

2017
FLOYD

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF THE TOWN OF GEORGETOWN,)
INDIANA FOR APPROVAL OF A REGULATORY)
ORDINANCE FOR SANITARY SEWAGE)
SERVICE COVERING CERTAIN)
UNINCORPORATED AREAS OF FLOYD)
COUNTY, INDIANA)

CAUSE NO. 45066

AQUA INDIANA'S SUBMISSION OF SETTLEMENT TESTIMONY

Intervenor Aqua Indiana, Inc., by counsel, hereby submits its settlement testimony in the foregoing Cause, consisting of the following:

- Intervenor's Exhibit 1, the Verified Settlement Testimony of Thomas M. Bruns, inclusive of Attachments A, B, C and D.

Respectfully submitted,



Mark R. Alson (Atty. #27724-64)
Ice Miller LLP
One American Square, Suite 2900
Indianapolis, IN 46282-0200
Phone: (317) 236-2263
Fax: (317) 592-4698
mark.alson@icemiller.com

Counsel for Aqua Indiana, Inc.

CERTIFICATE OF SERVICE

The undersigned certifies that a copy of the foregoing has been served upon the following
counsel of record by electronic mail this 20th day of July, 2018:

Daniel M. LeVay
Karol H. Krohn
Indiana Office of Utility Consumer Counselor
115 West Washington Street, Suite 1500 South
Indianapolis, Indiana 46204
dlevay@oucc.in.gov
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Respectfully submitted,



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Counsel for Aqua Indiana, Inc.

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INTERVENOR'S

INTRODUCTION OF WITNESS AND TESTIMONY

EXHIBIT NO.

DATE

REPORTER

1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS

2 A. My name is Thomas M. Bruns. My business address is 5750 Castle Creek
3 Parkway N. Dr., Suite 314, Indianapolis, Indiana 46250.

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

5 A. I am employed as President of Aqua Indiana, Inc. ("Aqua Indiana"), which is an
6 Indiana for-profit corporation and subsidiary of Aqua America, Inc. ("Aqua
7 America").

8 Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL
9 BACKGROUND.

10 A. Attachment A to my testimony is a Resume that contains information regarding
11 my educational and professional background.

12 Q. WHAT ARE YOUR RESPONSIBILITIES AS PRESIDENT OF AQUA
13 INDIANA?

14 A. I have overall responsibility for the management and operation of the water and
15 wastewater operations that comprise Aqua America's affiliates in Indiana. My
16 responsibilities include staffing, policy formulation, planning and compliance
17 with regulatory requirements imposed by state and local governmental agencies.

18 Q. HAVE YOU PREVIOUSLY TESTIFIED IN PROCEEDINGS BEFORE
19 THE COMMISSION?

20 A. Yes. I have testified before the Commission in several rate cases, as well cases
21 involving the issuance of certificates of territorial authority and other matters. I

1 also testified in Cause No. 44860, in which New Albany sought approval of a
2 regulatory ordinance to become the exclusive provider of sanitary sewerage
3 service covering certain areas of Floyd County, Indiana.

4 **Q. WHAT IS THE PURPOSE OF YOUR SETTLEMENT TESTIMONY IN**
5 **THIS PROCEEDING?**

6 A. On April 21, 2014, the Town Council of Georgetown, Indiana ("Town" or
7 "Georgetown") adopted Ordinance No. G-14-01, which was amended on October
8 5, 2015 by Ordinance No. G-15-22 (collectively, the "Regulatory Ordinance").
9 The Regulatory Ordinance purports to establish for the Town "a regulated
10 territory for exclusive sewer service and jurisdiction" within Floyd County and
11 outside of its corporate boundaries (the "Regulated Territory"). The Town has
12 submitted the Regulatory Ordinance to the Commission for approval pursuant to
13 Ind. Code § 8-1.5-6-9 in order that it can enforce it. Subsequent to the initiation
14 of this proceeding, Aqua Indiana and the Town engaged in settlement
15 negotiations, which culminated in the execution of the Stipulation and Settlement
16 Agreement, submitted to the Commission on July 20, 2018 (the "Settlement
17 Agreement").

18 The purpose of my settlement testimony is to describe the Settlement Agreement
19 and provide support for the reasons why the Commission should approve the
20 Settlement Agreement. In connection with describing those reasons, my
21 testimony also will provide background information about Aqua Indiana and its

1 history of providing wastewater utility services in Floyd County, and state why
2 the Settlement Agreement is in the public interest.

3 **INFORMATION ON AQUA INDIANA AND ITS WYMBERLY DIVISION OPERATIONS**

4 **Q. WHAT SERVICES DOES AQUA INDIANA PROVIDE?**

5 A. Since 2003, Aqua Indiana has provided comprehensive administrative and
6 operational support services for water and wastewater utilities in Indiana.
7 However, with the implementation of certain property transfers authorized by the
8 Commission's April 29, 2015 Order in Cause No. 44533, Aqua Indiana replaced
9 several affiliated companies and presently directly provides wastewater utility
10 service to approximately 26,371 customers, as well as water utility service to
11 approximately 1,169 customers.

12 **Q. PLEASE DESCRIBE THE EXTENT OF THE SERVICES PRESENTLY**
13 **PROVIDED BY AQUA INDIANA'S WYMBERLY DIVISION IN FLOYD**
14 **COUNTY.**

15 A. Aqua Indiana presently provides through its Wymberly Division wastewater
16 utility services to approximately 700 customers located in four areas in Floyd
17 County. As such, I believe Aqua Indiana is currently the largest supplier of
18 wastewater service within the proposed Regulated Territory.

19 **Q. PLEASE DESCRIBE THE FOUR AREAS IN FLOYD COUNTY IN**
20 **WHICH AQUA INDIANA'S WYMBERLY DIVISION PRESENTLY**
21 **PROVIDES WASTEWATER UTILITY SERVICE.**

1 A. The largest of the four areas is the area previously served by Wymberly Sanitary
2 Works, Inc. pursuant to a CTA granted by the Commission's May 4, 2005 Order
3 in Cause No. 42764 (the "Wymberly Area"). Immediately adjacent to the
4 Wymberly Area is an area encompassing the Scenic Valley subdivision that Aqua
5 Indiana's Wymberly Division presently serves pursuant to a CTA granted directly
6 to Aqua Indiana by the Commission's October 14, 2015 Nunc Pro Tunc Order in
7 Cause No. 44631 (the "Scenic Valley Area"). Next, the Wymberly Division
8 serves an area previously served by Chimneywood Sewage Works, Inc., and later
9 Wymberly, pursuant to a CTA granted by the Commission's March 25, 2009
10 Order in Cause No. 43606 (the "Chimneywood Area"). Finally, the Wymberly
11 Division serves an area previously served by Wastewater One, LLC under the
12 name "Galena Wastewater Treatment Plant," which service is provided pursuant
13 to CTAs issued by the Commission's July 29, 1981 Order in Cause No. 36467
14 and June 16, 2010 Order in Cause No. 43779 (the "Galena Area"). For ease of
15 reference, the Wymberly Area, Scenic Valley Area, Chimneywood Area and
16 Galena Area are now collectively referred to as the Wymberly Division. All of
17 these areas are at least partially depicted on the map appearing as Exhibit A to the
18 Regulatory Ordinance, attached to Georgetown's Petition.

19 **Q. DOES ANY PORTION OF GEORGETOWN'S PROPOSED REGULATED**
20 **TERRITORY OVERLAP WITH ANY CTA CURRENTLY HELD BY**
21 **AQUA INDIANA?**

1 A. From my review of the map attached as Exhibit A to the Regulatory Ordinance
2 and attached to the Petition, there appears to be a small portion of the proposed
3 Regulated Territory that overlaps with a corner of the Wymberly Area. However,
4 the Regulatory Ordinance states that areas that have a CTA which has been duly
5 authorized by the State of Indiana and its agencies are exempt from the auspices
6 of the Regulatory Ordinance. Therefore, as I understand it, the granting of the
7 Regulatory Ordinance would not impact the current Wymberly CTA whatsoever.

8 **Q. PLEASE BRIEFLY DESCRIBE THE FACILITIES THAT AQUA**
9 **INDIANA'S WYMBERLY DIVISION USES TO PROVIDE**
10 **WASTEWATER UTILITY SERVICE IN FLOYD COUNTY.**

11 A. The facilities operated by the Wymberly Division include approximately 12.4
12 miles of gravity sewers and force mains, as well as nine lift stations and three
13 extended aeration treatment plants -- a Class II, 0.2 MGD facility within the
14 Wymberly Area, a Class I, 0.0103 MGD facility within the Chimneywood Area,
15 and a Class I, 0.037 MGD within the Galena Area. All of these plants have
16 effective NPDES permits issued by the Indiana Department of Environmental
17 Management ("IDEM"). Copies of those permits appear as part of Attachment B
18 to my testimony. In deciding on how to use its treatment plants, Aqua Indiana
19 looks for the optimal solution that allows it to provide its current and future
20 customers with adequate and reliable service in an effective and economic way.

1 **Q. ARE AQUA INDIANA'S WYMBERLY DIVISION'S TREATMENT**
2 **FACILITIES CURRENTLY IN COMPLIANCE WITH ALL**
3 **APPLICABLE ENVIRONMENTAL REQUIREMENTS?**

4 A. Yes, they are.

5 **Q. IS AQUA INDIANA'S WYMBERLY DIVISION THE SUBJECT OF ANY**
6 **FEDERAL OR STATE ENFORCEMENT ACTIONS?**

7 A. No, it is not.

8 **Q. WHAT IS THE MAKE-UP OF AQUA INDIANA'S WORK FORCE**
9 **SUPPORTING THE WYMBERLY DIVISION?**

10 A. Aqua Indiana has a total work force of five individuals available to directly
11 support the operations of its Wymberly Division. Of that number, one handles
12 administrative matters such as accounting, personnel, payroll, and management
13 functions. Two are on the wastewater staff responsible for the direct operation
14 and maintenance of treatment plants, lift stations and collection facilities. The
15 other two individuals provide customer service. Aqua Indiana also has access to
16 other Aqua America business units to support its Wymberly Division operations
17 and uses outside contractors in connection with its operations. For example, an
18 outside laboratory handles water quality testing for the Wymberly Division.

19 **Q. WHAT IS AQUA INDIANA'S EXPERIENCE WITH CUSTOMER**
20 **COMPLAINTS WITHIN ITS WYMBERLY DIVISION?**

21 A. Aqua Indiana has had very good experience with customer complaints. Within
22 the last few years, the Wymberly Division has not received any customer

1 complaints made to the Commission or to the Indiana Office of Utility Consumer
2 Counselor ("OUCC").

3 **Q. WHAT ARE AQUA INDIANA'S CURRENT RATES AND CHARGES**
4 **FOR WASTEWATER SERVICE FOR THE WYMBERLY DIVISION?**

5 A. Appearing as Attachment C to my testimony is the Wymberly Division's current
6 Schedule of Rates and Charges on file with the Commission. The monthly rates
7 and charges shown on Attachment C were implemented after the Commission's
8 April 25, 2018 approval of 30-Day Filing No. 50144, made as part of Phase 1 of
9 the Commission's investigation into the impacts of the Tax Cuts and Jobs Act of
10 2017 (Cause No. 45032).

11 **Q. WHAT IS THE SOURCE OF THE FUNDING FOR IMPROVEMENTS TO**
12 **THE WYMBERLY DIVISION'S FACILITIES?**

13 A. Like all facilities operated by Aqua Indiana, funding for improvements to the
14 facilities operated by the Wymberly Division comes from Aqua America.
15 Financial and other information about Aqua America is contained in its 2017
16 Annual Report, a copy of which appears as Attachment D to my testimony.

17 **NEGOTIATION AND TERMS OF SETTLEMENT AGREEMENT**

18 **Q. PLEASE DESCRIBE THE HISTORY LEADING UP TO THE**
19 **EXECUTION OF THE SETTLEMENT AGREEMENT.**

20 A. The Settlement Agreement is the product of negotiations that began after
21 Georgetown filed its case-in-chief on April 27, 2018. After reviewing its case-in-
22 chief, I engaged in discussions with Robert Woosley to see whether a settlement

1 could be reached. These negotiations resulted in a settlement similar to the one
2 Aqua Indiana and the neighboring City of New Albany, Indiana ("New Albany")
3 reached in Cause No. 44860, which was approved by the Commission by its final
4 Order dated April 25, 2018.

5 **Q. WHAT ARE THE SUBSTANTIVE TERMS OF THE SETTLEMENT**
6 **WITH GEORGETOWN?**

7 A. The Settlement Agreement provides that the Commission should approve the
8 Regulatory Ordinance, reiterating that the Regulated Territory would exclude
9 Aqua Indiana CTA areas. Furthermore, the Settlement Agreement provides that
10 Aqua Indiana should be permitted to seek an expansion of its existing CTA areas
11 in specified area delineated on Exhibit A to the Settlement Agreement.

12 **Q. CAN YOU PLEASE DESCRIBE THIS SPECIFIED AREA?**

13 A. Yes. Exhibit A to the Settlement Agreement reflects a map with an area shaded in
14 orange (the "Aqua Indiana Expansion Area"). The Settling Parties have agreed
15 that Aqua Indiana shall be permitted to seek a CTA to extend its system and
16 provide service to the Aqua Indiana Expansion Area, without any opposition from
17 Georgetown. Of course, Commission approval would be required for Aqua
18 Indiana to expand its existing CTAs, which the Settlement Agreement recognizes.

19 **Q. IS THE AREA IDENTIFIED AS THE AQUA INDIANA EXPANSION**
20 **AREA THE SAME AREA AS WAS APPROVED IN THE NEW ALBANY**
21 **REGULATORY ORDINANCE PROCEEDING (CAUSE NO. 44860)?**

1 A. Yes. As I mentioned above, in Cause No. 44860, Aqua Indiana intervened in
2 New Albany's regulatory ordinance proceeding. This culminated in a
3 Commission-approved Settlement Agreement, whereby New Albany, the OUCC
4 and Aqua Indiana agreed that Aqua Indiana shall be permitted to seek a CTA to
5 extend its system and provide service to the Aqua Indiana Expansion Area,
6 without any opposition from New Albany. On pages 8-9 of his direct testimony,
7 Mr. Woosley correctly stated that a portion of the Aqua Indiana Expansion Area
8 overlaps with Georgetown's proposed Regulated Territory, but that the settlement
9 approved in Cause No. 44860 does not bind Georgetown. The Settlement
10 Agreement reached in this cause serves to "close that loop."

11 **Q. PLEASE CONTINUE WITH YOUR SUMMARY OF THE SUBSTANTIVE**
12 **TERMS OF THE SETTLEMENT AGREEMENT.**

13 A. The Settlement Agreement also provides that in the event Georgetown or Aqua
14 Indiana seeks to expand service outside of the Regulated Territory or the Aqua
15 Indiana Expansion Area, respectively, they will meet and attempt to agree on how
16 service should be extended to unserved customers. In these meetings,
17 Georgetown and Aqua Indiana have also agreed to endeavor to include any other
18 provider in the area with the ability to provide service.

19 **Q. ARE THERE ANY OTHER SUBSTANTIVE PROVISIONS OF THE**
20 **SETTLEMENT AGREEMENT THAT YOU WOULD LIKE TO**
21 **MENTION?**

1 A. Yes. The Settlement Agreement also provides that Aqua Indiana shall have the
2 exclusive right to provide service within its current and future CTA areas.

3 **Q. IN YOUR OPINION, DOES THE SETTLEMENT AGREEMENT**
4 **REPRESENT A REASONABLE RESOLUTION OF THE ISSUES RAISED**
5 **BY THE PARTIES IN THIS PROCEEDING?**

6 A. In my opinion, yes. As with any settlement, the Settling Parties will receive
7 certain benefits from the bargain in exchange for concessions in the give and take
8 of settlement negotiations. Additionally, approval of the Settlement Agreement
9 will result in increased certainty with respect to where each of the parties will be
10 expected to serve within Floyd County. Increased certainty concerning service
11 areas will assist the parties in planning for growth in a manner and in time to
12 make sure that service elsewhere will not be compromised when growth actually
13 occurs. Further, it will provide developers and potential customers with a known
14 source of service and provide assurance to Floyd County's officials concerning
15 the availability and source of needed services. The Settlement Agreement will
16 also lead to increased cooperation among Georgetown, Aqua Indiana and any
17 other potential utility service providers.

18 **CONCLUSION**

19 **Q. IN CONCLUSION, WHAT DO YOU RECOMMEND TO THE**
20 **COMMISSION?**

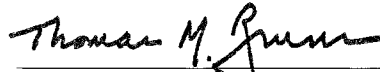
21 A. I recommend that the Commission approve the Settlement Agreement in its
22 entirety as consistent with the public interest.

- 1 **Q. DOES THIS CONCLUDE YOUR PRE-FILED SETTLEMENT**
2 **TESTIMONY IN THIS CAUSE?**
3 **A. Yes, it does.**

VERIFICATION

I have read the foregoing testimony and the factual matters reflected therein are true and correct to the best of my information and belief.

AQUA INDIANA, INC.

A handwritten signature in black ink, appearing to read "Thomas M. Bruns", written over a horizontal line.

