Water/Sewer Systems Concession Lease Agreement

2018 Annual Report

#5 Final Settling Tank Rehabilitation

Presented by:
City of Allentown
Office of Compliance
Department of Public Works
August 7, 2019

Questions?
(610) 437-7587
compliance@allentownpa.gov

Visit: www.allentownpa.gov/Public-Works/Compliance-Office

TABLE OF CONTENTS

	Page
Introduction	1
History	1
Wastewater Treatment	2
Sewage Collection System	9
Drinking Water Treatment and Production	12
Drinking Water Distribution System	15
Customer Service	23
Completed Major Capital Improvement Projects	24
Administrative Orders	25
Security	26
Notices of Violations	27
Acknowledgments and Awards	27

EXHIBITS:

Exhibit A	Regulatory Report Requirements
Exhibit B	Concession Agreement and Operating Standards Reports and Requirements
Exhibit C	Contracts and Agreements associated with the Concession Lease
Exhibit D	Services MOU Revenues and Expenses

2018 WATER/SEWER SYSTEMS CONCESSION ANNUAL REPORT

- ## INTRODUCTION

2018 commemorated the fifth year of the Concession Lease Agreement between the City of Allentown (City) and Lehigh County Authority (LCA). This report will specifically review 2018 from January 1 through December 31 while highlighting moments from the past five years.

- ## HISTORY

The City and LCA signed the *Allentown Water and Sewer Utility System Concession and Lease Agreement* (Lease) on May 1, 2013. In addition to the terms and conditions, the Lease includes the Operating Standards (OS) manual, which contains definitions, metrics, and performance requirements to which LCA must comply. The OS focuses on water quality for drinking water and sewage effluent, customer service, and operation and maintenance of the facilities to ensure that all the systems are properly and continuously maintained throughout the term of the Lease. LCA's actual tenancy of operation of the utility systems started on August 8, 2013.

PERSONNEL - Eighty-three former City employees became part of LCA's Allentown Division (Allentown); twenty-three out of 26 supervisory employees (88%) also transferred to LCA. As evidenced by the high number of transfers, a very significant amount of direct experience and institutional knowledge was retained for the successful operation of the water and sewer systems.

The City's OoC was established to oversee LCA's performance and compliance with the Lease and OS. In addition to conducting the COA/LCA Regular Compliance meetings, the OoC reviews all reports, permits, and is empowered to conduct reviews and inspections. The OoC can assess operational liquidated damages (penalties) if LCA does not comply with its obligations under the Lease or OS.

REPORTING - LCA is required to submit to the OoC copies of all regulatory reports, as well as those reports that are required by the OS or Lease (Exhibits A & B). In 2018, the Office of Compliance reviewed the frequency of certain reports (as example changed the requirement from monthly to annually) and made modifications in consultation with LCA. In addition to fulfilling all regulatory reporting obligations, LCA is required to file various monthly, quarterly, and annual reports to document compliance with the performance requirements in the OS.

All copies of correspondences between LCA and regulatory agencies are to be submitted to the OoC. The OoC reviews all submissions to determine, verify, or confirm that the requirements of the Lease and OS are being followed. As holder of water and wastewater permits, the City must meet regulatory requirements included in the permits. The OoC consults with LCA and regulatory authorities regarding these conditions. The OoC also reviews all water/sewer

applications relevant to construction, permit renewals, etc., and advises the Director of Public Works of its findings.

This annual report is formatted and presented to provide the reader with specific information regarding the performance standards and associated metrics, LCA's performance relative to compliance with the required standards, significant issues during the reporting period, and other information relative to the water and sewer systems operations under the terms of the Lease. Performance standards documented throughout the report include annual performance measures and any exceedance credits from prior years. This 2018 Annual report commemorates our first milestone, the fifth anniversary of the concession by summarizing the progress made during the previous five years.

- **Wastewater Treatment**

The Kline's Island Wastewater Treatment Plant (KIWWTP) is designed to treat 40 million gallons per day (MGD) of sewage and is operated under the National Pollutant Discharge Permit Elimination System (NPDES) Permit #PA0026000. The annual average daily volume of sewage treated at the KIWWTP in 2018 was 36.07 MGD, which was 17% more than the 30.8 MGD treated in 2017. The increase is attributed to the significant wet-weather events the region has endured.

As required by the Concession Lease Agreement, the KIWWTP is staffed 24 hours a day, seven days a week. Operational decisions and guidance is provided primarily by a manual of standard operating procedures (SOP). A Computerized Systems and Data Acquisition system (SCADA) allows operations personnel to monitor treatment processes, adjust pump rates, etc. from a centralized operations control room.

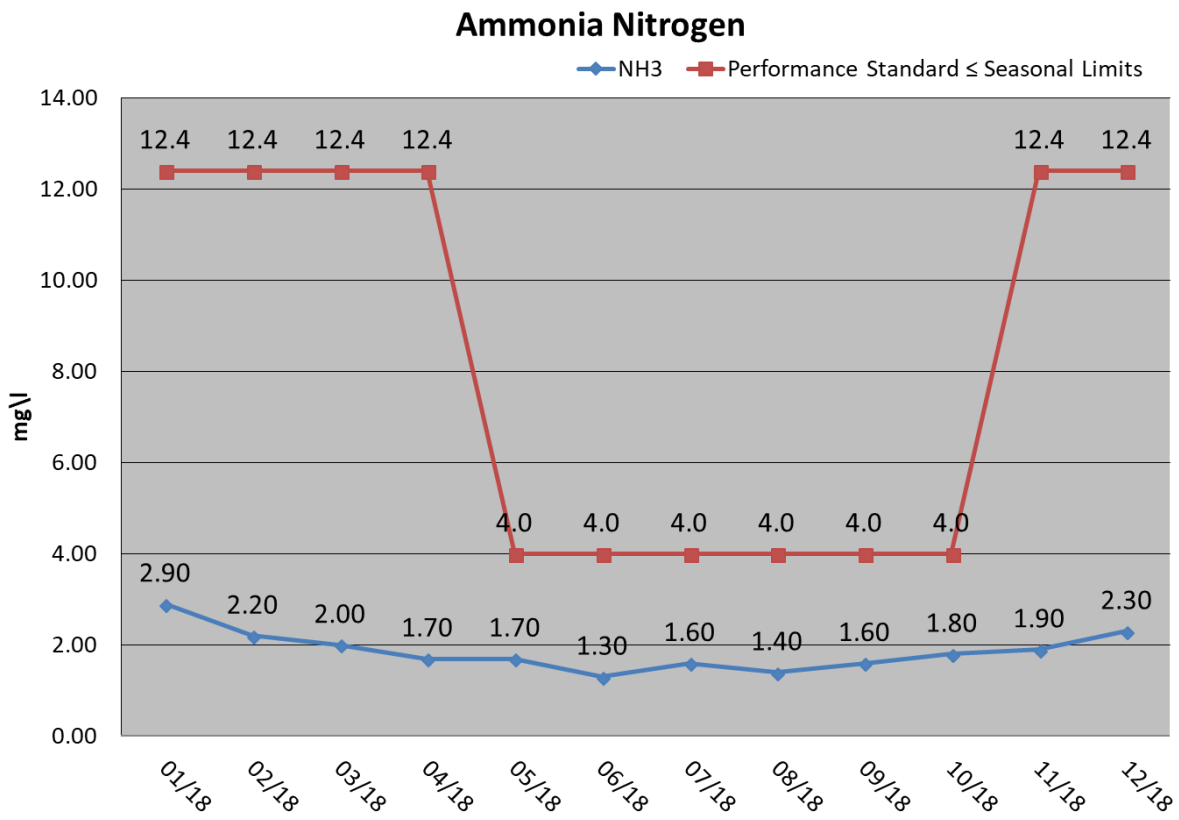
LCA utilizes a computerized maintenance management system. This system is the basis for scheduling, recording, and issuing work orders for predictive, preventative, and repair maintenance. All equipment is catalogued and assigned a discrete identification number. Information from the data plate, product literature, and the entire maintenance history including references to specific work orders is on file.

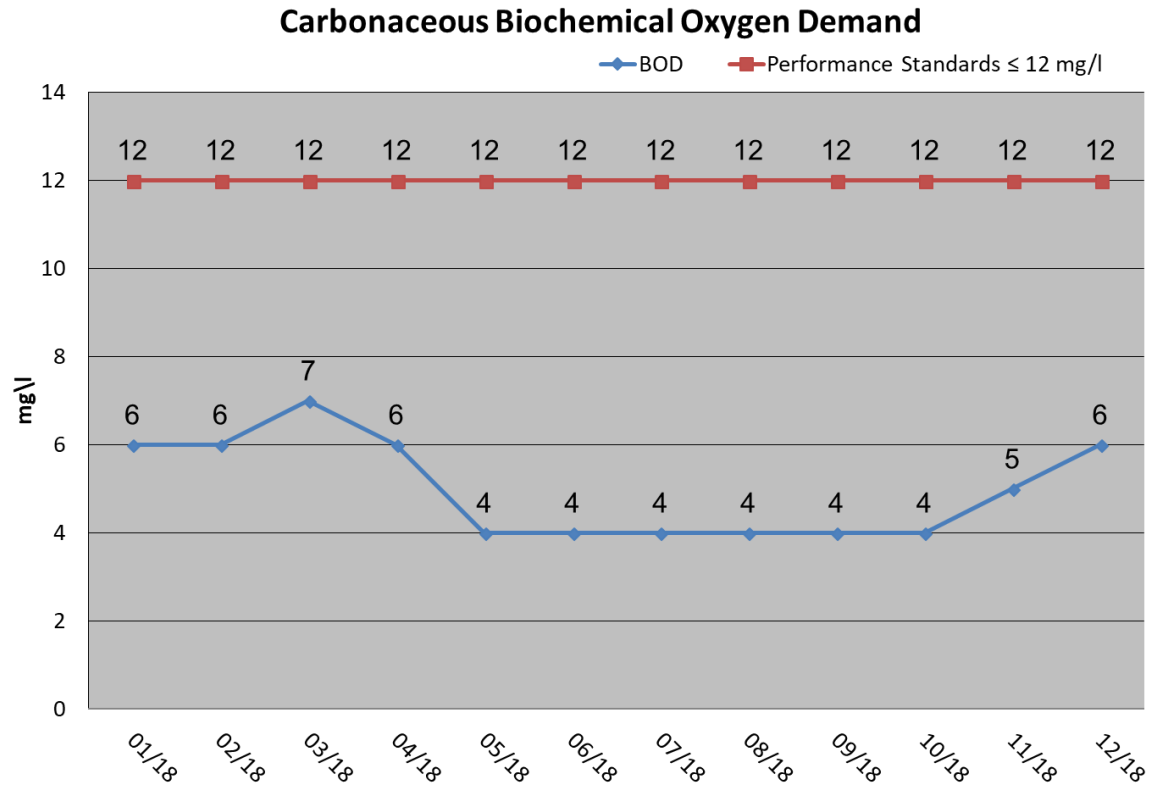
FLOW METERS – Sewage flow meters throughout the KIWWTP are tested and calibrated annually. The communities and authorities (sewer signatories) which have sewage treated at KIWWTP test and calibrate their own meters. All calibrations and certifications are provided to the OoC.

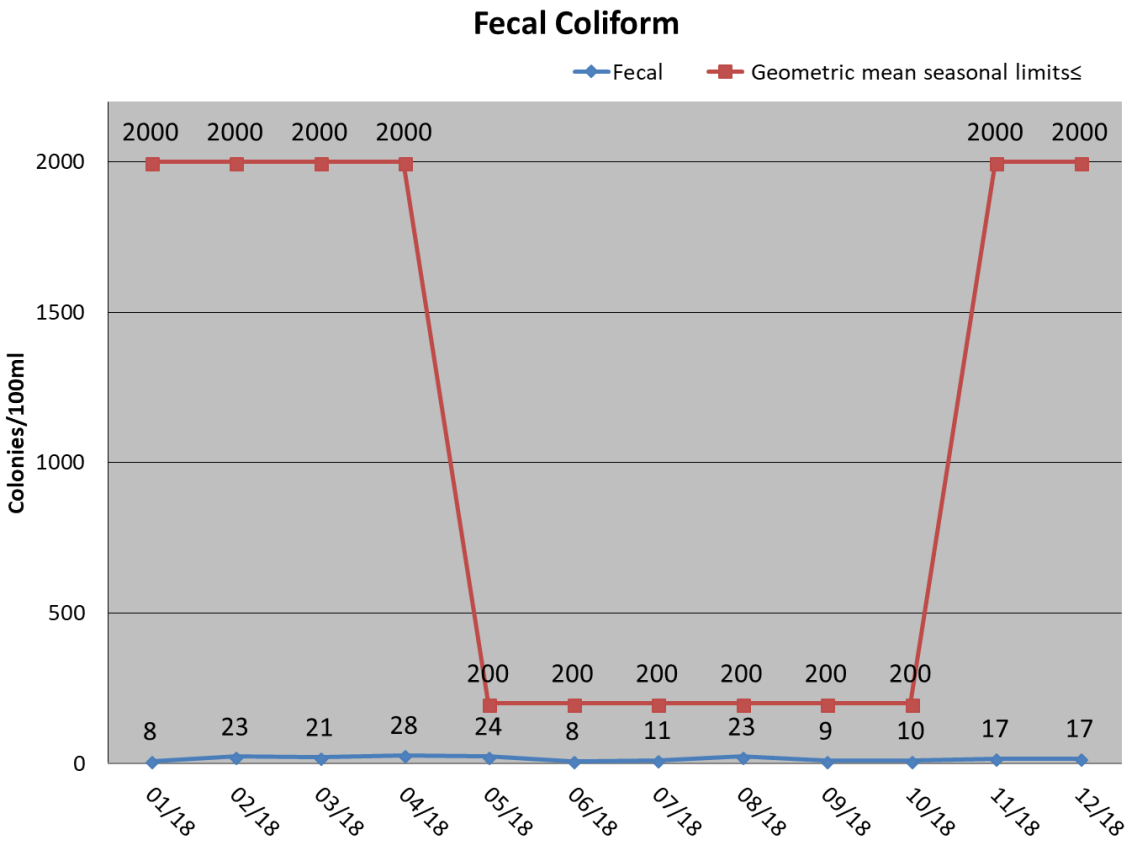
EFFLUENT QUALITY - The chemical and biological limits allowed by the NPDES permit and the lease are indicated in the chart and graphs below. No limits were exceeded.

