RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-79. For each of the past three years, please provide:

a. System average day production;

b. System maximum day production; and

c. System maximum hour production.

Response:

a. The FY 2008 to FY 2014 System average day production is provided in PWD Exhibit -6: Black& Veatch Corporation Cost of Service Work Papers. See Total Districts Incl. Bucks County – Avg Day (Column 1) on WCOS15_17.xls, WPLTALLO-4 (PDF Page # 747).

b. The FY 2008 to FY 2014 System maximum day production is provided in PWD Exhibit -6: Black& Veatch Corporation Cost of Service Work Papers. See Total Districts Incl. Bucks County – Max Day (Column 2) on WCOS15_17.xls, WPLTALLO-4 (PDF Page # 747).

c. The FY 2008 to FY 2014 System maximum hour production is provided in PWD Exhibit -6: Black& Veatch Corporation Cost of Service Work Papers. See Total Districts Incl. Bucks County – Max Rate (Column 3) on WCOS15_17.xls, WPLTALLO-4 (PDF Page # 747).

For additional reference please see the Monthly Managers Reports provided in PWD Exhibit 4 (SI-18a and 18b).

Response Provided By: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-80. Please explain how frequently the meters of each customer class are read.

Response:

PWD does not read meters based on customer class. The goal is to read every meter every month. There is typically a 99% success rate in achieving this goal.

Response Provided by: Debra McCarty, Philadelphia Water Department

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-81. Please explain whether private fire services are normally serviced by service lines similar to water services. If not, please explain the service connection arrangements.

Response:

Both private service lines and private fire service lines come in various sizes and are connected to the water main.

Response Provided by: Debra McCarty, Philadelphia Water Department

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-82. Please explain whether service line investment has been allocated to private fire protection service. If no, why not?

Response:

As presented in Table W-8 of PWD Statement - 9A: Direct Testimony and Exhibits of Black & Veatch Corporation (PDF Page #122), the Water Utility investment is summarized by the following functional cost centers:

- Raw Water Supply and Pumping
  - Source of Supply
  - Power & Pumping
- Purification and Treatment
  - Power & Pumping
  - Treatment
- Transmission and Distribution
  - Mains
  - Meters
  - Hydrants
  - Filtered Water Storage
  - High Pressure Fire System
- Administration & General

The fixed asset record does not isolate service line investment from Meter investment. Private Fire Protection does receive a proportionate allocation of plant investment in Meters based on their units of service (equivalent meters). Please refer to the following information provided in PWD Statement - 9A: Direct Testimony and Exhibits of Black & Veatch Corporation:

- Table W-11 (PDF Page #125) – Column 9, Rows 16; and
- Table W-15 (PDF Page #129) – Column 5, Rows 1, 2, 7 and 8.

Response Provided By: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-83. Does PWD provide free service to any customers? If yes, please identify the customers and the annual volumes and reason for free service.

Response:

Vacant and unoccupied premises acquired by the City are not charged for stormwater service pursuant to Section 19-1602 of the Philadelphia Code, which provides that when any vacant or unoccupied premises are acquired by the City, charges for water and sewer, including charges relating to storm water management and disposal, shall terminate on the date that such premises are acquired. An ordinance approved on October 2, 1968 provides that property acquired by the Philadelphia Housing Development Corporation (PHDC) is not subject to water and sewer charges while such property is held by PHDC. Portions of Fairmount Park, cemeteries, streets, rights-of-way, etc. are exempted from stormwater charges pursuant to prior rate decisions. See definitions of "Non-residential Property" and "Property" in Section 300.0 and "Gross Area" in Section 304.3(c) of the Water Department regulations. In addition, residential sideyard appeals (related to a sideyard parcel that is contiguous with a main residential parcel and that has the same ownership) may result in the side yard being no longer billable. See the definition of "Residential Property" in Section 300.0 of the Water Department regulations. See also Exhibit BV-S4 attached to PWD St.-9B - Supplemental Direct Testimony and Exhibits of Black & Veatch Corporation for additional information on residential sideyards and City owned vacant lots. The annual volumes of stormwater service provided for these properties vary depending on the annual volume of precipitation.