Thomas M. Bruns, President

ATTACHMENT A

ATTACHMENT A

RESUME

Thomas M. Bruns
President
AQUA INDIANA, INC.

CAREER HIGHLIGHTS

- Mr. Bruns was named President and Chief Operating Officer of Aqua Indiana in February 2011 and provides executive level leadership for the company's water and wastewater systems in Indiana. In this role he represents Aqua before government agencies and elected officials and manages a statewide staff of 60 employees with utility operations in 11 counties.
- From 2004 through 2011, Mr. Bruns has served as Vice President and Regional Manager for Aqua Indiana, a water and wastewater utility serving nearly 100,000 Indiana residents. He was responsible for utility management, regulatory affairs and marketing and acquisition efforts in central and southern Indiana.
- Prior to joining Aqua he was Town Manager for the Town of Cumberland, Indiana, a growing community of 6,000 residents located on the east side of metropolitan Indianapolis. Provided executive-level guidance to Town operating departments and wastewater utility, and worked closely with other central Indiana communities.
- From May 2002 to April 2003, helped transition 450 employees from the former Indianapolis Water Company to USFilter Indianapolis Water. Served as Vice President of USFilter's Customer and Community Affairs Division with a staff of 130 union and non-union employees.
- From 1996 to 2002, served as Vice President for Development Services for Indianapolis Water Company, responsible for record expansion of customer base and service territory. Added over 7,000 new customers per year in the last three years of strategic growth effort. Marketed and closed several major sale of water agreements with other central Indiana communities. Served as a registered lobbyist in Indiana on utility and environmental issues.
- From 1989 to 1996, served as Indianapolis Water Company's Principal Hydrologist, responsible for locating, developing and managing the utility's new well fields. Served as Project Manager for the construction of IWC's new 12 MGD South Well Field Treatment Plant and Pumping Station.
- As Deputy Director for Water and Mineral Resources within the Indiana Department of Natural Resources from 1986 to 1989, served as Chief Operating Officer for five divisions with 370 employees and an annual budget of \$15 million. Organized and managed the implementation of Indiana's 1983 Water Management Act. Engineering Geologist with Division of Water from 1974 to 1984.
- From 1980 to 1997, served as Associate Faculty member for the Department of Geology at Indiana University-Purdue University at Indianapolis.

PROFESSIONAL CERTIFICATIONS AND AFFILIATIONS

Past Vice President, Indiana Municipal Managers Association

Recipient of Charles H. Bechert Award in 2002, in recognition of water resource career contributions

Certified Professional Geologist No. 4575, American Institute of Professional Geologists (1979)

Licensed Professional Geologist No. 17, State of Indiana (1980)

Member, America Water Works Association

- Former Member of Water Resources Division Trustees and Standards Council

American Institute of Professional Geologists

- Past President of Illinois-Indiana Section and currently serve as Chair of the Section Screening Committee

Charter Member and Past President, Greenways Foundation, Inc.

Outstanding Young Men of America, 1986

EDUCATION

M.A.T., Earth Sciences, Indiana University, March 1979

B.S., Earth Sciences, Ball State University, May 1974, Summa Cum Laude

ATTACHMENT B

ATTACHMENT B



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

VIA ELECTRONIC MAIL

August 4, 2017

Mr. Thomas Bruns, President
Aqua Indiana, Inc.
5750 Castle Creek Parkway North Drive
Suite 314
Indianapolis, Indiana 46250

Dear Mr. Bruns:

Re: Final NPDES Permit No. IN0043923
Wymberly Sanitary Works, Inc.
Wastewater Treatment Plant
Floyd County

Your application for a National Pollutant Discharge Elimination System (NPDES) permit has been processed in accordance with Sections 402 and 405 of the Federal Water Pollution Control Act as amended, (33 U.S.C. 1251, et seq.), and IDEM's permitting authority under IC 13-15. The enclosed NPDES permit covers your discharges to an unnamed ditch to Buck Creek. All discharges from this facility shall be consistent with the terms and conditions of this permit.

One condition of your permit requires monthly reporting of several effluent parameters. You are required to submit both federal discharge monitoring reports (DMRs) and state Monthly Reports of Operation (MROs) on a routine basis. The MRO form is available on the internet at the following web site: <http://www.in.gov/ideM/cleanwater/2396.htm>.

Once you are on this page, select the "IDEM Forms" page and locate the version of the MRO applicable to your plant under the "Wastewater Facilities" heading. We recommend selecting the "XLS" version as it will complete all of the calculations on the data entered.

All NPDES permit holders are required to submit their monitoring data to IDEM using NetDMR. Please contact Rose McDaniel at (317) 233-2653 or Helen Demmings at (317) 232-8815 if you would like more information on NetDMR. Information is also available on our website at <http://IN.gov/ideM/cleanwater/2422.htm>.

Another condition which needs to be clearly understood concerns violation of the effluent limitations in the permit. Exceeding the limitations constitutes a violation of the permit and may bring criminal or civil penalties upon the permittee. (See Part II.A.1 and II.A.11 of this permit). It is very important that your office and treatment operator understand this part of the permit.

Mr. Thomas Bruns, President
Page 2

Please note that this permit issuance can be appealed. An appeal must be filed under procedures outlined in IC 13-15-6, IC 4-21.5, and the enclosed public notice. The appeal must be initiated by filing a petition for administrative review with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the emailing of an electronic copy of this letter or within eighteen (18) days of the mailing of this letter by filing at the following addresses:

Director
Office of Environmental Adjudication
Indiana Government Center North
Room N103
100 North Senate Avenue
Indianapolis, Indiana 46204

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
Room 1301
100 North Senate Avenue
Indianapolis, Indiana 46204

The permit should be read and studied. It requires certain action at specific times by you, the discharger, or your authorized representative. One copy of this permit is also being sent to your operator to be kept at the treatment facility. You may wish to call this permit to the attention of your consulting engineer and/or attorney.

If you have any questions concerning your NPDES permit, please contact Alyce Klein at (317) 233-6728 or aklein@idem.IN.gov. Questions concerning appeal procedures should be directed to the Office of Environmental Adjudication, at (317) 233-0850.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Higginbotham", with a long horizontal flourish extending to the right.

Paul Higginbotham
Deputy Assistant Commissioner
Office of Water Quality

Enclosures

cc: Charles Oakes, Certified Operator

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq., the "Act"), Title 13 of the Indiana Code, and regulations adopted by the Water Pollution Control Board, the Indiana Department of Environmental Management (IDEM) is issuing this permit to

AQUA INDIANA, INC.

hereinafter referred to as "the permittee." The permittee owns and/or operates **Wymberly Sanitary Works, Inc. Wastewater Treatment Plant**, a minor semi-public wastewater treatment plant located at 4851 Buck Creek Road, Floyds Knobs, Indiana, Floyd County. The permittee is hereby authorized to discharge from the outfalls identified in Part I of this permit to receiving waters consisting of an unnamed ditch to Buck Creek in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in the permit. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

Effective Date: January 1, 2018.

Expiration Date: December 31, 2022.

In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and application forms as are required by the Indiana Department of Environmental Management. The application shall be submitted to IDEM at least 180 days prior to the expiration date of this permit, unless a later date is allowed by the Commissioner in accordance with 327 IAC 5-3-2 and Part II.A.4 of this permit.

Issued August 4, 2017, for the Indiana Department of Environmental Management.



Paul Higginbotham
Deputy Assistant Commissioner
Office of Water Quality

TREATMENT FACILITY DESCRIPTION

The permittee currently operates a Class II, 0.2 MGD extended aeration wastewater treatment facility consisting of an aerated flow equalization tank, a manual bar screen, a flow control box, a selector tank, two (2) first stage fine bubble aeration tanks, two (2) second stage fine bubble aeration tanks, two (2) secondary clarifiers, an aerobic digester, fine bubble post aeration, ultraviolet light disinfection, and effluent flow monitoring.

The collection system is comprised of 100% separate sanitary sewers by design with no overflow or bypass points.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee shall take samples and measurements at a location representative of each discharge to determine whether the effluent limitations have been met. Refer to Part I.B of this permit for additional monitoring and reporting requirements.

1. Beginning on the effective date of this permit, the permittee is authorized to discharge from Outfall 001, which is located at Latitude: 38° 21' 1.6920" N, Longitude: 85° 53' 51.5004" W. The discharge is subject to the following requirements:

TABLE 1

| Parameter | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|-------------------|---------------------|-------------------|---------|--------------------------|-------------------|-------|--------------------------|------------------|
| | Monthly Average | Weekly Average | Units | Monthly Average | Weekly Average | Units | Measurement Frequency | Sample Type |
| Flow [1] | Report | ---- | MGD | ---- | ---- | ---- | 5 X Weekly | 24-Hr. Total |
| CBOD ₅ | 42 | 67 | lbs/day | 25 | 40 | mg/l | 3 X Weekly | 24-Hr. Composite |
| TSS | 50 | 75 | lbs/day | 30 | 45 | mg/l | 3 X Weekly | 24-Hr. Composite |
| Ammonia-nitrogen | | | | | | | | |
| Summer [2] | 2.2 | 3.2 | lbs/day | 1.3 | 1.9 | mg/l | 3 X Weekly | 24-Hr. Composite |
| Winter [3] | 3.2 | 4.8 | lbs/day | 1.9 | 2.9 | mg/l | 3 X Weekly | 24-Hr. Composite |

TABLE 2

| Parameter | Quality or Concentration | | | | Monitoring Requirements | |
|----------------------|--------------------------|--------------------|------------------|------------|--------------------------|-----------------|
| | Daily Minimum | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| pH [4] | 6.0 | ---- | 9.0 | s.u. | 5 X Weekly | Grab |
| Dissolved Oxygen [5] | | | | | | |
| Summer [2] | 6.0 | ---- | ---- | mg/l | 5 X Weekly | 3 Grabs/24-Hrs. |
| Winter [3] | 5.0 | ---- | ---- | mg/l | 5 X Weekly | 3 Grabs/24-Hrs. |
| <i>E. coli</i> [6] | ---- | 125 [7] | 235 [8] | cfu/100 ml | 3 X Weekly | Grab |

- [1] Effluent flow measurement is required per 327 IAC 5-2-13. The flow meter(s) shall be calibrated at least once every twelve months.
- [2] Summer limitations apply from May 1 through November 30 of each year.
- [3] Winter limitations apply from December 1 through April 30 of each year.
- [4] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the Monthly Report of Operation forms.
- [5] The daily minimum concentration of dissolved oxygen in the effluent shall be reported as the arithmetic mean determined by summation of the three (3) daily grab sample results divided by the number of daily grab samples. These samples are to be collected over equal time intervals.
- [6] The effluent shall be disinfected on a continuous basis such that violations of the applicable bacteriological limitations (fecal coliform or *E. coli*) do not occur from April 1 through October 31, annually.

The *Escherichia coli* (*E. coli*) limitations apply from April 1 through October 31 annually. IDEM has specified the following methods as allowable for the detection and enumeration of *Escherichia coli* (*E. coli*):

- 1. Coliscan MF® Method
- 2. EPA Method 1603 Modified m-TEC agar
- 3. mColi Blue-24®
- 4. Colilert® MPN Method or Colilert-18® MPN Method

- [7] The monthly average *E. coli* value shall be calculated as a geometric mean. Per 327 IAC 5-10-6, the concentration of *E. coli* shall not exceed one hundred twenty-five (125) cfu or mpn per 100 milliliters as a geometric mean of the effluent samples taken in a calendar month. No samples may be excluded when calculating the monthly geometric mean.
- [8] If less than ten samples are taken and analyzed for *E. coli* in a calendar month, no samples may exceed two hundred thirty-five (235) cfu or mpn as a daily maximum. However, when ten (10) or more samples are taken and analyzed for *E. coli* in a calendar month, not more than ten percent (10%) of those samples may exceed two hundred thirty-five (235) cfu or mpn as a daily maximum. When calculating ten percent, the result must not be rounded up. In reporting for compliance purposes on the Discharge Monitoring Report (DMR) form, the permittee shall record the highest non-excluded value for the daily maximum.

2. Minimum Narrative Limitations

At all times the discharge from any and all point sources specified within this permit shall not cause receiving waters:

- a. including the mixing zone, to contain substances, materials, floating debris, oil, scum or other pollutants:
 - (1) that will settle to form putrescent or otherwise objectionable deposits;
 - (2) that are in amounts sufficient to be unsightly or deleterious;
 - (3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;
 - (4) which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans;
 - (5) which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.
- b. outside the mixing zone, to contain substances in concentrations which on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

B. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge flow and shall be taken at times which reflect the full range and concentration of effluent parameters normally expected to be present. Samples shall not be taken at times to avoid showing elevated levels of any parameters.

2. Data on Plant Operation

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation Form, as appropriate, in accordance with 327 IAC 5-2-13. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by this permit.

For publicly owned treatment works, the 30-day average percent removal for Carbonaceous Biochemical Oxygen Demand (CBOD₅) and Total Suspended Solids shall not be less than 85 percent unless otherwise authorized by the permitting authority in accordance with 40 CFR Part 133.102, as incorporated by reference in 327 IAC 5-2-1.5. The permittee must monitor the influent and effluent CBOD₅ and TSS at least once per month and calculate the percent removal to ensure compliance with the required 85 percent removal. This information must be maintained on site and provided to this Office's staff upon request.

3. Monthly Reporting

The permittee shall submit accurate monitoring reports to the Indiana Department of Environmental Management containing results obtained during the previous monitoring period and shall be submitted no later than the 28th day of the month following each completed monitoring period. The first report shall be submitted by the 28th day of the month following the monitoring period in which the permit becomes effective. These reports shall include, but not necessarily be limited to, the Discharge Monitoring Report (DMR) and the Monthly Report of Operation (MRO). All reports shall be submitted electronically by using the NetDMR application, upon registration, receipt of the NetDMR Subscriber Agreement, and IDEM approval of the proposed NetDMR Signatory. The NetDMR website (for initial registration and monthly DMR/MMR submittal) is: <https://netdmr.epa.gov/netdmr/public/home.htm>. The Regional Administrator may request the permittee to submit monitoring reports to the Environmental Protection Agency if it is deemed necessary to assure compliance with the permit.

A calendar week will begin on Sunday and end on Saturday. Partial weeks consisting of four or more days at the end of any month will include the remaining days of the week, which occur in the following month in order to calculate a consecutive seven-day average. This value will be reported as a weekly average or seven-day average on the MRO for the month containing the partial week of four or more days. Partial calendar weeks consisting of less than four days at the end of any month will be carried forward to the succeeding month and reported as a weekly average or a seven-day average for the calendar week that ends with the first Saturday of that month.

4. Definitions

a. Calculation of Averages

Pursuant to 327 IAC 5-2-11(a)(5), the calculation of the average of discharge data shall be determined as follows: For all parameters except fecal coliform and *E. coli*, calculations that require averaging of sample analyses or measurements of daily discharges shall use an arithmetic mean unless otherwise specified in this permit. For fecal coliform, the monthly average discharge and weekly average discharge, as concentrations, shall be calculated as a geometric mean. For *E. coli*, the monthly average discharge, as a concentration, shall be calculated as a geometric mean.

b. Terms

- (1) "Monthly Average" - The monthly average discharge means the total mass or flow-weighted concentration of all daily discharges during a calendar month on which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar month. The monthly average discharge limitation is the highest allowable average monthly discharge for any calendar month.
- (2) "Weekly Average" - The weekly average discharge means the total mass or flow weighted concentration of all daily discharges during any calendar week for which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar week. The average weekly discharge limitation is the maximum allowable average weekly discharge for any calendar week.
- (3) "Daily Maximum" - The daily maximum discharge limitation is the maximum allowable daily discharge for any calendar day. The "daily discharge" means the total mass of a pollutant discharged during the calendar day or, in the case of a pollutant limited in terms other than mass pursuant to 327 IAC 5-2-11(e), the average concentration or other measurement of the pollutant specified over the calendar day or any twenty-four hour period that represents the calendar day for purposes of sampling.
- (4) "24-hour Composite" - A 24-hour composite sample consists of at least three (3) individual flow-proportioned samples of wastewater, taken by the grab sample method over equal time intervals during the period of operator attendance or by an automatic sampler, and which are combined prior to analysis. A flow proportioned composite sample shall be obtained by:
 - (a) recording the discharge flow rate at the time each individual sample is taken,
 - (b) adding together the discharge flow rates recorded from each individual sampling time to formulate the "total flow value,"
 - (c) dividing the discharge flow rate of each individual sampling time by the total flow value to determine its percentage of the total flow value, and
 - (d) multiplying the volume of the total composite sample by each individual sample's percentage to determine the volume of that individual sample which will be included in the total composite sample.

Alternatively, a 24-hour composite sample may be obtained by an automatic sampler on an equal time interval basis over a twenty-four hour period provided that a minimum of 24 samples are taken and combined prior to analysis. The samples do not need to be flow-proportioned if the permittee collects samples in this manner.

