

APPENDIX A

DESCRIPTION OF THE AUTHORITY AND THE WATER AND SEWER SYSTEM

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Governance

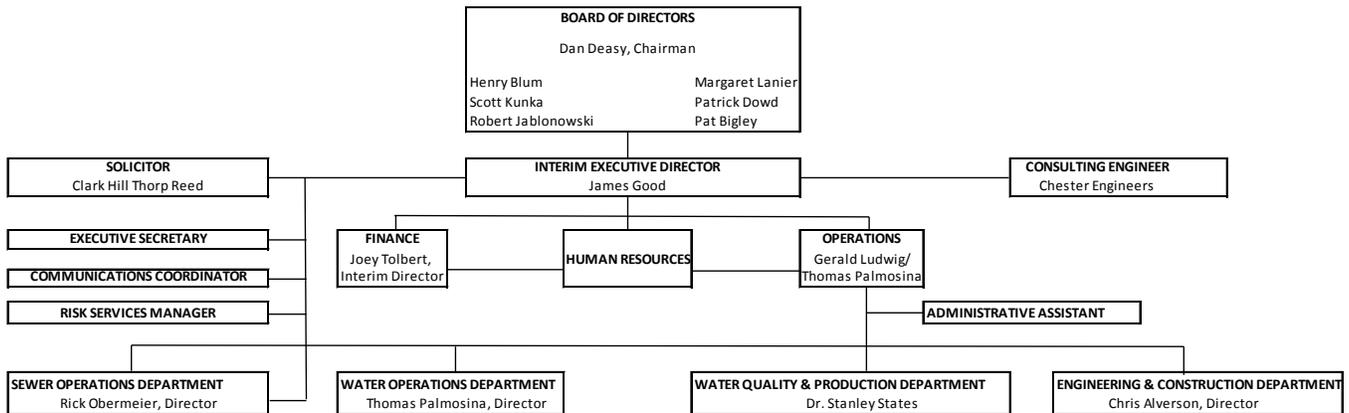
The Board of the Authority consists of seven (7) members with no fewer than six (6) members appointed by the Mayor of the City and approved by City Council. The terms of office of the members commence on the date of appointment, and the members serve staggered five (5) year terms from the first Monday in January next succeeding the date of appointment or until appointment of a successor, whichever is later. The present members of the Board and officers of the Authority and their principal private affiliations are as follows:

Member	Occupation
Dan Deasy, Chairman	Member, 27 th Legislative District, House of Representatives, PA
Robert P. Jablonowski, Vice Chairman	Retired Chemist, Duquesne Light Co.
Scott Kunka, Treasurer	Director of Finance, City of Pittsburgh
Henry C. Blum, Secretary	1 st Vice President, Public Events Employees Union Local No. 188
Margaret L. Lanier, Asst. Sec./Asst. Treasurer	Treasurer, City of Pittsburgh
Patrick Dowd, Member	Pittsburgh City Councilman
Patrick Bigley, Member	Plumber

Organization Summary

The Authority is organized into two operating divisions: Administration and Operations.

**Pittsburgh Water and Sewer Authority
2013 Organizational Chart**



The Finance Division is responsible for the various administrative and support functions within the Authority. These include: customer service, billing and collections, finance, procurement, and management and data information systems.

The Operations Division consists of four Departments: Water Operations, responsible for the transmission of potable water; Sewer Operations, which manages the collection and transmission of wastewater; Water Quality and Production, which ensures that finished drinking water meets all health and safety requirements, and also includes the water treatment plant and storage facilities; and, the Engineering and Construction Department, which is responsible for developing, designing, initiating and monitoring all of the Authority’s Capital Improvement Projects. In addition, this Department is responsible for reviewing plans prior to issuing permits for any connection into, or modification of, the water and sewer system; and for the maintenance and updating of the Authority’s geographical information system.

Key Management Personnel

Chief Operating Officer – Gerald Ludwig, a Veolia employee, joined the Authority in September 2013 as Director of Engineering and Construction. Mr. Ludwig has hands-on experience in developing, contracting, implementing, and successfully delivering major infrastructure and facilities programs for government and industry in the water and wastewater industry both domestically and globally. He has managed over 20 major infrastructure and facility programs including three (3) with values exceeding \$1B, with demonstrated success in developing Program Management, Construction Management, Design-Build, and Alliance Contracting Best Practices and for contract delivery. His experience includes commercial projects and delivery manager on major civil and infrastructure programs, which required extensive client interface, coordination with governmental agencies, contract and fee negotiations, contract administration; and extensive supervision and management of planning, engineering, procurement and construction task forces. Mr. Ludwig is known as a high performance

team builder and mentor, developing and delivering leadership training programs for managerial, technical, and construction staff.

Director of Operations – Thomas Palmosina is responsible for managing the Operations Division. Mr. Palmosina began his employment with the City of Pittsburgh Water Department (later to become the Pittsburgh Water and Sewer Authority) in 1973 as a Laborer. He has held several positions including Pipeline Repairman, Repair Foreman, Service Foreman, Supervisor, Manager of Operations and served as Co-Executive Director of the Authority from 2010 through July 2012, when the Interim Executive Director position was awarded to Veolia Water. He holds an Associate's Degree in Liberal Arts from Robert Morris University and is a 25 year member of the American Water Works Association. Mr. Palmosina is a current board member for the Pa-One Call System and a 5 year member of PA Rural Waterworks Association. Mr. Palmosina has a current DEP Water Operator's License with the Commonwealth of Pennsylvania and is also a certified Emergency Responder for Water and Waste/Water Disasters.

Interim Director of Finance – Joey Tolbert joined the Authority's Administrative Division in September 2013, as the Interim Director, and is a Veolia employee. Mr. Tolbert is responsible for various administrative operations of the Authority. As Interim Director of Finance, he oversees the Finance and Accounting Departments including Accounts Payable, Procurement, Receivables, Payroll, Budgets, Forecasts, Banking and Investor Relations and Collections. Effective April, 2010 the Director of Finance was also assigned oversight responsibilities of the Customer Service, Human Resource and Management Information System Departments. Mr. Tolbert came to the Authority with over 15 years' experience in the finance and accounting field with Veolia and with over 12 years of municipal finance experience as City Treasurer and Director of Finance, including nearly 5 years as a City Manager. Mr. Tolbert has a Bachelor of Science Degree in Accountancy from Southern Illinois University at Edwardsville and Master of Science in Management Information Systems. While working in municipal finance, he was recognized as a Certified Illinois Municipal Treasurer.

Director of Water Research -- Stanley States, Ph.D., has been the Water Quality Manager for the Authority and its predecessor the City of Pittsburgh, Department of Water, since 1977. In 2009, he was appointed Director of Water Quality and Production and in 2013 Director of Water Research. As Water Quality Manager, he was responsible for the operation of the two water treatment plants, including reservoirs, tanks, pumping stations, and sewage lift stations; the laboratory; compliance with federal, state, and county water quality regulations; and the actual treatment process. He holds an MS in Forensic Chemistry and a Ph.D. in Environmental Biology from the University of Pittsburgh. Dr. States has conducted research and published extensively in the areas of water quality and treatment. He has served as an adjunct professor and has taught in the Graduate School of Public Health and the School of Engineering at the University of Pittsburgh. Most recently Dr. States has been involved in authoring and delivering counterterrorism security courses, to water and wastewater personnel across the nation, for the Department of Homeland Security and the Environmental Protection Agency. Dr. States is a member of the American Water Works Association, the Water Works Operators Association of Pennsylvania, the American Society for Microbiology, and the American Chemical Society.