Response Provided by: Joanne Dahme and Erin Williams, Philadelphia Water Department

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-84. Please provide a copy of PWD's most recent long-term water supply plan.

Response:

PWD's completed long term water supply plan can be seen in attachment 'Response PA-EXE-84'. PWD is working on updating its plan with an estimated completion date sometime during Fiscal Year 2017.

Response Provided by: Debra McCarty, Philadelphia Water Department

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-85. Please provide a representative sample of the bills of residential customers.

Response:

Please see information provided in response to PA-RDC-5. In response to an earlier data request from Mr. Colton, the PWD also produced a report for FY2014 "a distribution of residential water accounts by water consumption levels in ranges of 3 CCF." These data represent the population of general service customers, rather than a sample of customers. From the distribution of customers for the ranges of consumption provided, the user can determine the proportion of customers at various levels and calculate the monthly bills for customers of interest.

In addition, please see attachment 'Response PA-EXE-85' for a sample of a residential customer's bill.

Response Provided by: Henrietta Locklear, RFC and Mark Harvey, Water Revenue Bureau

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-86. Please provide an estimate of the quantity of water used for public fire-fighting 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 the last 3 years. However, for purposes of water accountability, an estimate of 55MG/yr is currently being used. This estimate is in the process of being updated.

Response Provided by: Debra McCarty, Philadelphia Water Department

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-87. Reference page 55 of PWD St.-9A. Please provide a detailed explanation as to how the 77 Base/23 percent maximum day, and 58 Base/14 maximum day/28 maximum hour percentages were calculated. Include supporting calculations.

Response:

As presented in pages numbered 47 and 48 of PWD Statement 9A, historical annual average, maximum day, and maximum hour system water demands were utilized to develop the coincidental system demand allocation factors used in this study. System peaking factors were developed based on a review of the historical system operating data for raw water and treated water pumping.

The following table presents the allocation basis for the Maximum Day functional cost components:

System Operating Data: Raw Water Pumping				
	Avg Day	Max Day	Max Hour	
Peaking Factor	1.00	1.30		
Maximum Day Functional Component Allocation				
	Base	Max Day Extra Capacity	Max Hour Extra Capacity	Total
Maximum Day	1.00	0.30		1.30
Allocation	77%	23%		100%

Work Paper Reference: PWD Exhibit 6: Black & Veatch Corporation Cost of Service Work Papers, WCOS15_17.xls - WPLTALLO-3 (PDF Page # 746)

The following table presents the allocation basis for the Maximum Day functional cost components:

System Operating Data: Treated Water Pumping (All Districts Including Bucks Co)				
	Avg Day	Max Day	Max Hour	
Peaking Factor	1.00	1.25	1.74	
Maximum Hour Functional Component Allocation				
	Base	Max Day Extra Capacity	Max Hour Extra Capacity	Total
Maximum Hour	1.00	0.25	0.49	1.74
Allocation	58%	14%	28%	100%

Work Paper Reference: PWD Exhibit 6: Black & Veatch Corporation Cost of Service Work Papers, WCOS15_17.xls - WPLTALLO-4 (PDF Page # 747)

Response Provided By: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-88. Reference Table 11-W of PWD St.-9A:

a. For each customer type reflect in Tabled 11-W, please provide monthly sales for the most recent 36-month available in Excel format;

b. Please identify what PWD considers to be a reasonable weekly usage adjustment factor for each class (see Appendix A, page 2317 of the AWWA M-1 Manual); and

c. Please identify what PWD considers to be a reasonable estimated MH/MD ratio for each class (per Appendix A, page 318, of the AWWA M-1 Manual).

Response:

a. A monthly summary of the water sales volume for the most recent 36-months is not available. However the FY 2013 to FY 2015 water sales by customer type is available and is provided in excel format as attachment "Response to PA-EXE-88A".

