according to critical factors such as age, location, and
21 operational history. In my opinion, without PWSA’s commitment to utilizing
22 these critical factors to prioritize its valve maintenance program, its valve
23 operations program is not on target to being ample.

⁶ Pittsburgh Water and Sewer Authority Quarterly Compliance Plan Progress Report Consolidated Docket Numbers: M-2018-2640802 (water), M-2018-2640803 (wastewater), P-2018-3005039 (wastewater), PDF page 13, iii. LTIP-Materials Report, Valves, Prioritization, July 30, 2021 (“July 30, 2021 CP Progress Report”).

⁷ July 30, 2021 CP Progress Report, pdf. P. 15, Table 10: Compliance Plan Requirements-Infrastructure, 65.18 (Review the existing system to ensure ample valves).

1 **Q. HAS PWSA INDICATED THE LOCATIONS IT BELIEVES ARE**
2 **“CRITICAL LOCATIONS”?**

3 A. Yes. Through the discovery process, PWSA indicated that it considers critical
4 locations to consist of the following: valves associated with the isolation of or
5 affecting critical facilities (such as hospitals, schools, daycare facilities, kidney
6 dialysis centers, assisted living centers, and similar facilities related to health care
7 and compromised or at-risk populations); as well as isolation valves on
8 watermains 16-inches in diameter or larger (such as PWSA’s large diameter water
9 mains and transmission mains).⁸

10

11 **Q. DO YOU AGREE THAT THE LOCATIONS PWSA IDENTIFIED ARE**
12 **“CRITICAL LOCATIONS”?**

13 A. Yes, I do agree that the identified locations are critical. In fact, PWSA’s
14 recognition of locations like schools and medical facilities as critical locations
15 highlights the importance of my recommendation. PWSA should ensure that it
16 prioritizes the repair and replacement of those valves in order to ensure that safe
17 and continuous service is available at the critical locations. As I currently
18 understand it, PWSA has not adopted any program to prioritize these critical
19 locations for valve inspections, and absent such a plan, PWSA’s ability to ensure
20 safe and continuous service to those locations will be compromised.

⁸ I&E Exhibit No. 4-SR, Sch. 1.

1 **Q. WHY IS A VALVE MAINTENANCE PROGRAM THAT PRIORITIZES**
2 **VALVES MOST CRITICAL TO SYSTEM PERFORMANCE**
3 **NECESSARY?**

4 A. Valves on larger water mains and valves on water mains that serve critical
5 infrastructure such as hospitals, schools, or nursing homes are critical to system
6 performance and reliability of service. Not all mainline valves are equally
7 important to system performance; therefore, they should not be on the same
8 inspection schedule as valves that are far more critical. There is also safety to
9 consider. It is critical that valves on larger mainlines are operable in order to shut
10 down a mainline in the event of a leak. A large mainline leak can cause flooding,
11 undermining of city streets, and adversely affect other utilities in the area.

12
13 **Q. PWSA WITNESS KING CLAIMS THAT PWSA DOES NOT HAVE THE**
14 **STAFF NECESSARY TO ADOPT YOUR RECOMMENDATION THAT**
15 **PWSA BE REQUIRED TO DEVELOP A VALVE MAINTENANCE**
16 **PROGRAM THAT PRIORITIZES VALVES MOST CRITICAL TO**
17 **SYSTEM PERFORMANCE. HOW DO YOU RESPOND?**

18 A. In PWSA's July 30, 2021 Compliance Plan Progress Report, PWSA indicates that
19 it will hire additional personnel to support its valve program.⁹ Additionally, the
20 Progress Report reveals that PWSA currently has four vacancies for the position of

⁹ July 30, 2021 CP Progress Report, pdf. p. 4, Table 1: Compliance Plan Supplement Requirements-Operations.

1 Valve and Hydrant Operator.¹⁰ Therefore, it appears that PWSA already
2 contemplates additional staffing for its valve program. It is unclear why Mr. King
3 now concludes that PWSA will not have adequate staff. Finally, although I am not
4 addressing PWSA's revenue requirement, and I will defer to I&E witnesses Patel
5 and Spadaccio on those issues, I do generally understand that I&E has now
6 withdrawn its vacancy adjustment in this case. It is my understanding that I&E's
7 recommendation is now to provide PWSA with all of the employees it claimed to
8 need to support operations.

9
10 **RECORD KEEPING PROCESS**

11 **Q. WITNESS KING TESTIFIED THAT PWSA CAN ONLY COMMIT TO**
12 **RECORD KEEPING FOR VALVE MAINTENANCE AND**
13 **REPLACEMENT ON A GOING FORWARD BASIS. HOW DO YOU**
14 **RESPOND?**

15 A. My recommendation was for PWSA to develop a thorough record keeping
16 procedure for its valve maintenance program. I recommended that PWSA record
17 information such as: valve location (GPS coordinates), age, size of the valve, the
18 valve manufacturer, valve serial number, the number of rotations to fully open and
19 fully close the valve, and the overall condition of the valve. Mr. King's response
20 indicated that PWSA does not have a serial number or manufacturer name for

¹⁰ July 30, 2021 CP Progress Report, pdf. p. 60, 2021 Vacancies as of June 30, 2021, 325F Water Opps.

