RESPONSE TO
PUBLIC ADVOCATE’S INTERROGATORIES
AND
REQUESTS FOR PRODUCTION OF DOCUMENTS
QUESTIONS 1-29

Dated: February 2021
PA-IV-1. REFERENCE STATEMENT NO. 7A, Q/A 12. PLEASE PROVIDE A COMPLETE COPY OF THE ANALYSIS SUPPORTING THE DEVELOPMENT OF STEP 1: THE PROJECTIONS OF GROSS BILLINGS IN EXCEL FORMAT WITH ALL FORMULAS INTACT.

RESPONSE:

Please refer to the responses to PA-ADV-4 and PA-ADV-5 for information regarding the development of demand escalation factors. The Excel version of projected gross billings is included in the requested models provided in response to PA-IV-11. The workpapers for projected gross billings are also provided in PWD Exhibit-6: Black & Veatch Management Consulting, LLC, Calculations Supporting Schedules BV-1, BV-2, BV-3, and BV-5, Finplan21_22, Customer Worksheet. Refer to Customer-7 for projected gross water billings, Customer-15 for projected gross sewer billings, and Customer-38 for projected stormwater billings. All gross billings are presented in the context of existing rates.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-2. REFERENCE STATEMENT NO. 2, Q/A 46. PLEASE PROVIDE A COMPLETE COPY OF THE ANALYSIS SUPPORTING THE CHANGE IN THE STORMWATER MANAGEMENT FEE IN LIEU OF CHARGES.

RESPONSE:

The analysis supporting the proposed changes to the Stormwater Management Fee in Lieu is provided in Appendix A of Schedule BV-6: WP-5, “Miscellaneous Fees Methodology.” Please refer to page 55 of the white paper.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-3. REFERENCE STATEMENT NO. 7A, PAGE 38, LINES 7-17. PLEASE PROVIDE THE ANALYSIS/DOCUMENTATION SUPPORTING THE CLAIM THAT TOTAL IA INCREASED BY 87.5 MILLION SQ. FT. AND RESIDENTIAL IA INCREASED BY 72.5 MILLION SQ. FT.

RESPONSE:

The increase in impervious area is due to the updated stormwater billing data, which is detailed in Schedule BV-6: WP-2 – Stormwater Units of Service.

As discussed on page 2 of the aforementioned white paper: “The Water Department recently obtained updated Stormwater Billing Data developed using [based upon 2015] aerial and infrared imagery. The updated data set provides new impervious area and gross area data for billing purposes for properties City-wide. The City-wide total impervious area is 1,299 million square feet (sf) and the total gross area is 2,447 million sf. Table 1 below presents the impervious area under the prior dataset1 and the updated data set.”

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Description</th>
<th>Prior Dataset (Square Feet)</th>
<th>Updated Dataset (Square Feet)</th>
<th>Variance (Square Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Initial Impervious Area-Residential</td>
<td>482,687,000</td>
<td>554,204,000</td>
<td>72,517,000</td>
</tr>
<tr>
<td>2</td>
<td>Initial Impervious Area-Non-Residential</td>
<td>706,470,000</td>
<td>718,062,000</td>
<td>11,592,000</td>
</tr>
<tr>
<td>3</td>
<td>Initial Impervious Area-Condominium</td>
<td>22,198,000</td>
<td>25,635,000</td>
<td>3,437,000</td>
</tr>
<tr>
<td>4</td>
<td>Initial Impervious Area-Total</td>
<td>1,211,355,000</td>
<td>1,298,901,000</td>
<td>87,546,000</td>
</tr>
</tbody>
</table>

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-4. REFERENCE STATEMENT NO. 7A, PAGE 39, LINES 1-25. PLEASE IDENTIFY THE IMPACT OF STORMWATER CREDITS ON TOTAL RESIDENTIAL, AND NON-RESIDENTIAL GA AND IA FROM THOSE USED TO SET RATES IN THE TWO PRIOR CASES.

RESPONSE:

The table below provides the impact of stormwater credits on total residential, non-residential, and condominium GA and IA. The credit amount reflects the reduction in the billable units of service used to set rates. The credits set forth in the following table are associated with non-residential and condominium customers. Residential customers are not eligible for stormwater credits.