Director, Sewer Operations – Cyril “Rick” Obermeier is currently the Director of Sewer Operations for the Authority. After receiving a Journeyman Plumbing License with Allegheny County in 1979, he worked in the plumbing field installing plumbing in homes and commercial buildings for ten years. In 1982 he became a Plumber with the Water Department of the City of Pittsburgh (which later became the Pittsburgh Water and Sewer Authority) until 1988 when he was promoted to the position of Service Foreman. In 1990 he accepted and served in the position of Service Supervisor until 2001 when he was promoted to Sewer Manager. In February 2010, he was appointed to the position of Director, Sewer Operations and continues to serve in that capacity. As Director of Sewer Operations, he is responsible for the daily maintenance of sewer operations as well as service of the water meters.

Rick is an active member of AWWA, ICC (International Building Code Council) NFPA (National Fire Protection Assoc.), Rural Water Works Association and holds an Allegheny County Master Plumbing license HP# 1453, DEP Class E Water Operator's License with the Commonwealth of Pennsylvania certificate # W9566, DEP Class E Wastewater Operator's License with the Commonwealth of Pennsylvania certificate # S16625, ASSE Certified Backflow Prevention Program Administrator Certification # 18967.

Interim Management and Consulting Contract

On July 25, 2012, the Authority's Board of Directors approved an Agreement (the “Agreement”) for Interim Executive Management Services with Veolia Water North America—Northeast, LLC (“Veolia Water”). The Agreement provides for two types of services.

First, Veolia Water is providing the Authority with the services of a full time, on site, interim executive director. That role is filled by Jim Good, President of Veolia Water North America—West, LLC. As the General Manager of that entity, Mr. Good had direct financial responsibility for a \$100 million budget and over 300 employees. Prior to joining

Veolia Water in 2001, Mr. Good was a vice president of California Water Service Company, a publicly traded water utility (NYSE: CWT) that serves more than two million people in four states. With the Authority, Mr. Good reports to a steering committee made up of three Authority Board members and two individuals from Veolia upper management.

Second, Veolia Water is providing the Authority with consulting services, led by a full time, on site study manager. The Agreement identifies various areas of consulting and implementation services to be provided—general administration and management, financial and budgeting, operations and maintenance, and includes many specific deliverables. Since the Agreement commenced, Veolia Water has brought over 50 functional experts to Pittsburgh (including several from overseas), to work cooperatively with Authority personnel to identify and implement opportunities for efficiencies and other operational improvements. To date, these efforts have identified about \$1.3 million in additional recurring revenues, approximately \$1 million in recurring annual savings and avoided another approximately \$1 million in one-time costs through the resolution of several legacy disputes.

Veolia is performing all services under the Agreement for a base compensation of \$150,572 per month, including expenses, plus additional incentive payments for the achievement of approved initiatives. The term of the Agreement is one year, which may be extended by an additional six months. Additional revenues or savings resulting from incentives approved under the Agreement will be shared with Veolia for four years following the expiration of the Agreement.

Capital Lease Agreement with the City of Pittsburgh

In 1984, pursuant to the Lease and Management Agreement, the Authority leased the Water and Sewer System from the City and assumed responsibility for establishing and collecting user fees and charges and for maintaining and improving the Water and Sewer System. The Lease and Management Agreement further provided that the Water and Sewer System was to be operated and maintained for the Authority by the City, subject to the general supervision of the Authority. In 1995, the Authority and the City terminated the Lease and Management Agreement, and the Authority has the option to acquire the Water and Sewer System pursuant to the terms of the Capital Lease Agreement. The Capital Lease Agreement, which has a term of thirty (30) years, provides for payments totaling One Hundred One Million Four Hundred Sixteen Thousand Nine Hundred Seventy-Four Dollars and Sixty Cents (\$101,416,974.60), which, payments were made to the City during the initial three (3) years of said contract and further provides that on September 1, 2025, upon payment of One Dollar (\$1.00), the Authority will acquire title to the Water and Sewer System.

Concurrently with entering into the Capital Lease Agreement, the City and the Authority entered into a Cooperation Agreement, dated as of June 15, 1995 (the “Cooperation Agreement”). Pursuant to the Cooperation Agreement, the City provides certain specified engineering, communications, vehicle maintenance, legal, information and financial services to the Authority on a fee for services basis and the Authority makes certain other payments to the City to reimburse it for costs and capital expenses incurred by the City in regard to the operation and maintenance of the Sewer System. The Cooperation Agreement may be terminated by either party, upon ninety (90) days written notice. The City and Authority are currently negotiating changes to the Cooperation Agreement to more accurately reflect changes in services the City and the Authority provide to each other. The amount of the annual payment currently under the Cooperation Agreement is \$7.15 million paid in quarterly payments.

The Water Supply and Distribution System

The water supply and distribution system (the “Water System”) consists of a 117 million gallon per day rapid sand type treatment plant, approximately 1,000 miles of mains and service lines, more than 25,200 valves, 7,450 fire hydrants, 12 pumping stations, one membrane filtration plant, five reservoirs, and 12 storage tanks. The total storage capacity of the reservoirs and tanks is approximately 455 million gallons. With consideration given to the pressure requirements of the distribution system, and storage capacities in each of the 15 pressure zones, the Authority stores enough finished water to provide a two to three day uninterrupted supply to all customers should it temporarily be unable to treat additional water from the Allegheny River. In the opinion of the Authority's Consulting Engineer, Chester Engineers, Inc. (the “Consulting Engineer”), the Water System's treated water quality exceeds all the current standards and levels of the federal Safe Drinking Water Act and the Pennsylvania Department of Environmental Protection (PADEP).

The sole source of water for the Water System is the Allegheny River for which the Authority and its predecessors have held withdrawal permits since 1943. In March 1989, the then Pennsylvania Department of Environmental Resources (now the PADEP) issued the Authority a Water Allocation Permit under the 1939 Water Rights Act. This permit authorizes the withdrawal of up to 100 million gallons per day, which the PADEP determined would cause no major impact on navigation. The current average withdrawal of water from the Allegheny River is approximately 70.5 million gallons per day. The Authority's Consulting Engineer is of the opinion that the Allegheny River's water is of good quality, and that there is ample quantity to meet foreseeable demands given current allocation permit conditions and foreseeable river flow conditions.

The Water System currently provides approximately 83,000 residential, commercial, industrial and public customers with potable water and water for fire protection within the geographic boundaries of the City. This represents approximately 84 percent of the total population within the City with the balance served by three independent water purveyors.

The Authority's water treatment plant is capable of providing more water than is currently being used by its existing customers. The Authority has undertaken a marketing effort to sell potable water to municipalities and municipal authorities within the region. It is also investigating the opportunity to purchase existing water systems located in municipalities adjacent to its current service area. Sale of this available water to additional regional communities would be a source of new revenue to the Authority. To realize this potential revenue the Authority would be required to construct water lines or improve pumping facilities to serve some regional communities; and those communities would need to obtain subsidiary water allocation permits from PADEP.

The Authority's Consulting Engineer is of the opinion that the Water System is in adequate operating condition and has adequate capacity to meet demands in the foreseeable future, provided the Authority continues the rehabilitation and replacement program provided for in its ongoing Capital Improvement Program.

Drinking Water Quality Regulatory Requirements

The Authority monitors water drinking quality on a continuous basis, 365 days a year. Tests are conducted for contaminants that may be present in source water prior to treatment, during treatment and in finished water. The Authority meets or exceeds all current Federal and State water quality requirements and anticipates compliance with future proposed regulations, including the pending Stage 2 Disinfection Byproducts Rule and the Long-term Enhanced Surface Water Treatment Rule. Results of water quality measurements and regulatory compliance are reported annually in the Authority's Consumer Confidence Report.

The Authority operates an on-site water quality laboratory capable of conducting analysis and detection on numerous contaminants. The PADEP has certified the laboratory to conduct and certify results for a number of these contaminants. On July 27, 2012, the Authority and PADEP entered into a Consent Order and Agreement relating to alleged regulatory violations in certain procedures at the water quality laboratory. Pursuant to the Consent Order, the Authority was required, within 30 days, to pay a \$10,000 penalty, complete a corrective action report, and retain a consultant to assist with regulatory compliance. The Authority has complied with the requirements of this Consent Order. The Authority routinely provides analysis for other water providers and the Allegheny County Health Department. The Federal Safe Drinking Water Act requires each state to prepare a comprehensive Source Water Protection Plan to identify potential sources of contaminants. The Authority, working with the PADEP, has prepared the plan for the Allegheny River.