1 existing valves.¹¹ It is understood that PWSA may not currently have the serial
2 numbers or manufacturer name for existing valves, but Mr. King provided no
3 explanation of why PWSA is not capable of tracking all of the other information I
4 identified. Therefore, it is not clear to me why PWSA cannot commit to recording
5 the following information for existing valves: valve location (GPS coordinates),
6 age, size of the valve, the number of rotations to fully open and fully close the
7 valve, and the overall condition of the valve. In my opinion, keeping records of
8 this information is critical to the safety of PWSA's operations.

9
10 **Q. DO YOU WISH TO ALTER YOUR RECORD KEEPING**
11 **RECOMMENDATION IN RESPONSE TO MR. KING'S TESTIMONY?**

12 A. Yes, but only slightly. I will eliminate the recommendation that PWSA provide
13 historical records for serial numbers and manufacturer names for existing valves if
14 it truly lacks the information to comply. However, I believe much of the data
15 collection I recommended can be captured in current and future valve inspections.
16 Additionally, going forward, the serial numbers and manufacturer names should
17 be collected on any new valve installations. Beyond that, I do not alter my
18 recommendation that PWSA be required to develop a record keeping procedure
19 for both existing valves and any new valves that tracks the following information:

¹¹ PWSA St. No. 5-R, p. 7.

1 valve location (GPS coordinates), age, size of the valve, the number of rotations to
2 fully open and fully close the valve, and the overall condition of the valve.

3
4 **PRIVATE OWNERSHIP OF 6,000 VALVES**

5 **Q. FOR THE FIRST TIME, IN HIS REBUTTAL TESTIMONY, PWSA**
6 **WITNESS KING INDICATED THAT APPROXIMATELY 6,000 OF**
7 **PWSA'S 26,000 VALVES ARE PRIVATELY OWNED. ON THAT BASIS,**
8 **MR. KING CLAIMS THAT PWSA IS NOW ONLY OBLIGATED TO**
9 **INSPECT APPROXIMATELY 19,000 VALVES AND THAT IT WILL**
10 **REDUCE ITS INTERNAL TARGET TO EXERCISING 4,000 VALVES**
11 **PER YEAR. HOW DO YOU RESPOND?**

12 A. My response is that more investigation of the basis for and appropriateness of
13 PWSA's determination of the private ownership of 6,000 valves is warranted. I
14 note that the 6,000 valves represent approximately 23% of the 26,000 valves that
15 PWSA initially represented owning. It is unclear exactly how or why PWSA
16 made this critical determination during the late stage of this case. I note that
17 under the current schedule for this case, I have had only a few days to process this
18 significant development. I believe that I&E's Safety Division may need to
19 conduct an investigation independent of this case in order to determine the basis
20 for and validity of PWSA's claim and in order to ensure that the safety of PWSA's
21 operations is not compromised by any determination of private ownership.

1 **Q. DO YOU HAVE ANY OTHER COMMENTS REGARDING PWSA'S NEW**
2 **CLAIM REGARDING VALVE OWNERSHIP?**

3 A. Yes. Beyond the need to reserve the right to conduct a more thorough
4 investigation, I also note that the late timing and potential safety ramifications of
5 PWSA's recent claim highlights the importance of my recommendation that
6 PWSA needs to develop more comprehensive record-keeping procedures as soon
7 as possible.

8

9 **Q. DOES THIS CONCLUDE YOUR SURREBUTTAL TESTIMONY?**

10 A. Yes.

**I&E Exhibit No. 4-SR
Witness: Israel E. Gray**

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

PITTSBURGH WATER & SEWER AUTHORITY

Docket Nos. R-2021-3024733, R-2021-3024774 & R-2021-3024779

Exhibit to Accompany

the

Surrebuttal Testimony

of

Israel E. Gray

Bureau of Investigation & Enforcement

Concerning:

**Valve Inspection & Maintenance Procedures
Record Keeping**

Response of the Pittsburgh Water and Sewer Authority (“PWSA”) to the Interrogatories of the Bureau of Investigation and Enforcement PS-15 to PS-18 in Docket Nos. R-2021-3024773 (water); R-2021-3024774 (wastewater) and R-2021-3024779 (stormwater)

Request: I&E-PS-17 Reference PWSA St. No. 5-R, p. 7, where witness King testifies that prioritizing valve maintenance at critical locations is not feasible. Provide the definition of “critical locations” that Mr. King relied upon in his testimony.

Response: PWSA considers critical locations to be valves associated with the isolation of or affecting critical facilities (such as hospitals, schools, daycare facilities, kidney dialysis centers, assisted living centers, and similar facilities related to health care and compromised or at-risk populations); as well as isolation valves on water mains 16-inches in diameter or larger (such as PWSA’s large diameter water mains and transmission mains).