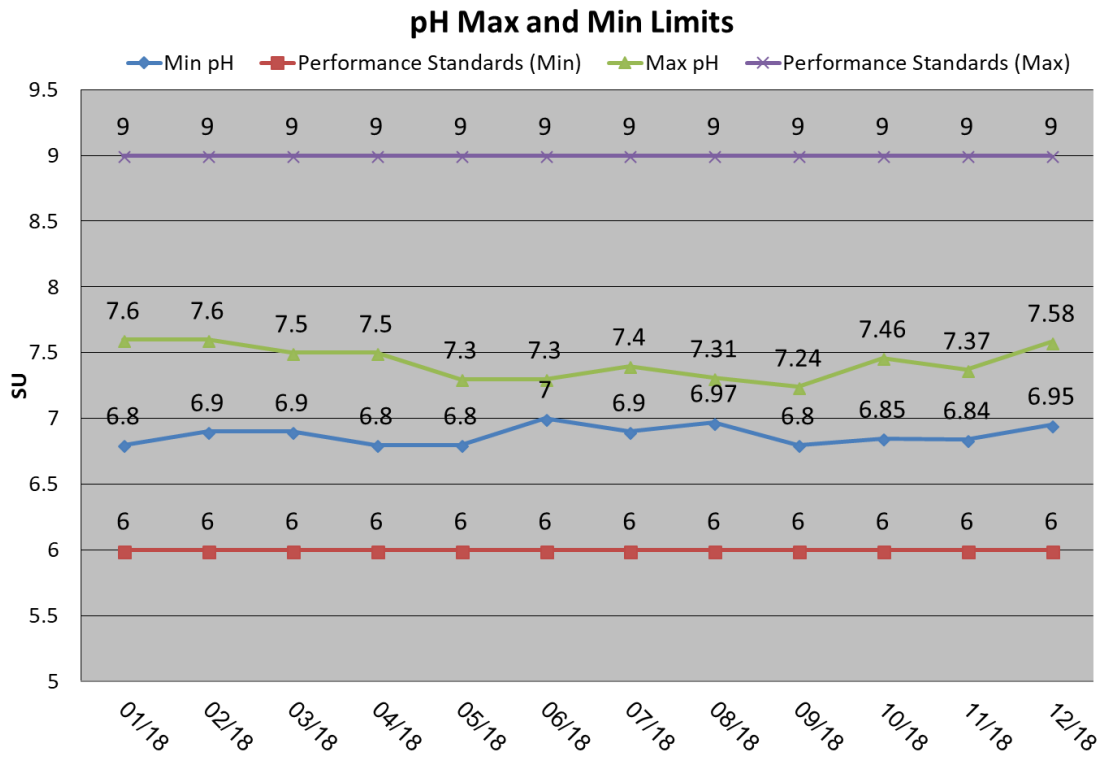
EFFLUENT PARAMETERS

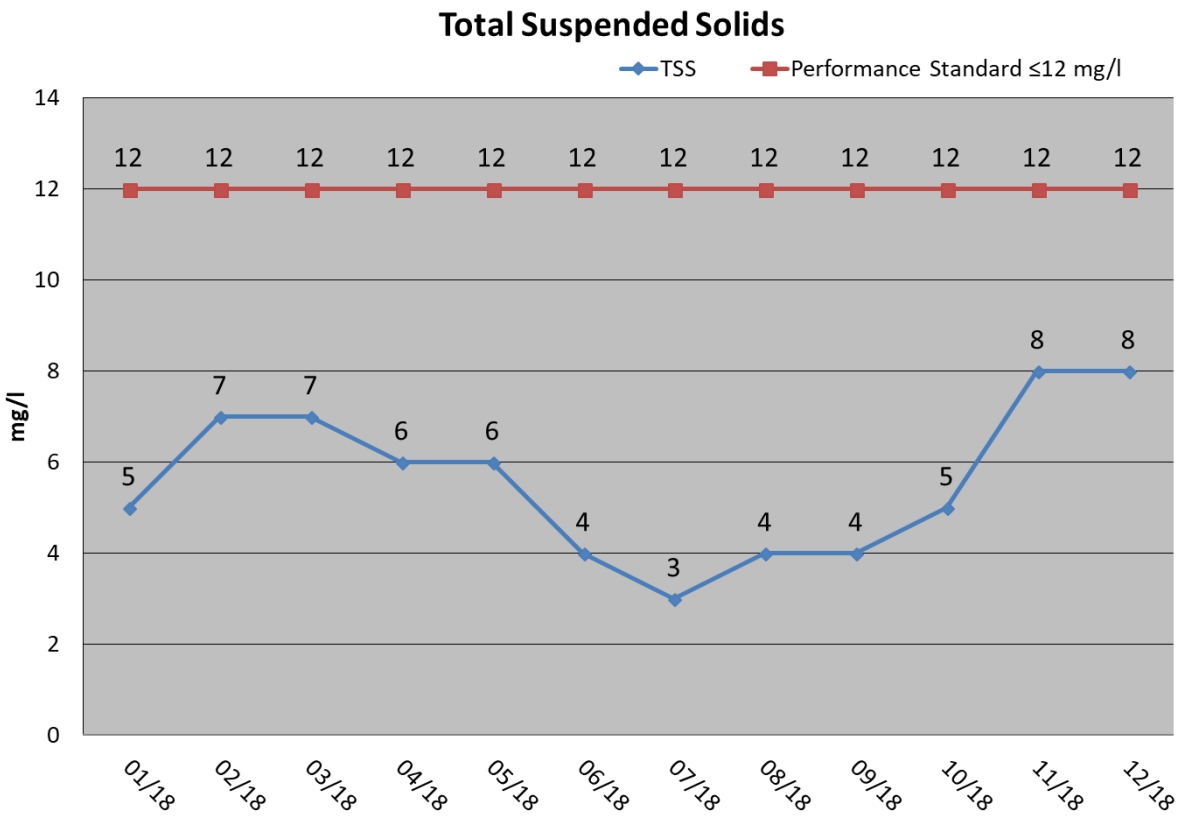
		Performance Standards	NPDES Discharge Permit Effluent Limitations		
Parameter	LCA	Monthly Average Effluent Concentration	Monthly Average Effluent Limit	Weekly Average Effluent Limit	Instantaneous (Daily) Maximum Effluent Limit
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)	Met Requirement	≤ 12 mg/L	20 mg/L	30 mg/L	40 mg/L
CBOD5 Percent Removal	Met Requirement	≥ 90 %	≥90 %	---	---
Total Suspended Solids (TSS)	Met Requirement	≤12 mg/L	30 mg/L	45 mg/L	60 mg/L
TSS Percent Removal	Met Requirement	≥90 %	≥90 %	---	---
Ammonia Nitrogen (NH_3-N) May 1 to October 31	Met Requirement	≤4.0 mg/L	5 mg/L	---	10 mg/L
Ammonia Nitrogen November 1 to April 30	Met Requirement	≤12.4 mg/L	15 mg/L	---	30 mg/L
Fecal Coliform May 1 to September 31	Met Requirement	200/100 ml geometric mean		---	---
Fecal Coliform October 1 to April 30	Met Requirement	2,000/100 ml geometric mean		---	---
Residual Chlorine	Met Requirement	≤0.5 mg/L		---	---
pH	Met Requirement	6.0 to 9.0 SU		---	---
Dissolved Oxygen	Met Requirement	5.0 mg/L minimum		---	---

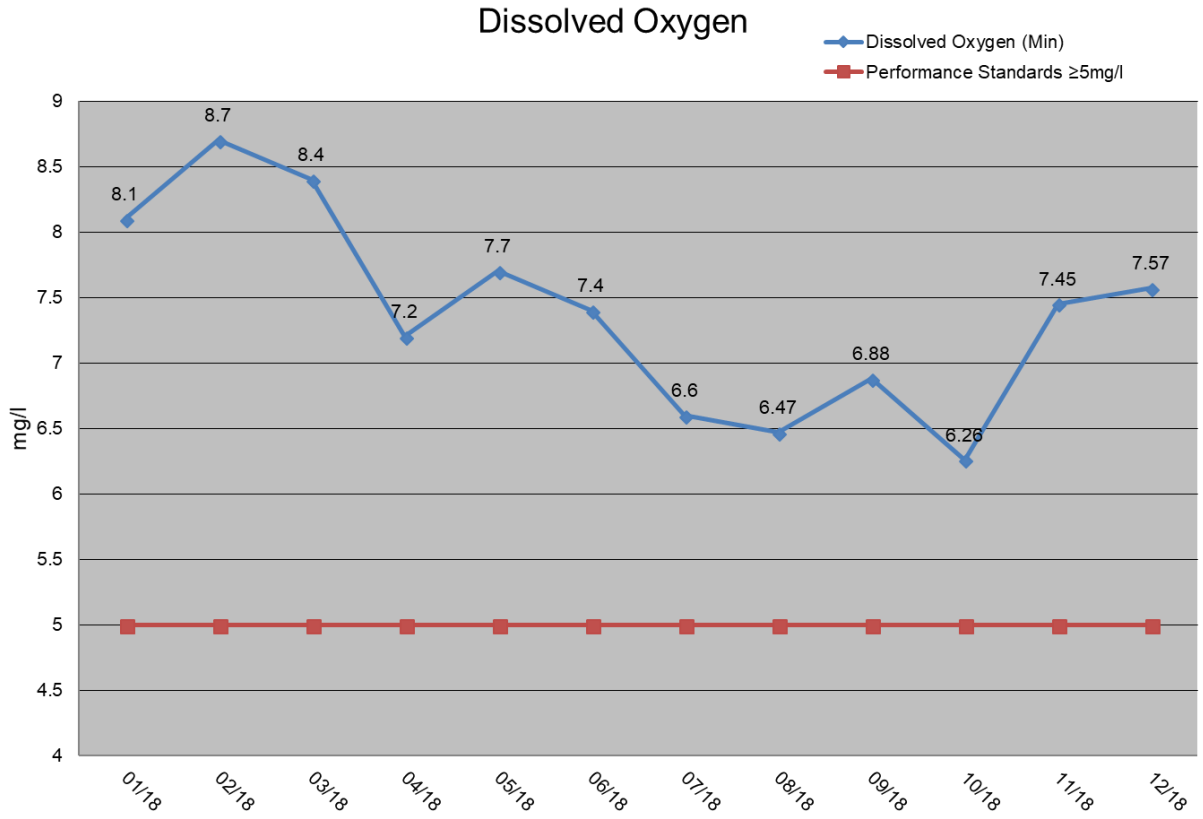

Ammonia Nitrogen
NH3
Performance Standard ≤ Seasonal Limits
mg\l
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
12.4 12.4 12.4 12.4 12.4 12.4
4.0 4.0 4.0 4.0 4.0 4.0
2.90 2.20 2.00 1.70 1.70 1.30 1.60 1.40 1.60 1.80 1.90 2.30
01/18 02/18 03/18 04/18 05/18 06/18 07/18 08/18 09/18 10/18 11/18 12/18


Carbonaceous Biochemical Oxygen Demand
BOD
Performance Standards ≤ 12 mg/l
mg\l
14
12
10
8
6
4
2
0
12 12 12 12 12 12 12 12 12 12 12 12
6 6 7 6 4 4 4 4 4 4 5 6
01/18 02/18 03/18 04/18 05/18 06/18 07/18 08/18 09/18 10/18 11/18 12/18


Fecal Coliform
Fecal
Geometric mean seasonal limits≤
Colonies/100ml
2000
1500
1000
500
0
2000 2000 2000 2000 2000 2000
200 200 200 200 200 200
8 23 21 28 24 8 11 23 9 10 17 17
01/18 02/18 03/18 04/18 05/18 06/18 07/18 08/18 09/18 10/18 11/18 12/18

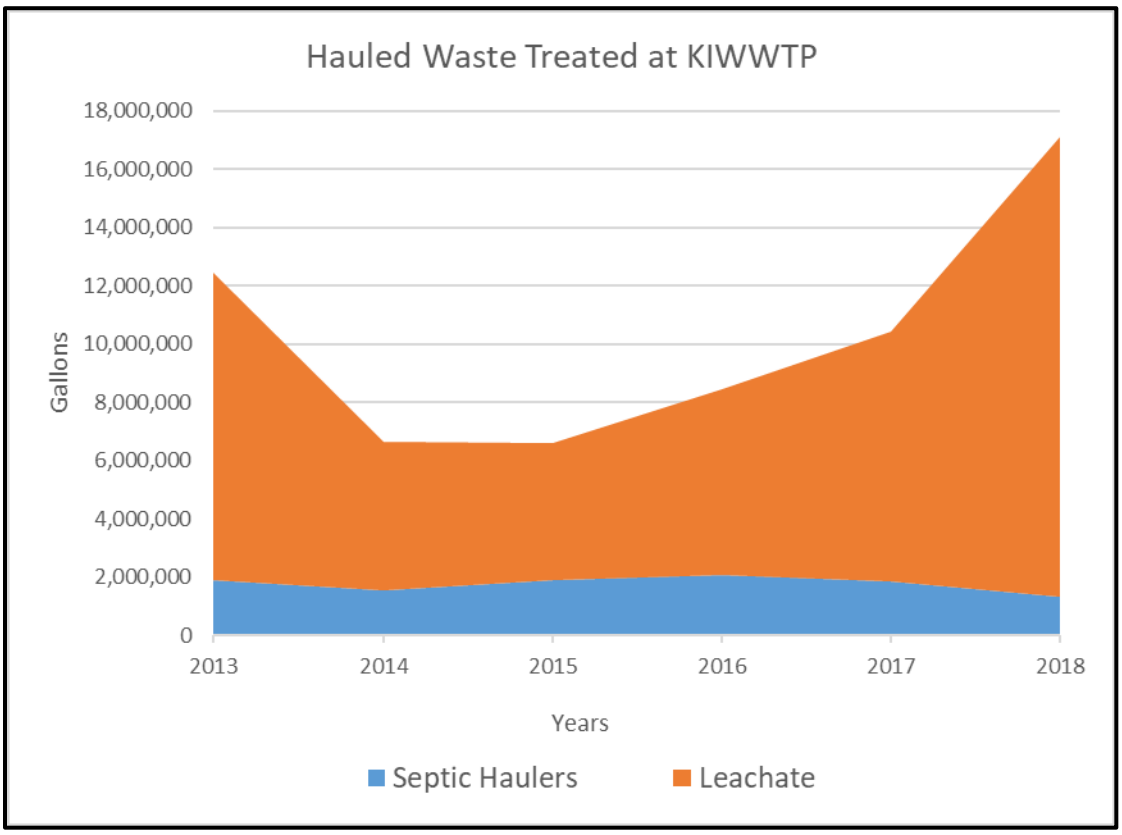

pH Max and Min Limits
Min pH
Performance Standards (Min)
Max pH
Performance Standards (Max)
SU
9.5
9
8.5
8
7.5
7
6.5
6
5.5
5
9 9 9 9 9 9 9 9 9 9 9 9
7.6 7.6 7.5 7.5 7.3 7.3 7.4 7.31 7.24 7.46 7.37 7.58
6.8 6.9 6.9 6.8 6.8 7 6.9 6.97 6.8 6.85 6.84 6.95
6 6 6 6 6 6 6 6 6 6 6 6
01/18 02/18 03/18 04/18 05/18 06/18 07/18 08/18 09/18 10/18 11/18 12/18


Total Suspended Solids
TSS
Performance Standard ≤12 mg/l
mg/l
14
12
10
8
6
4
2
0
12 12 12 12 12 12 12 12 12 12 12 12
5 7 7 6 6 4 3 4 4 5 8 8
01/18
02/18
03/18
04/18
05/18
06/18
07/18
08/18
09/18
10/18
11/18
12/18


Dissolved Oxygen
Dissolved Oxygen (Min)
Performance Standards ≥5mg/l
mg/l
9
8.5
8
7.5
7
6.5
6
5.5
5
4.5
4
8.1 8.7 8.4 7.2 7.7 7.4 6.6 6.47 6.88 6.26 7.45 7.57
01/18
02/18
03/18
04/18
05/18
06/18
07/18
08/18
09/18
10/18
11/18
12/18

HAULED WASTE - Septage and landfill leachate are hauled into the KIWWTP for treatment. The total volume of hauled wastes treated at the KIWWTP in 2018 was:

HAULED WASTES	GALLONS
Septic Haulers	1,328,000
Leachate	15,758,678
Total Hauled Waste	17,086,678



No wastewater from fracking operations was treated at the KIWWTP. The volume of hauled waste is limited by the OS.