- (5) CBOD₅: Five-day Carbonaceous Biochemical Oxygen Demand
- (6) TSS: Total Suspended Solids
- (7) *E. coli*: Escherichia coli bacteria
- (8) The “Regional Administrator” is defined as the Region V Administrator, U.S. EPA, located at 77 West Jackson Boulevard, Chicago, Illinois 60604.
- (9) The “Commissioner” is defined as the Commissioner of the Indiana Department of Environmental Management, located at the following address: 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.
- (10) Limit of Detection or LOD is defined as a measurement of the concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix. The LOD is equivalent to the Method Detection Level or MDL.
- (11) Limit of Quantitation or LOQ is defined as a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calibrated at a specified concentration above the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. This term is also called the limit of quantification or quantification level.
- (12) Method Detection Level or MDL is defined as the minimum concentration of an analyte (substance) that can be measured and reported with a ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) as determined by the procedure set forth in 40 CFR Part 136, Appendix B. The method detection level or MDL is equivalent to the LOD.

5. Test Procedures

The analytical and sampling methods used shall conform to the current version of 40 CFR, Part 136, unless otherwise specified within this permit. Multiple editions of Standard Methods for the Examination of Water and Wastewater are currently approved for most methods, however, 40 CFR Part 136 should be checked to ascertain if a particular method is approved for a particular analyte. The approved methods may be included in the texts listed below. However, different but equivalent methods are allowable if they receive the prior written approval of the State agency and the U.S. Environmental Protection Agency.

- a. Standard Methods for the Examination of Water and Wastewater
18th, 19th, or 20th Editions, 1992, 1995 or 1998 American Public Health Association, Washington, D.C. 20005.

- b. A.S.T.M. Standards, Part 23, Water; Atmospheric Analysis
1972 American Society for Testing and Materials,
Philadelphia, PA 19103.
- c. Methods for Chemical Analysis of Water and Wastes
June 1974, Revised, March 1983, Environmental Protection
Agency, Water Quality Office, Analytical Quality Control
Laboratory, 1014 Broadway, Cincinnati, OH 45202.

6. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record and maintain records of all monitoring information on activities under this permit, including the following information:

- a. The exact place, date, and time of sampling or measurements;
- b. The person(s) who performed the sampling or measurements;
- c. The dates and times the analyses were performed;
- d. The person(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of all required analyses and measurements.

7. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monthly Discharge Monitoring Report and on the Monthly Report of Operation form. Such increased frequency shall also be indicated on these forms. Any such additional monitoring data which indicates a violation of a permit limitation shall be followed up by the permittee, whenever feasible, with a monitoring sample obtained and analyzed pursuant to approved analytical methods. The results of the follow-up sample shall be reported to the Commissioner in the Monthly Discharge Monitoring Report.

8. Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation, shall be retained for a minimum of three (3) years. In cases where the original records are kept at another location, a copy of all such records shall be kept at the permitted facility. The three-year period shall be extended:

- a. automatically during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or regarding promulgated effluent guidelines applicable to the permittee; or
- b. as requested by the Regional Administrator or the Indiana Department of Environmental Management.

C. REOPENING CLAUSES

In addition to the reopening clause provisions cited at 327 IAC 5-2-16, the following reopening clauses are incorporated into this permit:

1. This permit may be modified or, alternately, revoked and reissued after public notice and opportunity for hearing to incorporate effluent limitations reflecting the results of a wasteload allocation if the Department of Environmental Management determines that such effluent limitations are needed to assure that State Water Quality Standards are met in the receiving stream.
2. This permit may be modified due to a change in sludge disposal standards pursuant to Section 405(d) of the Clean Water Act, if the standards when promulgated contain different conditions, are otherwise more stringent, or control pollutants not addressed by this permit.
3. This permit may be modified, or, alternately, revoked and reissued, to comply with any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent limitation or standard so issued or approved:
 - a. contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - b. controls any pollutant not limited in the permit.

PART II

STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. Duty to Comply

The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action or permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

2. Duty to Mitigate

In accordance with 327 IAC 5-2-8(3), the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with this permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine the nature and impact of the noncompliance.

3. Duty to Provide Information

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the facility that:

- a. could significantly change the nature of, or increase the quantity of, pollutants discharged; or
- b. the Commissioner may request to evaluate whether such cause exists.

In accordance with 327 IAC 5-1-3(a)(5), the permittee must also provide any information reasonably requested by the Commissioner.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must obtain and submit a renewal of this permit in accordance with 327 IAC 5-3-2(a)(2). It is the permittee's responsibility to obtain and submit the application. In accordance with 327 IAC 5-2-3(c), the owner of the facility or

operation from which a discharge of pollutants occurs is responsible for applying for and obtaining the NPDES permit, except where the facility or operation is operated by a person other than an employee of the owner in which case it is the operator's responsibility to apply for and obtain the permit. The application must be submitted at least 180 days before the expiration date of this permit. This deadline may be extended if:

- a. permission is requested in writing before such deadline;
- b. IDEM grants permission to submit the application after the deadline; and
- c. the application is received no later than the permit expiration date.

As required under 327 IAC 5-2-3(g)(1) and (2), POTWs with design influent flows equal to or greater than one million (1,000,000) gallons per day and POTWs with an approved pretreatment program or that are required to develop a pretreatment program, will be required to provide the results of whole effluent toxicity testing as part of their NPDES renewal application.

5. Transfers

In accordance with 327 IAC 5-2-8(4)(D), this permit is nontransferable to any person except in accordance with 327 IAC 5-2-6(c). This permit may be transferred to another person by the permittee, without modification or revocation and reissuance being required under 327 IAC 5-2-16(c)(1) or 16(e)(4), if the following occurs:

- a. the current permittee notified the Commissioner at least thirty (30) days in advance of the proposed transfer date.
- b. a written agreement containing a specific date of transfer of permit responsibility and coverage between the current permittee and the transferee (including acknowledgment that the existing permittee is liable for violations up to that date, and the transferee is liable for violations from that date on) is submitted to the Commissioner.
- c. the transferee certifies in writing to the Commissioner their intent to operate the facility without making such material and substantial alterations or additions to the facility as would significantly change the nature or quantities of pollutants discharged and thus constitute cause for permit modification under 327 IAC 5-2-16(d). However, the Commissioner may allow a temporary transfer of the permit without permit modification for good cause, e.g., to enable the transferee to purge and empty the facility's treatment system prior to making alterations, despite the transferee's intent to make such material and substantial alterations or additions to the facility.

- d. the Commissioner, within thirty (30) days, does not notify the current permittee and the transferee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

The Commissioner may require modification or revocation and reissuance of the permit to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act or state law.

6. Permit Actions

In accordance with 327 IAC 5-2-16(b) and 327 IAC 5-2-8(4), this permit may be modified, revoked and reissued, or terminated for cause, including, but not limited to, the following:

- a. Violation of any terms or conditions of this permit;
- b. Failure of the permittee to disclose fully all relevant facts or misrepresentation of any relevant facts in the application, or during the permit issuance process; or
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge controlled by the permittee (e.g., plant closure, termination of the discharge by connecting to a POTW, a change in state law or information indicating the discharge poses a substantial threat to human health or welfare).

Filing of either of the following items does not stay or suspend any permit condition: (1) a request by the permittee for a permit modification, revocation and reissuance, or termination, or (2) submittal of information specified in Part II.A.3 of the permit including planned changes or anticipated noncompliance.

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the permitted facility that:

1. could significantly change the nature of, or increase the quantity of, pollutants discharged; or
2. the commissioner may request to evaluate whether such cause exists.

7. Property Rights

Pursuant to 327 IAC 5-2-8(6) and 327 IAC 5-2-5(b), the issuance of this permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to persons or private property or an invasion of rights, any infringement of federal, state, or local laws or regulations. The issuance of the permit also does not

preempt any duty to obtain any other state, or local assent required by law for the discharge or for the construction or operation of the facility from which a discharge is made.

8. Severability

In accordance with 327 IAC 1-1-3, the provisions of this permit are severable and, if any provision of this permit or the application of any provision of this permit to any person or circumstance is held invalid, the invalidity shall not affect any other provisions or applications of the permit which can be given effect without the invalid provision or application.

9. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Clean Water Act.

10. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act or state law.

11. Penalties for Violation of Permit Conditions

Pursuant to IC 13-30-4, a person who violates any provision of this permit, the water pollution control laws; environmental management laws; or a rule or standard adopted by the Water Pollution Control Board is liable for a civil penalty not to exceed twenty-five thousand dollars (\$25,000) per day of any violation. Pursuant to IC 13-30-5, a person who obstructs, delays, resists, prevents, or interferes with (1) the department; or (2) the department's personnel or designated agent in the performance of an inspection or investigation commits a class C infraction.

Pursuant to IC 13-30-10, a person who intentionally, knowingly, or recklessly violates any provision of this permit, the water pollution control laws or a rule or standard adopted by the Water Pollution Control Board commits a class D felony punishable by the term of imprisonment established under IC 35-50-2-7(a) (up to one year), and/or by a fine of not less than five thousand dollars (\$5,000) and not more than fifty thousand dollars (\$50,000) per day of violation. A person convicted for a violation committed after a first conviction of such person under this provision is subject to a fine of not more than one hundred thousand dollars (\$100,000) per day of violation, or by imprisonment for not more than two (2) years, or both.

12. Penalties for Tampering or Falsification

In accordance with 327 IAC 5-2-8(10), the permittee shall comply with monitoring, recording, and reporting requirements of this permit. The Clean Water Act, as well as IC 13-30-10, provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under a permit shall, upon conviction, be punished by a fine of not more than ten thousand dollars (\$10,000) per violation, or by imprisonment for not more than one hundred eighty (180) days per violation, or by both.

13. Toxic Pollutants

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act for a toxic pollutant injurious to human health, and that standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition in accordance with 327 IAC 5-2-8(5). Effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants injurious to human health are effective and must be complied with, if applicable to the permittee, within the time provided in the implementing regulations, even absent permit modification.

14. Operator Certification

The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7. The permittee shall designate one (1) person as the certified operator with complete responsibility for the proper operations of the wastewater facility.

327 IAC 5-22-10.5(a) provides that a certified operator may be designated as being in responsible charge of more than one (1) wastewater treatment plant, if it can be shown that he will give adequate supervision to all units involved. Adequate supervision means that sufficient time is spent at the plant on a regular basis to assure that the certified operator is knowledgeable of the actual operations and that test reports and results are representative of the actual operations conditions. In accordance with 327 IAC 5-22-3(11), "responsible charge" means the person responsible for the overall daily operation, supervision, or management of a wastewater facility.

Pursuant to 327 IAC 5-22-10(4), the permittee shall notify IDEM when there is a change of the person serving as the certified operator in responsible charge of the wastewater treatment facility. The notification shall be made no later than thirty (30) days after a change in the operator.

15. Construction Permit

Except in accordance with 327 IAC 3, the permittee shall not construct, install, or modify any water pollution treatment/control facility as defined in 327 IAC 3-1-2(24). Upon completion of any construction, the permittee must notify the Compliance Data Section of the Office of Water Quality in writing.

16. Inspection and Entry

In accordance with 327 IAC 5-2-8(8), the permittee shall allow the Commissioner, or an authorized representative, (including an authorized contractor acting as a representative of the Commissioner) upon the presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a point source, regulated facility, or activity is located or conducted, or where records must be kept pursuant to the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment or methods (including monitoring and control equipment), practices, or operations regulated or required pursuant to this permit; and
- d. Sample or monitor at reasonable times, any discharge of pollutants or internal wastestreams for the purposes of evaluating compliance with the permit or as otherwise authorized.

17. New or Increased Discharge of Pollutants

This permit prohibits the permittee from undertaking any action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless one of the following is completed prior to the commencement of the action:

- a. Information is submitted to the Commissioner demonstrating that the proposed new or increased discharges will not cause a significant lowering of water quality as defined under 327 IAC 2-1.3-2(50). Upon review of this information, the Commissioner may request additional information or may determine that the proposed increase is a significant lowering of water quality and require the submittal of an antidegradation demonstration.
- b. An antidegradation demonstration is submitted to and approved by the Commissioner in accordance with 327 IAC 2-1.3-5 and 327 IAC 2-1.3-6.

B. MANAGEMENT REQUIREMENTS

1. Facility Operation, Maintenance and Quality Control

- a. In accordance with 327 IAC 5-2-8(9), the permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances, i.e., equipment used for measuring and determining compliance) for collection and treatment that are:

- (1) installed or used by the permittee; and
- (2) necessary for achieving compliance with the terms and conditions of the permit.

Neither 327 IAC 5-2-8(9), nor this provision, shall be construed to require the operation of installed treatment facilities that are unnecessary for achieving compliance with the terms and conditions of the permit. This provision also does not prohibit taking redundant treatment units off line, provided that the permittee is at all times: maintaining in good working order and efficiently operating all facilities and systems; providing best quality effluent; and achieving compliance with the terms and conditions of the permit.

- b. The permittee shall operate the permitted facility in a manner which will minimize upsets and discharges of excessive pollutants. The permittee shall properly remove and dispose of excessive solids and sludges.
- c. The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit.
- d. Maintenance of all waste collection, control, treatment, and disposal facilities shall be conducted in a manner that complies with the bypass provisions set forth below.
- e. Pursuant to 327 IAC 5-22-10(1), the permittee is responsible for providing adequate funding for and oversight of the wastewater treatment plant and collection system to ensure proper operation, maintenance, management, and supervision.
- f. Any extensions to the sewer system must continue to be constructed on a separated basis. Plans and specifications, when required, for extension of the sanitary system must be submitted to the Facility Construction and Engineering Support Section, Office of Water Quality in accordance with 327 IAC 3-2-2. There shall also be an ongoing preventative maintenance program for the sanitary sewer system.

2. Bypass of Treatment Facilities

Pursuant to 327 IAC 5-2-8(12):

- a. Terms as defined in 327 IAC 5-2-8(12)(A):
 - (1) “Bypass” means the intentional diversion of a waste stream from any portion of a treatment facility.
 - (2) “Severe property damage” means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b. Bypasses, as defined above, are prohibited, and the Commissioner may take enforcement action against a permittee for bypass, unless:
 - (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, as defined above;
 - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and
 - (3) The permittee submitted notices as required under Part II.B.2.d; or
 - (4) The condition under Part II.B.2.f below is met.
- c. Bypasses that result in death or acute injury or illness to animals or humans must be reported in accordance with the “Spill Response and Reporting Requirements” in 327 IAC 2-6.1, including calling 888/233-7745 as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the bypass are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.
- d. The permittee must provide the Commissioner with the following notice:
 - (1) If the permittee knows or should have known in advance of the need for a bypass (anticipated bypass), it shall submit prior written notice. If possible, such notice shall be provided at least ten (10) days before the date of the bypass for approval by the Commissioner.

- (2) The permittee shall orally report or fax a report of an unanticipated bypass within 24 hours of becoming aware of the bypass event. The permittee must also provide a written report within five (5) days of the time the permittee becomes aware of the bypass event. The written report must contain a description of the noncompliance (i.e. the bypass) and its cause; the period of noncompliance, including exact dates and times; if the cause of noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the bypass event. If a complete fax or email submittal is sent within 24 hours of the time that the permittee became aware of the unanticipated bypass event, then that report will satisfy both the oral and written reporting requirement.
- e. The Commissioner may approve an anticipated bypass, after considering its adverse effects, if the Commissioner determines that it will meet the conditions listed above in Part II.B.2.b. The Commissioner may impose any conditions determined to be necessary to minimize any adverse effects.
- f. The permittee may allow any bypass to occur that does not cause a violation of the effluent limitations in the permit, but only if it also is for essential maintenance to ensure efficient operation. These bypasses are not subject to the provisions of Part II.B.2.b.,d and e of this permit.

3. Upset Conditions

Pursuant to 327 IAC 5-2-8(13):

- a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph c of this subsection, are met.
- c. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, that:
 - (1) An upset occurred and the permittee has identified the specific cause(s) of the upset;
 - (2) The permitted facility was at the time being operated in compliance with proper operation and maintenance procedures;

- (3) The permittee complied with any remedial measures required under “Duty to Mitigate”, Part II.A.2; and
 - (4) The permittee submitted notice of the upset as required in the “Incident Reporting Requirements,” Part II.C.3, or 327 IAC 2-6.1, whichever is applicable. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.
- d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof pursuant to 40 CFR 122.41(n)(4).

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed from or resulting from treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State and to be in compliance with all Indiana statutes and regulations relative to liquid and/or solid waste disposal.

- a. Collected screenings, slurries, sludges, and other such pollutants shall be disposed of in accordance with provisions set forth in 329 IAC 10, 327 IAC 6.1, or another method approved by the Commissioner.
- b. The permittee shall comply with existing federal regulations governing solids disposal, and with applicable provisions of 40 CFR Part 503, the federal sludge disposal regulation standards.
- c. The permittee shall notify the Commissioner prior to any changes in sludge use or disposal practices.
- d. The permittee shall maintain records to demonstrate its compliance with the above disposal requirements.

5. Power Failures

In accordance with 327 IAC 5-2-10 and 327 IAC 5-2-8(14) in order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

- a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, or

- b. shall halt, reduce or otherwise control all discharge in order to maintain compliance with the effluent limitations and conditions of this permit upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit.

6. Unauthorized Discharge

Any overflow or release of sanitary wastewater from the wastewater treatment facilities or collection system that results in a discharge to waters of the state and is not specifically authorized by this permit is expressly prohibited. These discharges are subject to the reporting requirements in Part II.C.3 of this permit.