Total Impact of Credits on Billable Stormwater Units of Service

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Description</th>
<th>FY 2016 Rate Proceeding</th>
<th>FY 2018 Rate Proceeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Impervious Area (SF)</td>
<td>98,006,660</td>
<td>107,239,980</td>
</tr>
<tr>
<td>2</td>
<td>Gross Area (SF)</td>
<td>274,831,520</td>
<td>291,187,590</td>
</tr>
</tbody>
</table>

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-5. PLEASE IDENTIFY EACH STORMWATER CREDIT GA AND IA 
ADJUSTMENT AUTHORIZED FOR THE LAST THREE YEARS. IDENTIFY 
FOR EACH ADJUSTMENT, THE CUSTOMER’S GA AND IA BEFORE THE 
ADJUSTMENT AND AFTER THE ADJUSTMENT.

RESPONSE:

Please see response attachment PA-IV-5.

The workbook includes a summary of all of the credit applications, based upon PWD records, 
that are applicable for Fiscal Year 2018 through Fiscal Year 2020 and the associated area and 
credit information by parcel. Many parcels have multiple credit applications during the above 
period primarily due to renewals, so such parcels have multiple entries in the workbook.

RESPONSE PROVIDED BY: Philadelphia Water Department
PA-IV-6.REFERENCE TABLE W-10:

A. PLEASE PROVIDE A DETAILED BREAKDOWN OF LINE ITEMS 3, 7, AND 11; AND

B. PLEASE PROVIDE A REPRESENTATION EXAMPLE OF THE INVOICES FOR PURCHASED GAS EXPENSES.

RESPONSE:

A. A detailed breakdown of Line item 3, Raw Water Power & Pumping – Other operation and maintenance expenses, is presented on PWD Exhibit-6: Black & Veatch Management Consulting, LLC, Calculations Supporting Schedules BV-1, BV-2, BV-3, and BV-5, Womallo-14, Line 4 (Raw Water Power & Pumping - Baxter Treatment Plant - All Other Costs) and Line 8 (Raw Water Power & Pumping – All Other Treatment Plants - All Other Costs). The O&M expenses allocated to the Raw Water Power & Pumping – Other function include a proportionate share of the Operations Division load control, machine shop and materials management units, and a proportionate share of Water Fund administrative and general costs.

A detailed breakdown for Line item 7, Purification and Treatment – Power and Pumping – Other expenses, is presented on PWD Exhibit-6: Black & Veatch Management Consulting, LLC, Calculations Supporting Schedules BV-1, BV-2, BV-3, and BV-5, Womallo-14, Line 26 (Treatment – Treated Water Power & Pumping - Baxter Treatment Plant - L.S. - All Other Costs) and Line 30 (Treatment - Treated Water Power & Pumping - All Other Pumping - All Other Costs). The O&M expenses allocated to the Treatment - Treated Water Power & Pumping - All Other Pumping - All Other Costs function a proportionate share of the Operations Division load control, machine shop and materials management units, and a proportionate share of Water Fund administrative and general costs.
A detailed breakdown for Line item 11, Purification and Treatment - Treatment – Other expenses, is presented on PWD Exhibit-6: Black & Veatch Management Consulting, LLC, Calculations Supporting Schedules BV-1, BV-2, BV-3, and BV-5, Womallo-14, Line 15 (Treatment - Purification - Baxter Treatment Plant - All Other Costs) and Line 21 (Treatment - Purification - All Other Treatment Plants - All Other Costs). The O&M expenses allocated to the Purification and Treatment - Treatment - Other function include the Operation Division treatment plant and treatment headquarters costs, proportionate share of the Operations Division machine shop and materials management unit, and a proportionate share of Water Fund administrative and general costs.

Note - the same allocation process for the above referenced costs was utilized in and is consistent with prior proceedings.

B. Gas expenses are allocated based on a summary of FY 2019 and FY 2020 annual gas costs as provided by the Department (PWD Exhibit-6: Black & Veatch Management Consulting, LLC, Calculations Supporting Schedules BV-1, BV-2, BV-3, and BV-5, WCOS19, WOMALLO-6, page 831).

RESPONSE PROVIDED BY:  Black & Veatch Management Consulting, LLC.
PA-IV-7. REFERENCE TABLE WW-14. PLEASE EXPLAIN HOW THE
PERCENTAGES IN FOOTNOTE (A) WERE DETERMINED. PROVIDE
SUPPORTING WORKPAPERS AND CALCULATIONS.