HEADWORKS (OUTFALL 003) BYPASS – There were four bypasses that occurred at the KIWWTP Headworks in 2018. The first bypass occurred 8/4/2018 with an estimated volume of 9.22 million gallons. Heavy rains of 3.29" caused the hydraulic capacity of the treatment facility to be exceeded. The second bypass occurred 8/13/2018 with an actual volume of 1,025,074 gallons. The heavy rains of 2.63" caused the hydraulic capacity of the treatment facility to be exceeded. The third bypass occurred 8/22/2018 with an actual volume of 340,651 gallons. Heavy rains of 2.43" also caused the hydraulic capacity of the treatment facility to be exceeded. The fourth

bypass occurred 11/2/2018 with an actual volume of 3,389,312 gallons. Heavy rains of 3.3" caused the hydraulic capacity of the treatment facility to be exceeded.

ODORS - No odor complaints were received in 2018.

BIOSOLIDS DISPOSAL - In 2018, land application was utilized for the disposal of 2179 Dry Metric Tons (DMT) of biosolids.

PERMIT RENEWAL - In June 2014, a NPDES (National Pollutant Discharge Elimination System) permit renewal application was filed with the Pennsylvania Department of Environmental Protection (PaDEP) listing the City and LCA as co-permittees. A draft permit was received from PaDEP; and on 7/24/2014, a joint response letter was submitted. On 10/2/2016, PaDEP responded and provided another draft permit for review. On 11/17/2016, a joint response letter was submitted. PaDEP has not replied.

INSPECTIONS – U.S. Army Corps of Engineers (USCOE) conducted an inspection of the Allentown Federal Flood Risk Management Project along the Lehigh River on July 24, 2018. This inspection resulted in a "Minimally acceptable" rating. LCA has taken the required steps to bring the dike back into compliance from the previous "unacceptable" rating

ACT 537 (The Pennsylvania Sewage Facilities Act) - Several years ago, LCA identified the need for an additional four MGD of treatment capacity due to land development and increased operations of existing businesses. Since then, the other municipal and authority contributors to the KIWWTP, including the City, were contacted about their future needs. LCA has engaged consultants to investigate alternatives for securing the needed capacity. One of the four alternatives under consideration is the expansion of the KIWWTP. In December 2015, LCA met with PaDEP regarding their preliminary 537 Plan, which recommends expansion of Kline's Island. PaDEP advised LCA that it is too early to submit a 537 Plan for expansion as projected growth is too far into the future and there is no certainty it will occur or if the actual future capacity needs might be different. Additionally, PaDEP does not prematurely allocate assimilative capacity of the ecosystems on the Lehigh River as it might impact other dischargers.
The Chapter 94 report, which evaluates the existing and projected hydraulic and organic loads to treatment plants and sewer systems, determines whether such facilities should be upgraded. Together with projected future flows and economic development data, this information will determine the need for revisiting the Act 537 Plan.

INDUSTRIAL PRETREATMENT PROGRAM - Under the Lease, LCA is responsible to administer the Industrial Pretreatment Program (IPP) in accordance with federal regulations, guidance from EPA, and the City Sewer Ordinance. Forty-two industries were permitted to discharge to the system-wide collection system in 2018. Forty-one industrial inspections were conducted by LCA

in 2018 and 37 discharges were sampled by LCA. The sampling conducted by LCA is in addition to the sampling and testing that each of the permitted industries is required to perform as a condition of the industry's discharge permit. Seventeen Notices of Violation (NOV) and two Significant Non-Noncompliant violations were issued to industries in 2018. The City assists LCA on selected reviews of the industrial permits and permit violations. LCA is also required to prepare and submit an annual IPP report to EPA.

- **Sewage Collection System**

Allentown's sewage collection system consists of approximately 285 miles of pipe, about 80% of which is eight to ten inches in diameter. There are approximately 7,100 manholes. Similar to the drinking water system, most of the collection system was installed prior to 1970:

Time Frame	Percent Installed
1910-1930	21%
1930-1950	34%
1950-1970	36%
1910-1970	91%

The collection system is maintained by a variety of systematic programs. These programs assist in the prevention of surcharges and sanitary system overflows (SSO) by eliminating blockages and minimizing extraneous flows.

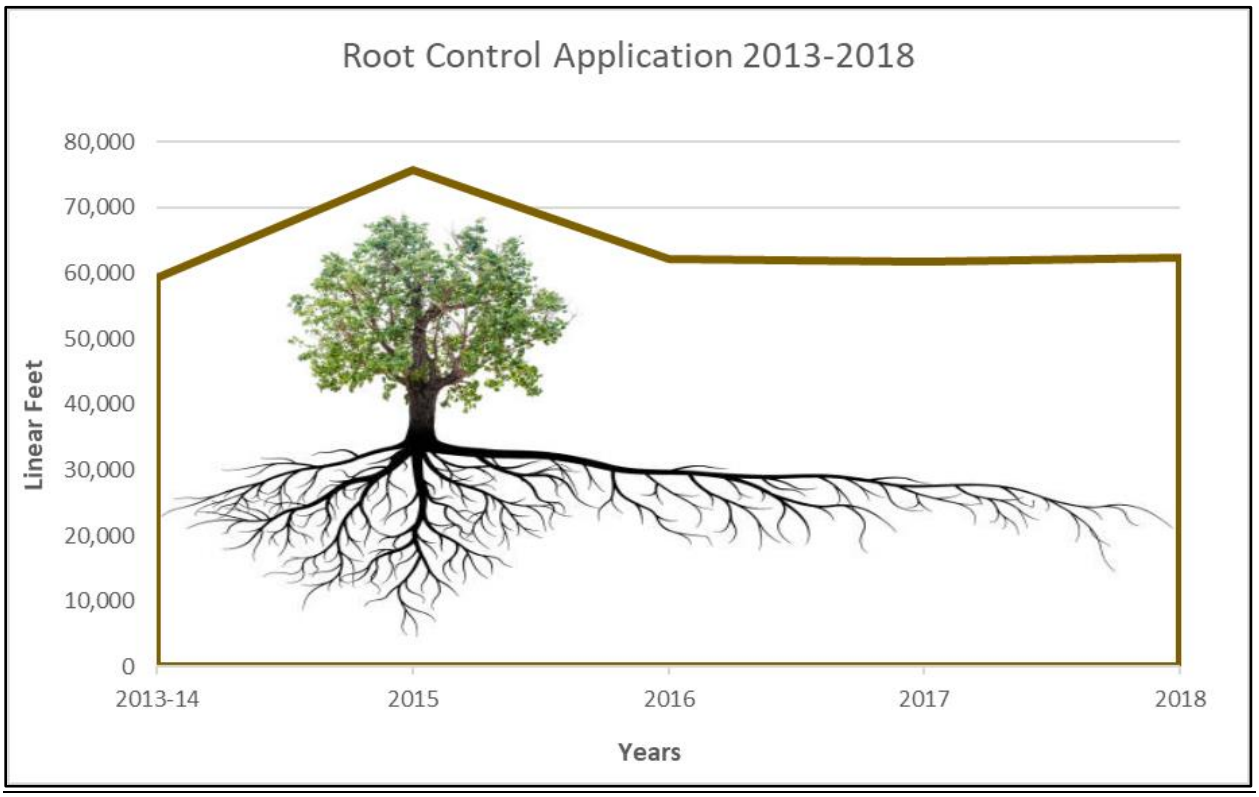
Inflow and infiltration (I&I), due to significant precipitation, snowmelt, and elevated ground water levels, are sources of the extraneous flows. City sewage is conveyed by gravity to the KIWWTP. Velocities within most of the gravity collection system are slow for a significant amount of the time and result in the settling of materials. This settling causes blockages. The problem is compounded by customers improperly disposing of materials, principally fats, oils, and grease (FOG), which congeal and promote blockages. Tree roots are also responsible for blockages. SSOs, which are caused by blockages typically, occur within smaller diameter pipes. In order to address maintenance of the collection system for the issues noted, in compliance with the Lease, LCA developed a Collection System Inspection and Maintenance Plan (CSIMP) to provide a systematic approach for inspecting, televising, cleaning, and flushing the collection system. The CSIMP includes daily, weekly, and monthly preventative maintenance to flush and jet areas where blockages are known or anticipated to occur. Additional collection system areas are added to the preventative maintenance program based on inspections and televising the lines.

FOG - LCA is continuing the dedicated FOG abatement program.

SSO (Sanitary Sewer Overflows) – In 2018, six SSOs were caused by blockages and cleared by LCA personnel. There were also three SSOs caused by excessive flows from heavy precipitation. LCA provided the required notification and reporting to PaDEP.

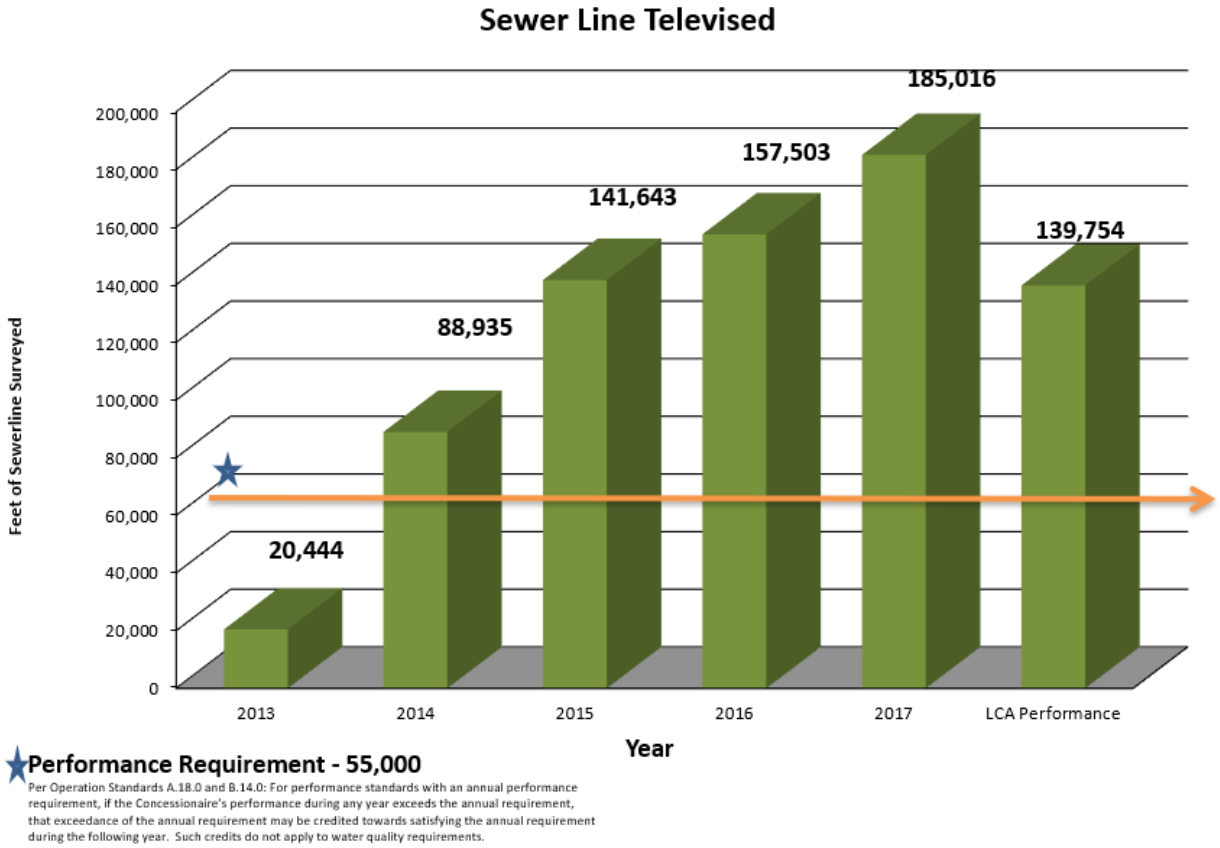
ROOT INTRUSION - Root intrusion is addressed by the application of a specially formulated chemical. The OS require that 40,000 to 50,000 linear feet of areas where root intrusion was identified to be treated annually. Treatment will typically last a few years and then a re-application is necessary. After a surge in 2015, the root control application has remained steady and above the requirement for the past 5 years.

Root Control Application	
Requirement	**Linear Feet**
OS Annual	**40,000 to 50,000**
LCA Performance	**62,301**



TELEVISING COLLECTION SYSTEM - Skilled personnel operating specialized vehicles with CCTV (closed circuit television) perform analytical assessments of the internal condition of collection system pipes. The operators televise the lines after they have been flushed to look at structural conditions, signs of leakage, sags in the lines, FOG accumulations, accumulations of materials, etc. The televised footage is preserved in the Geographical Information System (GIS) system for closer review and for future reference. The televising process is a key component of the CSIMP and is the source for determining the need for remedial repairs and additional preventive maintenance. The OS requires that LCA televise at 55,000 linear feet of the collection system annually.

Sewer Lines Televised	
Requirement	**Linear Feet**
OS annual	**55,000**
LCA Performance	**139,754**



Similar to the pipes in the collection system, the manholes are old and are often the source of leaks. Over time, the sidewalls become porous and/or the upper sections are no longer able to withstand the hydraulic forces during surcharging. LCA inspects and rates the condition of each manhole.

Also included in the collection system program are the inspection of new lines and participation in the City's Streets Program. Major resurfacing projects under the City's Streets Program require the collection system pipes be televised and cleaned. Any damaged or leaking sections of the lines need to be repaired or replaced. Manhole rim elevations must be aligned with the new street elevation.

- **Drinking Water Treatment and Production**

The City's permits allow the discharge of 39 million gallons of drinking water a day with a maximum of 30 million gallons a day being treated at the Water Filtration Plant (WFP). Allentown's drinking water sources are: Schantz Spring (SS), Crystal Spring (CS), the Little Lehigh Creek (LLC), and the Lehigh River (LR). In 2018, approximately 50% of the finished water originated from the two springs.

Raw water from the LLC and the LR require treatment at the WFP before entering the distribution system. The LR supply is engaged periodically to ensure it is available if needed. The LR provided 0.1% of the drinking water in 2018.