C. REPORTING REQUIREMENTS

1. Planned Changes in Facility or Discharge

Pursuant to 327 IAC 5-2-8(11)(F) and 5-2-16(d), the permittee shall give notice to the Commissioner as soon as possible of any planned alterations or additions to the facility (which includes any point source) that could significantly change the nature of, or increase the quantity of, pollutants discharged. Following such notice, the permit may be modified to revise existing pollutant limitations and/or to specify and limit any pollutants not previously limited. Material and substantial alterations or additions to the permittee's operation that were not covered in the permit (e.g., production changes, relocation or combination of discharge points, changes in the nature or mix of products produced) are also cause for modification of the permit. However those alterations which constitute total replacement of the process or the production equipment causing the discharge converts it into a new source, which requires the submittal of a new NPDES application.

2. Monitoring Reports

Pursuant to 327 IAC 5-2-8(10), 327 IAC 5-2-13, and 327 IAC 5-2-15, monitoring results shall be reported at the intervals and in the form specified in "Data On Plant Operation", Part I.B.2.

3. Incident Reporting Requirements

Pursuant to 327 IAC 5-2-8(11) and 327 IAC 5-1-3, the permittee shall orally report to the Commissioner information on the following incidents within 24 hours from the time permittee becomes aware of such occurrence. If the incident meets the emergency criteria of item b (Part II.C.3.b) or 327 IAC 2-6.1, then the report shall be made as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

- a. Any unanticipated bypass which exceeds any effluent limitation in the permit;

- b. Any emergency incident which may pose a significant danger to human health or the environment. Reports under this item shall be made as soon as the permittee becomes aware of the incident by calling 317/233-7745 (888/233-7745 toll free in Indiana). This number should only be called when reporting these emergency events;
- c. Any upset (as defined in Part II.B.3 above) that exceeds any technology-based effluent limitations in the permit;
- d. Any release, including basement backups, from the sanitary sewer system (including satellite sewer systems operated or maintained by the permittee) not specifically authorized by this permit. Reporting of known releases from private laterals not caused by a problem in the sewer system owned or operated by the permittee is not required under Part II.C.3, however, documentation of such events must be maintained by the permittee and available for review by IDEM staff; or
- e. Any discharge from any outfall from which discharge is explicitly prohibited by this permit as well as any discharge from any other outfall or point not listed in this permit.

The permittee can make the oral reports by calling 317/232-8670 during regular business hours. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. For incidents involving effluent limit violations or discharges, the written submission shall contain: a description of the event and its cause; the period of occurrence, including exact dates and times, and, if the event has not concluded, the anticipated time it is expected to continue; and steps taken or planned to reduce, mitigate and eliminate the event and steps taken or planned to prevent its recurrence. For sewer releases which do not meet the definition of a discharge, the written submission shall contain: a description of the event and its believed cause; the period of occurrence; and any steps taken or planned to mitigate the event and steps taken or planned to prevent its recurrence. The permittee may submit a "Bypass Overflow/Incident Report" or a "Noncompliance Notification Report", whichever is applicable, to IDEM at 317/232-8637 or 317/232-8406 or to wwreports@idem.IN.gov. If a complete fax or email submittal is sent within 24 hours of the time that the permittee became aware of the occurrence, then that report will satisfy both the oral and written reporting requirements.

4. Other Noncompliance

Pursuant to 327 IAC 5-2-8(11)(D), the permittee shall report any instance of noncompliance not reported under the "Incident Reporting Requirements" in Part II.C.3 at the time the pertinent Discharge Monitoring Report is submitted. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent the noncompliance.

5. Other Information

Pursuant to 327 IAC 5-2-8(11)(E), where the permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or in any report to the Commissioner, the permittee shall promptly submit such facts or corrected information to the Commissioner.

6. Signatory Requirements

Pursuant to 327 IAC 5-2-22 and 327 IAC 5-2-8(15):

- a. All reports required by the permit and other information requested by the Commissioner shall be signed and certified by a person described below or by a duly authorized representative of that person:
 - (1) For a corporation: by a principal executive defined as a president, secretary, treasurer, any vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making functions for the corporation or the manager of one or more manufacturing, production, or operating facilities employing more than two hundred fifty (250) persons or having gross annual sales or expenditures exceeding twenty-five million dollars (\$25,000,000) (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
 - (3) For a federal, state, or local governmental body or any agency or political subdivision thereof: by either a principal executive officer or ranking elected official.
- b. A person is a duly authorized representative only if:
 - (1) The authorization is made in writing by a person described above.
 - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and
 - (3) The authorization is submitted to the Commissioner.
- c. Certification. Any person signing a document identified under paragraphs a and b of this section, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

7. Availability of Reports

Except for data determined to be confidential under 327 IAC 12.1, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Indiana Department of Environmental Management and the Regional Administrator. As required by the Clean Water Act, permit applications, permits, and effluent data shall not be considered confidential.

8. Penalties for Falsification of Reports

IC 13-30 and 327 IAC 5-2-8(15) provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 180 days per violation, or by both.

9. Progress Reports

In accordance with 327 IAC 5-2-8(11)(A), reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.

10. Advance Notice for Planned Changes

In accordance with 327 IAC 5-2-8(11)(B), the permittee shall give advance notice to IDEM of any planned changes in the permitted facility, any activity, or other circumstances that the permittee has reason to believe may result in noncompliance with permit requirements.

11. Additional Requirements for POTWs and/or Treatment Works Treating Domestic Sewage

- a. All POTWs shall identify, in terms of character and volume of pollutants, any significant indirect discharges into the POTW which are subject to pretreatment standards under section 307(b) and 307 (c) of the CWA.

- b. All POTWs must provide adequate notice to the Commissioner of the following:
- (1) Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to section 301 or 306 of the CWA if it were directly discharging those pollutants.
 - (2) Any substantial change in the volume or character of pollutants being introduced into that POTW by any source where such change would render the source subject to pretreatment standards under section 307(b) or 307(c) of the CWA or would result in a modified application of such standards.

As used in this clause, “adequate notice” includes information on the quality and quantity of effluent introduced into the POTW, and any anticipated impact of the change on the quantity or quality of the effluent to be discharged from the POTW.

- c. This permit incorporates any conditions imposed in grants made by the U.S. EPA and/or IDEM to a POTW pursuant to Sections 201 and 204 of the Clean Water Act, that are reasonably necessary for the achievement of effluent limitations required by Section 301 of the Clean Water Act.
- d. This permit incorporates any requirements of Section 405 of the Clean Water Act governing the disposal of sewage sludge from POTWs or any other treatment works treating domestic sewage for any use for which rules have been established in accordance with any applicable rules.
- e. POTWs must develop and submit to the Commissioner a POTW pretreatment program when required by 40 CFR 403 and 327 IAC 5-19-1, in order to assure compliance by industrial users of the POTW with applicable pretreatment standards established under Sections 307(b) and 307(c) of the Clean Water Act. The pretreatment program shall meet the criteria of 327 IAC 5-19-3 and, once approved, shall be incorporated into the POTW’s NPDES permit.

D. ADDRESSES

1. Municipal NPDES Permits Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Municipal NPDES Permits Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Municipal NPDES Permits Section:

- a. NPDES permit applications (new, renewal or modifications) with fee
- b. Preliminary Effluent Limits request letters

- c. Comment letters pertaining to draft NPDES permits
- d. NPDES permit transfer of ownership requests
- e. NPDES permit termination requests
- f. Notifications of substantial changes to a treatment facility, including new industrial sources
- g. Combined Sewer Overflow (CSO) Operational Plans
- h. CSO Long Term Control Plans (LTCP)
- i. Stream Reach Characterization and Evaluation Reports (SRCER)

2. Facility Construction and Engineering Support Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Facility Construction and Engineering Support Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Facility Construction and Engineering Support Section:

- a. Construction permit applications with fee

3. Compliance Data Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Compliance Data Section:

- a. Discharge Monitoring Reports (DMRs)
- b. Monthly Reports of Operation (MROs)
- c. Monthly Monitoring Reports (MMRs)
- d. CSO MROs

- e. Gauging station and flow meter calibration documentation
- f. Compliance schedule progress reports
- g. Completion of Construction notifications
- h. Whole Effluent Toxicity Testing reports
- i. Toxicity Reduction Evaluation (TRE) plans and progress reports
- j. Bypass/Overflow Reports
- k. Anticipated Bypass/Overflow Reports
- l. Streamlined Mercury Variance Annual Reports

4. Pretreatment Group

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section – Pretreatment Group
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Pretreatment Group:

- a. Organic Pollutant Monitoring Reports
- b. Significant Industrial User (SIU) Quarterly Noncompliance Reports
- c. Pretreatment Program Annual Reports
- d. Sewer Use Ordinances
- e. Enforcement Response Plans (ERP)
- f. Sludge analytical results

Briefing Memo

May 17, 2017

Wymberly Sanitary Works, Inc. Wastewater Treatment Plant
located at 4851 Buck Creek Road, Floyds Knobs, Indiana, Floyd County

| | | |
|-------------------------|------------|--------------------|
| <u>Outfall Location</u> | Latitude: | 38° 21' 1.6920" N |
| | Longitude: | 85° 53' 51.5004" W |

NPDES Permit No. IN0043923

Background

This is the proposed renewal of the NPDES permit for the Wymberly Sanitary Works, Inc. Wastewater Treatment Plant which was issued on October 12, 2012 and has an expiration date of December 31, 2017. The permittee submitted an application for renewal which was received on April 17, 2017. The permittee currently operates a Class II, 0.2 MGD extended aeration wastewater treatment facility consisting of an aerated flow equalization tank, a manual bar screen, a flow control box, a selector tank, two (2) first stage fine bubble aeration tanks, two (2) second stage fine bubble aeration tanks, two (2) secondary clarifiers, an aerobic digester, fine bubble post aeration, ultraviolet light disinfection, and effluent flow monitoring. Sludge is treated in an aerobic digester and hauled off site for final disposal.

Collection System

The collection system is comprised of 100% separate sanitary sewers by design with no overflow or bypass points.

Spill Reporting Requirements

Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.c. and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the applicability requirements of 327 IAC 2-6.1-1, and the Reportable Spills requirements of 327 IAC 2-6.1-5 (other than those meeting an exclusion under 327 IAC 2-6.1-3 or the criteria outlined below) are subject to the Reporting Responsibilities of 327 IAC 2-6.1-7.

It should be noted that the reporting requirements of 327 IAC 2-6.1 do not apply to those discharges or exceedences that are under the jurisdiction of an applicable permit when the substance in question is covered by the permit and death or acute injury or illness to animals or humans does not occur. In order for a discharge or exceedence to be under the jurisdiction of this NPDES permit, the substance in question (a) must have been discharged in the normal course of operation from an outfall listed in this permit, and (b) must have been discharged from an outfall for which the permittee has authorization to discharge that substance.

Solids Disposal

The permittee is required to dispose of its sludge in accordance with 329 IAC 10, 327 IAC 6.1, or 40 CFR Part 503.

Receiving Stream

The facility discharges to an unnamed ditch to Buck Creek via Outfall 001. The receiving water has a seven day, ten year low flow ($Q_{7,10}$) of 0.0 cubic feet per second at the outfall location.

The receiving stream is designated for full body contact recreational use and shall be capable of supporting a well-balanced warm water aquatic community in accordance with 327 IAC 2-1.

Industrial Contributions

There is no industrial flow to the wastewater treatment plant. This NPDES permit does not authorize the facility to accept industrial contributions until the permittee has provided the Indiana Department of Environmental Management with a characterization of the waste, including volume amounts, and this Office has determined whether effluent limitations are needed to ensure the State water quality standards are met in the receiving stream.

Antidegradation

327 IAC 2-1.3 outlines the state's Antidegradation Standards and Implementation Procedures. The Tier 1 antidegradation standard found in 327 IAC 2-1.3-3(a) applies to all surface waters of the state regardless of their existing water quality. Based on this standard, for all surface waters of the state, existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. IDEM implements the Tier 1 antidegradation standard by requiring NPDES permits to contain effluent limits and best management practices for regulated pollutants that ensure the narrative and numeric water quality criteria applicable to the designated use are achieved in the water and any designated use of the downstream water is maintained and protected.

The Tier 2 antidegradation standard found in 327 IAC 2-1.3-3(b) applies to surface waters of the state where the existing quality for a parameter is better than the water quality criterion for that parameter established in 327 IAC 2-1-6. These surface waters are considered high quality for the parameter and this high quality shall be maintained and protected unless the commissioner finds that allowing a significant lowering of water quality is necessary and accommodates important social or economic development in the area in which the waters are located. IDEM implements the Tier 2 antidegradation standard for regulated pollutants with numeric water quality criteria quality adopted in or developed pursuant to 327 IAC 2-1 and utilizes the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6.

According to 327 IAC 2-1.3-1(b), the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6 apply to a proposed new or increased loading of a regulated pollutant to surface waters of the state from a deliberate activity subject to the Clean Water Act, including a change in process or operation that will result in a significant lowering of water quality.

The NPDES permit does not propose to establish a new or increased loading of a regulated pollutant; therefore, the Antidegradation Implementation Procedures in 327 IAC 2-1.3-5 and 2-1.3-6 do not apply to the permitted discharge.

Effluent Limitations and Rationale

The effluent limitations proposed herein are based on Indiana Water Quality Standards, NPDES regulations, and a Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 5, 2001. These limits are in accordance with antibacksliding regulations specified in 327 IAC 5-2-10(a)(11)(A). Monitoring frequencies are based upon facility size and type.

The final effluent limitations to be limited and/or monitored include: Flow, Carbonaceous Biochemical Oxygen Demand (CBOD₅), Total Suspended Solids (TSS), Ammonia-nitrogen (NH₃-N), pH, Dissolved Oxygen (DO) and *Escherichia coli* (*E. coli*).

Final Effluent Limitations

The summer monitoring period runs from May 1 through November 30 of each year and the winter monitoring period runs from December 1 through April 30 of each year. The disinfection season runs from April 1 through October 31 of each year.

The mass limits for CBOD₅, TSS, and ammonia-nitrogen are calculated by multiplying the average design flow (in MGD) by the corresponding concentration value and by 8.345.

Influent Monitoring

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation Form, as appropriate, in accordance with 327 IAC 5-2-13 and Part I.B.2 of the permit. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by the permit.

Flow

Flow is to be measured five (5) times weekly as a 24-hour total. Reporting of flow is required by 327 IAC 5-2-13.

CBOD₅

CBOD₅ is limited to 25 mg/l (42 lbs/day) as a monthly average and 40 mg/l (67 lbs/day) as a weekly average.

Monitoring is to be conducted three (3) times weekly by 24-hour composite sampling. The CBOD₅ concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 5, 2001 and are the same as the concentration limitations found in the facility's previous permit.

TSS

TSS is limited to 30 mg/l (50 lbs/day) as a monthly average and 45 mg/l (75 lbs/day) as a weekly average.

Monitoring is to be conducted three (3) times weekly by 24-hour composite sampling. The TSS concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 5, 2001 and are the same as the concentration limitations found in the facility's previous permit.

Ammonia-nitrogen

Ammonia-nitrogen is limited to 1.3 mg/l (2.2 lbs/day) as a monthly average and 1.9 mg/l (3.2 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, ammonia-nitrogen is limited to 1.9 mg/l (3.2 lbs/day) as a monthly average and 2.9 mg/l (4.8 lbs/day) as a weekly average.

Monitoring is to be conducted three (3) times weekly by 24-hour composite sampling. The ammonia-nitrogen concentration limitations included in this permit are set in accordance with the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 5, 2001 and are the same as the concentration limitations found in the facility's previous permit.

pH

The pH limitations have been based on 40 CFR 133.102 which is cross-referenced in 327 IAC 5-5-3.

To ensure conditions necessary for the maintenance of a well-balanced aquatic community, the pH of the final effluent must be between 6.0 and 9.0 standard units in accordance with provisions in 327 IAC 2-1-6(b)(2).

pH must be measured five (5) times weekly by grab sampling. These pH limitations are the same as the limitations found in the facility's previous permit.

Dissolved Oxygen

Dissolved oxygen shall not fall below 6.0 mg/l as a daily minimum average during the summer monitoring period. During the winter monitoring period, dissolved oxygen shall not fall below 5.0 mg/l as a daily minimum average.

These dissolved oxygen limitations are based on the Wasteload Allocation (WLA) analysis performed by this Office's Permits Branch staff on February 5, 2001 and are the same as the concentration limitations found in the facility's previous permit. Dissolved oxygen measurements must be based on the average of three (3) grab samples taken within a 24-hr. period. This monitoring is to be conducted five (5) times weekly.

E. coli

The *E. coli* limitations and monitoring requirements apply from April 1 through October 31, annually. *E. coli* is limited to 125 count/100 ml as a monthly average, and 235 count/100 ml as a daily maximum. The monthly average *E. coli* value shall be calculated as a geometric mean. This monitoring is to be conducted three (3) times weekly by grab sampling. These *E. coli* limitations are set in accordance with regulations specified in 327 IAC 5-10-6.

Backsliding

None of the concentration limits included in this permit conflict with antibacksliding regulations found in 327 IAC 5-2-10(a)(11)(A), therefore, backsliding is not an issue.