RESPONSE:

The percentages in Footnote (A) of Table WW-14 are based on the ratio of average dry weather
flow to average wet weather flow, and are consistent with analogous percentages used in prior
rate proceedings (PWD Statement 7A, Schedule BV-5, page 7-36).

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
REFERENCE TABLES SW-3 SW-4, AND SW-5. PLEASE PROVIDE ACTUAL DATA FOR THE LAST FIVE YEARS FOR EACH TABLE.

RESPONSE:

Please refer to response attachment PA-IV-8.pdf.

In reference to table SW-3 (Determination of Billable Gross Area), see table PA-IV-8 TABLE 1 for last five years of historical billable Gross Area.

In reference to table SW-4 (Determination of Billable Impervious Area), see table PA-IV-8 TABLE 2 for last five years of historical billable Impervious Area.

In reference to table SW-5 (Credit projections), see table PA-IV-8 TABLE 3 for last five years of historical number of parcels receiving credits and impervious and gross area credits.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-9. REFERENCE TABLE SW-5. PLEASE PROVIDE A DETAILED EXPLANATION OF LINE ITEMS 1-3 AND 5-7.

RESPONSE:

Line No. 1-3 and 5-7 of Table SW-5: Credit Projections are described in Schedule BV-6: WP-2 – Stormwater Units of Service.

Line No. 1 represents the total number of parcels projected to receive Impervious Area Reduction (IAR) Credits.

Line No. 2 represents the total number of parcels projected to receive GA/IA Management Practice Credits.

Line No. 3 represents the total number of parcels projected to receive stormwater credits as a result of the Stormwater Management Incentive Program (SMIP) and the Greened Acre Retrofit Programs (GARP).

Line No. 5 represents the reduction in billable impervious area resulting from Impervious Area Reduction (IAR) Credits.

Line No. 6 represents the reduction in billable impervious area resulting from GA/IA Management Practice Credits.

Line No. 7 represents the reduction in billable impervious area from stormwater credits resulting from SMIP/GARP.

For all of the line items noted above, the figures reflected in the table include both existing credits, as of the end of FY 2020, and projected credits thereafter.
The Factors used to project GA/IA Management Credit for are presented in Table SW-11 and further discussed in the aforementioned white paper.

Projection of GA/IA Management Practice Credits as well as SMIP/GARP Credits are described in the aforementioned white paper.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-11. PLEASE PROVIDE COPIES OF THE COMPANY’S WATER, WASTEWATER, AND STORMWATER COST OF SERVICE STUDIES IN MICROSOFT EXCEL FORMAT WITH ALL FORMULAS INTACT. ALSO, INCLUDE ALL SUPPORTING SCHEDULES AND WORKPAPERS IN EXCEL FORMAT WITH ALL FORMULAS INTACT.

RESPONSE:

The Microsoft Excel-based model files were provided to the Public Advocate following the execution of a confidentially agreement.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-12. PLEASE EXPLAIN IN DETAIL ANY CHANGES IN THE COST ALLOCATION AND RATE DESIGN METHODOLOGIES SINCE THE LAST PROCEEDING.

RESPONSE:

There are no significant changes in the cost allocation and rate design methodologies since the last proceeding. Note that the response to Question 35 in PWD Statement 7A, Direct Testimony of Black & Veatch, identifies a revision to the allocation of water distribution-related operating and maintenance expenses.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-13. PLEASE EXPLAIN IN DETAIL THE BASIS FOR ANY CHANGES IN THE WATER CUSTOMER CLASS DEMAND FACTORS COMPARED TO THE LAST PROCEEDING.

RESPONSE:

There are no changes in the water customer class demand factors compared to the prior proceeding.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-14. FOR EACH OF THE PAST THREE FISCAL YEARS, PLEASE PROVIDE FOR THE WATER SYSTEM:

A. SYSTEM AVERAGE DAY PRODUCTION;
B. SYSTEM MAXIMUM DAY PRODUCTION; AND
C. SYSTEM MAXIMUM HOUR PRODUCTION.

RESPONSE:


System Maximum Hour is recorded based on the Total System Water Delivered (Total Districts) presented in PWD Exhibit-6: Black & Veatch Management Consulting, LLC, Calculations Supporting Schedules BV-1, BV-2, BV-3, and BV-5, WCOS21_22, Wpltallo Worksheet (page 821).