   Note that this is a summary of the data provided in attachment "Response PA-EXE-39 EXE-40.xlsx" which was previously provided in response to PA-EXE-39 and PA-EXE-40.

b. "Weekly usage adjustments factors" were not used in the development of the maximum month peaking factors by customer type, and are not readily available to provide at this time.

[Continued on next page]

c. The following table provides the estimated MH/MD ratio for each customer type as presented in Table W-9 of PWD Statement-9A: Direct Testimony and Exhibits of Black & Veatch Corporation (PDF Page # 125) with the exception of Public and Private Fire Protection.

Customer Type	MH/MD Ratio
Residential	1.80
Senior Citizens	1.80
Commercial	1.50
Industrial	1.25
Public Utilities	1.25
Housing Authority	1.66
Charities & Schools	1.50
Hospital/University	1.30
Hand Billed	1.50
Scheduled (Flat Rate)	1.80
City Leased Properties	1.30
City	1.30

Response Provided By:

Ann Bui, Prabha Kumar and David Jagt, Black & Veatch and Henrietta Locklear, RFC

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-89. Reference Table 11-W of PWD St.-9A. Please explain in detail how the maximum day and maximum hour capacity factor for each class was determined (including public and private fire). Include supporting calculations and documentation.

Response:

B&V used the maximum day and maximum hour capacity factors for each customer type consistent with the previous cost of service studies and rate proceedings with the adjustments identified in the response to PA-EXE-79.

Consistent with prior cost of service and rate proceedings, we used a maximum day fire demand of 1110 thousand cubic feet per day (Mcf/Day) and a maximum hour fire demand of 2,890 Mcf/Day. These system wide fire protection demands reflect two simultaneous fires, one requiring 10,000 gallons per minute (gpm) fire flow demand for 10 hours and the second requiring 5,000 gpm for 8 hours. These demands are allocated between standard pressure public fire service and private fire service based upon equivalent 6-inch connections for each of the two fire service classes. See attachment 'Response PA-EXE-89' for the supporting calculations for the allocation of the fire protection peak demands between public and private fire protection customer types.

Response Provided by: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-90. Reference Table 17-W of PWD St.-9A. Please explain in detail why the high pressure fire system was reallocated entirely to the residential class.

Response:

The high pressure public fire system has been retired, however some assets remain on the system books and records which result in the minor allocation of $2,000 in costs to the high pressure fire system. To account for the total system costs in the cost of service analysis, the $2,000 of costs allocated to the high pressure fire system were reallocated to the residential class. The reallocation of these costs reflects 0.001% of the $147,936,000 residential cost of service and is not impacting the proposed rates.

Response Provided by: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-91. Reference Table 17-W of PWD St.-9A. Please describe the Hand Billed customer type.

Response:

In Table W-17, the Hand Billed customer line is made up of customers coded "H" in the billing system. A listing of these customers can be found in the attachment 'Response PA-EXE-91.'

Response Provided by: Henrietta Locklear, RFC

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-92. Reference PWD Exhibit-6, page 5. If not provided in response to PA-EXE-74, please provide a copy of referenced Excel files FINPLAN15.XLS, WCOS15_2017.XLS and SCOS15_2017.XLS.

Response:

Subject to the Hearing Officer's requirements, the Microsoft Excel Based Computer Models included in PWD's application will be made available to Participants. A Confidentiality Agreement with the Philadelphia Water Department will be circulated for approval by the Hearing Officer. This includes the following models which are presented in PWD Exhibit 6: Black &Veatch Corporation Cost of Service Work papers:

1. Financial Plan (Finplan15.xls)
2. Wastewater Cost of Service (SCOS15_2017.xls)
3. Water Cost of Service (WCOS15_2017.xls)

Response Provided by: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-93. Reference page 88 of PWD St.-9A. Please explain the basis for using 95 percent of the water sales for each customer type to determine wastewater volumes. Provide all supporting workpapers and calculations.