Reopening Clauses

Three (3) reopening clauses were incorporated into the permit in Part I.C. One clause is to incorporate effluent limits from any further wasteload allocations performed; a second clause is to allow for changes in the sludge disposal standards; and a third clause is to incorporate any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act.

Compliance Status

The permittee has no enforcement actions at the time of this permit preparation.

Expiration Date

A five-year NPDES permit is proposed.

Drafted by: Alyce Klein
May 17, 2017

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO: 2017 – 8B– F
DATE OF NOTICE: AUGUST 4, 2017

The Office of Water Quality issues the following NPDES FINAL PERMIT.

MINOR - RENEWAL

WYMBERLY SANITARY WORKS INC WWTP, Permit No. IN0043923, FLOYD COUNTY, 4851 Buck Creek Rd, Floyd Knobs, IN. This semi-public facility discharges 0.200 million gallons daily of sanitary wastewater into Buck Creek. Permit Manager: Alyce Klein, aklein@idem.in.gov, 317/233-6728.

Notice of Right to Administrative Review [Permits]

If you wish to challenge this Permit, you must file a Petition for Administrative Review with the Office of Environmental Adjudication (OEA), and serve a copy of the Petition upon IDEM. The requirements for filing a Petition for Administrative Review are found in IC 4-21.5-3-7, IC 13-15-6-1 and 315 IAC 1-3-2. A summary of the requirements of these laws is provided below.

A Petition for Administrative Review must be filed with the Office of Environmental Adjudication (OEA) within fifteen (15) days of the issuance of this notice (eighteen (18) days if you received this notice by U.S. Mail), and a copy must be served upon IDEM. Addresses are:

Director
Office of Environmental Adjudication
Indiana Government Center North
100 North Senate Avenue - Room N103
Indianapolis, Indiana 46204

Commissioner
Indiana Department of Environmental Management
Indiana Government Center North
100 North Senate Avenue - Room 1301
Indianapolis, Indiana 46204

The Petition must contain the following information:

1. The name, address and telephone number of each petitioner.
2. A description of each petitioner's interest in the Permit.
3. A statement of facts demonstrating that each petitioner is:
 - a. a person to whom the order is directed;
 - b. aggrieved or adversely affected by the Permit; or
 - c. entitled to administrative review under any law.
4. The reasons for the request for administrative review.
5. The particular legal issues proposed for review.
6. The alleged environmental concerns or technical deficiencies of the Permit.
7. The Permit terms and conditions that the petitioner believes would be appropriate and would comply with the law.
8. The identity of any persons represented by the petitioner.
9. The identity of the person against whom administrative review is sought.
10. A copy of the Permit that is the basis of the petition.
11. A statement identifying petitioner's attorney or other representative, if any.

Failure to meet the requirements of the law with respect to a Petition for Administrative Review may result in a waiver of your right to seek administrative review of the Permit. Examples are:

1. Failure to file a Petition by the applicable deadline;
2. Failure to serve a copy of the Petition upon IDEM when it is filed; or
3. Failure to include the information required by law.

If you seek to have a Permit stayed during the Administrative Review, you may need to file a Petition for a Stay of Effectiveness. The specific requirements for such a Petition can be found in 315 IAC 1-3-2 and 315 IAC 1-3-2.1.

Pursuant to IC 4-21.5-3-17, OEA will provide all parties with Notice of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action. If you are entitled to Notice under IC 4-21.5-3-5(b) and would like to obtain notices of any pre-hearing conferences, preliminary hearings, hearings, stays, or orders disposing of the review of this action without intervening in the proceeding you must submit a written request to OEA at the address above.

If you have procedural or scheduling questions regarding your Petition for Administrative Review you may contact the Office of Environmental Adjudication at (317) 233-0850 or see OEA's website at <http://www.in.gov/oea>.



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

VIA ELECTRONIC MAIL

March 4, 2015

Mr. Thomas Bruns, President
Aqua Indiana, Inc.
5750 Castle Creek Parkway North Drive, Suite 314
Indianapolis, Indiana 46250

Dear Mr. Bruns:

Re: Final NPDES Permit No. IN0050181
Chimneywood Wastewater Treatment Plant
Floyd County

Your application for a National Pollutant Discharge Elimination System (NPDES) permit has been processed in accordance with Sections 402 and 405 of the Federal Water Pollution Control Act as amended, (33 U.S.C. 1251, et seq.), and IDEM's permitting authority under IC 13-15. The enclosed NPDES permit covers your discharges to an unnamed tributary to Little Indian Creek. All discharges from this facility shall be consistent with the terms and conditions of this permit.

One condition of your permit requires monthly reporting of several effluent parameters. Reporting is to be done on the Monthly Report of Operation (MRO) form. This form is available on the internet at the following web site:

<http://www.in.gov/idem/5104.htm>

You should duplicate this form as needed for future reporting.

Another condition which needs to be clearly understood concerns violation of the effluent limitations in the permit. Exceeding the limitations constitutes a violation of the permit and may bring criminal or civil penalties upon the permittee. (See Part II.A.1 and II.A.11 of this permit). It is very important that your office and treatment operator understand this part of the permit.



Mr. Thomas Bruns, President

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Please note that this permit issuance can be appealed. An appeal must be filed under procedures outlined in IC 13-15-6, IC 4-21.5, and the enclosed public notice. The appeal must be initiated by you within 18 days from the date this letter is postmarked, by filing a request for an adjudicatory hearing with the Office of Environmental Adjudication (OEA), at the following address:

Office of Environmental Adjudication
Indiana Government Center North
100 North Senate Avenue, Room 501
Indianapolis, IN 46204

Please send a copy of any such appeal to me at IDEM, Office of Water Quality-Mail Code 65-42, 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.

The permit should be read and studied. It requires certain action at specific times by you, the discharger, or your authorized representative. One copy of this permit is also being sent to your operator to be kept at the treatment facility. You may wish to call this permit to the attention of your consulting engineer and/or attorney.

If you have any questions concerning your NPDES permit, please contact Jason House at 317/233-0470. Questions concerning appeal procedures should be directed to the Office of Environmental Adjudication, at 317/232-8591.

Sincerely,

A handwritten signature in dark ink, appearing to read "Paul Higginbotham", followed by a long horizontal flourish.

Paul Higginbotham, Chief
Permits Branch
Office of Water Quality

Enclosures

cc: Charles Oakes, Certified Operator

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq., the "Act"), Title 13 of the Indiana Code, and regulations adopted by the Water Pollution Control Board, the Indiana Department of Environmental Management (IDEM) is issuing this permit to

AQUA INDIANA, INC.

Hereinafter referred to as "the permittee." The permittee owns and/or operates the **Chimneywood Wastewater Treatment Plant**, a minor semi-public wastewater treatment plant located ¼ mile west of U.S. 150 and ½ mile north of Old Vincennes Road Junction, in Floyds Knobs, Indiana, Floyd County. The permittee is hereby authorized to discharge from the outfalls identified in Part I of this permit to receiving waters consisting of an unnamed tributary to Little Indian Creek to Indian Creek in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in the permit. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

Effective Date: July 1, 2015.

Expiration Date: June 30, 2020.

In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and application forms as are required by the Indiana Department of Environmental Management. The application shall be submitted to IDEM at least 180 days prior to the expiration date of this permit, unless a later date is allowed by the Commissioner in accordance with 327 IAC 5-3-2 and Part II.A.4 of this permit.

Issued March 4, 2015, for the Indiana Department of Environmental Management.



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TREATMENT FACILITY DESCRIPTION

The permittee currently operates a Class I, 0.0103 MGD extended aeration treatment facility consisting of an influent bar screen, a flow equalization tank, an aeration tank, a secondary clarifier, an effluent flow meter, chlorination/dechlorination facilities, and an aerobic digester. Final sludge is hauled off-site.

The collection system is comprised of 100% separate sanitary sewers by design with no overflow or bypass points.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee shall take samples and measurements at a location representative of each discharge to determine whether the effluent limitations have been met. Refer to Part I.B of this permit for additional monitoring and reporting requirements.

1. Beginning on the effective date of this permit, the permittee is authorized to discharge from Outfall 001, which is located at Latitude: 38° 19' 41" N, Longitude: 85° 54' 32" W. The discharge is subject to the following requirements:

TABLE 1

| <u>Parameter</u> | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|-------------------|----------------------------------|-------------------------------|---------------------|---------------------------------|-------------------------------|----------------------|--|------------------------------------|
| | <u>Monthly Average</u> Report | <u>Weekly Average</u> ---- | <u>Units</u> MGD | <u>Monthly Average</u> ---- | <u>Weekly Average</u> ---- | <u>Units</u> ---- | <u>Measurement Frequency</u> 5 X Weekly | <u>Sample Type</u> 24-Hr. Total |
| Flow [1] | | | | | | | | |
| CBOD ₅ | | | | | | | | |
| Summer [2] | 1.3 | 2.0 | lbs/day | 15[4] | 23 | mg/l | Weekly | Grab |
| Winter [3] | 2.1 | 3.4 | lbs/day | 25[4] | 40 | mg/l | Weekly | Grab |
| TSS | | | | | | | | |
| Summer [2] | 1.5 | 2.3 | lbs/day | 18[4] | 27 | mg/l | Weekly | Grab |
| Winter [3] | 2.6 | 3.9 | lbs/day | 30[4] | 45 | mg/l | Weekly | Grab |
| Ammonia-nitrogen | | | | | | | | |
| Summer [2] | 0.10 | 0.15 | lbs/day | 1.1 | 1.7 | mg/l | Weekly | Grab |
| Winter [3] | 0.14 | 0.21 | lbs/day | 1.6 | 2.4 | mg/l | Weekly | Grab |

TABLE 2

| <u>Parameter</u> | <u>Quality or Concentration</u> | | | | <u>Monitoring Requirements</u> | |
|-----------------------------|---------------------------------|----------------------------|--------------------------|--------------|----------------------------------|------------------------|
| | <u>Daily Minimum</u> | <u>Monthly Average</u> | <u>Daily Maximum</u> | <u>Units</u> | <u>Measurement Frequency</u> | <u>Sample Type</u> |
| pH [5] | 6.0 | ---- | 9.0 | s.u. | 2 X Weekly | Grab |
| Dissolved Oxygen [6] | | | | | | |
| Summer [2] | 6.0 | ---- | ---- | mg/l | 2 X Weekly | 2 Grabs/24-Hrs. |
| Winter [3] | 5.0 | ---- | ---- | mg/l | 2 X Weekly | 2 Grabs/24-Hrs. |
| Total Residual Chlorine [7] | | | | | | |
| Contact Tank [8] | 0.5 | ---- | Report | mg/l | 2 X Weekly | Grab |
| Final Effluent [9] | ---- | 0.01 | 0.02 | mg/l | 2 X Weekly | Grab |
| <i>E. coli</i> [10] | ---- | 125 | 235 | cfu/100 ml | Weekly | Grab |

- [1] Effluent flow measurement is required per 327 IAC 5-2-13. The flow meter(s) shall be calibrated at least once every twelve months.
- [2] Summer limitations apply from May 1 through November 30 of each year.
- [3] Winter limitations apply from December 1 through April 30 of each year.
- [4] The monthly average percent removal shall not be less than 85%. The percent removal shall be calculated from a comparison of raw influent to final effluent sampling results.
- [5] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the Monthly Report of Operation forms.
- [6] The daily minimum concentration of dissolved oxygen in the effluent shall be reported as the arithmetic mean determined by summation of the two (2) daily grab sample results divided by the number of daily grab samples. These samples are to be collected over equal time intervals.
- [7] The effluent shall be disinfected on a continuous basis such that violations of the applicable bacteriological limitations (*E. coli*) do not occur from April 1 through October 31, annually. If the permittee uses chlorine for any reason, at any time including the period from November 1 through March 31, then the limits and monitoring requirements in Table 2 for Total Residual Chlorine (TRC) shall be in effect whenever chlorine is used.
- [8] The chlorine residual shall be maintained at a concentration not less than 0.5 mg/l as measured at the effluent end of the chlorine contact tank for the term of the permit. The daily maximum chlorine residual value at the chlorine contact tank shall also be reported.

- [9] In accordance with 327 IAC 5-2-11.1(f), compliance with this permit will be demonstrated if the measured effluent concentrations are less than the limit of quantitation (0.06 mg/l). If the measured effluent concentrations are above the water quality-based permit limitations and above the Limit of Detection (LOD) specified by the permit in any of three (3) consecutive analyses or any five (5) out of nine (9) analyses, the permittee is required to reevaluate its chlorination/dechlorination practices to make any necessary changes to assure compliance with the permit limitation for TRC. These records must be retained in accordance with the record retention requirements of Part I.B.8 of this permit.

Effluent concentrations greater than or equal to the LOD but less than the Limit of Quantitation (LOQ), shall be reported on the discharge monitoring report forms as the measured value. A note must be included with the DMR indicating that the value is not quantifiable. Effluent concentrations less than the limit of detection shall be reported on the discharge monitoring report forms as less than the value of the limit of detection. For example, if a substance is not detected at a concentration of 0.01 mg/l, report the value as < 0.01 mg/l. At present, two methods are considered to be acceptable to IDEM, amperometric and DPD colorimetric methods, for chlorine concentrations at the level of 0.06 mg/l.

| <u>Parameter</u> | <u>LOD</u> | <u>LOQ</u> |
|------------------|------------|------------|
| Chlorine | 0.02 mg/l | 0.06 mg/l |

Case-Specific MDL

The permittee may determine a case-specific Method Detection Level (MDL) using one of the analytical methods specified above, or any other test method which is approved by IDEM prior to use. The MDL shall be derived by the procedure specified for MDLs contained in 40 CFR Part 136, Appendix B, and the limit of quantitation shall be set equal to 3.18 times the MDL. Other methods may be used if first approved by the U.S. EPA and IDEM.

- [10] The *E. coli* limitations and monitoring requirements apply from April 1 through October 31 annually. The monthly average *E. coli* value shall be calculated as a geometric mean.

IDEM has specified the following methods as allowable for the detection and enumeration of *Escherichia coli* (*E. coli*):

1. Coliscan MF® Method
2. EPA Method 1603 Modified m-TEC agar
3. mColi Blue-24®
4. Colilert® MPN Method or Colilert-18® MPN Method

2. Minimum Narrative Limitations

At all times the discharge from any and all point sources specified within this permit shall not cause receiving waters:

- a. including the mixing zone, to contain substances, materials, floating debris, oil, scum or other pollutants:
 - (1) that will settle to form putrescent or otherwise objectionable deposits;
 - (2) that are in amounts sufficient to be unsightly or deleterious;
 - (3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;
 - (4) which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans;
 - (5) which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.
- b. outside the mixing zone, to contain substances in concentrations which on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

B. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge flow and shall be taken at times which reflect the full range and concentration of effluent parameters normally expected to be present. Samples shall not be taken at times to avoid showing elevated levels of any parameters.

2. Data on Plant Operation

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation Form, as appropriate, in accordance with 327 IAC 5-2-13. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by this permit.

3. Monthly Reporting

The permittee shall submit accurate monitoring reports to the Indiana Department of Environmental Management containing results obtained during the previous monitoring period and shall be postmarked no later than the 28th day of the month following each completed monitoring period. The first report shall be submitted by the 28th day of the month following the monitoring period in which the permit becomes effective. These reports shall include, but not necessarily be limited to, the Discharge Monitoring Report (DMR) and the Monthly Report of Operation (MRO). All reports shall be mailed to IDEM, Office of Water Quality – Mail Code 65-42, Compliance Data Section, 100 North Senate Ave., Indianapolis, Indiana 46204-2251. In lieu of mailing paper reports the permittee may submit its reports to IDEM electronically by using the NetDMR application, upon registration and approval receipt. Electronically submitted reports (using NetDMR) have the same deadline as mailed reports. The Regional Administrator may request the permittee to submit monitoring reports to the Environmental Protection Agency if it is deemed necessary to assure compliance with the permit.

A calendar week will begin on Sunday and end on Saturday. Partial weeks consisting of four or more days at the end of any month will include the remaining days of the week, which occur in the following month in order to calculate a consecutive seven-day average. This value will be reported as a weekly average or seven-day average on the MRO for the month containing the partial week of four or more days. Partial calendar weeks consisting of less than four days at the end of any month will be carried forward to the succeeding month and reported as a weekly average or a seven-day average for the calendar week that ends with the first Saturday of that month.

4. Definitions

a. Calculation of Averages

Pursuant to 327 IAC 5-2-11(a)(5), the calculation of the average of discharge data shall be determined as follows: For all parameters except fecal coliform and *E. coli*, calculations that require averaging of sample analyses or measurements of daily discharges shall use an arithmetic mean unless otherwise specified in this permit. For fecal coliform, the monthly average discharge and weekly average discharge, as concentrations, shall be calculated as a geometric mean. For *E. coli*, the monthly average discharge, as a concentration, shall be calculated as a geometric mean.

b. Terms

- (1) “Monthly Average” -The monthly average discharge means the total mass or flow-weighted concentration of all daily discharges during a calendar month on which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar month. The monthly average discharge limitation is the highest allowable average monthly discharge for any calendar month.