A. SYSTEM AVERAGE DAY PRODUCTION

<table>
<thead>
<tr>
<th>FY 2018</th>
<th>FY 2019</th>
<th>FY 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>222.6 MGD</td>
<td>221.8 MGD</td>
<td>220.3 MGD</td>
</tr>
</tbody>
</table>

B. SYSTEM MAXIMUM DAY PRODUCTION; AND

<table>
<thead>
<tr>
<th>FY 2018</th>
<th>FY 2019</th>
<th>FY 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>303.9 MGD</td>
<td>258.1 MGD</td>
<td>259.7 MGD</td>
</tr>
</tbody>
</table>
C. SYSTEM MAXIMUM HOUR PRODUCTION

<table>
<thead>
<tr>
<th></th>
<th>FY 2018</th>
<th>FY 2019</th>
<th>FY 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>346.0 MGD</td>
<td>330.9 MGD</td>
<td>326.0 MGD</td>
</tr>
</tbody>
</table>

Note that the Maximum Hour Demand Factors are based on the Total System Water Delivered (Total Districts) presented in PWD Exhibit-6: Black & Veatch Management Consulting, LLC, Calculations Supporting Schedules BV-1, BV-2, BV-3, and BV-5, WCOS21_22, Wpltallo Worksheet (page 821).

MGD = Millions of gallons per day

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-15. PLEASE PROVIDE A COPY OF PWD’S MOST RECENT LONG-TERM WATER SUPPLY PLAN.

RESPONSE:

The Department’s full document is not publicly available due to security concerns. An overview of the plan is available via the following link:


RESPONSE PROVIDED BY: Stephen J. Furtek, Philadelphia Water Department
PA-IV-16. PLEASE PROVIDE AN ESTIMATE OF THE QUANTITY OF WATER USED FOR PUBLIC FIREFIGHTING FOR EACH OF THE LAST THREE YEARS.

RESPONSE:

The Department does not have an estimate on the quantity of water used for firefighting purposes for each of the last 3 years. However, for purposes of water accountability, an estimate of 55MG/year is currently being used.

RESPONSE PROVIDED BY: Donna Schwartz, Philadelphia Water Department
PA-IV-17. FOR EACH CUSTOMER CLASS REFLECTED IN THE WATER CLASS COST OF SERVICE STUDY, PLEASE PROVIDE MONTHLY SALES FOR THE MOST RECENT 36-MONTH AVAILABLE IN EXCEL FORMAT.

RESPONSE:

Please refer to response attachment PA-IV-17.xls

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-18. PLEASE EXPLAIN IN DETAIL HOW THE MAXIMUM DAY AND
MAXIMUM HOUR CAPACITY FACTOR FOR EACH CLASS IN THE
WATER CLASS COST OF SERVICE STUDY WAS DETERMINED
(INCLUDING PUBLIC AND PRIVATE FIRE). INCLUDE SUPPORTING
CALCULATIONS IN EXCEL FORMAT.

RESPONSE:

As noted in Section 4.5.2 of Schedule BV-5 on Page 4-9, the customer type extra capacity
factors from previous cost of service studies and rate proceedings were used. Based on the
following factors, Black & Veatch continued to utilize the results of the capacity factor
analysis performed for the prior rate proceeding:

