BEFORE THE
PHILADELPHIA WATER, SEWER AND STORMWATER RATE BOARD

Re Application of the Philadelphia Water Department for Increased Rates and Related Charges	Fiscal Years 2017-2018

DIRECT TESTIMONY OF KATHERINE L. CLUPPER

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS FOR THE RECORD.

A. My name is Katherine L. Clupper. My business address is Two Logan Square, Suite 1600, Philadelphia, Pennsylvania 19103.

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

A. I am employed by Public Financial Management, Inc. ("PFM") as a Managing Director and shareholder in the firm. PFM is an independent financing advisory firm, registered as Municipal Advisor with the MSRB and the SEC. In the past three years (2012-2014), PFM has completed 324 water, sewer, and gas transactions for a total par amount in excess of $17 billion, which makes PFM the largest financial advisor in the country (Source: Thomson Reuters).

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL QUALIFICATIONS.

A. I work with the Financial Advisory Group at PFM and, in my current position; I am responsible for the development of independent financial advisory services in the Mid-Atlantic Region. As a part of my job responsibilities, I work with several state level issuers such as the Pennsylvania Industrial Development Authority, State of Maryland, Maryland Stadium Authority, Delaware River Port Authority and the Commonwealth Financing Authority. Additionally, I provide financial advisory services to a variety of local issuers both large and small, including the City of Philadelphia, City of Baltimore, City of Wilmington, Pittsburgh Water and Sewer Authority and Montgomery County, Maryland.

I have also worked with several large Pennsylvania issuers such as Pennsylvania Turnpike Commission, the Southeastern Pennsylvania Transportation Authority, Allegheny County, Allegheny County Port Authority and the Pennsylvania Convention Center Authority.

I have almost 30 years of experience in the area of public finance and have assisted clients in successfully entering into the public markets, implementing best practices in managing their debt portfolio, analyzing and developing credit and long term asset/liability strategies. A broader summary of my professional experience is set forth in the attached resume of experience. Exhibit KLC-1.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I hold a Bachelor of Social Work Degree (BSW) from Shippensburg University and a Master of Business Administration Degree from Temple University.

Q. HAVE YOU TESTIFIED BEFORE ANY REGULATORY AGENCIES PREVIOUSLY?

A. I testified for the Department’s 2012 Rate Proceeding. I have also testified and participated in other legislative and public hearings related to bond authorizations for my clients.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to identify certain financial strategies and policy changes necessary to meet funding requirements associated with the Department's expanding capital program on a least cost basis.

Q. WHAT IS THE DEPARTMENT'S CURRENT CREDIT RATING?

A. The Department's current credit ratings are "A1” Stable Outlook by Moody's Investors Service, "A" Positive Outlook by Standard & Poor's Ratings Service and "A+" Stable Outlook by Fitch Ratings.

Q. HOW DO THESE RATINGS REFLECT THE FINANCIAL STABILITY OF THE DEPARTMENT, CONSIDERING PEER UTLITY PRACTICES AND BEST MANAGEMENT PRACTICES AS REQUIRED IN THE WATER RATE BOARD AUTHORIZING ORDINANCE?

A. The Rate Ordinance requires that the Water Rate Board consider relevant information in their deliberations, including peer utility and best management practices. An important source of data which can be accessed to fulfill this objective is the three rating agencies that current rate municipally owned water and sewer systems. These agencies are Moody’s Investor Services, Standard & Poor’s Rating Service and Fitch Ratings. Obtaining ratings from credit agencies is a critical and necessary step to borrowing debt, whether in the public or private capital markets. Credit Ratings reflect a quantitative framework incorporating sector ratios and trend analysis as well as a qualitative review of management, financial policies and legal provisions. Largely for the benefit of the investing public, credit ratings are also a critical tool for utilities to use as a guide in long range planning and rate setting discussions. Higher ratings reflect strong financial resources and low debt burden which can be critical in mitigating increased capital demand, unexpected disruptions in revenue and pressure on operating expenses.