- (2) “Weekly Average” - The weekly average discharge means the total mass or flow weighted concentration of all daily discharges during any calendar week for which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar week. The average weekly discharge limitation is the maximum allowable average weekly discharge for any calendar week.
- (3) “Daily Maximum” - The daily maximum discharge limitation is the maximum allowable daily discharge for any calendar day. The “daily discharge” means the total mass of a pollutant discharged during the calendar day or, in the case of a pollutant limited in terms other than mass pursuant to 327 IAC 5-2-11(e), the average concentration or other measurement of the pollutant specified over the calendar day or any twenty-four hour period that represents the calendar day for purposes of sampling.
- (4) CBOD₅: Five-day Carbonaceous Biochemical Oxygen Demand
- (5) TSS: Total Suspended Solids
- (6) *E. coli*: Escherichia coli bacteria
- (7) The “Regional Administrator” is defined as the Region V Administrator, U.S. EPA, located at 77 West Jackson Boulevard, Chicago, Illinois 60604.
- (8) The “Commissioner” is defined as the Commissioner of the Indiana Department of Environmental Management, located at the following address: 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.
- (9) Limit of Detection or LOD is defined as a measurement of the concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix. The LOD is equivalent to the Method Detection Level or MDL.
- (10) Limit of Quantitation or LOQ is defined as a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calibrated at a specified concentration about the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. This term is also called the limit of quantification or quantification level.
- (11) Method Detection Level or MDL is defined as the minimum concentration of an analyte (substance) that can be measured and reported with a ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) as determined by the procedure set forth in 40 CFR Part 136, Appendix B. The method detection level or MDL is equivalent to the LOD.

5. Test Procedures

The analytical and sampling methods used shall conform to the current version of 40 CFR, Part 136, unless otherwise specified within this permit. Multiple editions of Standard Methods for the Examination of Water and Wastewater are currently approved for most methods, however, 40 CFR Part 136 should be checked to ascertain if a particular method is approved for a particular analyte. The approved methods may be included in the texts listed below. However, different but equivalent methods are allowable if they receive the prior written approval of the State agency and the U.S. Environmental Protection Agency.

- a. Standard Methods for the Examination of Water and Wastewater
18th, 19th, or 20th Editions, 1992, 1995 or 1998 American Public Health Association, Washington, D.C. 20005.
- b. A.S.T.M. Standards, Part 23, Water; Atmospheric Analysis
1972 American Society for Testing and Materials, Philadelphia, PA 19103.
- c. Methods for Chemical Analysis of Water and Wastes
June 1974, Revised, March 1983, Environmental Protection Agency, Water Quality Office, Analytical Quality Control Laboratory, 1014 Broadway, Cincinnati, OH 45202.

6. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record and maintain records of all monitoring information on activities under this permit, including the following information:

- a. The exact place, date, and time of sampling or measurements;
- b. The person(s) who performed the sampling or measurements;
- c. The dates and times the analyses were performed;
- d. The person(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of all required analyses and measurements.

7. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of

the values required in the Monthly Discharge Monitoring Report and on the Monthly Report of Operation form. Such increased frequency shall also be indicated on these forms. Any such additional monitoring data which indicates a violation of a permit limitation shall be followed up by the permittee, whenever feasible, with a monitoring sample obtained and analyzed pursuant to approved analytical methods. The results of the follow-up sample shall be reported to the Commissioner in the Monthly Discharge Monitoring Report.

8. Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation, shall be retained for a minimum of three (3) years. In cases where the original records are kept at another location, a copy of all such records shall be kept at the permitted facility. The three-year period shall be extended:

- a. automatically during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or regarding promulgated effluent guidelines applicable to the permittee; or
- b. as requested by the Regional Administrator or the Indiana Department of Environmental Management.

C. REOPENING CLAUSES

In addition to the reopening clause provisions cited at 327 IAC 5-2-16, the following reopening clauses are incorporated into this permit:

1. This permit may be modified or, alternately, revoked and reissued after public notice and opportunity for hearing to incorporate effluent limitations reflecting the results of a wasteload allocation if the Department of Environmental Management determines that such effluent limitations are needed to assure that State Water Quality Standards are met in the receiving stream.
2. This permit may be modified due to a change in sludge disposal standards pursuant to Section 405(d) of the Clean Water Act, if the standards when promulgated contain different conditions, are otherwise more stringent, or control pollutants not addressed by this permit.
3. This permit may be modified, or, alternately, revoked and reissued, to comply with any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent limitation or standard so issued or approved:
 - a. contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

- b. controls any pollutant not limited in the permit.
4. This permit may be modified, or alternately, revoked and reissued, after public notice and opportunity for hearing, to include a case-specific Method Detection Level (MDL). The permittee must demonstrate that such action is warranted in accordance with the procedure specified under Appendix B, 40 CFR Part 136, or approved by the Indiana Department of Environmental Management.

PART II

STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. Duty to Comply

The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action or permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

2. Duty to Mitigate

In accordance with 327 IAC 5-2-8(3), the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with this permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine the nature and impact of the noncompliance.

3. Duty to Provide Information

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the facility that:

- a. could significantly change the nature of, or increase the quantity of, pollutants discharged; or
- b. the Commissioner may request to evaluate whether such cause exists.

In accordance with 327 IAC 5-1-3(a)(5), the permittee must also provide any information reasonably requested by the Commissioner.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must obtain and submit a renewal of this permit in accordance with 327 IAC 5-3-2(a)(2). It is the permittee's responsibility to obtain and submit the application. In accordance with 327 IAC 5-2-3(c), the owner of the facility or

operation from which a discharge of pollutants occurs is responsible for applying for and obtaining the NPDES permit, except where the facility or operation is operated by a person other than an employee of the owner in which case it is the operator's responsibility to apply for and obtain the permit. The application must be submitted at least 180 days before the expiration date of this permit. This deadline may be extended if:

- a. permission is requested in writing before such deadline;
- b. IDEM grants permission to submit the application after the deadline; and
- c. the application is received no later than the permit expiration date.

As required under 327 IAC 5-2-3(g)(1) and (2), POTWs with design influent flows equal to or greater than one million (1,000,000) gallons per day and POTWs with an approved pretreatment program or that are required to develop a pretreatment program, will be required to provide the results of whole effluent toxicity testing as part of their NPDES renewal application.

5. Transfers

In accordance with 327 IAC 5-2-8(4)(D), this permit is nontransferable to any person except in accordance with 327 IAC 5-2-6(c). This permit may be transferred to another person by the permittee, without modification or revocation and reissuance being required under 327 IAC 5-2-16(c)(1) or 16(e)(4), if the following occurs:

- a. the current permittee notified the Commissioner at least thirty (30) days in advance of the proposed transfer date.
- b. a written agreement containing a specific date of transfer of permit responsibility and coverage between the current permittee and the transferee (including acknowledgment that the existing permittee is liable for violations up to that date, and the transferee is liable for violations from that date on) is submitted to the Commissioner.
- c. the transferee certifies in writing to the Commissioner their intent to operate the facility without making such material and substantial alterations or additions to the facility as would significantly change the nature or quantities of pollutants discharged and thus constitute cause for permit modification under 327 IAC 5-2-16(d). However, the Commissioner may allow a temporary transfer of the permit without permit modification for good cause, e.g., to enable the transferee to purge and empty the facility's treatment system prior to making alterations, despite the transferee's intent to make such material and substantial alterations or additions to the facility.

- d. the Commissioner, within thirty (30) days, does not notify the current permittee and the transferee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

The Commissioner may require modification or revocation and reissuance of the permit to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act or state law.

6. Permit Actions

In accordance with 327 IAC 5-2-16(b) and 327 IAC 5-2-8(4), this permit may be modified, revoked and reissued, or terminated for cause, including, but not limited to, the following:

- a. Violation of any terms or conditions of this permit;
- b. Failure of the permittee to disclose fully all relevant facts or misrepresentation of any relevant facts in the application, or during the permit issuance process; or
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge controlled by the permittee (e.g., plant closure, termination of the discharge by connecting to a POTW, a change in state law or information indicating the discharge poses a substantial threat to human health or welfare).

Filing of either of the following items does not stay or suspend any permit condition: (1) a request by the permittee for a permit modification, revocation and reissuance, or termination, or (2) submittal of information specified in Part II.A.3 of the permit including planned changes or anticipated noncompliance.

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the permitted facility that:

1. could significantly change the nature of, or increase the quantity of, pollutants discharged; or
2. the commissioner may request to evaluate whether such cause exists.

7. Property Rights

Pursuant to 327 IAC 5-2-8(6) and 327 IAC 5-2-5(b), the issuance of this permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to persons or private property or an invasion of rights, any infringement of federal, state, or local laws or regulations. The issuance of the permit also does not

preempt any duty to obtain any other state, or local assent required by law for the discharge or for the construction or operation of the facility from which a discharge is made.

8. Severability

In accordance with 327 IAC 1-1-3, the provisions of this permit are severable and, if any provision of this permit or the application of any provision of this permit to any person or circumstance is held invalid, the invalidity shall not affect any other provisions or applications of the permit which can be given effect without the invalid provision or application.

9. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Clean Water Act.

10. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act or state law.

11. Penalties for Violation of Permit Conditions

Pursuant to IC 13-30-4, a person who violates any provision of this permit, the water pollution control laws; environmental management laws; or a rule or standard adopted by the Water Pollution Control Board is liable for a civil penalty not to exceed twenty-five thousand dollars (\$25,000) per day of any violation. Pursuant to IC 13-30-5, a person who obstructs, delays, resists, prevents, or interferes with (1) the department; or (2) the department's personnel or designated agent in the performance of an inspection or investigation commits a class C infraction.

Pursuant to IC 13-30-10, a person who intentionally, knowingly, or recklessly violates any provision of this permit, the water pollution control laws or a rule or standard adopted by the Water Pollution Control Board commits a class D felony punishable by the term of imprisonment established under IC 35-50-2-7(a) (up to one year), and/or by a fine of not less than five thousand dollars (\$5,000) and not more than fifty thousand dollars (\$50,000) per day of violation. A person convicted for a violation committed after a first conviction of such person under this provision is subject to a fine of not more than one hundred thousand dollars (\$100,000) per day of violation, or by imprisonment for not more than two (2) years, or both.

12. Penalties for Tampering or Falsification

In accordance with 327 IAC 5-2-8(9), the permittee shall comply with monitoring, recording, and reporting requirements of this permit. The Clean Water Act, as well as IC 13-30-10, provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under a permit shall, upon conviction, be punished by a fine of not more than ten thousand dollars (\$10,000) per violation, or by imprisonment for not more than one hundred eighty (180) days per violation, or by both.

13. Toxic Pollutants

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act for a toxic pollutant injurious to human health, and that standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition in accordance with 327 IAC 5-2-8(5). Effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants injurious to human health are effective and must be complied with, if applicable to the permittee, within the time provided in the implementing regulations, even absent permit modification.

14. Operator Certification

The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7. The permittee shall designate one (1) person as the certified operator with complete responsibility for the proper operations of the wastewater facility.

327 IAC 5-22-10.5(a) provides that a certified operator may be designated as being in responsible charge of more than one (1) wastewater treatment plant, if it can be shown that he will give adequate supervision to all units involved. Adequate supervision means that sufficient time is spent at the plant on a regular basis to assure that the certified operator is knowledgeable of the actual operations and that test reports and results are representative of the actual operations conditions. In accordance with 327 IAC 5-22-3(11), "responsible charge" means the person responsible for the overall daily operation, supervision, or management of a wastewater facility.

Pursuant to 327 IAC 5-22-10(4), the permittee shall notify IDEM when there is a change of the person serving as the certified operator in responsible charge of the wastewater treatment facility. The notification shall be made no later than thirty (30) days after a change in the operator.

15. Construction Permit

Except in accordance with 327 IAC 3, the permittee shall not construct, install, or modify any water pollution treatment/control facility as defined in 327 IAC 3-1-2(24). Upon completion of any construction, the permittee must notify the Compliance Data Section of the Office of Water Quality in writing.

16. Inspection and Entry

In accordance with 327 IAC 5-2-8(7), the permittee shall allow the Commissioner, or an authorized representative, (including an authorized contractor acting as a representative of the Commissioner) upon the presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a point source, regulated facility, or activity is located or conducted, or where records must be kept pursuant to the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment or methods (including monitoring and control equipment), practices, or operations regulated or required pursuant to this permit; and
- d. Sample or monitor at reasonable times, any discharge of pollutants or internal wastestreams for the purposes of evaluating compliance with the permit or as otherwise authorized.

17. New or Increased Discharge of Pollutants

This permit prohibits the permittee from undertaking any action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless one of the following is completed prior to the commencement of the action:

- a. Information is submitted to the Commissioner demonstrating that the proposed new or increased discharges will not cause a significant lowering of water quality as defined under 327 IAC 2-1.3-2(50). Upon review of this information, the Commissioner may request additional information or may determine that the proposed increase is a significant lowering of water quality and require the submittal of an antidegradation demonstration.
- b. An antidegradation demonstration is submitted to and approved by the Commissioner in accordance with 327 IAC 2-1.3-5 and 327 IAC 2-1.3-6.

B. MANAGEMENT REQUIREMENTS

1. Facility Operation, Maintenance and Quality Control

- a. In accordance with 327 IAC 5-2-8(8), the permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for collection and treatment that are:

- (1) installed or used by the permittee; and

- (2) necessary for achieving compliance with the terms and conditions of the permit.

Neither 327 IAC 5-2-8(8), nor this provision, shall be construed to require the operation of installed treatment facilities that are unnecessary for achieving compliance with the terms and conditions of the permit. Taking redundant treatment units off line does not violate the bypass provisions of the permit, provided that the permittee is at all times: maintaining in good working order and efficiently operating all facilities and systems; providing best quality effluent; and achieving compliance with the terms and conditions of the permit.

- b. The permittee shall operate the permitted facility in a manner which will minimize upsets and discharges of excessive pollutants. The permittee shall properly remove and dispose of excessive solids and sludges.
- c. The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit.
- d. Maintenance of all waste collection, control, treatment, and disposal facilities shall be conducted in a manner that complies with the bypass provisions set forth below.
- e. Any extensions to the sewer system must continue to be constructed on a separated basis. Plans and specifications, when required, for extension of the sanitary system must be submitted to the Facility Construction and Engineering Support Section, Office of Water Quality in accordance with 327 IAC 3-2-1. There shall also be an ongoing preventative maintenance program for the sanitary sewer system.

2. Bypass of Treatment Facilities

Pursuant to 327 IAC 5-2-8(11):

- a. Terms as defined in 327 IAC 5-2-8(11)(A):

- (1) "Bypass" means the intentional diversion of a waste stream from any portion of a treatment facility.

- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b. Bypasses, as defined above, are prohibited, and the Commissioner may take enforcement action against a permittee for bypass, unless:
 - (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, as defined above;
 - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and
 - (3) The permittee submitted notices as required under Part II.B.2.d; or
 - (4) The condition under Part II.B.2.f below is met.
- c. Bypasses that result in death or acute injury or illness to animals or humans must be reported in accordance with the "Spill Response and Reporting Requirements" in 327 IAC 2-6.1, including calling 888/233-7745 as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the bypass are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.
- d. The permittee must provide the Commissioner with the following notice:
 - (1) If the permittee knows or should have known in advance of the need for a bypass (anticipated bypass), it shall submit prior written notice. If possible, such notice shall be provided at least ten (10) days before the date of the bypass for approval by the Commissioner.
 - (2) The permittee shall orally report or fax a report of an unanticipated bypass within 24 hours of becoming aware of the bypass event. The permittee must also provide a written report within five (5) days of the time the permittee becomes aware of the bypass event. The written report must contain a description of the noncompliance (i.e. the bypass) and its cause; the period of noncompliance, including exact dates and times; if the cause of noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the bypass event. If a

complete fax or email submittal is sent within 24 hours of the time that the permittee became aware of the unanticipated bypass event, then that report will satisfy both the oral and written reporting requirement.

- e. The Commissioner may approve an anticipated bypass, after considering its adverse effects, if the Commissioner determines that it will meet the conditions listed above in Part II.B.2.b. The Commissioner may impose any conditions determined to be necessary to minimize any adverse effects.
- f. The permittee may allow any bypass to occur that does not cause a violation of the effluent limitations in the permit, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part II.B.2.b.,d and e of this permit.

3. Upset Conditions

Pursuant to 327 IAC 5-2-8(12):

- a. “Upset” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph c of this subsection, are met.
- c. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, that:
 - (1) An upset occurred and the permittee has identified the specific cause(s) of the upset;
 - (2) The permitted facility was at the time being operated in compliance with proper operation and maintenance procedures;
 - (3) The permittee complied with any remedial measures required under “Duty to Mitigate”, Part II.A.2; and
 - (4) The permittee submitted notice of the upset as required in the “Incident Reporting Requirements,” Part II.C.3, or 327 IAC 2-6.1, whichever is applicable. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

- d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof pursuant to 40 CFR 122.41(n)(4).

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed from or resulting from treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State and to be in compliance with all Indiana statutes and regulations relative to liquid and/or solid waste disposal.