The Microfiltration Facility

PADEP regulations based on the Federal Safe Drinking Water Act of 1984 required all finished drinking water reservoirs to be covered by December 31, 1995. In order that Highland #1 reservoir could remain uncovered for environmental and limited recreational considerations, a 20 million gallons per day (MGD) Microfiltration Facility was designed and constructed to provide further treatment before water is put into distribution. Microfiltration is a pressure-driven membrane process and consists of 0.1 micron membranes for removal of suspended matter, turbidity, algae, fungi, protozoa, some microorganisms and cysts (including *Cryptosporidium* and *Giardia*). In 2009, the Microfiltration Facility was expanded to produce 26 MGD and is currently optimized to run at approximately 9 MGD.

The Sewer System

The wastewater collection and transmission system (the "Sewer System") is comprised of approximately 1,200 miles of sewer lines and four wastewater-pumping stations that serve all of Pittsburgh's nearly 310,000 residents. Seventy-seven percent of the Sewer System is a combined system designed to carry both storm and sanitary flows. The average age of the sewer lines is between 60 and 70 years old, with some portions reaching nearly 150 years in age.

The Sewer System conveys wastewater generated within the City boundaries to Allegheny County Sanitary Authority ("ALCOSAN") interceptors along the rivers of the City for conveyance to ALCOSAN's wastewater treatment facility for processing prior to discharge into the Ohio River. The ALCOSAN treatment facility, which is not part of the Water and Sewer System, is operated by ALCOSAN pursuant to a National Pollutant Discharge Elimination System ("NPDES") permit.

The Sewer System also is utilized by 24 suburban municipalities pursuant to agreements with the City and/or the Authority to convey their wastewater to the ALCOSAN treatment facility. Many of the agreements with the suburban municipalities provide for the sharing of maintenance or reconstruction costs of the Sewer System. Typically, the sharing of maintenance costs applies only to the trunk sewer lines through which the wastewater flows to the ALCOSAN interceptor.

The Sewer System is designed so that during wet weather, a portion of the collected storm water and diluted wastewater is discharged to natural water courses by diversion chambers located throughout the Sewer System and at

connections to the ALCOSAN interceptors. The Sewer System is in satisfactory operating condition and has adequate capacity for the dry weather wastewater flows; however, in the past during wet weather, the Sewer System has often been taxed beyond its capacity resulting in overflows, bypassing and flooding. Some of these conditions have been or will be eliminated through the implementation of the Authority's ongoing Capital Improvement Program. The Authority's Consulting Engineer is of the opinion that the Sewer System is in adequate operating condition but is in need of the ongoing Capital Improvement Program in order to correct existing deficiencies and maintain and upgrade the system to meet regulatory requirements (see discussion below under the heading "Government Regulation"). With the continuation of the Capital Improvement Program, it is anticipated that the Sewer System will be sufficient to meet foreseeable future demands and provide uninterrupted service to its users.

Description of Service Area

A description of the area served by the Water and Sewer System and selected demographics of the service area are set forth in APPENDIX D.

2012 Water Consumption by Customer Classification (1)

<u>Classification</u>	<u>Customers</u>	<u>Percentage of usage</u>
Residential	73,879	35.94%
Commercial (2)	8,812	51.07%
Industrial	119	3.58%
Other	17	9.41%
TOTAL	82,827	100.0%

(1) Excludes customers of other water purveyors.

(2) The "Commercial" category includes water usage by health and education sector, as well as various units of government.

Water and Sewer Rates

The following tables present the Authority's Water and Sewer Rates and certain data with respect thereto and have been prepared by the Authority.

Historical Rates (2000–2013)

YEAR	Residential ⁽¹⁾		Commercial ⁽¹⁾		Industrial ⁽¹⁾		Wholesale ⁽²⁾		Health & Education ⁽¹⁾		DISC Rate %
	Rate \$	Increase ⁽³⁾ %	Rate \$	Increase ⁽³⁾ %	Rate \$	Increase ⁽³⁾ %	Rate \$	Increase ⁽³⁾ %	Rate \$	Increase ⁽⁴⁾ %	
2000	3.95	0	3.88	0	3.63	0	2.65	0	5.31	0	
2001	3.95	0	3.88	0	3.63	0	2.65	0	5.31	0	
2002	4.34	9.8	4.26	9.8	3.99	9.8	2.91	9.8	5.83	9.8	
2003	4.64	7.0	4.56	7.0	4.26	7.0	3.11	7.0	6.24	7.0	
2004	5.52	19.0	5.43	19.0	5.07	19.0	3.70	19.0	7.43	19.0	
2005	6.46	17.0	6.35	17.0	5.93	17.0	4.33	17.0	8.69	17.0	
2006	6.99	6.7	6.79	6.7	6.30	6.7	3.69	6.7	9.25	6.7	
2007	7.50	5.4	7.19	5.4	6.74	5.4	3.69	--	9.83	5.4	
2008	7.50	0	7.19	0	6.74	0	3.69	0	9.83	0	
2009	7.50	0	7.19	0	6.74	0	3.69	0	9.83	0	
2010	7.50	0	7.19	0	6.74	0	3.69	0	9.83	0	5%
2011	8.08	7.7	7.74	7.7	7.26	7.7	3.97	7.7	10.59	7.7	7%
2012	8.48	5.0	8.13	5.0	7.62	5.0	4.17	5.0	11.12	5.0	7%
2013	8.48	0	8.13	0	7.62	0	4.17	0	11.12	0	7%

- (1) Rate per 1,000 gallons over minimum use per month.
- (2) Up to 500,000 gallons
- (3) Represents percentage increase over prior year
- (4) New Rate Classification, rate per 1,000 gallons over minimum use per month.

10 Largest Users

<u>User</u>	<u>% of Total Usage for 2012</u>
1. University of Pittsburgh	9.64%
2. UPMC	4.61%
3. Carnegie Mellon University	2.04%
4. HACP	1.62%
5. SCI Pittsburgh	1.41%
6. County of Allegheny	1.29%
7. Bay Valley Foods*	1.15%
8. ALCOSAN	1.14%
9. West Penn Hospital	0.70%
10. Allegheny General Hospital	0.48%

Source: Pittsburgh Water and Sewer Authority

*In January 2012, the water consumption of Bay Valley Foods, the largest volume user of water in 2011, materially declined due to the customer using water from its own water wells and processing their water through its own treatment facilities. The Authority has subsequently entered into a contract to provide water to Bay Valley Foods, beginning April 5, 2013 and continuing for an initial term of 10 years.

PWSA Water Rate Comparison (2012 Survey)

	Rate 1,000 Gal.	Minimum Monthly Charge	Minimum Gallons Per Month
Aspinwall Borough	\$6.86		
Fox Chapel Authority	7.41		
Monroeville Authority	5.15	\$10.30	2,000
Pittsburgh Water and Sewer Authority (1)	5.66	14.05	1,000
Plum Borough Municipal authority	3.25	12.83	1,870
Richland Township Municipal Authority	5.57	9.00	
Shaler Township	3.77	7.50	
Penn Hills (Oakmont Residents)	3.92	7.71	
Pennsylvania American Water Company	9.10	13.75	
Westmoreland County Municipal Authority	4.79	11.51	1,000

(1) Excluding \$2.82 for Sewer Use Rate

Relations with Other Municipalities

In addition to the Authority's sales to residential, commercial and industrial customers, the Authority has entered into agreements with seven adjacent municipalities and one wholesale customer for the sale of water. The Authority is the primary source of water for three municipalities, pursuant to long-term agreements expiring in 2016 through 2025, which establish pricing structures with each municipality. Four municipalities and one wholesale customer each have entered into agreements with the Authority for peak capacity needs. Three of these contracts require monthly minimum charges to be received by the Authority, and two are on an emergency basis only. The Authority purchased the neighboring borough's (Millvale) water and sewer system in 2010, adding nearly an additional two thousand customers to our customer base. This purchase has been a major success and will be used to pilot future expansion efforts to other outlying areas.