As a point of comparison to the Department’s ratings, Fitch’s median rating for this sector is “AA”, Moody’s rates 85% of this sector “A1” or higher and Standard & Poor’s rates 58% of large utilities in the AA category or higher. Moody’s rates approximately 880 water and sewer credits in their utility sector, Standard & Poor’s rates approximately 1,647 water and sewer utility credits. Fitch includes 149 credits in their median data, of which 74 are combined water and sewer systems. In general all three credit agencies view the outlook of this sector as stable, reflecting the essential nature of the service.

A closer look at specific regions or system sizes indicates a more varied outlook for the industry. The Northeast region shows largely flat financial results compared to other regions which continue to show increasing financial strength. Larger systems, not surprisingly, continued to show higher levels of debt and therefore tighter financial margins. Generally the older infrastructure of these systems requires greater contribution to capital improvements funded largely by debt, resulting in continued higher rate increases.

Ratio and median comparisons can provide insight into the financial strength and sustainability of an individual system. The quantitative and qualitative analysis of the rating agencies can shift as industries and sectors evolve, but there are certain key drivers that form the foundation of the analysis. The key rating drivers as described by Fitch for this industry include governance and management which is a more qualitative assessment of stability and experience of the professional staff, the degree of political involvement, policies and procedures and quality of long term planning. Another critical component is the financial profile which assesses the historical and forecasted financial ratios such as debt service coverage, days cash on hand, rate structure and affordability metrics.

The debt profile compares debt per customer and per capita, percentage of debt funding of capital, rate covenants, rate of amortization of principal, additional bonds tests and debt service reserve fund balances. Finally the forth key driver is a review of the operating profile which analyzes the stability of customer base, treatment capacity, burden on top 10 customers, annual renewal of depreciated assets, percentage of unbilled or unaccounted for water and compliance with regulatory requirements.

Below is a summary of certain key median metrics from the three rating agencies in comparison to the Department. While each agency measures credit slightly differently, debt service coverage and liquidity ratios that are considered important criteria by all. These ratios are from the actual rating agency special reports which compare data from fiscal years 2013 and 2014, depending upon what information is available. Sector reports with rating medians are generally published annually. Definitions of certain ratios are included in Exhibit KLC-2 at the end of this testimony, as well as the list of published special sector reports sited.

Moody's: U.S. Water and Sewer Credit Ratios: Medians (FY 2014)	PWD		A	AA
Total Long Term Debt ($000)	1,830,387		27,883	79,663
Total Operating Revenues ($000)	610,988		11,590	34,964
Operating ratio (%)	56.50		62.20	59.60
Debt Ratio (%)	66.70		37.30	31.80
Total Annual Senior Lien Debt Service Coverage (x)	1.40		2.54	2.40
Total Annual Debt Service Coverage (x)	1.40		1.81	2.03
Fitch: U.S. Water and Sewer Credit Ratios: Medians (FY 2014)	**PWD**	**Large System (>500,000)**	**A**	**AA**
Population	1,607,000 (water) 2,300,000 (wastewater)	928,281	139,915	339,172
MHI $	45,303	50,065	43,197	62,688
Total Water Customers [1]	475,000	218,450	20,930	90,576
Total Sewer Customers [1]	530,000	237,446	34,933	94,179
Average Annual CIP Costs Per Customer $	201	318	352	260
CIP Debt Financed %	70	58	64	35
Debt to Equity (x)	7.2	5.9	9.5	3.6
Total Outstanding Long-Term Debt Per Customer $	1,926	2,382	2,218	1,934
Senior Lien ADS Coverage	1.40	2.3	2.4	2.5
Days Cash on Hand	290	296	366	442
Standard & Poor's: U.S. Water and Sewer Ratios: Medians (FY 2013)	**PWD**	**Pop Above 500,000**	**A**	**AA**
Population	1,700,000 (water) 2,300,000 (wastewater)	998,454	18,919	74,051
EBI as % of U.S.	75.4	98	85	103
Water Rate $	28.71	30.12	40.84	32.84
Sewer Rate $	35.52	42.54	40.45	38.81
Total Operating Revenues $	639,974	174,087	4,245	15,835
Days' Cash (Excluding RSF*)	60-90*	281	283	417
Senior-lien Debt Service Coverage	1.20	2.02	1.73	2.4
All-in Debt Service Coverage	1.20	1.53	1.43	1.87

[1] Fitch and Standard & Poor's count customers served by wholesale agreements as direct customers of the system which can distort the number of retail customers.