- a. Collected screenings, slurries, sludges, and other such pollutants shall be disposed of in accordance with provisions set forth in 329 IAC 10, 327 IAC 6.1, or another method approved by the Commissioner.
- b. The permittee shall comply with existing federal regulations governing solids disposal, and with applicable provisions of 40 CFR Part 503, the federal sludge disposal regulation standards.
- c. The permittee shall notify the Commissioner prior to any changes in sludge use or disposal practices.
- d. The permittee shall maintain records to demonstrate its compliance with the above disposal requirements.

5. Power Failures

In accordance with 327 IAC 5-2-10 and 327 IAC 5-2-8(13) in order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

- a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, or
- b. shall halt, reduce or otherwise control all discharge in order to maintain compliance with the effluent limitations and conditions of this permit upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit.

6. Unauthorized Discharge

Any overflow or release of sanitary wastewater from the wastewater treatment facilities or collection system that results in a discharge to waters of the state and is not specifically authorized by this permit is expressly prohibited. These discharges are subject to the reporting requirements in Part II.C.3 of this permit.

C. REPORTING REQUIREMENTS

1. Planned Changes in Facility or Discharge

Pursuant to 327 IAC 5-2-8(10)(F) and 5-2-16(d), the permittee shall give notice to the Commissioner as soon as possible of any planned alterations or additions to the facility (which includes any point source) that could significantly change the nature of, or increase the quantity of, pollutants discharged. Following such notice, the permit may be modified to revise existing pollutant limitations and/or to specify and limit any pollutants not previously limited. Material and substantial alterations or additions to the permittee's operation that were not covered in the permit (e.g., production changes, relocation or combination of discharge points, changes in the nature or mix of products produced) are also cause for modification of the permit. However those alterations which constitute total replacement of the process or the production equipment causing the discharge converts it into a new source, which requires the submittal of a new NPDES application.

2. Monitoring Reports

Pursuant to 327 IAC 5-2-8(9), 327 IAC 5-2-13, and 327 IAC 5-2-15, monitoring results shall be reported at the intervals and in the form specified in "Data On Plant Operation", Part I.B.2.

3. Incident Reporting Requirements

Pursuant to 327 IAC 5-2-8(10) and 327 IAC 5-1-3, the permittee shall orally report to the Commissioner information on the following incidents within 24 hours from the time permittee becomes aware of such occurrence. If the incident meets the emergency criteria of item b (Part II.C.3.b) or 327 IAC 2-6.1, then the report shall be made as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

- a. Any unanticipated bypass which exceeds any effluent limitation in the permit;
- b. Any emergency incident which may pose a significant danger to human health or the environment. Reports under this item shall be made as soon as the permittee becomes aware of the incident by calling 317/233-7745 (888/233-7745 toll free in Indiana). This number should only be called when reporting these emergency events;

- c. Any upset (as defined in Part II.B.3 above) that exceeds any technology-based effluent limitations in the permit;
- d. Any release, including basement backups, from the sanitary sewer system (including satellite sewer systems operated or maintained by the permittee) not specifically authorized by this permit. Reporting of known releases from private laterals not caused by a problem in the sewer system owned or operated by the permittee is not required under Part II.C.3, however, documentation of such events must be maintained by the permittee and available for review by IDEM staff; or
- e. Any discharge from any outfall from which discharge is explicitly prohibited by this permit as well as any discharge from any other outfall or point not listed in this permit.

The permittee can make the oral reports by calling 317/232-8670 during regular business hours. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. For incidents involving effluent limit violations or discharges, the written submission shall contain: a description of the event and its cause; the period of occurrence, including exact dates and times, and, if the event has not concluded, the anticipated time it is expected to continue; and steps taken or planned to reduce, mitigate and eliminate the event and steps taken or planned to prevent its recurrence. For sewer releases which do not meet the definition of a discharge, the written submission shall contain: a description of the event and its believed cause; the period of occurrence; and any steps taken or planned to mitigate the event and steps taken or planned to prevent its recurrence. The permittee may submit a "Bypass Overflow/Incident Report" or a "Noncompliance Notification Report", whichever is applicable, to IDEM at 317/232-8637 or 317/232-8406 or to wwreports@idem.IN.gov. If a complete fax or email submittal is sent within 24 hours of the time that the permittee became aware of the occurrence, then that report will satisfy both the oral and written reporting requirements.

4. Other Noncompliance

Pursuant to 327 IAC 5-2-8(10)(D), the permittee shall report any instance of noncompliance not reported under the "Incident Reporting Requirements" in Part II.C.3 at the time the pertinent Discharge Monitoring Report is submitted. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent the noncompliance.

5. Other Information

Pursuant to 327 IAC 5-2-8(10)(E), where the permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or in any report to the Commissioner, the permittee shall promptly submit such facts or corrected information to the Commissioner.

6. Signatory Requirements

Pursuant to 327 IAC 5-2-22 and 327 IAC 5-2-8(14):

- a. All reports required by the permit and other information requested by the Commissioner shall be signed and certified by a person described below or by a duly authorized representative of that person:
 - (1) For a corporation: by a principal executive defined as a president, secretary, treasurer, any vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making functions for the corporation or the manager of one or more manufacturing, production, or operating facilities employing more than two hundred fifty (250) persons or having gross annual sales or expenditures exceeding twenty-five million dollars (\$25,000,000) (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
 - (3) For a federal, state, or local governmental body or any agency or political subdivision thereof: by either a principal executive officer or ranking elected official.
- b. A person is a duly authorized representative only if:
 - (1) The authorization is made in writing by a person described above.
 - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and
 - (3) The authorization is submitted to the Commissioner.
- c. Certification. Any person signing a document identified under paragraphs a and b of this section, shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

7. Availability of Reports

Except for data determined to be confidential under 327 IAC 12.1, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Indiana Department of Environmental Management and the Regional Administrator. As required by the Clean Water Act, permit applications, permits, and effluent data shall not be considered confidential.

8. Penalties for Falsification of Reports

IC 13-30 and 327 IAC 5-2-8(14) provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 180 days per violation, or by both.

9. Progress Reports

In accordance with 327 IAC 5-2-8(10)(A), reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.

10. Advance Notice for Planned Changes

In accordance with 327 IAC 5-2-8(10)(B), the permittee shall give advance notice to IDEM of any planned changes in the permitted facility, any activity, or other circumstances that the permittee has reason to believe may result in noncompliance with permit requirements.

11. Additional Requirements for POTWs and/or Treatment Works Treating Domestic Sewage

- a. All POTWs shall identify, in terms of character and volume of pollutants, any significant indirect discharges into the POTW which are subject to pretreatment standards under section 307(b) and 307 (c) of the CWA.

- b. All POTWs must provide adequate notice to the Commissioner of the following:
- (1) Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to section 301 or 306 of the CWA if it were directly discharging those pollutants.
 - (2) Any substantial change in the volume or character of pollutants being introduced into that POTW by any source where such change would render the source subject to pretreatment standards under section 307(b) or 307(c) of the CWA or would result in a modified application of such standards.

As used in this clause, “adequate notice” includes information on the quality and quantity of effluent introduced into the POTW, and any anticipated impact of the change on the quantity or quality of the effluent to be discharged from the POTW.

- c. This permit incorporates any conditions imposed in grants made by the U.S. EPA and/or IDEM to a POTW pursuant to Sections 201 and 204 of the Clean Water Act, that are reasonably necessary for the achievement of effluent limitations required by Section 301 of the Clean Water Act.
- d. This permit incorporates any requirements of Section 405 of the Clean Water Act governing the disposal of sewage sludge from POTWs or any other treatment works treating domestic sewage for any use for which rules have been established in accordance with any applicable rules.
- e. POTWs must develop and submit to the Commissioner a POTW pretreatment program when required by 40 CFR 403 and 327 IAC 5-19-1, in order to assure compliance by industrial users of the POTW with applicable pretreatment standards established under Sections 307(b) and 307(c) of the Clean Water Act. The pretreatment program shall meet the criteria of 327 IAC 5-19-3 and, once approved, shall be incorporated into the POTW’s NPDES permit.

D. ADDRESSES

1. Cashiers Office

Indiana Department of Environmental Management
Cashiers Office – Mail Code 50-10C
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Cashiers Office:

- a. NPDES permit applications (new, renewal or modifications) with fee
- b. Construction permit applications with fee

2. Municipal NPDES Permits Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Municipal NPDES Permits Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Municipal NPDES Permits Section:

- a. Preliminary Effluent Limits request letters
- b. Comment letters pertaining to draft NPDES permits
- c. NPDES permit transfer of ownership requests
- d. NPDES permit termination requests
- e. Notifications of substantial changes to a treatment facility, including new industrial sources
- f. Combined Sewer Overflow (CSO) Operational Plans
- g. CSO Long Term Control Plans (LTCP)
- h. Stream Reach Characterization and Evaluation Reports (SRCER)

3. Compliance Data Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Compliance Data Section:

- a. Discharge Monitoring Reports (DMRs)
- b. Monthly Reports of Operation (MROs)
- c. Monthly Monitoring Reports (MMRs)
- d. CSO MROs
- e. Gauging station and flow meter calibration documentation

- f. Compliance schedule progress reports
- g. Completion of Construction notifications
- h. Whole Effluent Toxicity Testing reports
- i. Toxicity Reduction Evaluation (TRE) plans and progress reports
- j. Bypass/Overflow Reports
- k. Anticipated Bypass/Overflow Reports
- l. Streamlined Mercury Variance Annual Reports

4. Pretreatment Group

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section – Pretreatment Group
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Pretreatment Group:

- a. Organic Pollutant Monitoring Reports
- b. Significant Industrial User (SIU) Quarterly Noncompliance Reports
- c. Pretreatment Program Annual Reports
- d. Sewer Use Ordinances
- e. Enforcement Response Plans (ERP)
- f. Sludge analytical results

Briefing Memo
December 2014

Chimneywood Wastewater Treatment Plant

Located located $\frac{3}{4}$ mile west of U.S. 150 and $\frac{1}{2}$ mile north of Old Vincennes Road Junction, in
Floyds Knobs, Indiana, Floyd County

| | | |
|-------------------------|------------|---------------|
| <u>Outfall Location</u> | Latitude: | 38° 19' 41" N |
| | Longitude: | 85° 54' 32" W |

NPDES Permit No. IN0050181

Background

This is the proposed renewal of the NPDES permit for the Chimneywood Wastewater Treatment Plant which was issued on April 23, 2010, and has an expiration date of June 30, 2015. The permittee submitted an application for renewal which was received on December 17, 2014. The permittee currently operates a Class I, 0.0103 MGD extended aeration treatment facility consisting of an influent bar screen, a flow equalization tank, an aeration tank, a secondary clarifier, an effluent flow meter, chlorination/dechlorination facilities, and an aerobic digester. Final sludge is hauled off-site.

Collection System

The collection system is comprised of 100% separate sanitary sewers by design with no overflow or bypass points.

Spill Reporting Requirements

Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.c. and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the applicability requirements of 327 IAC 2-6.1-1, and the Reportable Spills requirements of 327 IAC 2-6.1-5 (other than those meeting an exclusion under 327 IAC 2-6.1-3 or the criteria outlined below) are subject to the Reporting Responsibilities of 327 IAC 2-6.1-7.

It should be noted that the reporting requirements of 327 IAC 2-6.1 do not apply to those discharges or exceedences that are under the jurisdiction of an applicable permit when the substance in question is covered by the permit and death or acute injury or illness to animals or humans does not occur. In order for a discharge or exceedence to be under the jurisdiction of this NPDES permit, the substance in question (a) must have been discharged in the normal course of operation from an outfall listed in this permit, and (b) must have been discharged from an outfall for which the permittee has authorization to discharge that substance.

Solids Disposal

The permittee is required to dispose of its sludge in accordance with 329 IAC 10, 327 IAC 6.1, or 40 CFR Part 503.

Receiving Stream

The facility discharges to an unnamed tributary to Little Indian Creek to Indian Creek via Outfall 001. The receiving water has a seven day, ten year low flow ($Q_{7,10}$) of 0.0 cubic feet per second at the outfall location. The receiving stream is designated for full body contact recreational use and shall be capable of supporting a well-balanced warm water aquatic community in accordance with 327 IAC 2-1.

Industrial Contributions

There is no industrial flow to the wastewater treatment plant. This NPDES permit does not authorize the facility to accept industrial contributions until the permittee has provided the Indiana Department of Environmental Management with a characterization of the waste, including volume amounts, and this Office has determined whether effluent limitations are needed to ensure the State water quality standards are met in the receiving stream.

Antidegradation

327 IAC 2-1.3 outlines the state's Antidegradation Standards and Implementation Procedures. The Tier 1 antidegradation standard found in 327 IAC 2-1.3-3(a) applies to all surface waters of the state regardless of their existing water quality. Based on this standard, for all surface waters of the state, existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. IDEM implements the Tier 1 antidegradation standard by requiring NPDES permits to contain effluent limits and best management practices for regulated pollutants that ensure the narrative and numeric water quality criteria applicable to the designated use are achieved in the water and any designated use of the downstream water is maintained and protected.

The Tier 2 antidegradation standard found in 327 IAC 2-1.3-3(b) applies to surface waters of the state where the existing quality for a parameter is better than the water quality criterion for that parameter established in 327 IAC 2-1-6. These surface waters are considered high quality for the parameter and this high quality shall be maintained and protected unless the commissioner finds that allowing a significant lowering of water quality is necessary and accommodates important social or economic development in the area in which the waters are located. IDEM implements the Tier 2 antidegradation standard for regulated pollutants with numeric water quality criteria quality adopted in or developed pursuant to 327 IAC 2-1 and utilizes the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6.

According to 327 IAC 2-1.3-1(b), the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6 apply to a proposed new or increased loading of a regulated pollutant to surface waters of the state from a deliberate activity subject to the Clean Water Act, including a change in process or operation that will result in a significant lowering of water quality.

The NPDES permit does not propose to establish a new or increased loading of a regulated pollutant; therefore, the Antidegradation Implementation Procedures in 327 IAC 2-1.3-5 and 2-1.3-6 do not apply to the permitted discharge.

Effluent Limitations and Rationale

The effluent limitations proposed herein are based on Indiana Water Quality Standards, NPDES regulations, and the Small Sanitary Discharger Rule in 327 IAC 5-10-5. These limits are in accordance with antibacksliding regulations specified in 327 IAC 5-2-10(11)(A). Monitoring frequencies are based upon facility size and type.

The final effluent limitations to be limited and/or monitored include: Flow, Carbonaceous Biochemical Oxygen Demand (CBOD₅), Total Suspended Solids (TSS), Ammonia-nitrogen (NH₃-N), pH, Dissolved Oxygen (DO), Total Residual Chlorine (TRC), and *Escherichia coli* (*E. coli*).

Final Effluent Limitations

The summer monitoring period runs from May 1 through November 30 of each year and the winter monitoring period runs from December 1 through April 30 of each year. The disinfection season runs from April 1 through October 31 of each year.

The mass limits for CBOD₅, TSS, and ammonia-nitrogen are calculated by multiplying the average design flow (in MGD) by the corresponding concentration value and by 8.345.

Influent Monitoring

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation Form, as appropriate, in accordance with 327 IAC 5-2-13 and Part I.B.2 of the permit. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by the permit.

Flow

Flow is to be measured five (5) times weekly as a 24-hour total. Reporting of flow is required by 327 IAC 5-2-13.

CBOD₅

CBOD₅ is limited to 15 mg/l (1.3 lbs/day) as a monthly average and 23 mg/l (2.0 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, CBOD₅ is limited to 25 mg/l (2.1 lbs/day) as a monthly average and 40 mg/l (3.4 lbs/day) as a weekly average. The permit requires a monthly average percent removal of not less than 85%. The percent removal is to be calculated from a comparison of raw influent to final effluent sampling results and is to be reported as a monthly average.

Monitoring is to be conducted weekly by grab sampling. The CBOD₅ concentration limitations included in this permit are set in accordance with 327 IAC 5-10-5, and are the same as the concentration limitations found in the facility's previous permit. The 85% removal requirement is included in accordance with 40 CFR 133.102 and is a new requirement for this facility.

TSS

TSS is limited to 18 mg/l (1.5 lbs/day) as a monthly average and 27 mg/l (2.3 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, TSS is limited to 30 mg/l (2.6 lbs/day) as a monthly average and 45 mg/l (3.9 lbs/day) as a weekly average. The permit requires a monthly average percent removal of not less than 85%. The percent removal is to be calculated from a comparison of raw influent to final effluent sampling results and is to be reported as a monthly average.

Monitoring is to be conducted weekly by grab sampling. The TSS concentration limitations included in this permit are set in accordance with 327 IAC 5-10-5, and are the same as the concentration limitations found in the facility's previous permit. The 85% removal requirement is included in accordance with 40 CFR 133.102 and is a new requirement for this facility.

Ammonia-nitrogen

Ammonia-nitrogen is limited to 1.1 mg/l (0.10 lbs/day) as a monthly average and 1.7 mg/l (0.15 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, ammonia-nitrogen is limited to 1.6 mg/l (0.14 lbs/day) as a monthly average and 2.4 mg/l (0.21 lbs/day) as a weekly average.