Response Provided by: Barry King, PE, Director of Engineering
The Pittsburgh Water and Sewer Authority

Dated: August 3, 2021

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission, *et al* : R-2021-3024773
: C-2021-3025473
v. : C-2021-3025516
:
Pittsburgh Water and Sewer Authority - Water :

Pennsylvania Public Utility Commission, *et al* : R-2021-3024774
: C-2021-3025471
v. : C-2021-3025517
:
Pittsburgh Water and Sewer Authority – Wastewater :

Pennsylvania Public Utility Commission, *et al* : R-2021-3024779
: C-2021-3025474
v. : C-2021-3025521
:
Pittsburgh Water and Sewer Authority - Stormwater :

**VERIFICATION OF THE
BUREAU OF INVESTIGATION AND ENFORCEMENT**

I, Anthony Spadaccio, on behalf of the Bureau of Investigation and Enforcement, hereby verify that the documents preliminarily identified as I&E Statement No. 1, I&E Exhibit No. 1, I&E Statement No. 1-SR and I&E Exhibit No. 1-SR were prepared by me or under my direct supervision and control. Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same at an Evidentiary Hearing in this matter. This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

/s/ Anthony Spadaccio
Anthony Spadaccio
Fixed Utility Valuation Analyst
Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement

Dated: August 6, 2021

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission, *et al* : R-2021-3024773
: C-2021-3025473
v. : C-2021-3025516
:
Pittsburgh Water and Sewer Authority - Water :

Pennsylvania Public Utility Commission, *et al* : R-2021-3024774
: C-2021-3025471
v. : C-2021-3025517
:
Pittsburgh Water and Sewer Authority – Wastewater :

Pennsylvania Public Utility Commission, *et al* : R-2021-3024779
: C-2021-3025474
v. : C-2021-3025521
:
Pittsburgh Water and Sewer Authority - Stormwater :

**VERIFICATION OF THE
BUREAU OF INVESTIGATION AND ENFORCEMENT**

I, D. C. Patel, on behalf of the Bureau of Investigation and Enforcement, hereby verify that the documents preliminarily identified as I&E Statement No. 2, I&E Exhibit No. 2, I&E Statement No. 2-R, and I&E Statement No. 2-SR were prepared by me or under my direct supervision and control. Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same at an Evidentiary Hearing in this matter. This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

/s/ DCPatel

D.C. Patel
Fixed Utility Valuation Analyst
Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement

Dated: August 6, 2021

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Pennsylvania Public Utility Commission, <i>et al</i>	:	R-2021-3024773
	:	C-2021-3025473
v.	:	C-2021-3025516
	:	
Pittsburgh Water and Sewer Authority - Water	:	
Pennsylvania Public Utility Commission, <i>et al</i>	:	R-2021-3024774
	:	C-2021-3025471
v.	:	C-2021-3025517
	:	
Pittsburgh Water and Sewer Authority – Wastewater	:	
Pennsylvania Public Utility Commission, <i>et al</i>	:	R-2021-3024779
	:	C-2021-3025474
v.	:	C-2021-3025521
	:	
Pittsburgh Water and Sewer Authority - Stormwater	:	

**VERIFICATION OF THE
BUREAU OF INVESTIGATION AND ENFORCEMENT**

I, Ethan H. Cline, on behalf of the Bureau of Investigation and Enforcement, hereby verify that the documents preliminarily identified as I&E Statement No. 3, I&E Exhibit No. 3, I&E Statement No. 3-SR, and I&E Exhibit No. 3-SR were prepared by me or under my direct supervision and control. Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same at an Evidentiary Hearing in this matter. This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.

/s/ Ethan H. Cline
Ethan H. Cline
Fixed Utility Valuation Engineer
Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement

Dated: August 6, 2021

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**


Pennsylvania Public Utility Commission, *et al* : R-2021-3024773
: C-2021-3025473
v. : C-2021-3025516
: :
Pittsburgh Water and Sewer Authority - Water :

Pennsylvania Public Utility Commission, *et al* : R-2021-3024774
: C-2021-3025471
v. : C-2021-3025517
: :
Pittsburgh Water and Sewer Authority – Wastewater :

Pennsylvania Public Utility Commission, *et al* : R-2021-3024779
: C-2021-3025474
v. : C-2021-3025521
: :
Pittsburgh Water and Sewer Authority - Stormwater :

**VERIFICATION OF THE
BUREAU OF INVESTIGATION AND ENFORCEMENT**

I, Israel E. Gray, on behalf of the Bureau of Investigation and Enforcement, hereby verify that the documents preliminarily identified as I&E Statement No. 4, I&E Exhibit No. 4, I&E Statement No. 4-SR, and I&E Exhibit No. 4-SR were prepared by me or under my direct supervision and control. Furthermore, the facts contained therein are true and correct to the best of my knowledge, information and belief and I expect to be able to prove the same at an Evidentiary Hearing in this matter. This Verification is made subject to the penalties of 18 Pa. C.S. § 4904 relating to unsworn falsification to authorities.


Israel E. Gray
Fixed Utility Valuation Engineer
Pennsylvania Public Utility Commission
Bureau of Investigation and Enforcement

Dated: 8/6, 2021