Prospective Water Sales and Sewer Services

The Authority is capable of producing up to 100 million gallons of potable water each day. With current demand (including the requirements of other municipalities) at 70.5 million gallons per day, the Authority has available surplus capacity. Also, in order to comply with current regulatory requirements the Authority will be making enhancements to the Sewer System through the Capital Improvement Program. These Sewer System enhancements will involve interaction with other municipalities (See "The Sewer System" for additional detail) and in connection therewith the Authority is continuing an initiative to market its surplus water capacity and extend its sewer services to other municipalities and water authorities in the region.

Outstanding Bonds

First Lien Debt

As of April 30, 2013, the Authority will have \$630,725,000 aggregate principal amount of First Lien Bonds Outstanding (of which \$331,360,000 is Fixed Rate and \$299,365,000 is Variable Rate) as follows:

- \$68,970,000 (Fixed Rate) Water and Sewer System First Lien Revenue Refunding Bonds, Series A of 2008 Taxable (the "Taxable 2008A Bonds");
- \$145,495,000 (Variable Rate Demand) Water and Sewer System First Lien Revenue Refunding Bonds, Series B1 of 2008 and Series B2 of 2008
- \$24,665,000 (Fixed Rate) Water and Sewer System First Lien Revenue Bonds, Series D-1 of 2008 (the "2008D-1 Bonds");
- \$71,225,000 (Variable Rate Demand) Water and Sewer System First Lien Revenue Bonds, Series D-2 of 2008 (the "2008D-2 Bonds");

- \$107,450,000 Water and Sewer System First Lien Revenue Refunding Bonds, Series of 2007 (the “2007 Bonds”);
- \$44,530,000 Water and Sewer System Revenue Refunding Bonds, Series of 2003 (the “2003 Bonds”);
- *\$146,805,000 Water and Sewer System First Lien Revenue Bonds, Series B of 1998 (the “1998B Bonds”); and
- \$9,195,000 Water and Sewer System Revenue Refunding Bonds, Series A of 1993 (the “1993A Bonds”).

Subordinate Debt

The Authority has \$103,755,000 Subordinate Debt outstanding as follows:

- \$10,000,000 (Term Mode) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1A of 2008 (the “Subordinate 2008 C-1A Bonds”), the Reoffered Bonds;
- \$10,000,000 (Term Mode) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1B of 2008 (the “Subordinate 2008 C-1B Bonds”), the Reoffered Bonds;
- \$5,000,000 (Term Mode) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1C of 2008 (the “Subordinate 2008 C-1C Bonds”), the Reoffered Bonds;
- \$26,870,000 (Term Mode) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1D of 2008 (the “Subordinate 2008 C-1D Bonds”);
- \$51,885,000 (Variable Rate) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-2 of 2008 (the “Subordinate 2008 C-2 Bonds”);

*1998B bonds are capital appreciation bonds.

Other Obligations

In addition to its First Lien and Subordinate Bonds, the Authority has outstanding loans with the Pennsylvania Infrastructure Investment Authority (“PENNVEST”) which loans mature on various dates during 2025-2031 and are subordinate to the First Lien and Subordinate Bonds. As of May 1, 2013, the Authority owed PENNVEST \$33.9 million on PENNVEST loans (“PENNVEST Loans”) with approval to draw down an additional \$4.2 million as needed from the PENNVEST Loans authorized in 2009 and 2010. In 2013 the Authority was awarded approximately \$7.1 million in new PENNVEST Loans.

Debt Service Requirements

The schedule on the following page sets forth the amount required during each Fiscal Year (ending December 31) shown below for the payment of the principal of and the interest on Outstanding First Lien Revenue Bonds and Outstanding Subordinate Revenue Refunding Bonds assuming all variable rate bonds bear interest at applicable bank bond rate and swap rate through maturity.

Debt Service Requirements on First Lien and Subordinate Bonds

Date	First Lien Debt Service ^{1, 2, 3}	Subordinate Debt Service ^{4, 5}	Total Debt Service ^{6, 7}
2013	\$35,610,137	\$5,024,563	\$40,634,700
2014	35,927,837	4,961,377	40,889,214
2015	35,992,487	4,961,377	40,953,864
2016	36,038,512	4,961,377	40,999,889
2017	35,721,112	4,961,377	40,682,489
2018	35,706,275	4,961,377	40,667,652
2019	35,721,292	4,961,377	40,682,668
2020	35,745,926	4,961,377	40,707,303
2021	35,759,073	4,961,377	40,720,449
2022	35,795,014	4,961,377	40,756,390
2023	35,959,095	4,961,377	40,920,472
2024	36,163,446	4,961,377	41,124,823
2025	36,646,373	4,961,377	41,607,750
2026	37,134,452	4,961,377	42,095,828
2027	37,153,442	4,961,377	42,114,819
2028	37,126,253	4,961,377	42,087,630
2029	37,139,653	4,961,377	42,101,030
2030	33,857,071	7,901,377	41,758,448
2031	21,555,609	20,165,799	41,721,408
2032	12,083,736	29,591,313	41,675,049
2033	12,233,007	29,340,566	41,573,573
2034	12,246,396	29,243,420	41,489,815
2035	35,498,817	6,025,230	41,524,047
2036	41,563,806		41,563,806
2037	41,690,078		41,690,078
2038	41,820,781		41,820,781
2039	41,913,288		41,913,288
2040	42,099,253		42,099,253
Total	\$951,902,221	\$206,674,297	\$1,158,576,517

Notes: Totals may not add due to rounding:

- (1) Interest on 2008D-2 First Lien Bonds are calculated at the associated swap rate of 4.103%
- (2) Interest on Series 1993A, 1998B, 2003, 2007A, 2008A taxable and 2008D1 First Lien (Fixed Rate) Bonds are calculated at fixed rate
- (3) Interest on Series 2007B-1, 2007B-2, 2008B-1 and 2008B-2 First Lien Bonds are calculated at the associated swap rate of 3.932% for Series 2007B-1 and 2007B-2, and 4.038% for the Series 2008B-1 and Series 2008B-2
- (4) Interest on the Series 2008C-1ABC bonds are calculated at the associated swap rate (3.998%) plus the assumed term rate of 2.00%. Pursuant to future remarketings, the Series 2008C-1ABC bonds would be reoffered at a rate that may be higher or lower than the initial term mode rate.
- (5) Interest on the Series 2008C-1D bonds is calculated at the associated swap rate (3.998%) plus an assumed rate equal to the initial term mode rate from 2009 of 2.625%. Pursuant to future remarketings, the Series 2008C-1ABC bonds would be reoffered at a rate that may be higher or lower than the assumed term mode rate
- (6) Interest on 2008C-2 Subordinate Lien Bonds are calculated at the associated swap rate of 3.998%
- (7) Does not include loans with PENNVEST

Letter of Credit and Liquidity Agreements

The Authority has entered into various letter of credit and standby agreements relating to the outstanding bonds of the Authority as provided in the following table:

Variable Rate Bond Series	Provider	Agreement	Term
2007 Series B-1 and B-2	JPMorgan Chase Bank*	Standby Bond Purchase Agreement	August 10, 2014
2008 Series B-1	Bank of America, N.A.	Direct Pay Letter of Credit	October 22, 2013
2008 Series B-2	PNC Bank, National Association	Direct Pay Letter of Credit	October 22, 2013
2008 Series C-1A	Northwest Bancorp, Inc. with Federal Home Loan Bank of Pittsburgh confirming LOC*	Direct Pay Letter of Credit	September 1, 2013
2008 Series C-1B	ESB Bank with Federal Home Loan Bank of Pittsburgh confirming LOC*	Direct Pay Letter of Credit	September 1, 2013
2008 Series C-1C	Washington Financial Bank with Federal Home Loan Bank of Pittsburgh confirming LOC*	Direct Pay Letter of Credit	September 1, 2013
2008 Series C-2	JPMorgan Chase Bank*	Standby Bond Purchase Agreement	August 9, 2014
2008 Series D-2	PNC Bank, National Association*	Standby Bond Purchase Agreement	August 4, 2014

* The scheduled payment of the principal of and interest on the 2007 Series B-1 and B-2, the 2008 Series C-2, the 2008 Series C-1A, C-1B and C-1B and the 2008 Series D-2 when due is insured by a municipal insurance policy issued at the time of original issuance of these bonds by Assured Guaranty Municipal Corp. (formerly known as Financial Security Assurance Inc.).