The volume of drinking water discharged from the WFP in 2018 averaged 21.78 MGD, which was an increase of 0.62 MGD or approximately 3% above the 2017 average of 21.16 MGD. Seven million gallons of the discharge was delivered to LCA's Suburban system in accordance with the *2009 Water Supply Agreement* between the City of Allentown and LCA.

Removing contaminates during water treatment employs two basic processes. Chemical addition, mixing, and settling removes the majority of contaminates from the raw water which results in the generation of sludge. The sludge is removed from the settling basins and transported to the KIWWTP where it is dewatered and subsequently disposed. Approximately 149 tons, on a dry weight basis, were generated in 2018.

The second process is filtration of the clarified effluent from the settling process through filter beds utilizing anthracite and sand as the primary filtering agents. This method removes smaller particulate matter not previously removed. The quality of the effluent from filtration is based on turbidity, which measures the clarity of the water or analogously the absence of materials that would impede the passage of light during analytical testing procedures. The filters are routinely backwashed and the waste is discharged to the KIWWTP for treatment. The filtered water is chlorinated, fluoridated, and then discharged to the distribution system. Due to the positive results in the coagulant testing of Polyaluminum Chloride (PACl) completed in 2016, LCA, proceeded with the help of PaDEP, submitted the permit application, which allows PACl as the primary coagulants.

SCADA - The WFP's facilities and equipment are maintained using a computerized maintenance management system (see Wastewater Treatment). The operation of the WFP is similarly guided by a manual of SOPs. However, when the WFP was upgraded in 1998, a Computerized Systems and Data Acquisition system (SCADA) was incorporated into the design. The SCADA system allows operations personnel to monitor treatment processes, control chemical feed rates, adjust various flow rates, and pump rates, etc. from a centralized operations control room. The SCADA system also records information throughout the treatment facility. Although operations are principally controlled from the operations center, the WFP is staffed 24 hours a day, 7 days a week and the operators make routine checks and inspections of the facilities and the processes. Operator training includes running all operations manually.

INSPECTIONS –A full PaDEP inspection of the Water Filtration Plant, reservoirs, and pumping stations was conducted on 6/18/2018. A few deficiencies were noted in the report and have either been addressed or were scheduled to be corrected.

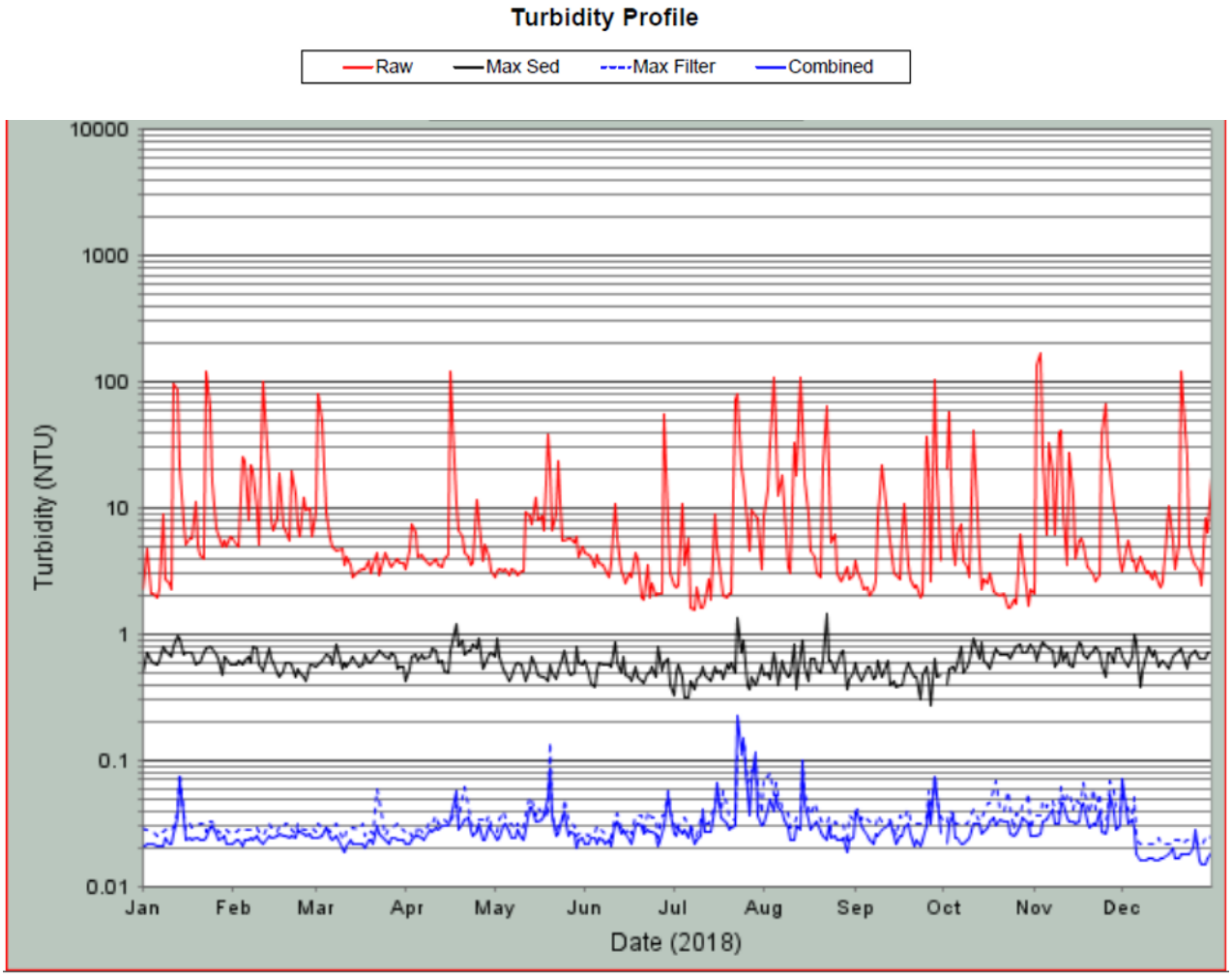
PARTNERSHIP for SAFE WATER - The OS were written to provide "Allentown Standards" which essentially mirror the performance standards required by the American Water Works Association's Partnership for Safe Water. The Partnership promotes the optimization of operations to produce drinking water quality to much higher standards than required under state or federal laws. (See awards and Acknowledgments for recognition of the 2018 Director's award.)

TURBIDITY - The more stringent turbidity standards require LCA to conduct a significant amount of sampling, religiously oversee operations (particularly filtration), and complete required reporting obligations. LCA has complied with all the requirements of the OS.

Turbidity

ANNUAL DATA	Avg (NTU)	Min (NTU)	Max (NTU)	RSQ	95% (NTU)	Opt. Goal % Values	Reg % Values
Raw Turbidity	12.02	1.53	166.7	n/a	56.06	n/a	n/a
Max. Settled Turbidity	0.6	0.27	1.43	0.06	0.84	100	n/a
Max. Filtered Turbidity	0.036	0	0.147	0.02	0.063	98.9	n/a
Combined Filtered Turbidity	0.03	0.015	0.228	0.69	0.05	98.9	100

RSQ = Correlation Coefficient for two selected data sets.
95% = 95th Percentile value for data set.
Opt. Goal = % of values in data set that are less than or equal to the selected optimization turbidity goal.
Reg. = % of values in data set that are less than or equal to the regulated turbidity requirement.



CONTAMINANT TESTING - Nearly 100 chemicals, called Primary Contaminants, must be tested on an annual basis per Pennsylvania Code Title 25. Environmental Protection, Chapter 109 Safe Drinking Water. No maximum contaminant levels were exceeded in 2018. Information about water quality is supplied to all customers in the annual *Consumer Confidence Report.*

WATER AESTHETICS - As required in the OS, LCA must also address and record all customer complaints regarding the aesthetic qualities of the water such as odor, discoloration, or taste. A total of 4 complaints about aesthetics were received in 2018. Most complaints can be resolved over the phone by suggesting that the customer let the water run, check other taps, etc. Periodically it is necessary to visit the customer's property to verify through testing and inspection the cause of the water quality issue. In 2018, no on-site inspections were required.

PRIMARY FLOW METERS - All primary flow meters at the WFP are tested and calibrated annually. Bulk water users (South Whitehall Township, Salisbury Township, Hanover Township, Whitehall Water Authority, and LCA) test and calibrate their meters annually. All calibration and meter certification information is provided to the OoC.

- **Drinking Water Distribution System**

Allentown's water distribution system is very extensive and contains numerous components. Maintenance, renovation, and updating of the distribution system is critical to the supply of drinking water from both a day-to-day perspective and relative to maintaining the system's integrity into the future.

The water distribution system includes:

- Approximately 325 miles of pipe.
- Approximately 8,060 valves ranging in size from 4 to 36 inches.
- Approximately 33,400 service connections.
- Four booster pump stations, which provide adequate pressure to service connections in higher elevations.
- Three finished water storage reservoirs with a combined storage capacity of 50 million gallons. These reservoirs store water to meet customer demands, provide the water system's operating pressure, and ensure an adequate supply for fire protection.

Requirements for the booster stations and reservoirs include maintenance of system components, annual external inspections, periodic internal inspections, and hydrostatic testing of the reservoirs.

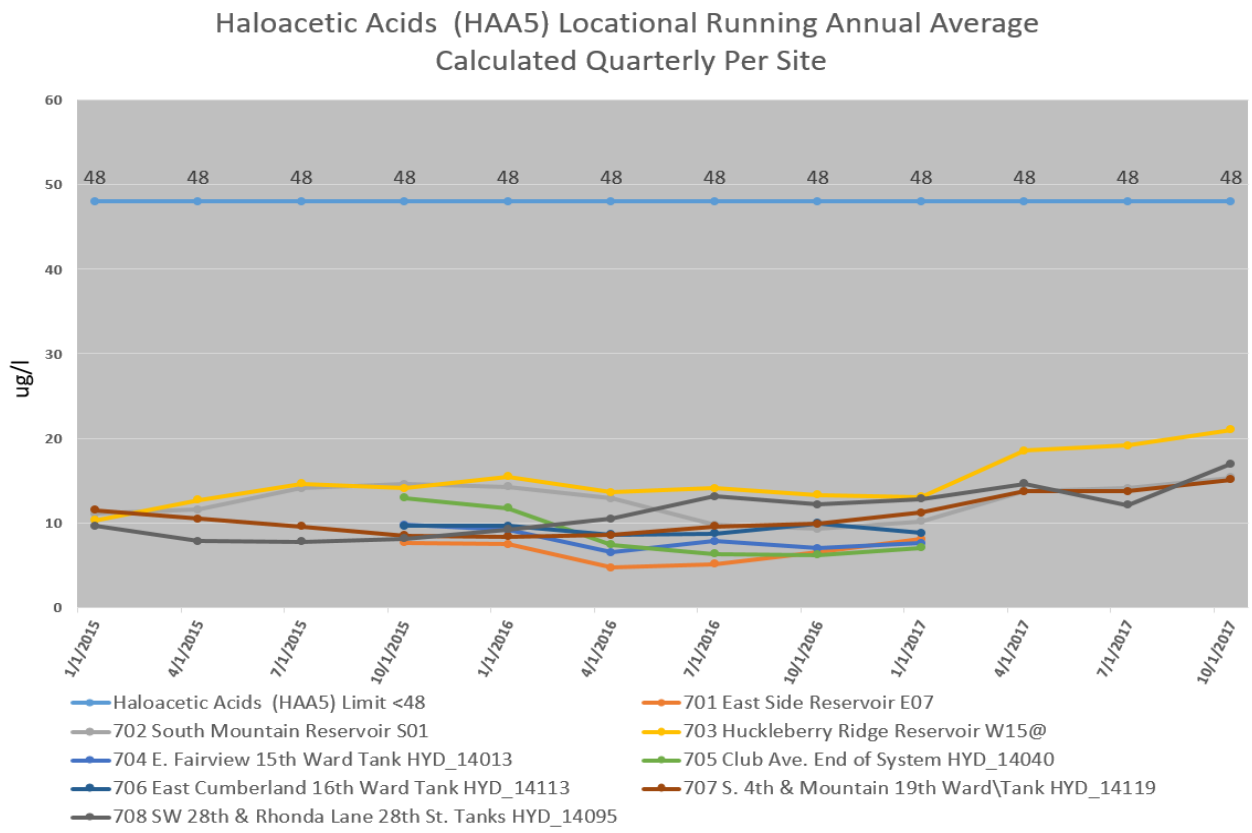
SAMPLING - A distribution system-sampling plan is maintained by LCA. Samples are collected routinely and tested by a certified laboratory to verify that the water is safe and meets regulatory requirements. Sampling results, which do not comply with regulations and necessitate re-testing, must be reported to the OoC.

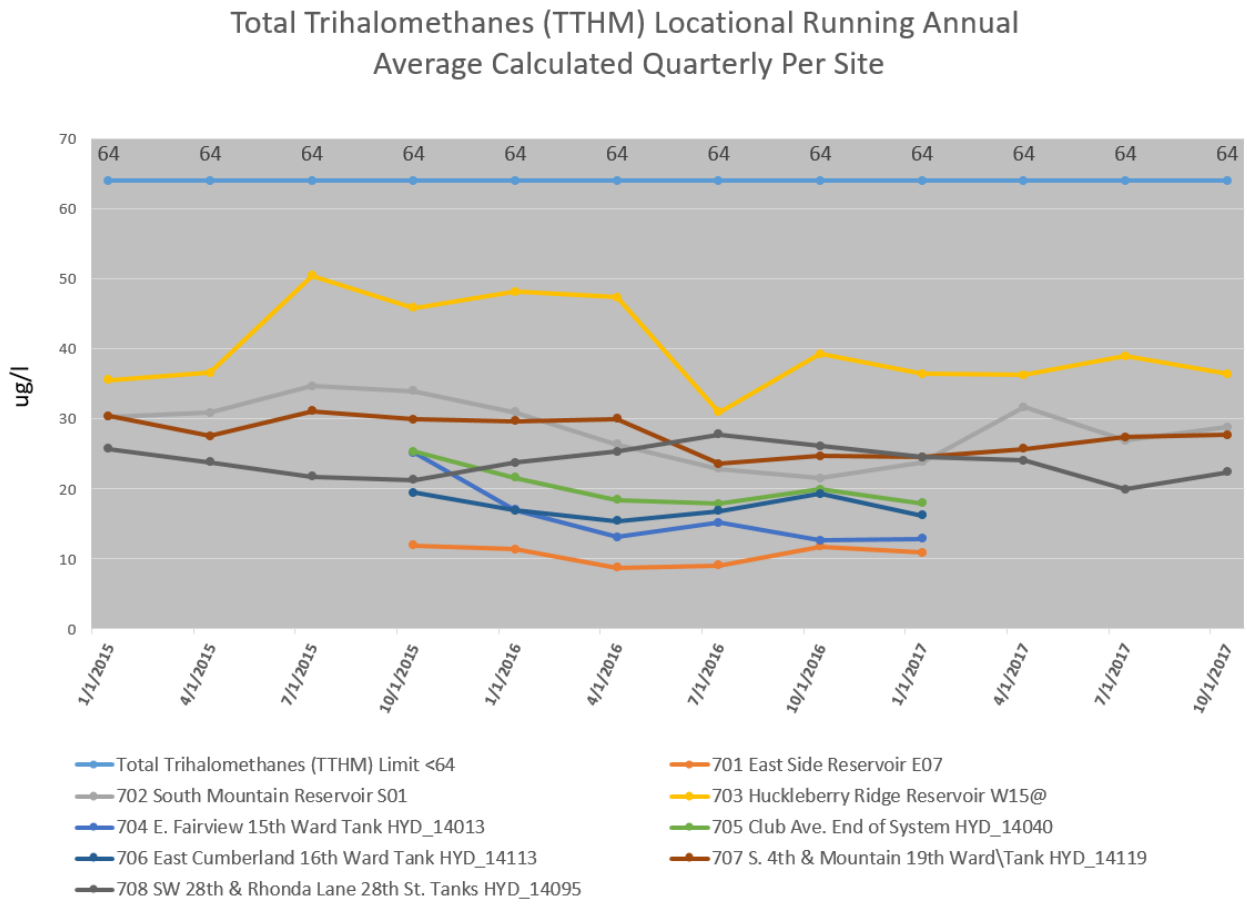
In 2018, no boil water advisories were issued.