- The FY 2018 system peak maximum day to average day ratio of 1.39 is consistent
  with the historical peak maximum day to average day ratio of 1.40 reflected in the
capacity factor analysis from prior rate proceedings.
- The FY 2016 system peak maximum hour to average day ratio of 1.92 remains the
  historical peak; this data point is reflected in the capacity factor analysis from the
  prior rate proceedings.
- A high-level review of the FY 2018 monthly billing data by customer type
  revealed that the maximum month for some customer types was impacted by a
  change in the number of bills issued during the monthly billing period, which
  resulted in overstating the maximum month to average day ratio of the
  corresponding customer types. Therefore, we do not feel it is appropriate to use
  FY 2018 in the context of this analysis. This data is under further review.
- Feedback provided by participants during the Alternative Rate Structure suggested
  that PWD should further evaluate the customer impacts of potential rate structure
  changes related to further adjustments with respect to the current declining block
  rate structure for water usage. Therefore, additional adjustments were not included
  as part of this rate proposal.
The prior capacity factor analysis was completed according to the methodology outlined in Appendix A of AWWA Manual M-1: Principles of Water Rates, Fees, and Charges. Accordingly, at the time of the analysis, Black & Veatch used the monthly customer billing data, and system historical peak demands, and weekly and hourly usage adjustments to derive an estimate of capacity factors for each customer type.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-19. PLEASE IDENTIFY THE ANNUAL QUANTITIES OF NON-REVENUE WATER BY TYPE FOR THE MOST RECENT THREE-YEAR PERIOD AVAILABLE. ALSO, IDENTIFY ANNUAL WATER PRODUCTION FOR THE SAME FIVE ANNUAL PERIODS.

RESPONSE: Response attachment response PA-IV-19 is the standard International Water Association / AWWA water balance for the Department for the last five years with key definitions. A detailed description of the water balance can be found in the AWWA M36 Manual.

RESPONSE PROVIDED BY: The Philadelphia Water Department
PA-IV-20. SINCE ITS LAST CASE, HAS THE PWD CONDUCTED A COMPREHENSIVE HOLISTIC REVIEW OF ITS RATE STRUCTURE FOR WATER SERVICE UNDER WHICH SEPARATE RATE SCHEDULES WERE CONSIDERED FOR CERTAIN CUSTOMER CLASSES? IF NO, WHY NOT? IF YES, PLEASE DESCRIBE THIS REVIEW IN DETAIL AND PRESENT ALL RESULTS AND FINDINGS OF THE REVIEW.

RESPONSE:

Since the last rate proceeding, PWD conducted an Alternative Rate Structure Analysis, a facilitated process to consider changes to its rate structure in three areas: water quantity charges, stormwater credits and incentives, and recovery of pension-related expenses. The Department recognizes that a comprehensive review of the current rate structure and analysis of alternative ratemaking methodologies is a lengthy and ongoing process, and the information presented in the Alternative Rate Structure Analysis Report is the first step.

The Alternative Rate Structure Analysis Report is available on the Water, Sewer and Storm Water Rate Board’s website:


As noted on page 8 of the Alternative Rate Structure Analysis Report: “the City’s existing billing system has many limitations and in particular, concerning customer types. Prior to implementing any rates by customer type, the Department would need to address these limitations and verify all customer types.”

RESPONSE PROVIDED BY: The Philadelphia Water Department, Black & Veatch Management Consulting, LLC.
PA-IV-21. PLEASE PROVIDE AN ESTIMATE OF THE REVENUE REDUCTIONS RESULTING FROM STORMWATER CREDITS FOR THE LAST FIVE FISCAL YEARS.

RESPONSE:

RESPONSE PROVIDED BY: Melissa LaBuda Philadelphia Water Department

<table>
<thead>
<tr>
<th>Program</th>
<th>Program Type</th>
<th>FY2020</th>
<th>FY 2019</th>
<th>FY 2018</th>
<th>FY 2017</th>
<th>FY 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase in Program (CAP)</td>
<td>Bill Reduction</td>
<td>1,722,703</td>
<td>2,003,238</td>
<td>2,011,096</td>
<td>2,531,367</td>
<td>3,282,654</td>
</tr>
<tr>
<td>Stormwater Credits</td>
<td>Bill Reduction</td>
<td>18,740,626</td>
<td>17,988,320</td>
<td>16,038,856</td>
<td>13,819,758</td>
<td>12,864,862</td>
</tr>
<tr>
<td>Community Gardens</td>
<td>Bill Reduction</td>
<td>1,478</td>
<td>9,966</td>
<td>14,320</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>$20,464,807</td>
<td>$20,001,524</td>
<td>$18,064,272</td>
<td>$16,351,125</td>
<td>$16,147,516</td>
</tr>
</tbody>
</table>

CITY OF PHILADELPHIA WATER DEPARTMENT
PA-IV-22. PLEASE PROVIDE A COPY OF ANY STUDIES PERFORMED BY THE DEPARTMENT THAT EVALUATE THE EXTENT TO WHICH THE STORMWATER CREDIT PROGRAM HAS REDUCED STORMWATER VOLUMES.