Interest Rate Swap Agreements

The Authority has entered into other Qualified Interest Rate Swap Agreements relating to other outstanding bonds of the Authority. The following table sets forth the terms of all of the Swap Agreements as of April 1, 2013:

Pittsburgh Water and Sewer Authority Interest Rate Swap Agreement Summary (as of April 1, 2013)

Variable to Fixed Rate Swaps	Counterparty	Outstanding Notional Amount	Effective Date	Termination Date	Fixed Rate	Floating Index
2007 B1 & B2	JPMorgan Chase Bank & Merrill Lynch Capital Services, Inc.	\$ 82,645,000	3/9/2007	9/1/2033	3.932%	SIFMA
2008 B	JPMorgan Chase Bank & Merrill Lynch Capital Services, Inc.	\$145,495,000	6/12/2008	9/1/2039	4.038%	SIFMA
2008 C	JPMorgan Chase Bank & Merrill Lynch Capital Services, Inc.	\$103,795,000	6/12/2008	9/4/2035	3.998%	SIFMA
2008 D	JPMorgan Chase Bank	<u>\$ 71,225,000</u>	6/12/2008	9/4/2040	4.103%	SIFMA
Total		\$403,160,000				

Projected Capital Borrowings

The Authority's current five (5) year capital improvement program encompasses years 2008 to 2012 (the "Capital Improvement Program"). The primary objectives of the Authority's Capital Improvement Program are to assure uninterrupted service to the Authority's customers and to enhance the Water and Sewer System's capabilities. The Capital Improvement Program was designed to maintain a satisfactory level of service to Water and Sewer System users, to improve operating efficiency, to address future requirements and to assure a safe supply of water to its users.

The Authority has developed a 40 Year Capital Plan that estimates the financial resources needed for capital improvements. The capital improvement program recommendations were presented as a staged program of eight 5-year capital plans. Prioritization of projects will be based on need and financial capabilities to design and construct the recommended improvements. The eight 5-year plans will provide the Authority with a plan of action to meet the business objectives of the Authority, maintain regulatory compliance and address operational needs within the framework of practical capital funding capabilities. The plan was presented to the Authority in the first quarter of 2013. The 40 Year Capital Plan was a source of data that was used to develop the current three year capital plan for the Authority.

As more fully discussed under "*Certain Environmental Matters*", the Authority is subject to a U.S. Environmental Protection Agency Combined Sewer Overflow Policy ("CSO Policy") regarding overflows from combined sewers during events that result in the discharge to receiving water of untreated sanitary sewage. Pursuant to the January 2004 Consent Order and Agreement (the "Order"), the Authority is currently developing a feasibility study in conjunction with the Allegheny County Sanitary Authority ("ALCOSAN") which entered into a Consent Decree with the United States Environmental Protection Agency ("USEPA"), the Pennsylvania Department of Environmental Protection ("DEP") and the Allegheny County Health Department ("ACHD"), to address combined sewer overflows and achieve compliance with water quality standards and the Clean Water Act. The Authority expects to submit its feasibility study to DEP, the Allegheny County Health Department and USEPA by July 31, 2013. The cost of the studies and construction activities that will be required to reach target goals that are to be established through the CSO Policy is currently preliminarily estimated by the Authority at between \$150,000,000 and \$300,000,000, varying based on CSO reduction assumptions. The amount is dependent, in part, on coordination with other regional providers and ALCOSAN. Funding of a portion of the amount needed to address the combined sewer overflow issue and achieve compliance with the Clean Water Act was provided with proceeds of the Authority's Water and Sewer System First Lien Revenue Bonds, Series of 2002 and the Authority's Water and Sewer System First Lien Revenue Bonds, Series of 2005 (both refinanced with Series of 2007 Bonds previously issued by the Authority).

The final years of the current Capital Improvement Program (2008-2012) contemplate additional expenditures for sewer compliance issues and infrastructure improvements. It is anticipated that funding for these expenditures, as well as completion of the feasibility study necessary for the Authority's Long Term Control Plan was provided, in whole or in part, through the original issuance of the Authority's First Lien Bonds, Subordinate Lien Bonds, including the Reoffered Bonds, and the PENNVEST Loans. In total, the new money bonds issued as a component of the Authority's First Lien Bonds and Subordinate Lien Bonds issued in 2008 funded approximately \$100 million out of the Authority's \$125 million current Capital Improvement Program. The Authority received approval in late 2009 for \$36 million in PENNVEST Loans, and in 2012 an additional 2013 for \$7.1 million in PENNVEST Loans (which are subordinate to payments due on the Authority's Bonds), the proceeds of which have been or will be used to fund infrastructure improvements.

Financial Operation

The Authority's income statement and annual debt service requirements are set forth in the following Financial History table. The table was prepared by the Authority using information contained in the audited financial statements for the years ended December 31, 2008 through December 31, 2012. The audited financial statements and management discussion and analysis for the years ended December 31, 2012 and 2011 are posted on the Authority's web site.

In January of 2010, the Authority began assessing a 5% Distribution Infrastructure System Charge (DISC) on all bills, increasing to 7% in 2011. This charge is applied to the water and sewer conveyance components of the invoice and is dedicated to system improvements and capital needs. The DISC collection total in 2010 was \$4.16 million, with no expenditures. It was decided to allow funds to accumulate the first year, and then budget expenditures for 2011 from the funds received in 2010. The 2012 budget for DISC expenditures was \$6.72 million, of which \$6.398 million was spent. This leaves a reserve of \$4.013 million in DISC fund revenues at year end. The expenditures for 2012 included water and sewer relays, new vehicles, and security cameras for the Water Treatment Plant.

Financial Results in 2012

In 2012, operating income increased by 8.1% or \$2.84 million resulting in a net gain of \$.989 million, up from a \$13.34 million net loss in 2011. Below are the 2012 financial highlights:

Total operating revenues in 2012 were up \$3.62 million or 3.4% to \$144.14 million when compared to 2011. Wastewater treatment revenues increased \$3.88 million to expected levels after a large credit adjustment in 2011 for a major commercial customer. Water and sewer conveyance revenues decreased \$1.02 million from 2011 primarily due to a major commercial customer greatly reducing their water usage.

Total non-operating revenues increased by \$12.36 million, mostly driven by stabilization in the fair market value of the 2008C2 investment swap as contrasted to a \$12.38 million loss in 2011. The loss related to this contract was only \$.361 million for 2012. Donated property revenue was \$2.533 million, an increase of \$.256 million when compared to 2011. Non-operating revenue for grants was \$.075 million and interest revenue decreased by \$.218 million to \$.487 million due to lower market rates.

Total operating expenses increased in 2012 to \$106.27 million compared to \$105.57 million in 2011. Significant operating expenses included the following factors:

Salary and employee benefit expenses were up \$.471 million or 2.7%. The increase is attributed to an average overall salary increase of 3.2% and a 1.5% increase in benefit costs.