FLUSHING THE SYSTEM - As with any water utility, LCA is required to insure that both chlorine residuals for continued disinfection and minimum operating pressures are maintained throughout the distribution system. To achieve this objective, LCA has developed a program of flushing distribution system pipes. Flushing typically leads to the disturbance of sediment in the lines, causing cloudy or brownish water, which can appear at the customer's tap for a short period. LCA provides the "flushing schedule" on its website and in billing mailers. Although it is difficult to determine exactly where discolored water might migrate, efforts are made to advise

residents in the immediate area. In 2018, LCA's program included flushing approximately 55% of the hydrants and the use of automatic flushing stations.

DISINFECTANT BYPRODUCTS - OS Part A 4.1 Performance Requirements stipulate that the maximum four-quarter running average calculated at each required distribution system sample location is 64 parts per billion (ppb) for Total Trihalomethanes (TTHM) and 48 ppb for Haloacetic Acids (HAA5). TTHM and HAA5 contaminants are disinfection by-products. The Locational Running Annual Average for 2018 at all sites remained below PaDEP and Lease limits.

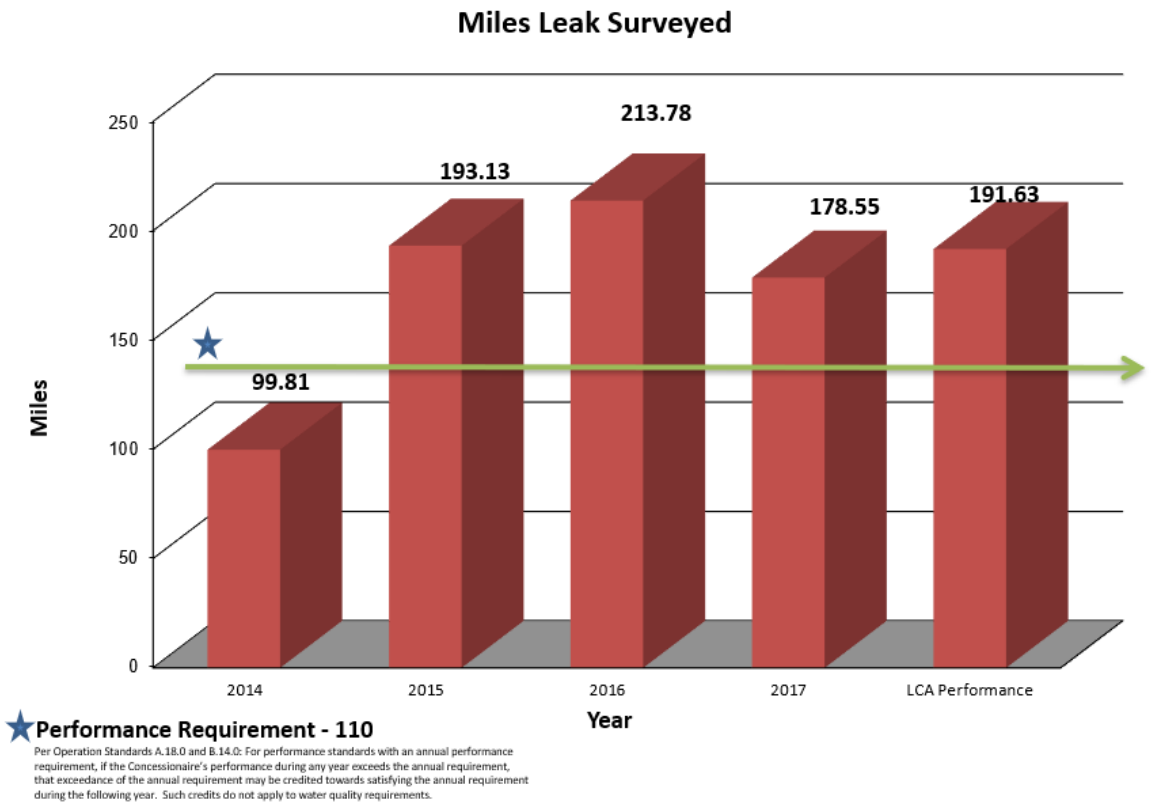




Annual Performance Requirements- The requirements and LCA's efforts in meeting OS annual performance standards are as follows:

LEAK DETECTION AND WATER LOSSES - LCA must perform leak detection on at least 110 miles of distribution pipe annually; therefore, the entire distribution system is checked for leaks every three years. Finding and repairing leaks is cost effective, reduces unaccounted for water loses, and can prevent possible property damage. Any identified leaks are to be further investigated to determine the nature and severity of the leak. In 2018, LCA identified and repaired 53 leaks.

Leak Detection	
Requirement	**Miles**
OS annual	**110.00**
LCA Performance	**191.63**



An estimated 430,021,700 gallons of water were saved in 2018. This estimate is calculated by determining the volume of each leak repaired multiplied by the number of days remaining in the year.

ANNUAL WATER AUDIT - In addition to the Leak Detection Program, LCA is required to complete and submit an Annual Water Audit to the Delaware River Basin Commission to document and demonstrate its efforts in controlling water loss. The purpose of this report is to track and evaluate water loss trends.

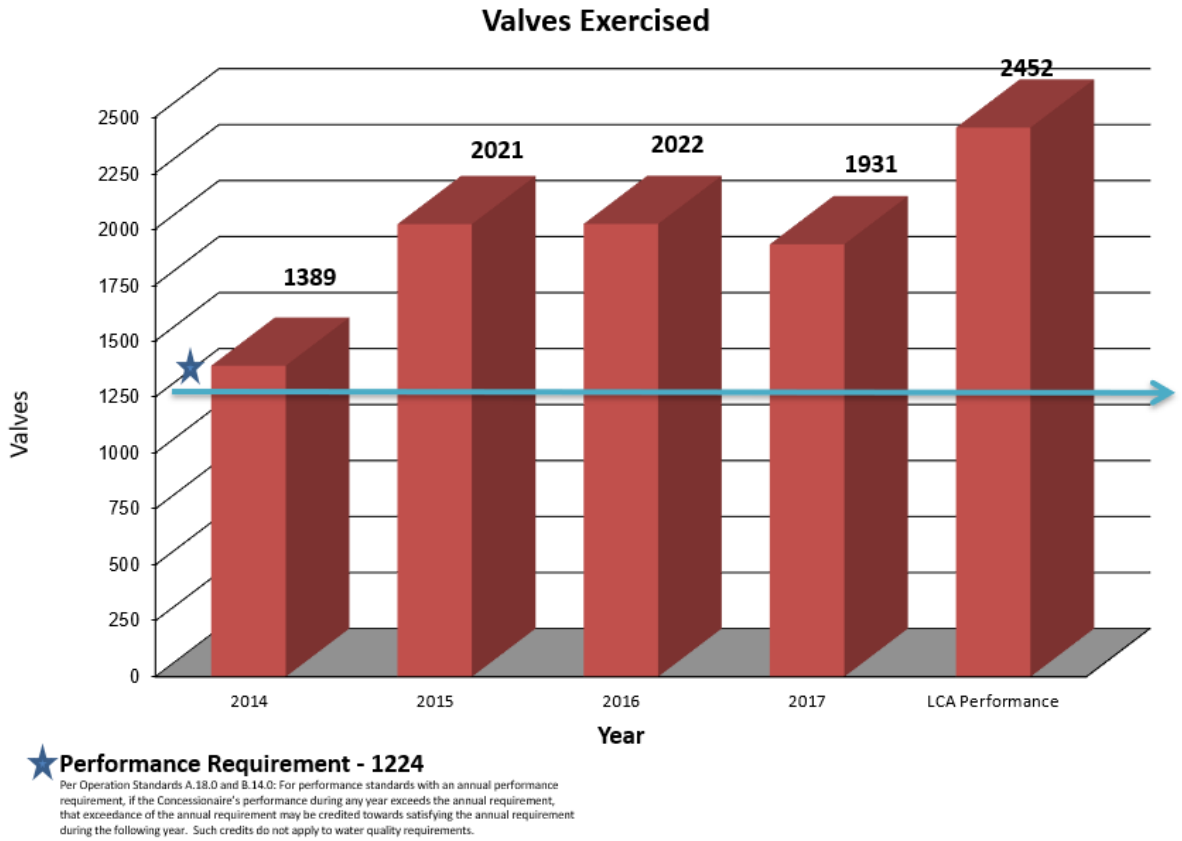
VALVE EXERCISING PROGRAM - Water main valves in the distribution system typically remain in the open position for years. Eventually, a valve may need to be closed to facilitate addressing breaks, repairs, and pipe replacements. The ability to close valves to isolate pipe sections and redirect the flow of water becomes critical. Too often in many utilities, the inability to close valves, particularly in cold weather when most breaks occur, can lead to significant problems.

LCA is required to exercise all valves between 4 and 12 inches at least once every five years. These are the valves within the distribution system, which directly serve customers. Any valve, which is found to need repair or replacement, must be addressed within one year of the initial identification.

In 2018, as a result of this program:

- 67 valves were repaired or replaced

Valves Exercised	
Requirement	**# of Valves**
OS annual	**1,224**
LCA Performance	**2452**

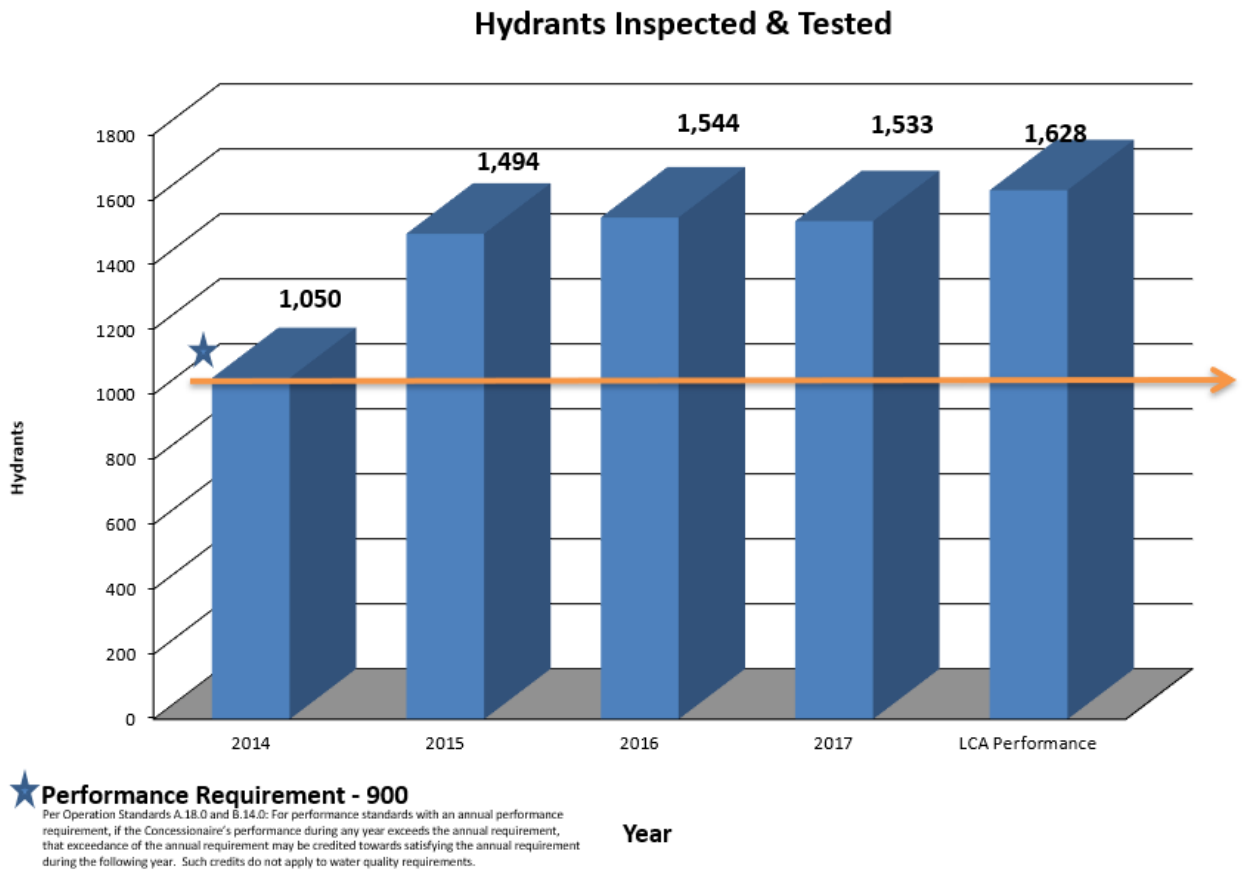


HYDRANT MAINTENANCE AND TESTING – There are approximately 1,800 Allentown fire hydrants throughout the City. It is critical that fire hydrants be serviceable at all times. LCA is required to inspect, test, and monitor pressure and flow on 900 hydrants annually. This requirement will result in every hydrant being checked at least every two years. Hydrants which require repair or replacement must be completed within six months of the problem(s) being identified. Hydrants reported by the Fire Department as not functioning properly are handled similarly. Subsequent to inspection, hydrants are also painted to ensure visibility.

In 2018, as a result of this program:

- 119 hydrants were repaired or replaced.