In an attempt to increase transparency in the rating process both Moody's and Standard & Poor's have either implemented or proposed a more quantitative approach to assessing an issuer's credit rating. They have developed scorecards, which can be adjusted to acknowledge system differences. Moody's rating methodology was published in December of 2014 and was used in the most recent PWD rating analysis. The scorecard factors include System Characteristics (30%) such as asset conditions, service area wealth and system size, Financial Strength (40%) factors such as annual debt service coverage, days cash on hand, debt to operating revenues, Management (20%) including rate management, regulatory compliance and capital planning and Legal provisions (10%) such as rate covenants and debt service reserve requirements. While the metrics can be adjusted, this methodology also provides a more quantitative insight into the factors considered by both the rating agencies and investors.

Moody's Utility Revenue Rating Methodology							
Subfactor	**Weight**	**Aaa**	**Aa**	**A**	**Baa**	**Ba**	**PWD**
Asset Condition (Net Assets/Annual Depreciation)	15%	>75 Years	75 years ≥ n > 25 years	25 years ≥ n > 12 years	12 years ≥ n > 9 years	9 years ≥ n > 6 years	**23 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%	**72.40%**
System Size							
Water / Sewer / Combined Utility / Solid Waste	7.5%	O&M > $70M	$70M ≥ O&M > $40M	$40M ≥ O&M > $17M	$17M ≥ O&M > $10M	$10M ≥ O&M > $5M	**$354.70**
Annual Debt Service Coverage	15%	> 2.00x	2.00x ≥ n > 1.7x	1.7x ≥ n > 1.25x	1.25x≥ n > 1.00x	1.00x ≥ n > .70x	**1.4x**
Days Cash on Hand	12.5%	> 250 days	250 days ≥ n > 150 days	150 days ≥ n > 35 days	35 days ≥ n > 15 days	15 days ≥ n > 7 days	**289**
Debt to Operating Revenues	7.5%	< 2.00x	2.00x < n ≤ 4.00x	4.00x < n ≤ 7.00x	7.00x < n ≤ 8.00x	8.00x < n ≤ 9.00x	**2.89**
Rate Management	10%	Excellent rate-setting record; no material political, practical, or regulatory limit to rate increases	Strong rate-setting record; little political, practical, or regulatory limits to 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	**A**
Regulatory Compliance & 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	**A**
Rate Covenant	5%	> 1.30x	1.30x ≥ n > 1.20x	1.20x ≥ n > 1.10x	1.10x≥ n > 1.00x	≤ 1.00x	**1.2**
Debt Service Reserve Requirement	5%	DSRF Funded > MADS	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	**MADS**

The overarching goal of credit agencies is to conduct analytical reviews in an attempt to predict future financial stability based on peer analysis and industry best financial practices. It is important to understand the weighting of credit factors and how the Department fairs in comparison when considering future revenue requirements. Moody's notes that "The City's ability to maintain adequate coverage levels will be a key factor in its rating going forward."

We would suggest that the Rate Board consider peer analysis and sector medians in their deliberations as a matter of best practices. Peer analysis is a critical component in the Financial Plan submitted by the Department now formally called the Financial Stability Plan.

Q. WHAT WAS THE SPECIFIC FEEDBACK FROM THE MOST RECENT RATING PROCESS FOR THE DEPARTMENT?

A. As mentioned previously, the rating process is a review of current financial data viewed in light of past financial trends, sector data and the underlying economics of a particular service area. The Department has been successful in trending towards increased debt service coverage and liquidity, as acknowledged as credit positives in all three recent rating reports.