Overall direct operating expenses, excluding salaries and benefits, decreased by \$.240 million to \$55.91 million in 2012 or .4% from \$56.15 million in 2011. Wastewater treatment expense increased by \$3.00 million or 6.9% to \$46.47 million when compared to \$43.47 million in 2011 due to fewer adjustments. Chemicals expense decreased by \$.052 million. Equipment decreased by \$.791 million. Materials costs increased to \$.389 million in 2012, from \$.373 million in 2011. DISC relay items decreased by \$2.19 million, as the majority of these relays are now recognized as construction in progress due to accounting changes enabled by the new ERP system. Catch basin cleaning increased by \$.151 million to \$.355 million or 74.6% from 2011. Repairs & maintenance decreased by \$.429 million from 2011. Computer hardware costs decreased 84.3% or \$.273 million from previous year as the hardware items related to the new ERP system went into service.

Overall G&A expenses increased 23.7%, to \$11.85 million from \$9.58 million in 2011. \$2.12 million of this \$2.27 million increase was due to the elimination of an expense contra account tied to fixed asset reclassing that is no longer used in the new accounting structure. 2012 G&A expenses net of the above show a 1.4% or \$.13 million increase from prior year. Significant expense reductions were a \$1.31 million drop in claims and deductibles and \$.151 million reduction in natural gas. Significant expense increases were \$1.18 million in contingencies and \$.132 million in Legal.

Overall other expenses decreased 1.9% or \$1.23 million to \$61.85 million in 2012 from \$63.08 million in 2011. Non-city water subsidy to Pennsylvania American Water Company (PAWC) increased 34.5% or \$.564 million to \$2.19 million in 2012 compared to \$1.63 million in 2011. Interest expense on bond debt increased 1.5% or \$.574 million to \$39.54 million in 2012 compared to \$38.99 million in 2011. Expenses related to the cooperation agreement with the City of Pittsburgh decreased by \$2.00 million in 2012, from \$9.15 million to \$7.15 million.

In 2012, cash collections increased by \$1.69 million or 1.2%. A loss of sales to a major commercial customer and a decrease in average water usage, as is occurring at water systems nationwide, precluded a larger net increase. The Authority collected approximately 99.3% of its billings for 2012. There was no change in bad debt reserve from 2011.

Financial History Table
Statement of Revenues, Expenses and Changes in Net Assets
(Dollars expressed in thousands)
(Years Ended December 31, 2012, 2011, 2010, 2009 and 2008)

	2012	2011	2010	2009*	2008
Operating revenues:					
Residential, commercial and industrial water sales	\$ 94,272	\$ 95,290	\$ 88,829	\$ 86,271	\$ 86,627
Wastewater treatment	47,429	43,548	49,223	45,514	39,439
Other	2,437	1,714	1,701	2,390	3,668
Total operating revenues	<u>\$ 144,138</u>	<u>\$ 140,552</u>	<u>\$ 139,753</u>	<u>\$ 134,175</u>	<u>\$ 129,734</u>
Operating Expenses:					
Direct operating expenses	\$ 37,490	\$ 37,976	\$ 36,393	\$ 38,770	\$ 38,346
Cooperation agreement operating expenses:					
Wastewater direct expenses	46,468	43,468	48,788	44,795	40,096
Indirect cost allocation - wastewater	3,192	4,400	4,500	4,500	4,415
Indirect cost allocation - water	3,958	4,750	4,150	4,131	5,235
Transfer costs, net					
Expense of water provided by other entities:					
Subsidy of customers located in the City	\$ 2,197	\$ 1,633	\$ 2,326	\$ 1,603	\$ 1,070
Depreciation	12,967	11,810	10,929	10,317	13,914
Amortization of capitalized lease assets	0	1,490	1,491	1,491	2,557
Total operating expenses	<u>106,272</u>	<u>105,527</u>	<u>108,577</u>	<u>105,607</u>	<u>105,633</u>
Operating income	<u>\$ 37,866</u>	<u>\$ 35,025</u>	<u>\$ 31,176</u>	<u>\$ 28,568</u>	<u>\$ 24,101</u>
Other revenues (expenses):					
Federal Grants	--	--	52	248	986
Donated Property	2,533	2,277	15,100	14,819	204
Interest revenue	496	709	550	690	5,032
Inv. Inc. Change Fr. Mkt. Swap Value	(362)	(12,380)	(309)	7,187	--
Interest expense - bonds	(37,243)	(36,747)	(39,202)	(37,984)	(29,362)
Interest Expense - other	(520)	(422)	(185)	(149)	(153)
Amortization of bond issue costs	(1,781)	(1,800)	(1,811)	(1,633)	(1,202)
Total other revenue (expense)	<u>(36,877)</u>	<u>(48,363)</u>	<u>(25,805)</u>	<u>(16,822)</u>	<u>(24,495)</u>
Increase/(Decrease) in Net Assets	<u>\$ 989</u>	<u>\$ (13,338)</u>	<u>\$ 5,371</u>	<u>\$ 11,746</u>	<u>\$ (394)</u>
Net Asset Surplus/(Deficit):					
Beginning of year	(43,505)	(30,167)	(35,538)	(47,284)	(34,603)
End of year	<u>\$ (42,516)</u>	<u>\$ (43,505)</u>	<u>\$ (30,167)</u>	<u>\$ (35,538)</u>	<u>\$ (34,997)</u>
Annual debt service requirement					
Principal	\$15,064	\$16,748	\$16,435	\$14,625	\$ 15,531
Interest	27,865	27,721	30,190	30,435	24,223
Total annual debt service	<u>\$42,929</u>	<u>\$44,469</u>	<u>\$46,625</u>	<u>\$45,060</u>	<u>\$ 39,754</u>

- 2009 was restated in accordance with GASB 53 (derivatives) as part of the 2010 Audit. The 2009 numbers also include an adjustment for 2008.

The Financial History table reflects the results of past operations and is not necessarily indicative of results of future operations. Future operations will be affected by various factors, including, but not limited to, regulatory mandates, rate

changes, weather, labor contracts, population changes, business environment and other matters, the nature and effect of which cannot now be determined. See "CERTAIN BONDHOLDERS' RISKS".

Planned 2012 Expenses of Operation

Salaries and related expenses account for 18.64% of total operating expenses in the 2012 budget. In 2012 the Authority's budget provides for 276 positions as follows: 39 in billing and collections; 24 in administrative and accounting positions; 193 in water and sewer operations and 20 in engineering. Payments to the City of Pittsburgh for services to be provided to the Authority under the Cooperation Agreement are 7.2% of the 2012 total operating expenses. In addition, utility fees and the cost of chemicals account for 10.8% of the 2012 total operating expenses.

Historical Debt Service Coverage

The Authority is required to satisfy one of the two debt service coverage tests under Indenture. Under Test 1 receipts, revenues and unrestricted revenue fund cash must be sufficient to provide for payment of (a) current expenses of PWSA and (b) 120% of debt service on the first and subordinate lien bonds. Under Test 2, receipts and revenues, including construction fund earnings with certain limitation, together with debt service reserve fund earnings must be sufficient to provide for payment of (a) current expenses of PWSA and (b) 100% of debt service on the first and subordinate lien bonds. Below is the historical debt service coverage from 2008 to 2012 for Test 1.

Debt Service Coverage Calculations	2008	2009	2010	2011	2012
Receipts and Revenues	\$129,734	\$ 134,175	\$ 139,753	\$ 140,552	\$ 145,004
Unrestricted Cash	<u>35,024</u>	<u>41,914</u>	<u>42,937</u>	<u>37,403</u>	<u>41,676</u>
Total	\$164,758	\$ 176,089	\$ 182,690	\$ 177,855	\$ 186,680
Operating Expenses	\$ 89,162	\$ 93,799	\$ 96,157	\$ 92,227	\$ 93,305
120% Debt Service	<u>47,576</u>	<u>54,072</u>	<u>52,412</u>	<u>51,026</u>	<u>51,515</u>
Total	\$136,738	\$ 147,871	\$ 148,569	\$ 143,253	\$ 144,820
Funds in Excess of Test	\$28,020	\$ 28,218	\$ 34,121	\$ 34,702	\$ 41,860
Test 1 Debt Service Coverage	159%	152%	165%	168%	181%

Billings, Collections and Enforcement

All bills are due 20 days after the billing date, and interest is applied on the next invoicing date. Dunning notices are generated and mailed to customers with any past due balances, and all unpaid balances, including interest, are reflected on the next regularly scheduled monthly statement. In addition, accounts with past due balances in excess of 90 days are also submitted to a collection agency as part of the overall collections process. Collection calls are made to customers of any accounts that are eligible to be terminated. If the customer is unable to be reached via telephone, their property is posted for non-payment. Water services are terminated when necessary.