Hydrants Inspection & Testing	
Requirement	# of Hydrants
OS annual	900
LCA Performance	1628



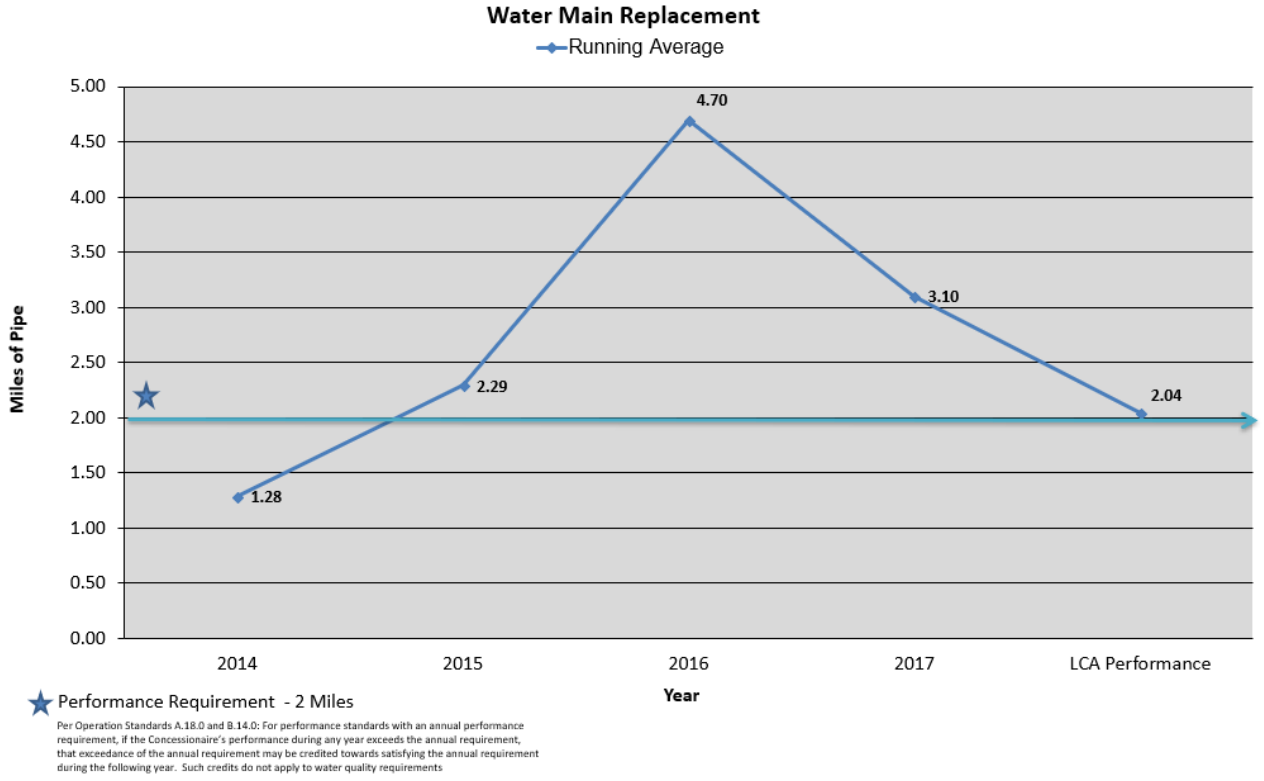
PIPE ASSESSMENT PROGRAM - Approximately 325 miles of water distribution pipes were inventoried during the bidding process. That inventory indicated that 49% were installed between 1870 and 1944. Between 1944 and 1963, the City utilized spun cast iron pipe, which accounts for another 19% of the system pipes. Unfortunately, this type of pipe has been shown to be the most prone to breakage. Replacement of the spun cast iron pipe has been a City priority for several years. Of the 33 main breaks in 2018, 23 involved spun cast pipe.

LCA was required to develop an assessment program that looked at variables such as age of pipe, type of pipe, and breakage history to determine which pipe segments should be replaced most immediately. Spun cast iron pipes and pipes over 100 years old were to be prioritized along with consideration for dovetailing main replacement into the City's Streets Program. When a street is

to be resurfaced, the pipe underground will be replaced to minimize the potential for a water line break in a newly resurfaced street.

WATER MAIN REPLACEMENT - The OS requires two miles of pipeline to be replaced annually. Service lines are also replaced and information on all the new lines are to be entered into the Geographic Information System (GIS) so that information on the City's infrastructure is kept current. In 2018, LCA replaced 1.1 miles for their main replacement program and met their 2 mile requirement by using 0.94 mile exceedance credit from the previous years.

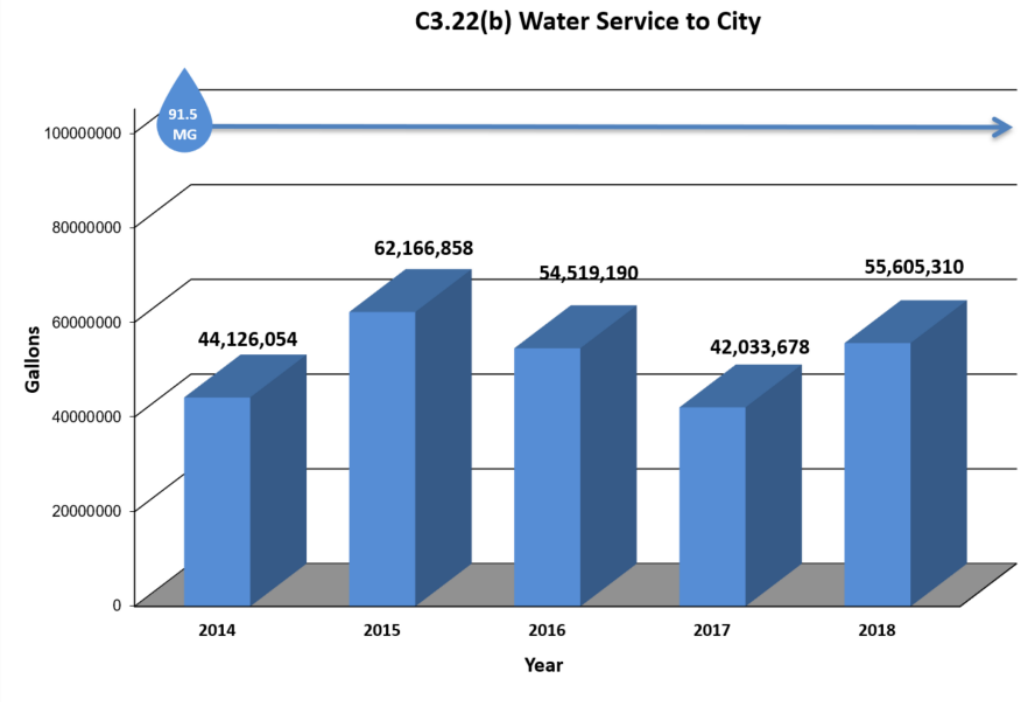
Water Main Replacement Program	
Requirement	**Miles of Pipe**
OS annual	**2.00**
LCA Performance	**2.04**



CUSTOMER METERING - All customer metering devices must follow American Water Works Association guidelines. In 2012, before the Lease, the City began a major residential meter replacement program to replace the existing meter with an Automatic Meter Reader (AMR). These meters are more accurate and have greater data collection capabilities, which allow for information on water use patterns to be determined. Meter reading is accomplished by driving

past a customer's property with a specially equipped vehicle, eliminating the need for entry onto property. Approximately 28,000 customers have been converted to AMRs under the Itron contract. LCA personnel are currently installing the approximately 200 remaining meter replacements not previously replaced under the contract.

City Water Use under Free Service - Section 3.22 (b) of the CLA allows the City 91,500,000 gallons per calendar year free of service and consumption charges. The total amount of water allocated for this use in 2018 was 55,605,310. Note: The figures below include the City's Fire Department usage which is not to be included in the aggregate for all City water usage.

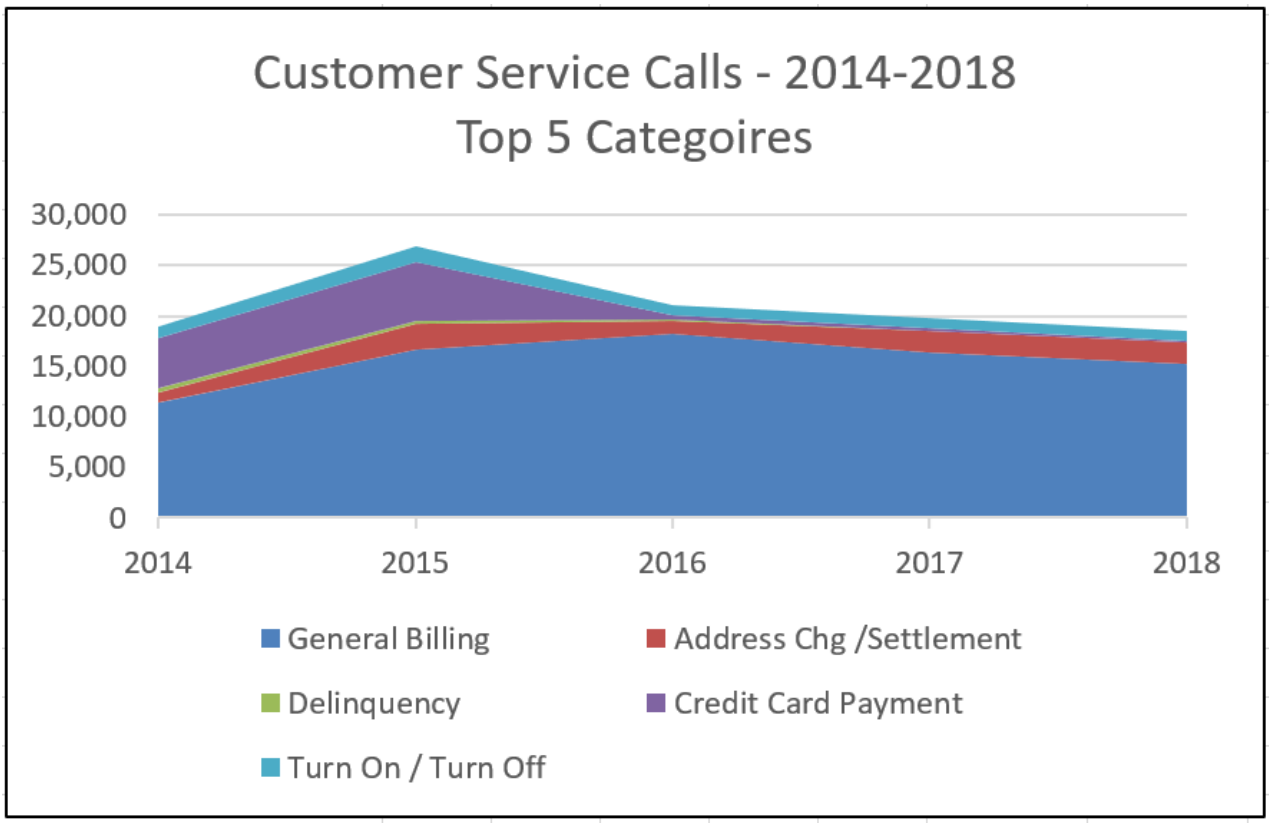


- **Customer Service**

CUSTOMER SERVICE CENTER - As required by the Lease, LCA established an office within the City to provide customer service by renovating the entranceway and offices area at the Water Filtration Plant at 1300 Martin Luther King Jr. Drive. The Customer Service Center (CSC) is open from 8:15 am until 4:45 pm Monday through Friday except holidays. Bill payments by cash or credit card can be made at three windows in the CSC. A parking lot is available for customer's use and includes a secure drop box for bill payments.

CSC staff fielded an average of 1,631 calls per month, which include bill payments, complaints, requests for water or sewer services, emergencies, and other inquiries. Several of the staff are bilingual. Records are maintained of all calls and responses, which may include dispatching service technicians.

All calls are classified into 14 categories depending on the subject of the incoming call. LCA received 19,582 calls in 2018 of which 15,431 (79%) were inquiries about billing or credit card payments. LCA is required by the OS to track the calls by categories for the present and prior two years to look for trends. LCA call volumes in 2018 decreased over 2017 volumes.



CUSTOMER SURVEYS - LCA is required by the lease to conduct customer surveys to measure customer satisfaction. LCA has customer survey programs in effect in its other service areas and maintains a service satisfaction goal of 91%. The 2018 Allentown customer survey satisfaction rate was 86.3%. This was a decrease from 89.5% recorded in 2017.

CUSTOMER CONCERNS - All customer questions or concerns are directed to the CSC. LCA has very specific policies and protocols in place to address customer concerns and complaints. If customers do not accept that LCA has adequately addressed their concern, the next step is to contact the OoC. Not all complaints are resolvable, such as a leaky toilet that results in an unusually high bill. In 2018, 15 customers contacted the OoC, a 15% increase from 2017.

- **Completed Major Capital Improvement Projects**

Major Capital Improvement Projects (MCIP) are necessary capital improvements to the water or wastewater systems, which in 2018 now have a total cost of $1,023,120. This qualifying total project cost threshold has increased annually since 2016 based on the CPI-U (Consumer Price Index for all urban consumers). Costs include debt service, construction services, materials and equipment, engineering, permitting, consultants, project management, and other directly related costs. Per the Lease, LCA will provide funding and overall project management for MCIPs. The Lease details the phases and related requirements of a MCIP, all of which require presentation to the City for review. Those phases begin with inclusion of a MCIP in the Capital Plan, and then continue with conceptual design, substantially complete design, and project closeout.

The CPI-U percentage change for the 2018 annual period ending on June 30, 2017 is 1.5%.

Under the terms of the Lease, LCA is allowed to recover all costs associated with a MCIP. Sewer project MCIPs costs are shared between Allentown ratepayers and the other sewer signatories, including LCA, in conformance to the 1981 Master Sewer Agreement. Water project MCIPs costs are shared by Allentown ratepayers and bulk water customers (South Whitehall Township, Salisbury Township, and Hanover Township).

Schedule 7 The Required Capital Improvements, known as Schedule 7 were completed during the past five-years:

1. Centrifugally Spun Cast Iron Water Main Pipe
2. Schantz's Spring Main Improvement
3. Water Distribution Replacement
4. WWTP Digester Cover Replacement
5. WWTP Motor Control Center
6. WWTP Belt Filter Press Replacement

Uncompleted Work The following is status of the City's contracted work with respect to capital improvements to the System:

Status summary of "Uncompleted Work" Projects as per page 27 of the Concession Lease Agreement (CLA) and the UWMOU	
Project	**Status**
Whitman Requardt & Associates contract (C2011-087) to develop a Corrective Action Plan	Completed
Design and Construction of the Bar Rack at KIWWTP	Completed
Supervisory Control and Data Acquisition (SCADA) System	Completed
Security System Upgrades	Completed
Design and Construction of the new roof over the chemical storage area at the WFP	Completed
The chlorine booster station for the Schantz Spring Transmission Line	Completed
Water Storage Tank Remediation	Completed
Automatic Meter Reading	98%
Inoperable Valves	Completed

CAPITAL COST RECOVERY CHARGE - The determination of the actual rate increases is based on a Capital Cost Recovery Charge (CCRC), which spreads the cost of a MCIP out over the life expectancy of a MCIP, not to exceed 30 years. The annual cost will be billed to the ratepayer as an incremental increase to the cost per thousand gallons, which is listed as a line item on a customer's bill. LCA will provide information on the MCIPs with the first bill of the new year. Charges for MCIPs are added to the bill after rate adjustments (CPI-U and margin) have been made to the base rate as allowed under the Lease.