Response:

Consistent with the approach used in the previous cost of service studies and rate proceedings, a 95% return factor was applied to the total annual billed water usage of each customer type to estimate the annual wastewater volume. Given that the City of Philadelphia has a highly urbanized customer base with very limited irrigation, the use of 95% factor is deemed reasonable for estimating the wastewater volume. Note that this return factor is not applicable for the Groundwater customer type.

Response Provided by: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-94. Please explain why it would be unreasonable to use average annualized winter-month water sales for wastewater volumes for residential customers.

Response:

As the Water Environment Federation (WEF) Manual of Practice 27 indicates, it is reasonable to estimate contributed residential wastewater volumes either based on winter water usage or by applying a percentage to the total annual water use.

Consistent with the approach used in the previous cost of service studies and rate proceedings, a 95% return factor was applied to the total annual residential water usage to estimate the annual wastewater volume. Given that the City of Philadelphia has a highly urbanized residential customer base with very limited irrigation, the use of 95% factor is deemed reasonable for estimating the wastewater volume.

Based on the monthly residential water sales data provided in the attachment to response to PA-EXE-88, the following table presents a comparison of the Annualized Winter Usage (December to March billed water usage) and Total Annual Water Usage for FY 2013 to FY 2015. As presented in the table, the Annualized Winter Usage as a percentage of Total Annual Water Usage for Residential Customers varied from 96.5% to 101.9% and averaged 100.0% during the period FY 2013 to FY 2015. While the winter water usage is an industry recognized approach, based on the results of the monthly usage data illustrated in the following table, it does not appear to be a reasonable approach for residential customers.

Residential Annualized Winter Water Usage Analysis			
	FY13	**FY14**	**FY15**
Annualized Winter Usage (ccf)	32,823,354	33,239,178	32,812,359
Total Annual Water Usage (ccf)	34,002,163	32,682,274	32,207,125
Annualized Winter Usage as a Percentage of Total Annual Water Usage	96.5%	101.7%	101.9%

Response Provided by: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-95. Please provide a copy of the study discussed on page 75 of PWD St.-9A which found for the PWD's collection system, 30 percent was for sanitary flow and 70 percent was for storm water.

Response:

As indicated in PWD Statement-9A in response to Q56, the allocation factors used to allocate the retail collection system plant investment between Sanitary Sewer and Stormwater are 36 percent for sanitary sewer and 64 percent for stormwater. These allocation factors, which were determined and validated during the 2012 rate proceedings, are based on a review of the replacement construction costs of separate sanitary sewer pipes and stormwater pipes while taking into consideration the construction technique of utilizing the same trench for placing both the sanitary sewer and stormwater pipes. Utilizing the same sewer trench reduces the trenching cost for stormwater pipes.

Please note that the 30 – 70 allocation factor was used in cost of service studies prior to the 2012 rate proceeding, and has not been applicable since the 2012 rate proceedings.

Response Provided By: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch

RESPONSE TO PUBLIC ADVOCATE'S INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS

PA-EXE-96. Reference page 89 of PWD St.-9A, Treatment-Capacity. Please provide the basis for each of the referenced ratios (times). Provide supporting calculations and documentation.

Response:

The peak capacity factor for the water pollution control plants, assumed to be 2.5 times the average day flow, is based on the historical peak flow experienced at the plants.

The two key treatment capacity ratios used to determine the peak flow capacity of the retail customers are as follows:

a. Peak sanitary flow is assumed to be 1.5 times that of the average annual sanitary flow.
b. Peak Infiltration & Inflow (I&I) flow is assumed to be 8.0 times that of the average annual I&I flow.

These peak capacity factors are assumptions based on industry practices utilized in the determination of customer class capacity units of service and are consistent with those used in the previous rate proceedings.

Response Provided By: Ann Bui, Prabha Kumar and David Jagt, Black & Veatch