Effective May 2004, the Authority began direct-billing City residents for current wastewater treatment charges. The intent of this operational change (from purchasing delinquent wastewater receivables and billing) is to reduce delinquencies by providing for more timely billing and collection activities. In order to effect this billing change, the Authority entered into a tentative agreement with ALCOSAN, relating to direct billing by the Authority of ALCOSAN wastewater treatment charges. Under that agreement, the Authority is obligated to create and fund an escrow account covering a two-month billing period.

In October 2008, the Authority partnered with Paymentus Corporation to bring a one-time telephone and internet payment solution to its customers. A full Electronic Billing Payment and Presentment (EBPP) solution was installed and was made available to customers in the fourth quarter of 2009, via the Authority's mailing services vendor, Pittsburgh Mailing Services, Inc. The mailing services contract was awarded to Level One, LLC in the fourth quarter of 2010, making Level One the EBPP provider for the Authority.

Employee Relations

The majority of employees of the Authority are represented by a labor organization under Act 195 of 1970 of the Commonwealth of Pennsylvania. The Pittsburgh Joint Collective Bargaining Committee (PJCBC) represents blue-collar employees, and the American Federation of State, County and Municipal Employees (AFSCME), Local 2719 represents

white-collar employees while, Local 2037 represents the foremen. Act 195 requires that bargaining start at least six months prior to the date on which the Authority's budget is adopted and that mediation be used if an impasse is reached. Since the time they were certified, the Authority has concluded numerous negotiations with these bargaining units without any labor stoppages. A five year agreement with AFSCME which provided for a salary increase effective January 1, 2009, 2010, 2011, 2012, and 2013, remains in place until the end of 2013. The Pittsburgh Joint Collective Bargaining Committee reached a four year agreement which provides for a salary increase effective January 1, 2013, 2014, 2015, and 2016.

Pension

Employees of the Authority participate in the City's Municipal Pension Fund Plan (the "Plan"). Employees who became members of the Plan prior to January 1, 1988 are required to contribute 5% of pre-tax pay. Those joining thereafter are required to contribute 4%. Substantially all of the Authority's 2011 payroll of \$12,796,000 was covered by the Plan. Employee contributions for the year amounted to approximately \$497,000. For more information, please refer to Authority's Financial Statements as of December 31, 2012.

City Pension Funding and Act 44*

The assets of the Plan are administered by the Comprehensive Municipal Pension Trust Fund (the "Fund") together with two other pension plans maintained by the City, the Policemen's Relief and Pension Plan of the City of Pittsburgh, and the Firemen's Relief and Pension Plan of the City of Pittsburgh (collectively with the Municipal Pension Plan, the "Pension Plans").

The Commonwealth of Pennsylvania enacted pension legislation ("Act 44") that mandated that the City reach a funding level of at least 50% by December 31, 2010. In the event that the City was not able to reach such mandated level of funding, the Pension Plans would be merged into the Pennsylvania Municipal Retirement System ("PMRS") per the provisions of Act 44. The City developed a plan to address the problem, which was adopted on December 31, 2010. This plan required the deposit of \$45 million from the City's reserves to the Fund and of dedicated parking taxes of \$13.4 million annually from 2012 through 2017, and \$26.8 million from 2018 through 2041. The dedication of the parking taxes is irrevocable per legislative action. The deposit of the \$45 million was completed prior to the end of 2010.

The City's most recent actuarial report, dated September 12, 2011, reflecting valuations as of January 1, 2011 reflect the Fund carrying an actuarial liability of \$1,012,072,241. The Fund's assets of the same date were valued at \$631,991,453. This corresponds to a funding level of approximately 62%, which is in excess of the minimum mandated 50% funding level.

On September 19, 2011, the Pennsylvania Public Employees Retirement Commission accepted this plan and declared that the Fund was 62% funded, which avoided a state takeover of the Pension Plans.

* Source: City of Pittsburgh

Government Regulation

The Authority is subject to Federal, State and County regulations in connection with water treatment, water distribution, wastewater collection, construction activities, and storage tank use and air emissions. At the Federal level, regulatory oversight is provided by the United States Environmental Protection Agency ("USEPA"); at the State level, oversight is provided by the PADEP; and at the local level, oversight is provided by the Allegheny County Health Department ("ACHD"). The system meets or is in the process of planning and implementing improvements to meet all applicable regulations, permits and licenses. The major regulatory programs governing the Authority's operations are discussed below, grouped by subject matter: Drinking Water, Water Quality, Storage Tanks, Water Treatment Plant and Air Quality.

Drinking Water

Virtually all entities in the United States that provide water for human consumption, do so in accordance with the Federal Safe Drinking Water Act (SDWA), which was passed in 1974 and amended in 1986 and 1996. The SDWA gives USEPA the authority to establish drinking water standards to control the level of contaminants in drinking water, rules prescribing minimum methods of drinking water treatment, and requirements for monitoring and reporting of drinking water quality. Pennsylvania adopted a corresponding Pennsylvania Safe Drinking Water Act in 1984, and the state regulatory program has received USEPA primary approval, meaning that PADEP primarily administers the permitting and regulatory program in Pennsylvania.

The Authority holds permits issued by PADEP for the operation of a public water supply system, and is required to comply with federal and state requirements for treatment, monitoring of water quality, reporting of monitoring results and notification of exceeding events, and issuance of consumer confidence reports to its customers.

Water Quality

Federal regulations adopted under the Federal Clean Water Act, and State rules enacted under the Pennsylvania Clean Streams Law, govern discharges of wastewater and storm water. Any facility which discharges sewage, process wastewater, non-contact cooling water, storm water from municipal separate storm sewer systems or storm water associated with an industrial activity must obtain a National Pollutant Discharge Elimination System (“NPDES”) Permit. Under program approval from USEPA, PADEP administers the NPDES Permit program in Pennsylvania.

The Authority and the City of Pittsburgh have been issued an NPDES Permit for discharge from the municipal separate storm sewer systems within the City.

The PWSA Water Treatment Plant recently received an NPDES Permit to allow treated process water discharges to the Allegheny River.

An NPDES permit is also required for discharges from sewage treatment facilities and combined sewer overflows (“CSO”). Such a permit establishes discharge limitations, monitoring, and reporting requirements and compliance schedules. The PWSA has been issued its NPDES CSO Permit for its combined sewer overflows.

On January 29, 2004, the Authority entered into a Consent Order and Agreement which contains detailed requirements for addressing wet weather sewer overflows. The feasibility study for the reduction of such overflows must be submitted to PADEP by July 31, 2013.

The City of Pittsburgh, ACHD and the Authority have rules and regulations prohibiting the introduction of hazardous chemicals or materials, including industrial byproducts, into the sewer collection and conveyance system. Enforcement is through the Allegheny County Health Department, the City of Pittsburgh Department of Public Safety, and the PADEP. Under USEPA requirements governing pre-treatment of industrial wastewaters discharged to publicly owned treatment works, pretreatment regulations and monitoring of those regulations are the responsibility of ALCOSAN and the ACHD.

Section 303(d) of the federal Clean Water Act requires Pennsylvania to identify all impaired waters within the Commonwealth where technology-based treatment requirements for point and non-point sources of pollution are not stringent enough to attain and or maintain applicable water quality standards. This is an ongoing evaluation program being conducted by the PADEP. At this time, the PWSA has not been notified of any identified problems.