Capital projects associated with addressing the Administrative Orders (AO) may not exceed the threshold amount. However, the funding for all AO projects, regardless of project costs, is paid out of the Administrative Order Fund (AO Fund) which the City must maintain. Costs for AO projects are included as a line item on customer bills. The mechanism for determining the AO projects charge is different than the CCRC; it is based primarily on the debt service associated with the AO Fund.

The following two MCIPs for which a CCRC was developed have been added to the Allentown ratepayer's 2019 water and sewer bill:

1. Schantz Spring Transmission Line Replacement
2. Digester Cover Replacements

- **Administrative Orders**

The United States Environmental Protection Agency (EPA) issued Administrative Orders (AO) in 2007 and 2009 as a result of excessive Inflow and Infiltration (I&I) entering the collections

systems of Allentown and the sewer signatories. I&I caused SSOs in the collection systems and at the Headworks of the KIWWTP during periods of significant precipitation. These orders direct the parties to address the problems. In late 2017 through early 2018 there was a change in direction proposed by the EPA. EPA indicated that addressing the AO should be on maintenance and rehabilitation of collection systems. The City and Sewer signatories met with EPA in March 23, 2018 to discuss the development of a regional flow management strategy.

City of Allentown, LCA, and other municipalities that contribute sewage to the facility worked collaboratively and submitted a Regional Flow Management Strategy (RFMS) to the EPA prior to the deadline of August 1, 2018. The Strategy describes the collaborative works that are planned to address ongoing management of sewer flows during wet-weather events.

The Respondents received a letter from the PaDEP on 12/21/2018 outlying their comments and concerns regarding the RFMS and requested information from the respondents by 3/31/2019. All respondents gathered the requested information and send in a response with additional questions regarding the RFMS to the PaDEP on 3/8/2019. We have yet to received and response from them. EPA sent a letter on 3/19/2019 stating "Based on the regional flow management strategy and information provided in the semi-annual reports and meetings, EPA hereby finds that all of the Respondents to the Administrative Orders CWA-03-2009-0313DN and CWA-03-2007-0332DN have completed the requirements." This Letter indicates that the EPA accepts the RFMS as an acceptable plan to address the wet weather issues. The City is currently following the plan and approved the design of five I&I reduction projects. The construction of each of the projects will be completed on an annual basis. In addition to these projects and as part of the RFMS, a system characterization study is scheduled to start in 2021.

Due to an extraordinary weather pattern which began in August 2018, there were four by-passes within four months at the KIWWTP since the submittal of the RFMS. By way of comparison, there were two bypasses where the hydraulic capacity was exceeded within the past six years. The 2018 wet-weather events had extreme rainfall rates with one delivering 2.42 inches of rain within a three-hour timeframe.

- **Security**

Security is a significant concern to utilities because of the potential health risks to the public, the need to keep treatment systems functional, and to prevent possible damage to very expensive equipment. Additional security requirements were implemented after the establishment of the Federal Department of Homeland Security.

The treatment facilities use key card systems so that access is limited to authorized personnel. Visitors to the treatment facilities are required to enter through the main entrances, note with whom they are meeting, and sign in after being cleared for entrance. Video surveillance is also utilized. Remote facilities are gated and protected by intrusion alarms. The perimeters of the treatment facilities are inspected daily to check the condition of the fence lines and to look for signs of breaching. Security procedures are covered in the treatment plant SOP manuals. LCA has also developed Emergency Response Plans, which are required to be reviewed annually.

No security breach was reported in 2018.

- **Notices of Violation (NOV)**

On 10/2/2018, the PaDEP issued a NOV for a discharged directly to the Little Lehigh River through utilization of unpermitted Outfall 003 that occurred 8/4/2018, 8/13/2018 and 8/22/2018. In the response it was noted that steps are being to rectify the situation. The RFMS as mentioned in the above Administrative Order provides the steps to address proper management of peak wet-weather flows for the Kline's Island Sewer System.

- **Awards and Acknowledgements**

In 2018, and the 11th straight year, LCA received the Partnership for Safe Water's Directors Award. The Partnership program sponsored by EPA, PaDEP, and the Association of Drinking Water Administrators is established to recognize drinking water utilities, which institute and maintain operating procedures to optimize drinking water quality above state and federal standards. The award was based on LCA's optimization of drinking water treatment processes as determined by filter data collected throughout the year.

Exhibit A
Regulatory Report Requirements

Reporting Requirement/Description	Frequency	Deadline	Regulatory Agency
Coliform Bacteria Distribution System	Monthly	10th day of following month	DEP
Chlorine Residual Distribution System	Monthly	10th day of following month	DEP
Chlorine Residual Entry Points #101 and #102	Monthly	10th day of following month	DEP
Water Filtration Plant Turbidity	Monthly	10th day of following month	DEP
pH and Alkalinity for Entry Points & Distribution System	Monthly	10th day of following month	DEP
Alkalinity and TOC for Raw and Post Filter	Monthly	10th day of following month	DEP
Water Withdrawals Monthly Report	Monthly	End of following month	DEP
NPDES Discharge Monitoring Report (DMR)	Monthly	28th day of month	DEP
WFP Surface Water Supply Monthly Turbidity Report	Monthly	10th day of following month	DEP
Surface Water Source Sampling	Monthly	2 Years Consecutive Sampling due in 2015	DEP
Consumer Confidence Reporting Sampling	Monthly		DEP
NPDES Noncompliance Report "ByPass"	Monthly, if applicable	Orally within 24 hours, Written within 5 days of unanticipated, 10 days of anticipated	DEP
Land Application Permit	Every 60 Days	Every 60 days	DEP
TTHM & HAA5 Distribution Sites & 3 Residence	Quarterly	10th day of month following end of quarter	DEP
Nitrate & Nitrite Samples for Entry Points #101 and #102	Quarterly	10th day of month following end of quarter	DEP
Alkalinity and TOC for Entry Points & Springs	Quarterly	10th day of month following end of quarter	DEP
Withdrawals from Big Lehigh River	Quarterly	End of month following end of quarter	DRBC
Lab Sampling Reports for IPP & Signatories	Quarterly	3rd week following end of quarter	Internal
Industrial SNC Evaluation	Quarterly		Internal
Monitor Priority Pollutant Scan of Influent, Effluent & Sludge	Quarterly	As available	EPA/DEP
Local Limit Parameters for Influent, Effluent & Sludge	Quarterly	As available	EPA/DEP
Little Lehigh Surface Water Quality Report	Quarterly, if applicable	Report if average Nitrate Level Increase	DEP
Pressure Vessel Inspection	SemiAnnual	As scheduled	L&I
Clean Air Act - Thickening Tanks & Settling Tanks Permit	Annual	Expires 8/14/2014	DEP
Chapter 94 Wasteload Management Report	Annual	March 31st of following year	DEP
Water Allocation Permit Compliance Report	Annual	July 8th of following year	DEP
Water Allocation Permit - Joint Funding Agreement	Annual	Billed Quarterly	USGS
Water Filtration Plant Lab Certification	Annual	Expires 1/31/2014	DEP
Wastewater Treatment Plant Lab Certification	Annual	Expires 10/31/2014	DEP
Water Filtration Plant Spill Reponse Plan Notifications	Annual	February of following year	DEP
Inorganics (IOCs) for Entry Points #101 and #102	Annual	Due by December 31st of year	DEP
Volatile Organic Compounds for Discharges & Crystal Spring	Annual	Due by December 31st of year	DEP
Water Withdrawals Annual Report	Annual	Due by January 31st of following year	DEP
Above Ground Storage Tank Permit	Annual	Expires 4/4/2014	DEP
Residuals - Form 43 for Sewage Sludge & Form 26R for Alum	Annual	Due by August 8 each year	DEP
Residuals - Analysis Result for Year & Certification	Annual	Due by Feb 19 for previous year	EPA
Residuals - Annual Report Alum Sludge	Annual	Due by April 20 for previous year	DEP
Waste Hauler Authorization	Annual	Due by October 9 for each year	DEP

Exhibit A
Regulatory Report Requirements

Reporting Requirement/Description	Frequency	Deadline	Regulatory Agency
Railroad Lease - S. Albert Along Canal (water pipe)	Annual	September upon receipt	Internal
Railroad Lease - Auburn Street (sewer pipe)	Annual	January upon receipt	Internal
Railroad Lease - E. Side Lehigh River (sewer pipe)	Annual	August upon receipt	Internal
Railroad Lease - Access to Hamilton Street Dam	Annual	Upon receipt	Internal
Chapter 252 Annual Proficiency Testing - WFP lab	Annual	Due in August, complete in July	DEP
Chapter 252 Annual Proficiency Testing - WWTP lab	Annual	Due in August, complete in July	DEP
Above Ground Storage Tank - Chapter 1, Wastewater	Annual	Expires May 2014	DEP
Industrial Pretreatment Program Performance Report	Annual	Due March 31 for previous year	EPA
Emergency Response Plan and Tier II Reporting	Annual	Due March 1	EPA
Consumer Confidence Reports	Annual	April 1 for Signatories, July 1 for Customers, October 1 DEP Certification Letter	DEP
Source Water Withdrawals - Act 220	Annual	Due by April 30 for previous year	DEP
Water System Interconnection Information - Act 220	Annual	Due by April 30 for previous year	DEP
SOCs for Entry Point #102	Annual	Second Quarter of Each Year	DEP
Arsenic Drinking Water	Annual	Due December 31st for year	DEP
Residual Waste Form 330	Biennial	Due March 1 of Odd # Years (next 2015)	DEP
SOCs	Triennial	Due 2nd and 3rd quarters of 2014	DEP
Lead & Copper Rule Followup	Triennial	Due June to September 2013	DEP
Residuals - NOI Approval	Quinquennial	Due 11/15/2017	DEP
NPDES Permit Renewal (expired 9/30/2007)	Quinquennial	To be renewed by DEP	DEP
Natural Minor State Only Operating Permit Application	Quinquennial	Expires 8/14/2014	DEP
Risk Management Plan	Quinquennial	Due 6/17/2014	EPA
UCMR3 - Entry Points #101 and 102 & Res Sites	Quinquennial	Due by July 2014	EPA
Combined Uranium - Drinking Water	Every 9 Years	Due 12/31/2020	DEP
Gross Alpha, Radium 226, Radium 228 - Drinking Water	Every 9 Years	Due 12/31/2014	DEP

Exhibit B
Concession Agreement & Operating Standards Reports & Requirements

Reporting/Notification Requirement	CA/OS	Section	Page	Deadline / Due Date	Report Name
Calculation of the City water usages for the calendar year	CA	3.22(b)	62	Annually	Annual City Water Usage Calculation
Annual Five-Year Capex Plan update	CA	4.1.(b)(iii)	64	Annually	Annual Five-Year Capex Plan Update
Payment for funding of City Rebate Program	CA	7.2.	78	December 1st of each year	Notification of Annual Payment for Funding of City Rebate Program
Certification that System was operated for previous Year in compliance	CA	8.1.(c)(iii)	79	45 days after end of Year	Certification of Previous Year System Operation Compliance
Copies of annual audited balance sheets, income statements, changes in equity and cash flows	CA	8.1.(d)	80	120 days after end of Year	Annual Audited Financial Documents for Allentown Water & Sewer Utility Systems
Monthly Average Daily Volume of Metered Water Sales Report	CA	3.23	62	Monthly	Monthly Metered Water Sales Report
Monthly reports for Major Capital Improvements	CA	4.10.	70	Monthly, as needed	Monthly Major Capital Improvement Project Summary
Provide notice of all material claims (including labor disputes)	CA	3.13(a)	55	By Occurrence	Notification of Material Claim
Provide information related to mitigation of raw water	CA	3.21(e)(iv)	60	By Occurrence	Notification of Mitigation of Raw Water
Notification of all emergencies, accidents & incidents within the system	CA	8.1(a)	79	By Occurrence	Notification of Emergency, Accident or Incident within Systems
Capital Cost Recovery Charge documentation	CA	7.1(f)	76	By Occurrence	Request for Capital Cost Recovery Charge
Notification of all claims made by or against LCA (in excess of $50000)	CA	8.1(a)	79	By Occurrence	Notification of Claims Made by or against LCA in Excess of $50,000
Notification of discharge, spills, dumping or other hazardous release	CA	8.1(b)	79	By Occurrence	Notification of Discharge, Spill, Dumping or Hazardous Release
Analysis of the malfunction issue and resolution	CA	8.1.(c)(i)	79	By Occurrence	Analysis of Malfunction Issue and Corrective Action
Notification of violation of Environmental Law or system malfunction	CA	8.1.(c)(i)	79	By Occurrence	Notification of Violation of EPA Environmental Law or System Malfunction
Additional notice if penalty >$50k, OS change, CP >$250,000	CA	8.1.(c)(ii)	79	By Occurrence	Notification of EPA penalty
Notification of notice of violation from a Governmental Authority	CA	11.1	89	By Occurrence	Notification of Notice of Violation from a Governmental Authority
Notification of any violation of Ethics & Conflict of Interest Provisions	CA	11.5(f)	91	By Occurrence	Notification of Violation of Ethics or Conflict of Interest Provisions
Renewal of Insurance Policies for Required Coverages	CA	13.2(a)	99	By Occurrence	Copy of Insurance Policy Renewals for Required Coverages
Notice of cancellation or non-renewal of Required Coverages	CA	13.2(b)	99	By Occurrence	Notice of Cancellation or Non-Renewal of Required Coverages
Notification and documentation of Additional Coverages	CA	13.2(k)	100	By Occurrence	Notification of Additional Insurance Coverages
Notification of casualty (fire or other)	CA	13.3(a)	101	By Occurrence	Notification of Casualty within Systems
Provide City with plans/costs for restoration work related to casualty	CA	13.3(a)	102	By Occurrence	Documentation for Required Restoration Work Related to System Casualty
Provide City with notice of an Adverse Action	CA	14.1.(c)	105	By Occurrence	Notification of an Adverse Action
Provide City with second notice of an Adverse Action	CA	14.1.(c)	105	By Occurrence	Second Notification of an Adverse Action
Provide City with notice of a Delay Event	CA	15.1(a)	108	By Occurrence	Notification of a Delay Event
Provide City with notice that a Delay Event has ceased	CA	15.1(b)	108	By Occurrence	Notification that Delay Event Has Ceased