Rating Agency:	**Moody's**	**Standard & Poor's**	**Fitch Investor Services**
Rating Report:	"A1"/Stable Outlook (3/19/2015)	"A"/Positive Outlook (3/20/2015)	"A+"/Stable Outlook (3/23/2015)

The positive outlook on the S& P rating indicates a one in three chance that the rating could improve in the next two years assuming continued positive trends in coverage, liquidity and overall economic trends. Below is a summary of key points made in the most recent rating reports for the Department.

	Positives	Negatives
Service Area and Operational Characteristics	•Diverse and stable customer base •Ample water supply and treatment capacity	•Weak economics of service area (when comparing income and economic profile to national average)
Rates	•Regular, multi-year rate increase •Competitive rates	•Uncertainty of independent rate-making commission's willingness to increase rates to increase coverage
Financial Performance	•Strong financial reserve position	•Fluctuating and below-average debt service coverage •Reliance on rate stabilization fund to support operations
Capital Program	•Modest and declining variable rate exposure	•Above average debt position (high debt to capital ratio) •Significant new issuance to fund CSO plan
Management	•Strong management with conservative budgeting record	
Legal		•Moderately weak legal structure that allows for use of reserves to meet rate covenant

Q. PLEASE DESCRIBE THE DEPARTMENT'S PROJECTED CAPITAL BUDGET AND EXPECTED DEBT ISSUANCE.

A. The Department's capital improvement program budget totals $1.7 billion for FY 2016 to 2021. This includes approximately $333 million for the consent order and agreement signed in 2011 between the Department and PaDEP ("COA") for long term control plan, which is expected to cost the Department $2.4 billion over 25 years. However the focus on the majority of the capital plan is for renewal and replacement of the water conveyance and sewer collection systems along with improvements to water and wastewater treatment plants. The remaining useful life of the Department's assets is 23 years. This is below the Moody's median of all US Water, Sewer and Combined Utilities of 30 years as well as being below the Median for "A" rated credits, which is 29 years.

In financing the current five year capital improvement plan ("CIP"), the Department expects to fund 80% of its capital needs with the issuance of debt. This will result in borrowing approximately $276 million per year beginning in FY 2017 through FY 2021. The size and cost will be dependent upon prevailing interest rates and market conditions. In addition to funding capital projects, anticipated borrowings will also fund required debt service reserve fund deposits and transaction costs. The remaining portion of the capital plan will be financed with current rate revenues or "Pay-Go".

Q. PLEASE DESCRIBE THE POSSIBLE FUNDING STRATEGIES AND IMPLICATIONS FOR FUTURE FINANCIAL STABILITY?

A. The Department has limited choices of funding for its future capital program. It can issue long term debt, utilize current rate revenues or rely on a combination of the above. The Department has legal debt coverage requirements for raising revenues which will impact this mix of bond funding versus pay-go. While it is not realistic, prudent or fair to fund long lived assets entirely with current revenues, it is equally important to consider future debt burden and sustainability. Large systems rated by Fitch have a 58% of capital financed by debt and Fitch “A” rated credits have a 64% debt financed CIP versus the projected 80% debt funding of the Departments CIP.

The Departments authorizing bond ordinance (the “General Ordinance”) requires established rates and charges to equal at least 1.2 times annual debt service requirements (excluding debt service on Subordinate Debt), including contributions from the Rate Stabilization Fund. Additionally, the Department must charge rates and charges to equal at least 1 times all debt service (including subordinate debt) plus certain additional deposits and as long as insured bonds are outstanding, there is a requirement of 90% of revenues to debt service including the rate stabilization fund but excluding subordinate debt. These requirements establish a minimum debt coverage requirement to the extent the Department can rely on contributions from the Rate Stabilization Fund to comply with coverage requirements.