RESPONSE:

Preparation of this response is in progress and will be provided in the future.

RESPONSE PROVIDED BY: The Philadelphia Water Department
PA-IV-23. REFERENCE SCHEDULE BV-4. PLEASE PROVIDE THE WORKPAPERS AND CALCULATIONS SUPPORTING EACH NEWLY CALCULATED CHARGE.

RESPONSE:

The workpapers supporting Schedule BV-4 are provided in Appendix A of Schedule BV-6: WP-5 entitled “Miscellaneous Fees Methodology.”

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-24. WHAT IS THE POPULATION OF PWD’S WATER SERVICE TERRITORY?

RESPONSE:

The Water System’s service area includes the City and one wholesale customer outside of the City. According to the 2018 U.S. Census Bureau estimate, the City’s population is 1,584,138.

RESPONSE PROVIDED BY: Melissa LaBuda, Philadelphia Water Department
REFERENCE BV-1, TABLE W-10. PLEASE IDENTIFY BY LINE-ITEM NUMBER, THE COSTS ASSOCIATED WITH WATER QUALITY TESTING REFLECTED IN TEST YEAR O&M EXPENSE.

RESPONSE:

The estimated FY 2022 costs of the Bureau of Laboratory Services (BLS) are included in the following line items in Table W-10.

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Description</th>
<th>FY 2022 Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Raw Water Pumping – Other</td>
<td>$ 142,084</td>
</tr>
<tr>
<td>7</td>
<td>Purification &amp; Treatment – Power &amp; Pumping – Other</td>
<td>$ 540,576</td>
</tr>
<tr>
<td>11</td>
<td>Purification &amp; Treatment – Other – Other</td>
<td>$ 2,276,381</td>
</tr>
<tr>
<td>15</td>
<td>Mains</td>
<td>$ 2,894,336</td>
</tr>
<tr>
<td>16</td>
<td>Meters</td>
<td>$ 90,788</td>
</tr>
<tr>
<td>17</td>
<td>Fire Hydrants</td>
<td>$ 25,125</td>
</tr>
<tr>
<td>18</td>
<td>Filtered Water Storage</td>
<td>$ 46,881</td>
</tr>
<tr>
<td>20</td>
<td>Customer Accounting &amp; Collection</td>
<td>$ 563,660</td>
</tr>
<tr>
<td>22</td>
<td>Administrative &amp; General</td>
<td>$ 1,226,467</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>$ 7,806,298</strong></td>
</tr>
</tbody>
</table>

Note: The Allocation of the FY 2022 BLS costs is presented on PWD Exhibit-6: Black & Veatch Management Consulting, LLC, Calculations Supporting Schedules BV-1, BV-2, BV-3, and BV-5, WCOS21_22, Womallo-14, Column 7 (page 843-844).

There are additional water quality testing costs included in Line 8 (Purification & Treatment – Treatment – Other) of Table W-10 which are associated with the labs located at each of the water treatment plants. The budgeted costs for each water treatment plant...
include the lab costs at each plant. At this time, the costs for these labs are not readily identifiable as there is not a specific cost center or unit within the treatment plant budgets to isolate these lab costs.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.

RESPONSE:

The Department performs quantity and quality tests on many aspects of the water and wastewater treatment processes, which include raw water, water in various stages of treatment, potable water, untreated wastewater, wastewater in various stages of treatment and treated wastewater. The frequency of tests is determined by the Safe Drinking Water Act, Clean Water Act, state permits, state regulations and responsible treatment practices.

RESPONSE PROVIDED BY: Donna Schwartz, Philadelphia Water Department
IN THE WASTEWATER COST OF SERVICE STUDY, PLEASE EXPLAIN HOW THE COSTS ASSOCIATED WITH I/I ARE ALLOCATED TO EACH CUSTOMER TYPE.

RESPONSE:

In accordance with the prior rate proceeding decisions, the cost of service and rate design for the current study reflects a 30 percent recovery of pumping and treatment related I/I costs through the service charge and 70 percent through the volume charge (PWD Statement 7A, Schedule BV-5, page 7-36).