Storage Tanks

The Pennsylvania Storage Tank and Spill Prevention Act established a comprehensive regulatory program for both aboveground and underground storage tanks and facilities. The Act allows the PADEP to develop environmental protection programs to prevent and clean up storage tank product releases and spills. The Act includes both enforcement provisions and a strong reliance on the private sector to implement the major program elements. PADEP has received approval to administer the state storage tank program in lieu of most corresponding provisions of the Federal Resource Conservation and Recovery Act underground storage tank program.

The Authority currently has 12 tanks requiring frequent inspections under the regulatory provisions.

All Authority storage tanks have been upgraded to meet current regulatory requirements for protection, monitoring and containment.

Water Treatment Plant

In 2009, the Authority completed a \$3 million upgrade to the chemical treatment facility at the water treatment plant. This upgrade addresses storage, handling and distribution, containment and monitoring. These improvements will ensure compliance with current and proposed water quality and environmental regulations. A major aspect of the upgrade has been the conversion of the chlorination system from one utilizing gaseous chlorine to one utilizing liquid chlorine. Chlorine in a liquid form is safer to handle and store.

Air Quality

ACHD administers the air quality permitting program under the provisions of the Federal Clean Air Act and the Pennsylvania Air Pollution Control Act. Under Article XXI of the ACHD Air Pollution Control Regulations, pollution prevention is recognized as the preferred strategy (over pollution control) for reducing risk to air resources. Stack emission standards are set for specific air quality parameters and enforced by permit. On January 29, 1996 the Allegheny Health Department, Air Quality Program, issued the Authority an Annual Air Quality Operating Permit, # 96-0117. This permit covers emissions generated at the Water Treatment Plant and is reviewed and renewed annually. PWSA is required to periodically sample and meet stack air emission standards at the treatment plant from its boilers.

Certain Environmental Matters

The Authority is subject to a variety of federal, state and local environmental laws and regulations governing discharges to air and water, conveyance of sanitary/storm wastewaters and possibly the storage and disposal of solid waste materials. The Sewer System conveys wastewater generated within the City boundaries, and from certain other municipalities connected to it to ALCOSAN interceptors located along the rivers and streams of the City for conveyance to ALCOSAN's wastewater treatment facility for processing prior to discharge into the Ohio River. Approximately 75% of Sewer System is a combined system designed so that during wet weather, a portion of the collected storm water and diluted wastewater is discharged to natural watercourses by diversion chambers located throughout the PWSA Sewer Systems and at connections to the ALCOSAN interceptors. The Sewer System operates satisfactorily and has adequate capacity for the dry weather wastewater flows; during wet weather, however, the Sewer System is often taxed beyond its treatment capacity, resulting in certain overflows, bypassing and flooding.

The U.S. Environmental Protection Agency ("USEPA") has adopted regulations governing discharges to surface bodies of water under the Federal Clean Water Act, coupled with a Combined Sewer Overflow Policy (the "CSO Policy") regarding overflows from combined sewers during wet weather events that result in the discharge to receiving water of untreated sanitary sewage. These combined sewer overflows ("CSOs") contain pollutants that are present in domestic and industrial wastewater, as well as those in the urban storm water runoff that enter the combined sewer system. There are 194 Permitted CSOs within the Authority's Sewer System including connections to ALCOSAN's interceptors. The CSO Policy requires owners of any sewer system having CSOs to acquire National Pollutant Discharge Elimination System ("NPDES") discharge permits for each overflow site. On January 29, 2004, pursuant to a resolution adopted by its Board on December 19, 2003, the Authority entered into a Consent Order and Agreement (the "Order") regarding alleged wet weather sewer overflows within the City of Pittsburgh. The other signatories to the Order are the City of Pittsburgh, the Pennsylvania Department of Environmental Protection ("DEP") and the Allegheny County Health Department ("ACHD"). After the Order was entered into DEP issued an MPDES permit covering the CSOs.

The Order was developed as part of a two-year process of negotiation and consensus-building among the DEP, the ACHD, the Authority and eighty-two other municipalities and municipal authorities whose sewage is ultimately treated by ALCOSAN at its Woods Run Sewage Treatment Plant. In the negotiations and consensus-building, the participants developed proposed orders to be used by the municipalities served by ALCOSAN to address regional concerns regarding wet weather sewer overflows.

Generally, the Order requires the Authority and the City to assess the combined and separate sanitary sewers within the City in order to develop a plan to address alleged wet weather sewer overflows within the City. The assessment activities required under the Order include performing: (1) a physical survey and visual inspection of manholes; (2) sewer line cleaning and closed circuit television internal inspections; (3) sewer system mapping; (4) sewer system dye testing; (5) a system of hydraulic characterization; and (6) flow monitoring. The Order provides a very specific schedule for the completion of assessment activities. Most assessment activities for critical sewers and the separate sanitary portion of the sewer system were completed by 2010. Assessment activities for non-critical sewers are on-going.

In addition to assessment activities, the Order requires the Authority and the City to implement the Nine Minimum Controls for the control of CSOs, and to perform repairs and maintenance to the deficiencies in the sewer system revealed by the assessment activities. Such deficiency corrections include eliminating the conveyance of streams by the sewer system and repairing or replacing sewer lines that restrict flows causing unpermitted overflows. Generally, deficiency corrections in the critical sewers and the separate sanitary sewer system were completed by 2010. Most deficiency corrections in the assessed, non-critical sewers were substantially completed by 2012.

The Order called for collection system investigations, repairs and further studies. The collection system investigation and repairs are reflected in the Capital Improvement Program.

The Authority is currently developing a feasibility to address the combined sewer overflow issue and achieve compliance with water quality standards and the Clean Water Act and submitted its Report on the Current Status of the Development of the Wet Weather Feasibility Study to ALCOSAN in July 2012. The Authority is required to submit its final feasibility study to DEP and ACHD by July 2013.

Ultimately, an ALCOSAN Regional Wet Weather Plan must be implemented for the elimination of sanitary sewer overflows and the reduction of combined sewer overflows to acceptable levels. The Regional Wet Weather Plan developed by ALCOSAN was submitted to the regulatory agencies in January 2013. According to ALCOSAN's Consent Decree, ALCOSAN's approved Regional Wet Weather Plan must be implemented by 2026.

DEP and ACHD will review the Authority's final feasibility study in conjunction with ALCOSAN's Regional Wet Weather Plan and final feasibility studies submitted by other authorities and municipalities. The cost for implementing the Authority's feasibility study is currently estimated to cost between \$150,000,000 and \$300,000,000 over twenty years, but will be more accurately determined when the Regional Wet Weather Plan and feasibility studies are finally approved. The amount is dependent, in part, on coordination with ALCOSAN's Regional Wet Weather Plan and the other feasibility studies as approved by DEP and ACHD.

The DEP has issued to the Authority and the City a National Pollutant Discharge Elimination System ("NPDES") permit regarding the CSOs within the City. The Authority is permitted for a total of 194 CSOs in the sewage collection system. Of these, the Authority operates and maintains 40 of the CSOs. The remaining CSOs are operated and controlled by the regional treatment provider, ALCOSAN.

The Authority has a National Pollutant Discharge Elimination System ("NPDES") permit that authorizes wastewater discharges from its water treatment plant. On July 9, 2010, the Authority and DEP entered into a Consent Order and Agreement that required modifications to wastewater discharges covered by the permit. The Authority paid a penalty of \$110,000 based on failure to implement the modifications by the deadline in the order. The non-compliance resulted from a failure by an engineering contractor to properly design the required modifications, resulting in a delay in construction. The Authority and DEP have agreed in principle to an amendment to the Consent Order and Agreement which requires the modifications to be made within twenty-three months. The Contractor has agreed to make the modifications. There are no additional penalties unless the new deadline is not met in which event there will be a penalty of \$1,000 per day.

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