Additionally, the Ordinance authorizing the Rate Board requires that “rates and charges shall yield to the City at least an amount equal to operating expenses and debt service on all obligations of the City in respect of the water, sewer, and storm water systems”. Given current and future capital needs and these coverage requirements, we believe that funding 80% of the Departments capital needs with bond proceeds is not sustainable in the long run and will result in burdensome debt per capita for future rate payers. Funding projects with debt at this level into the future will create debt or “hard liabilities” that will make financial flexibility more difficult.

As an illustration, if you make the assumption of issuing approximately $250 million annually over the next 25 years at 20% pay-go you would double your annual debt service to over $430 million. This is in contrast to approximately $350 million annual debt service if you assumed a 40% pay go and borrowed 20% less in par-amount. . Assuming the same revenue increase between the two scenarios, but utilizing the cash to fund capital instead of the rate stabilization fund, will ultimately result in higher coverages due to lower annual debt service. This will in turn result in a stronger credit profile for the Department which will ultimately result in more favorable credit reviews.

In turn, keeping the coverage at the lower range of only what is legally required, will force the Department to use revenue to fund the RSF and not be able to contribute to a capital fund or to use the Residual Fund for this purpose. The effect of this is the Department will be required to fund its capital program with a higher percentage of bond proceeds, increasing the debt burden on the system and creating negative pressure is placed on the Department's credit rating.

Q. DESCRIBE POLICIES THAT SHOULD BE CONSIDERED BY THE DEPARTMENT TO ENSURE FINANCIAL STABILITY AND DISCUSS SIMILAR POLICIES FROM PEER UTLITIES?

A. Described below are some policies from peer utilities that are beyond the legal requirement in their respective bond indentures. These policies reflect the financial strength and flexibility of the systems. Some of these utilities, such as the City of Baltimore, have similar underlying household income levels as the City of Philadelphia. Affordability is certainly a critical issue, which is why future debt burden and financial flexibility needs to be considered.

Certain policies of selected peer utilities are summarized below.

Issuer	District of Columbia Water & Sewer Authority	City of Cleveland Water Enterprise	City of Baltimore
Rating	Aa2/AA/AA	Aa1/AA/NR	Aa2/AA-/NR
Legal Debt Service Coverage	1.20X	1.25X	1.15 X
Debt Service Coverage Policy (Sr.)	1.40 X	(No Policy) Required 1.25	1.40 X
Debt Service Coverage Actual (Senior)	1.73 X (Total)	1.50 X	1.60 X
Operating Reserve Policy	• Minimum Balance equal to at least 60 days of operating and maintenance expenses • Required to have cash reserves equal to 120 days cash of budgeted O&M costs	• Minimum Balance of at least $100 million representing approximately 6 months operating and maintenance expenses	• At least 8% of operating expenditures (Legally Required) • Fiscal Management targets 12% of the operating expense budget. • Fiscal Management targets a year ending cash minimum balance equal to 25% of the annual operating expenses.
Renew/Replacement (Capital Fund) Policy	• Minimum balance of $35 Million and/or 2% of original plant in service cost.		

Q. PLEASE SUMMARIZE KEY FINANCIAL POLICIES OF THE DEPARTMENT'S FINANCIAL STABILITY PLAN.

A. The Department is recommending the following key financial policies:

DEBT SERVICE COVERAGE – PWD will set rates and develop operating and capital budgets that ensure minimum senior debt service coverage of 124 percent in FY2016, 125 percent in FY2017, 126 percent in FY2018, and 135 percent by FY 2019, maintaining this level of coverage thereafter.

- This coverage level exceeds PWD's bond indenture requirement of 120 percent senior debt service coverage
- Excess operating revenue above stated projections will be used to increase debt service coverage resulting in additional pay-as you go capital funding

PFM supports this policy as a beginning step to create the required cash flow necessary to increase the amount of pay-go and liquidity. Debt Service coverage is a key measurement as it reflects the financial strength of a system. Higher levels of coverage are indicators of a systems ability to mitigate unforeseen emergencies, increased debt burden and operating expenses as well as economic downturns that can impact revenue. We believe that annually increasing the coverage to the 1.35 times level in FY 2019 is appropriate given the Departments debt profile.