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
PA-IV-28. REFERENCE BV-1, TABLE W-10:

A. PLEASE IDENTIFY LABOR EXPENSE BY LINE ITEM; AND

B. PLEASE IDENTIFY THE EXTENT TO WHICH TREATMENT PLANT LABOR EXPENSE WOULD INCREASE ON A MAXIMUM DAY TO AN AMOUNT HIGHER THAN THAT EXPERIENCED ON AN AVERAGE DAY.

RESPONSE:

A. Estimated FY 2022 direct labor expenses are included in the following line items in Table W-10:

<table>
<thead>
<tr>
<th>Line No.</th>
<th>Description</th>
<th>FY 2022 Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Raw Water Pumping – Other</td>
<td>$1,416,414</td>
</tr>
<tr>
<td>7</td>
<td>Purification &amp; Treatment – Power &amp; Pumping – Other</td>
<td>$5,388,905</td>
</tr>
<tr>
<td>11</td>
<td>Purification &amp; Treatment – Other – Other</td>
<td>$22,653,237</td>
</tr>
<tr>
<td>15</td>
<td>Mains</td>
<td>$34,128,804</td>
</tr>
<tr>
<td>16</td>
<td>Meters</td>
<td>$1,080,592</td>
</tr>
<tr>
<td>17</td>
<td>Fire Hydrants</td>
<td>$296,269</td>
</tr>
<tr>
<td>18</td>
<td>Filtered Water Storage</td>
<td>$552,796</td>
</tr>
<tr>
<td>20</td>
<td>Customer Accounting &amp; Collection</td>
<td>$1,555,642</td>
</tr>
<tr>
<td>22</td>
<td>Administrative &amp; General</td>
<td>$0</td>
</tr>
</tbody>
</table>

Total                     $67,072,659

Note: The Allocation of the FY 2022 direct personnel costs is presented on PWD Exhibit-6: Black & Veatch Management Consulting, LLC, Calculations Supporting Schedules BV-1, BV-2, BV-3, and BV-5, WCOS17_19, Womallo-12, Column 9 (pages 840 and 841).
B. Black & Veatch is not aware of any available staffing or labor analysis which would identify the extent to which treatment plant labor expense would increase on a maximum day to an amount higher than that experienced on an average day.

It should be noted that the allocation basis for water treatment labor expense reflected in the current cost of service study is consistent with the AWWA’s “Principles of Water Rates, Fees, and Charges” Manual of Water Supply Practices M1. As indicated on pages 66-67 of the manual: “Expenses other than power, chemical, and customer-related costs can be allocated to cost components on the basis of operating considerations or the design capacity requirements of each facility.” The allocation basis for the water treatment labor expense in the current cost of service study reflects the maximum day demand, which is consistent with the design capacity requirement and operating basis of PWD’s water treatment facilities.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.
REFERENCE TABLE W-11, FOOTNOTE (C). PLEASE IDENTIFY HOW THE AVERAGE DAY, MAXIMUM DAY, AND MAXIMUM HOUR DEMANDS FOR FIRE PROTECTION SERVICE WERE DETERMINED IN THE COST OF SERVICE STUDIES PREPARED BY B&V PERSONNEL FOR THE FIVE SERVICE TERRITORIES WITH THE NUMBER OF CUSTOMERS MOST COMPARABLE TO THE PHILADELPHIA WATER DEPARTMENT OVER THE LAST FIVE YEARS.

RESPONSE:

For Cost of Service studies, where fire protection costs are allocated as part of the analysis, Black & Veatch typically bases fire flow demands on the standards of the Insurance Services Office (ISO), which provides peak fire flow requirements. These fire flow demands are reasonable relative to the Duration of Required Fire Flow as presented in Table 15.2.6 of the National Fire Protection Association (NFPA) Fire Protection Handbook, 20th Edition.

These standards were referenced in prior cost of service studies to estimate fire flow demands for PWD, New Orleans, Louisiana, and Charleston, South Carolina.

For New Orleans and Charleston, the cost of fire protection is recovered via retail customer charges.

For Greater Cincinnati Water Works (GCWW), only the costs of fire hydrant repair and replacement are isolated and in turn recovered from retail customers as part of the water service meter charge.
For locales such as the City of Columbia, South Carolina, fire protection demands are not utilized in the Cost of Service analysis nor are fire protection costs disaggregated from retail customer’s cost of service.

RESPONSE PROVIDED BY: Black & Veatch Management Consulting, LLC.