Exhibit B
Concession Agreement & Operating Standards Reports & Requirements

Reporting/Notification Requirement	CA/OS	Section	Page	Deadline / Due Date	Report Name
Provide City with notice of Delay Event Notice	CA	15.1.(e)	109	By Occurrence	Notification of Delay Event Notice
Provide City with notice of a Compensation Event	CA	15.3(a)	109	By Occurrence	Notification of a Compensation Event
Provide City with second notice of a Compensation Event	CA	15.3(a)	109	By Occurrence	Second Notification of a Compensation Event
Annual City Payment (first installment)	CA	3.24	63	First Business Day of April	Notification of Deposit of First Installment of Annual City Payment
Annual City Payment (second installment)	CA	3.24	63	First Business Day of October	Notification of Deposit of Second Installment of Annual City Payment
Capex Fund Deposit Requirement (first installment)	CA	4.14.	72	First Business Day of April	Notification of Deposit of First Installment for Annual Capex Payment
Water Sales Shortfall 3-year period report	CA	3.23	62	Feb 10th following end of period	Water Sales Shortfall Report
Provide City with receipts & evidence of utility payments	CA	3.11.	54	Upon request	Copy of Utility Bill, by Request
Provide City with all insurance policy endorsements	CA	13.2(a)	99	Upon request	Copy of Insurance Policy Endorsements, by Request
Provide Certificates of Insurance for contractors and subtenants	CA	13.2(i)	100	Upon request	Copy of Certificates of Insurance for Contractors and/or Subtenants, by Request
Replace all logos on rolling stock and equipment	CA	2.5(h)	41	10/7/2013	N/A
Include contact insert with first customer billing statements	CA	2.5(h)	41	12/31/2013	N/A
Five-Year Capex Plan	CA	4.1.(b)(ii)	64	10/7/2014	N/A
Development of Capex Fund	CA	4.14.	71	1/1/2033	
Add language of compliance to all contracts	CA	11.2(b)	89	Immediately	N/A
Add language of non-discrimination to all contracts	CA	11.3(f)	90	Immediately	N/A
Add provision to contracts related to Prevailing Wage	CA	11.6(b)	92	Immediately	N/A
Provide City with a Letter of Credit for $25,000,000 (AFI)	CA	16.3(a)	116	Five years prior to Lease end	N/A
Internal Annual Performance Review	OS	15.0	38	Annually	Internal Annual Performance Review
Internal Annual Performance Review	OS	8.6	65	Annually	Internal Annual Performance Review
Copy of Partnership for Safe Water reports (WTP)	OS	4.1.2	9	Annually	Partnership for Safe Water Report for Water Filtration Plant
Copy of Partnership for Safe Water reports (Distribution)	OS	4.1.2	9	Annually	Partnership for Safe Water Report for Distribution System
Copy of Consumer Confidence Report (CCR)	OS	4.1.5	10	Annually	Consumer Confidence Report (CCR)
Copy of annual sampling plan	OS	6.3.2	14	Annually	Water & Wastewater Sampling Plan
2-year summary of water taste and odor complaints	OS	6.8	17	Annually	2 Year Summary of Water Taste & Odor Complaints
Water Audit	OS	6.10.1	18	Annually	Water Audit
Summary of system flushing activities	OS	6.15	24	Annually	Water System Flushing Report
Summary of meter testing & meter repair/replacement	OS	6.16.2	25	Annually	Water Meter Testing & Repair Report
Summary of meter calibration activities	OS	6.16.3	25	Annually	Water Meter Calibration Report
Summary of reservoir hydrostatic testing, inspections & maintenance program	OS	6.17.5	26	Annually	Water Storage Tank Inspection & Maintenance Report

Exhibit B
Concession Agreement & Operating Standards Reports & Requirements

Reporting/Notification Requirement	CA/OS	Section	Page	Deadline / Due Date	Report Name
Update of water main replacement assessment report	OS	6.19.2	27	Annually	Water Main Rehabilitation and Replacement Report
Report of pipeline leaks and breaks	OS	6.22.1	28	Annually	Water Main Leak and Break Report
Summary of all call records for previous 2 years	OS	8.2	30	Annually	2 Year Summary of Customer Call Records
Summary of all call records for previous 2 years	OS	7.2	61	Annually	2 Year Summary of Customer Call Records
Copy of Emergency Response Plan	OS	12	37	Annually	Emergency Response Plan
Copy of Emergency Response Plan	OS	10	66	Annually	Emergency Response Plan
Copy of Spill Prevention Plan	OS	12.2	37	Annually	Spill Prevention Plan
Septage & hauled waste volume report	OS	3.9	52	Annually	Septage & Hauled Waste Report
Summary of IPP monitoring activities, enforcement actions, listing of new and existing permits, other IPP activities	OS	3.8	52	Annually	Industrial Pretreatment Program Report
Certificates of calibration for all signatory, Emmaus and LMT flow meters	OS	5.1	53	Annually	Wastewater Signatory Flow Meter Calibration Report
Tank and vessel (grit chambers, digesters, etc.) inspection and repair reports	OS	5.1	54	Annually	Wastewater Tank and Vessel Inspection and Repair Report
Root Intrusion - length of sewer mains receiving treatment	OS	5.2.4	56	Annually	Sewer Main Root Intrusion Repair Report
Summary of backflow prevention & testing activities	OS	6.9	18	Annually, when applicable	Cross Connection Control & Backflow Program Report
Comprehensive Planning Study - water	OS	9.1	31	Every 5 Years	Comprehensive Planning Study for Water System
Comprehensive Planning Study - wastewater	OS	5.4.2	58	Every 5 Years	Comprehensive Planning Study for Wastewater System
Summary of all regulatory water quality reports & other water quality data	OS	4	7	Monthly	Summary of Submitted Monthly Water Quality Regulatory Reports
Report of all major water equipment taken out of service	OS	5.1.2	12	Monthly	Water Equipment Out of Service Report
Sustainability, energy use, and status of energy efficiency initiatives report for water	OS	9.2	32	Monthly	Energy Management Report for Water Systems
Operating Reports for WFP	OS	9.4	32	Monthly	Water Filtration Plant Monthly Operating Report
Copy of monthly NPDES report	OS	3.2.2	48	Monthly	Copy of National Pollutant Discharge Elimination System (NPDES) Report
Report of all major wastewater equipment taken out of service	OS	5.1	54	Monthly	Wastewater Equipment Out of Service Report
Sewer lateral & main construction inspection details	OS	5.2.6	56	Monthly	Sewer Main Construction Inspection Report
Sustainability, energy use, and status of energy efficiency initiatives report for wastewater	OS	5.4.3	59	Monthly	Energy Management Report for Wastewater Systems
Operating Reports for WWTP	OS	8.1	62	Monthly	Wastewater Treatment Plant Monthly Operating Report
Copy of Discharge Monitoring Report (DMR)	OS	8.2	64	Monthly	Copy of Discharge Monitoring Report (DMR)
Signatory flow report, with 12-month running average flow for 2 years	OS	8.4	65	Monthly	Contributing Municipalities (Signatory) Wastewater Flow Report
Summary of positive sample results during month, reason for problem, corrective action and plan for future prevention	OS	6.4.1	15	Monthly, if applicable	Summary of Positive Samples & Corrective Action Plan
Notification when water system minimum pressures have not been maintained	OS	6.2.1	14	By Occurrence	Notification that Water System Minimum Pressure has not been met
Positive total or fecal coliform sample results or minimum chlorine residual < 0.02 mg/L	OS	6.4.1	15	By Occurrence	Notification of Positive Total or Fecal Coliform Sample

Exhibit B
Concession Agreement & Operating Standards Reports & Requirements

Reporting/Notification Requirement	CA/OS	Section	Page	Deadline / Due Date	Report Name
Failure to comply with disinfection by-product (DBPs) monitoring and/or control requirements	OS	6.6	16	By Occurrence	Notification of Failure to Comply with DBP Monitoring and/or Control
Corrosion Control Issues	OS	6.7	17	By Occurrence	Notification of Corrosion Control Issues within Distribution System
Notification of planned service interruptions	OS	6.22.2	29	By Occurrence	Notification of Planned Water Service Interruption
Record of new water user connection installation	OS	6.23	29	By Occurrence	Notification of New Water User Connection
Individual report summarizing WWTP odor complaints & resolution	OS	8.2	30	By Occurrence	Summary of WWTP Odor Complaint Investigation & Resolution
Individual report summarizing WWTP odor complaints & resolution	OS	7.2	61	By Occurrence	Summary of WWTP Odor Complaint Investigation & Resolution
Notification of all WWTP odor complaints	OS	8.2	30	By Occurrence	Notification of WWTP Odor Complaint
Notification of WWTP odor complaints	OS	3.6.2	50	By Occurrence	Notification of WWTP Odor Complaint
Notification of all WWTP odor complaints	OS	7.2	61	By Occurrence	Notification of WWTP Odor Complaint
Notification of security breach at any water facility	OS	11	35	By Occurrence	Notification of Security Breach at a Water System Facility
Report on investigation of security breach at water facility	OS	11	35	By Occurrence	Summary of Water System Facility Security Breach Investigation
Notification of spills	OS	12.2	37	By Occurrence	Notification of Water System Spill
Advise City when IPP permits are issued to new users	OS	3.8	51	By Occurrence	Notification of New Industrial Pretreatment Program User
Record of new wastewater user connection installation	OS	5.2.5	56	By Occurrence	Notification of New Wastewater User Connection
Notification of sinkholes	OS	5.2.8	57	By Occurrence	Notification of Identified Sinkhole within Water or Wastewater System
Advise City when a capital improvement is needed for the WWTP, collection system or flood control asset	OS	5.4.1	58	By Occurrence	Notification of Needed Capital Improvement for Wastewater System
Report of failed proficiency tests & corrective action	OS	6.4	60	By Occurrence	Summary of Failed Proficiency Test Results & Corrective Actions
Report outlining exceedances or other violations related to the DMR	OS	8.2	64	By Occurrence	Summary of DMR Exceedances and/or Other Violations
Notification of security breach at any wastewater facility	OS	11	67	By Occurrence	Notification of Security Breach at a Wastewater System Facility
Report on investigation of security breach at wastewater facility	OS	11	67	By Occurrence	Summary of Wastewater System Facility Security Breach Investigation
Summary of distribution system water quality monitoring results	OS	6.3.1	14	Quarterly	Summary of Distribution System Water Quality Monitoring Results
Summary of water taste and odor complaints	OS	6.8	17	Quarterly	Summary of Water Taste and Odor Complaints
Leak Detection & Repair Report	OS	6.10.2	18	Quarterly	Leak Detection and Repair Report
Valve Exercising & Repair Report	OS	6.11.1	20	Quarterly	Valve Exercising and Repair Report
Hydrant Exercising & Repair Report	OS	6.12.1	21	Quarterly	Hydrant Exercising and Repair Report
Summary of planned & unplanned service interruptions during quarter	OS	6.22.3	29	Quarterly	Summary of Planned and Unplanned Water Service Interruptions
Certified report that all quality assurance and quality control (QA/QC) have been satisfactorily met for Certified Lab	OS	7	29	Quarterly	Certified Laboratory QA/QC Measures Report

Exhibit B
Concession Agreement & Operating Standards Reports & Requirements

Reporting/Notification Requirement	CA/OS	Section	Page	Deadline / Due Date	Report Name
Sewer line televising report (root intrusion & blockages)	OS	5.2.2	55	Quarterly	Sewer System Televising Report
Nitrification Control Report	OS	6.5	16	Quarterly, if applicable	Nitrification Monitoring and Control Report
Copy of all reports submitted to regulatory agencies	OS	9.4	34	Regulatory	Regulatory Report Summary
Report of all received customer calls	OS	8.2	30	Semi-Annually	Summary of Customer Calls
Report of all received customer calls	OS	7.2	61	Semi-Annually	Summary of Customer Calls
Documentation of all water quality complaints and process of investigation and remediation and conclusions related to the complaint. Report shall include previous 2 years worth of data.	OS	8.2	30	Semi-Annually	Summary of Water Quality Complaint Investigations & Conclusions
Customer Survey Results	OS	8.3	31	Semi-Annually	Customer Survey Results
Customer Survey Results	OS	7.3	62	Semi-Annually	Customer Survey Results
Documentation of all wastewater odor complaints and process of investigation and remediation and conclusions related to the complaint. Report shall include previous 2 years worth of data.	OS	7.2	61	Semi-Annually	Summary of Wastewater Odor Complaint Investigations & Conclusions
Proof of PA Professional Engineering License for each project	CA	4.3.	65	By Project	
Submittal of plans and specs for Major Capital Improvements	CA	4.4(b)	65	By Project	
Major Capital Improvement Conceptual Design w/ Schedule	CA	4.5(a)(i) & (ii)	66	By Project	
Major Capital Improvement Substantially Complete Design	CA	4.5(b)(i),(ii)&(iii)	67	By Project, after design approval	
Minutes from Major Capital Improvement design review meeting	CA	4.5.(a)(iii)	67	By Project, after Design Meeting	
Minutes from Major Capital Improvement substantial review meeting	CA	4.5(b)(iv)	68	By Project, after Substantial Design Meeting	
Submittal of progress schedule for Major Capital Improvement	CA	4.5(d)	68	By Project	
Alternate Project Delivery consent request	CA	4.6.	69	By Project, if applicable	
Regularly scheduled progress meetings for Major Capital Improvements	CA	4.10.	70	By Project	
Submit construction progress reports prior to meeting dates	CA	4.10.	70	By Project	
Electronic copy of As-Builts & Specs for Major Capital Improvements	CA	4.7(d)	70	By Project	
Submission of plans and engineering design information for planned improvements	OS	6.2.2	14	By Project	
EPA Administrative Order reports	OS	9	65	By Project	
State Water Plan (Act 220) reports / documentation	OS	10.1	35	As needed	

Exhibit C
Contracts and Agreements associated with the Concession Lease

Contract Name	Shorthand Name
Administrative Order Fund Escrow Agreement	AO Escrow Agreement
Capital Cost Recovery Charges	CCRC MOU
Service Charge Adjustment - Change of Law	Change of Law
City Payment Reserve Fund Escrow Agreement	City Payment Escrow
Allentown Water and Sewer Utility System Concession and Lease Agreement	Concession Lease Agreement
General Real Property Assignment Agreement	Easement Agreement
Public Works Uses - Street Work, Land development, Inspection, Water & Wastewater Tapping Fees	Public Works MOU
Water and Sewer System Related Services to be provided by the Lehigh County Authority or the City of Allentown	Services MOU
Water and Sewer System Related Services to be provided by the Lehigh County Authority or the City of Allentown Equipment addendum	Services MOU Equipment Addendum
Addendum No.1 to the 10Septebmer 2013 Memorandum of Undersetanding (Water and Sewer System Related Services to be provided by the Lehigh County Authority or the City of Allentown)	Services MOU Salting Addendum
City of Allentown Uncompleted Work at time of Transfer	Uncompleted Works MOU
These agreements may be accessed on the City website: https://www.allentownpa.gov/Contracts	

EXHIBIT D

SERVICES MOU REVENUE AND EXPENSES

Revenue	
Communications Center	$ 25,200.00
Employee Services	$ -
Hourly Wages	$ 53,504.21
Equipment	$ 35,736.74
Radio Repair	$ 332.29
Crane	$ -
Materials	$ 12,731.51
Jet Vac	$ -
Trucks for Hauling	$ -
Locks & Keys	$ -
Total	**$ 127,504.75**

Expense	
Uncompleted Work /Restoration Projects	
Security System Upgrades	-
AMR (Water Meter Repl.)	2,880.61
Pre-Lease Inoperable Valves	370,000.00
Total	**372,880.61**

Note: the figures represent actual billings and reciepts for the calendar year 2018.