CASH RESERVES – PWD must maintain at least $110 million in the Rate Stabilization Fund (RSF) and $15 million in Residual Fund, adjusted for inflation.

- The PWD will target 120 days cash on hand when accounting for the Rate Stabilization Fund and Residual Fund

PFM agrees that targeting 120 days cash on hand is an appropriate target and in line with other peer system. A cash reserve policy should be viewed in number of days instead of a fixed amount to account for changing levels of operating expense. We note that the range for Days Cash on Hand for Moody's "Aa" rated credits ranges from 150 days to 250 days and Fitch suggests day's cash and days of working capital to equal one year or more for their strongest credits. Fitch mid-range credits have Days Cash on Hand of about six months.

We would suggest that 120 days should be a minimum level. Days cash on hand is calculated by dividing total available liquid resources by annual expenses. Rating agencies might consider a varied calculation of available resources which accounts for the different reported ratios. The Department is calculated DCH by including equity in the Treasurer's account plus the Rate Stabilization Fund plus the Residual Fund dived by operating expenses net of depreciation. We agree with this approach.

We would further recommend that over the long run, the Department consider increasing the contribution to the Residual Fund since the allowable use of that fund is broader and more flexible. Excess funds should flow to the Residual Fund and be used to increase the amount of funds used for the pay-go contribution to the CIP.

PAY-GO FINANCING OF CAPITAL - PWD will target to fund at least 20% of the capital program with cash, thereby reducing a portion of long-term borrowing requirements or needs.

PFM supports the increasing of Pay-Go financing of capital to at least 20% and believes that eventually this target will need to be increased after FY 2019. As the CIP requirements continue, the Department will need to balance current affordability with future sustainability. Rising fixed costs such as debt service and pension liabilities make it difficult to have a level of financial flexibility necessary to mitigate unexpected budget stresses. Increasing the percentage of pay-go increases the amount of equity rate payers have in their system, insuring more reasonable future rate burden.

As noted previously, Fitch attributes a strong profile to those systems which debt fund capital at a 50% level or less and a midrange profile to funding projects with debt at a 75% level or less.

DEBT ISSUANCE - PWD will strive to match the period of debt repayment, in total, with the lives of the assets financed by any such debt and will strive to secure the least costly financing for capital projects.

PFM agrees with the strategy of better matching assets and liabilities and notes that the Department has begun to implement this strategy with its most recent borrowings. The most recent new money issue was structured as a level debt structure, amortizing between 2037 to 2046 with a weighted average maturity of 26.115 years. Managing future debt capacity in a manner that is mindful of long term capital needs will be critical to insuring reasonable future rate increases.

Q. ARE THESE POLICIES NECESSARY TO ENSURE FINANCIAL VIABILITY IN THE FUTURE AND WHAT ARE THE RISKS IF THE PLAN IS NOT IMPLEMENTED?

A. If the Department is unable to implement these financial policies as a component of the Financial Stability Plan, the financial profile of the Department will be negatively impacted. While the implication of deteriorating financial ratios and metrics can be a rating downgrade and increased borrowing cost, the most critical impact is increased future cost to the rate payers resulting from higher debt burden and the inability to withstand potential economic downturns, increasing regulatory requirement or system emergencies.

Q. DOES PFM SUPPORT THESE POLICIES?

A. PFM supports these policies as a critical component of the proposed financial stability plan.

Q. WHY IS THE FOREGOING DISCUSSION RELEVANT TO THE DEPARTMENT'S REQUEST FOR RATE RELIEF?

A. It is the Rate Boards responsibility to consider the 2016 Department's Financial Stability Plan in its deliberations and to utilize key metrics, peer information and best practices in its decision. Insuring long term sustainability of the water and sewer systems requires this type of consideration.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

EXHIBIT KLC-1

Katherine L. Clupper 449 West Stafford Street, Philadelphia, PA 19144

EXPERIENCE

The PFM Group, 2003 to Present
Managing Director, Financial Advisory Group, Philadelphia

- Responsible for development of independent financial advisory services in the Mid-Atlantic Region. Manager of the Philadelphia Financial Advisory practice; a sample of current clients include the City of Philadelphia, City of Philadelphia Water Department, Delaware River Port Authority, State of Maryland, Maryland Stadium Authority, City of Wilmington, City of Baltimore, Temple University and Drexel University.

Penn Capital Advisors, 2000 to 2003 (Acquired by PFM in 2003)
Director, Independent Financial Advisory, Malvern

- Responsible for development of independent financial advisory services in Pennsylvania and Delaware.

First Union Securities, Inc., 1998 to 2000
Director, Public Finance Department, Philadelphia

Wheat First Butcher Singer, 1990 to 1998 (Acquired by First Union in 1998)
Senior Vice President, Public Finance Department, Philadelphia

- Responsible for public finance business in Pennsylvania, including local governments, non-profits and state agencies.

Russell Rea & Zappala, 1987 to 1989
Vice President, Public Finance Department, Philadelphia

- Responsible for the firm's public finance effort in the Eastern region of Pennsylvania

City of Philadelphia, 1985 to 1987
Assistant to the Director of Finance, City Treasurer's Office, Philadelphia

City of Philadelphia, 1982 to 1984
Juvenile Justice Planner, Youth Services Coordinating Office, Philadelphia

House of Representatives, Pennsylvania, 1979 to 1981

- Legislative Assistant, Sub Committee on Crime and Corrections, Judiciary Committee, Harrisburg
- Legislative Assistant, Representative John F. White, Jr., Philadelphia

EDUCATION

MBA in finance from Temple University in 1985. BSW from Shippensburg University in 1979.

PERSONAL

Community Involvement:
Board of Directors, Urban Affairs Coalition; Finance Committee
Board of Directors, Center in the Park, Economic Development Committee
Member: Forum of Executive Women

EXHIBIT KLC-2

Certain Ratio Definitions:

Moody's

- Operating ratio: operating and maintenance expenses divided by total operating revenues.
- Debt ratio: net funded debt divided by the sum of net fixed assets and net-working capital
- Net working capital: current assets minus current liabilities plus unrestricted assets not devoted to debt service.

Fitch

- Debt to Equity: Total amount of utility long-term debt divided by unrestricted net assets.
- Days Cash on Hand: Current unrestricted cash and investments plus any restricted cash and investments (if available for general system purposes), divided by operating expenditures minus depreciation, divided by 365

Standard & Poor's

- Days Cash: Enterprise fund cash and cash equivalents divided by annual enterprise fund expenses and multiplied by 365, excluding depreciation. S&P has recently included the RSF in PWD's ratio analysis.

Rating Reports Used in Testimony

1. Moody's Investors Service; US Water and Sewer Utilities FY 2013 Medians; US Municipal water and Sewer Utilities Demonstrate Stable to Positive Trends; September 29, 2015
2. Moody's Investors Service; US Municipal Utility Revenue Debt; Rating Methodology; December 15, 2014
3. Fitch Ratings; Sector-Specific Criteria; US Water and Sewer revenue Bond Rating Criteria; September 3, 2015
4. Fitch Ratings; Special Report; 2015 Water and Sewer Medians; December 10, 2014
5. Standard & Poor's Rating Services; US Municipal Water and Sewer Utilities 2015 Sector Outlook; and the Winner Is…; January 26, 2015
6. Standard & Poor's Rating Services; Criteria; Request for Comment; US Public Finance Waterworks, Sanitary Sewer, and Drainage Utility Systems: Methodology and Assumptions; December 10, 2014
7. Standard & Poor's Rating Services; 2014 Review of US Municipal Water and Sewer Ratings: How They Correlate with Key Economic and Financial Ratios

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