Monitoring is to be conducted weekly by grab sampling. The ammonia-nitrogen concentration limitations included in this permit are set in accordance with 327 IAC 5-10-5, and are the same as the concentration limitations found in the facility's previous permit.

pH

The pH limitations have been based on 40 CFR 133.102 which is cross-referenced in 327 IAC 5-5-3.

To ensure conditions necessary for the maintenance of a well-balanced aquatic community, the pH of the final effluent must be between 6.0 and 9.0 standard units in accordance with provisions in 327 IAC 2-1-6(b)(2).

pH must be measured two (2) times weekly by grab sampling. These pH limitations are the same as the limitations found in the facility's previous permit.

Dissolved Oxygen

Dissolved oxygen shall not fall below 6.0 mg/l as a daily minimum average during the summer monitoring period. During the winter monitoring period, dissolved oxygen shall not fall below 5.0 mg/l as a daily minimum average.

These dissolved oxygen limitations are based on the 327 IAC 5-10-5, and are the same as the concentration limitations found in the facility's previous permit. Dissolved oxygen measurements must be based on the average of two (2) grab samples taken within a 24-hr. period. This monitoring is to be conducted two (2) times weekly.

Total Residual Chlorine

Disinfection of the effluent is required from April 1 through October 31, annually.

The chlorine residual shall be maintained at a concentration not less than 0.5 mg/l as measured at the effluent end of the chlorine contact tank for the term of the permit. The daily maximum chlorine residual value at the chlorine contact tank shall also be reported.

Effluent dechlorination will be required in order to protect aquatic life. In accordance with Indiana Water Quality Standards, the final effluent limits (end-of-pipe) for TRC are 0.01 mg/l monthly average and 0.02 mg/l daily maximum. Compliance will be demonstrated if the observed effluent concentrations are less than the limit of quantitation (0.06 mg/l). Disinfection requirements are established in 327 IAC 5-10-6. This monitoring is to be conducted two (2) times weekly by grab sampling.

E. coli

The *E. coli* limitations and monitoring requirements apply from April 1 through October 31, annually. *E. coli* is limited to 125 count/100 ml as a monthly average, and 235 count/100 ml as a daily maximum. The monthly average *E. coli* value shall be calculated as a geometric mean.

This monitoring is to be conducted weekly by grab sampling. These *E. coli* limitations are set in accordance with regulations specified in 327 IAC 5-10-6.

Backsliding

None of the concentration limits included in this permit conflict with antibacksliding regulations found in 327 IAC 5-2-10(11), therefore, backsliding is not an issue.

Reopening Clauses

Four reopening clauses were incorporated into the permit in Part I.C. One clause is to incorporate effluent limits from any further wasteload allocations performed; a second clause is to allow for changes in the sludge disposal standards; a third clause is to incorporate any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act; and a fourth clause is to include a case-specific Method Detection Level (MDL).

Compliance Status

The permittee has no enforcement actions at the time of this permit preparation.

Expiration Date

A five-year NPDES permit is proposed.

Drafted by: Jason House
December 2014

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO: 2015 – 3A – F
DATE OF NOTICE: MARCH 4, 2015

The Office of Water Quality issues the following NPDES FINAL PERMIT.

MINOR – RENEWAL

CHIMNEYWOOD WWTP, Permit No. IN0050181, FLOYD COUNTY, Luther Rd & US 150, Floyds Knobs, IN. This semi-public facility discharges 0.0103 million gallons daily of sanitary wastewater into unnamed tributaries to Little Indian Creek. Permit Manager: Jason House, 317/233-0470, jahouse@idem.in.gov.

APPEAL PROCEDURES FOR FINAL PERMITS

The Final Permits are available for review & copies at IDEM, Indiana Government Center, North Bldg, 100 N Senate Ave, Indianapolis, IN, Rm 1203, Office of Water Quality/NPDES Permit Section, from 9 – 4, M - F (copies 10¢ per page). Each Final Permit is available at the respective, local County Health Department. . See these sites for your rights & responsibilities: Public Participation: <http://www.in.gov/idem/5474.htm>; Citizen Guide: <http://www.in.gov/idem/5903.htm>. **Please tell others you think would be interested in this matter**

Appeal Procedure: Any person affected by the issuance of the Final Permit may appeal by filing a Petition for Administrative Review with the Office of Environmental Adjudication within eighteen (18) days of the date of this Public Notice. Any appeal request must be filed in accordance with IC 4-21.5-3-7 and must include facts demonstrating that the party requesting appeal is the applicant; a person aggrieved or adversely affected or is otherwise entitled to review by law.

Timely filing: The Petition for Administrative Review must be received by the Office of Environmental Adjudication (OEA) within 18 days of the date of this Public Notice; either by U.S. Mail postmark or by private carrier with dated receipt. This Petition for Administrative Review represents a request for an Adjudicatory Hearing, therefore must:

- state the name and address of the person making the request;
- identify the interest of the person making the request;
- identify any persons represented by the person making the request;
- state specifically the reasons for the request;
- state specifically the issues proposed for consideration at the hearing;
- identify the Final Permit Rule terms and conditions which, in the judgment of the person making the request, would be appropriate to satisfy the requirements of the law governing this NPDES Permit rule.

If the person filing the Petition for Administrative Review desires any part of the NPDES Final Permit Rule to be stayed pending the outcome of the appeal, a Petition for Stay must be included in the appeal request, identifying those parts to be stayed. Both Petitions shall be mailed or delivered to the address here:
Phone: 317/232-8591.

Environmental Law Judge
Office of Environmental Adjudication
IGC – North Building- Rm 501
100 N. Senate Avenue
Indianapolis IN 46204

Stay Time frame: If the Petition (s) is filed within eighteen (18) days of the mailing of this Public Notice, the effective date of any part of the permit, within the scope of the Petition for Stay is suspended for fifteen (15) days. The Permit will become effective again upon expiration of the fifteen (15) days, unless or until an Environmental Law Judge stays the permit action in whole or in part.

Hearing Notification: Pursuant to Indiana Code, when a written request is submitted, the OEA will provide the petitioner or any person wanting notification, with the Notice of pre-hearing conferences, preliminary hearings, hearing stays or orders disposing of the Petition for Administrative Review. Petition for Administrative Review must be filed in compliance with the procedures and time frames outlined above. Procedural or scheduling questions should be directed to the OEA at the phone listed above.



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204

(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Carol S. Comer
Commissioner

VIA ELECTRONIC MAIL

February 17, 2016

Mr. Thomas Bruns, President
Aqua Indiana, Inc.
5750 Castle Creek Parkway North Drive
Suite 314
Indianapolis, Indiana 46250

Dear Mr. Bruns:

Re: Draft Modification: Permit No. IN0052019
Galena Wastewater Treatment Plant
Floyd County

Your request for permit modification, submitted January 21, 2016, has been reviewed and processed in accordance with rules adopted under 327 IAC 5. Enclosed is the draft modification of NPDES Permit No. IN0052019 which applies to the discharge from the Galena Wastewater Treatment Plant (WWTP). The enclosed Page 1 of 27 is intended to replace the corresponding page in the facility's current permit. The modification reflects the change of ownership of the treatment plant from Wastewater One, LLC to Aqua Indiana, Inc.

Pursuant to IC 13-15-5-1, a general notice will be published in the newspaper with the largest general circulation within Floyd County. A 30-day comment period is available in order to solicit input from interested parties, including the general public.

Please review this document carefully and become familiar with the proposed terms and conditions. Comments concerning the draft permit should be submitted in accordance with the procedure outlined in the enclosed public notice form. If you have any questions concerning this modification, please contact John Donnellan at 317/234-0865.

Sincerely,

Jerry Dittmer, Chief
Municipal NPDES Permits Section
Office of Water Quality

Enclosures

cc: Steve Tolliver



Mr. Stephen Tolliver, President
Page 2

Please note that this permit issuance can be appealed. An appeal must be filed under procedures outlined in IC 13-15-6, IC 4-21.5, and the enclosed public notice. The appeal must be initiated by you within 18 days from the date this letter is postmarked, by filing a request for an adjudicatory hearing with the Office of Environmental Adjudication (OEA), at the following address:

Office of Environmental Adjudication
Indiana Government Center North
100 North Senate Avenue, Room 501
Indianapolis, IN 46204

Please send a copy of any such appeal to me at IDEM, Office of Water Quality-Mail Code 65-42, 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.

The permit should be read and studied. It requires certain action at specific times by you, the discharger, or your authorized representative. One copy of this permit is also being sent to your operator to be kept at the treatment facility. You may wish to call this permit to the attention of your consulting engineer and/or attorney.

If you have any questions concerning your NPDES permit, please contact John Donnellan at 317/234-0865. Questions concerning appeal procedures should be directed to the Office of Environmental Adjudication, at 317/232-8591.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Higginbotham", with a long horizontal flourish extending to the right.

Paul Higginbotham, Chief
Permits Branch
Office of Water Quality

Enclosures

cc: Lowell Howard, Certified Operator

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AMENDED AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq., the "Act"), Title 13 of the Indiana Code, and regulations adopted by the Water Pollution Control Board, the Indiana Department of Environmental Management (IDEM) is issuing this permit to

AQUA INDIANA, INC.

hereinafter referred to as "the permittee." The permittee owns and/or operates the **Galena Wastewater Treatment Plant**, a minor municipal wastewater treatment plant located at 6651 Highway 150, Floyd Knobs, Indiana, Floyd County. The permittee is hereby authorized to discharge from the outfalls identified in Part I of this permit to receiving waters consisting of an unnamed tributary to Little Indian Creek in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in the permit. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

The permit, as issued on April 16, 2015 is hereby amended as contained herein. The amended provisions shall become effective _____. All terms and conditions of the permit not modified at this time remain in effect. Further, any existing condition or term affected by the modifications will remain in effect until the modified provisions become effective.

This permit and authorization to discharge, as amended, shall expire at midnight, September 30, 2020. In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and forms as are required by the Indiana Department of Environmental Management no later than 180 days prior to the date of expiration.

Issued on _____ for the Indiana Department of
Environmental Management.

Paul Higginbotham
Deputy Assistant Commissioner
Office of Water Quality

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq., the "Act"), Title 13 of the Indiana Code, and regulations adopted by the Water Pollution Control Board, the Indiana Department of Environmental Management (IDEM) is issuing this permit to

AQUA UTILITY SERVICES, LLC

hereinafter referred to as "the permittee." The permittee owns and/or operates the **Galena Wastewater Treatment Plant**, a minor municipal wastewater treatment plant located at 6651 Highway 150, Floyd Knobs, Indiana, Floyd County. The permittee is hereby authorized to discharge from the outfalls identified in Part I of this permit to receiving waters consisting of an unnamed tributary to Little Indian Creek in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in the permit. This permit may be revoked for the nonpayment of applicable fees in accordance with IC 13-18-20.

Effective Date: October 1, 2015

Expiration Date: September 30, 2020

In order to receive authorization to discharge beyond the date of expiration, the permittee shall submit such information and application forms as are required by the Indiana Department of Environmental Management. The application shall be submitted to IDEM at least 180 days prior to the expiration date of this permit, unless a later date is allowed by the Commissioner in accordance with 327 IAC 5-3-2 and Part II.A.4 of this permit.

Issued April 16, 2015 for the Indiana Department of Environmental Management.



Paul Higginbotham, Chief
Permits Branch
Office of Water Quality

TREATMENT FACILITY DESCRIPTION

The permittee currently operates a Class I, 0.037 MGD extended aeration treatment facility consisting of a flow equalization tank, an aerobic digester, an aeration tank, a clarifier, chlorination/dechlorination facilities, an effluent flow meter, and a post aeration unit. Final solids are hauled off site.

The collection system is comprised of 100% separate sanitary sewers by design with no overflow or bypass points.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from the outfall listed below in accordance with the terms and conditions of this permit. The permittee shall take samples and measurements at a location representative of each discharge to determine whether the effluent limitations have been met. Refer to Part I.B of this permit for additional monitoring and reporting requirements.

1. Beginning on the effective date of this permit, the permittee is authorized to discharge from Outfall 001, which is located at Latitude: 38° 20' 54" N, Longitude: 85° 55' 48" W. The discharge is subject to the following requirements:

TABLE 1

| <u>Parameter</u> | <u>Quantity or Loading</u> | | | <u>Quality or Concentration</u> | | | <u>Monitoring Requirements</u> | |
|-------------------|----------------------------|-----------------------|--------------|---------------------------------|-----------------------|--------------|--------------------------------|--------------------|
| | <u>Monthly Average</u> | <u>Weekly Average</u> | <u>Units</u> | <u>Monthly Average</u> | <u>Weekly Average</u> | <u>Units</u> | <u>Measurement Frequency</u> | <u>Sample Type</u> |
| Flow [1] | Report | ---- | MGD | ---- | ---- | ---- | 5 X Weekly | 24-Hr. Total |
| CBOD ₅ | | | | | | | | |
| Summer [2] | 4.6 | 7.1 | lbs/day | 15 [4] | 23 | mg/l | 1 X Weekly | Grab |
| Winter [3] | 7.7 | 12.4 | lbs/day | 25 [4] | 40 | mg/l | 1 X Weekly | Grab |
| TSS | | | | | | | | |
| Summer [2] | 5.6 | 8.3 | lbs/day | 18 [4] | 27 | mg/l | 1 X Weekly | Grab |
| Winter [3] | 9.3 | 13.9 | lbs/day | 30 [4] | 45 | mg/l | 1 X Weekly | Grab |
| Ammonia-nitrogen | | | | | | | | |
| Summer [2] | 0.34 | 0.49 | lbs/day | 1.1 | 1.6 | mg/l | 1 X Weekly | Grab |
| Winter [3] | 0.49 | 0.74 | lbs/day | 1.6 | 2.4 | mg/l | 1 X Weekly | Grab |

TABLE 2

| <u>Parameter</u> | <u>Quality or Concentration</u> | | | | <u>Monitoring Requirements</u> | |
|-----------------------------|---------------------------------|------------------------|----------------------|--------------|--------------------------------|--------------------|
| | <u>Daily Minimum</u> | <u>Monthly Average</u> | <u>Daily Maximum</u> | <u>Units</u> | <u>Measurement Frequency</u> | <u>Sample Type</u> |
| pH [5] | 6.0 | ---- | 9.0 | s.u. | 2 X Weekly | Grab |
| Dissolved Oxygen [6] | | | | | | |
| Summer [2] | 6.0 | ---- | ---- | mg/l | 2 X Weekly | 2 Grabs/24-Hrs. |
| Winter [3] | 5.0 | ---- | ---- | mg/l | 2 X Weekly | 2 Grabs/24-Hrs. |
| Total Residual Chlorine [7] | | | | | | |
| Contact Tank [8] | 0.5 | ---- | Report | mg/l | 2 X Weekly | Grab |
| Final Effluent [9] | ---- | 0.01 | 0.02 | mg/l | 2 X Weekly | Grab |
| <i>E. coli</i> [10] | ---- | 125 | 235 | cfu/100 ml | 1 X Weekly | Grab |

- [1] Effluent flow measurement is required per 327 IAC 5-2-13. The flow meter(s) shall be calibrated at least once every twelve months.
- [2] Summer limitations apply from May 1 through November 30 of each year.
- [3] Winter limitations apply from December 1 through April 30 of each year.
- [4] The monthly average percent removal shall not be less than 85%. The percent removal shall be calculated from a comparison of raw influent to final effluent sampling results.
- [5] If the permittee collects more than one grab sample on a given day for pH, the values shall not be averaged for reporting daily maximums or daily minimums. The permittee must report the individual minimum and the individual maximum pH value of any sample during the month on the Monthly Report of Operation forms.
- [6] The daily minimum concentration of dissolved oxygen in the effluent shall be reported as the arithmetic mean determined by summation of the two (2) daily grab sample results divided by the number of daily grab samples. These samples are to be collected over equal time intervals.
- [7] The effluent shall be disinfected on a continuous basis such that violations of the applicable bacteriological limitations (fecal coliform or *E. coli*) do not occur from April 1 through October 31, annually. If the permittee uses chlorine for any reason, at any time including the period from November 1 through March 31, then the limits and monitoring requirements in Table 2 for Total Residual Chlorine (TRC) shall be in effect whenever chlorine is used.
- [8] The chlorine residual shall be maintained at a concentration not less than 0.5 mg/l as measured at the effluent end of the chlorine contact tank for the term of the permit. The daily maximum chlorine residual value at the chlorine contact tank shall also be reported.

- [9] In accordance with 327 IAC 5-2-11.1(f), compliance with this permit will be demonstrated if the measured effluent concentrations are less than the limit of quantitation (0.06 mg/l). If the measured effluent concentrations are above the water quality-based permit limitations and above the Limit of Detection (LOD) specified by the permit in any of three (3) consecutive analyses or any five (5) out of nine (9) analyses, the permittee is required to reevaluate its chlorination/dechlorination practices to make any necessary changes to assure compliance with the permit limitation for TRC. These records must be retained in accordance with the record retention requirements of Part I.B.8 of this permit.

Effluent concentrations greater than or equal to the LOD but less than the Limit of Quantitation (LOQ), shall be reported on the discharge monitoring report forms as the measured value. A note must be included with the DMR indicating that the value is not quantifiable. Effluent concentrations less than the limit of detection shall be reported on the discharge monitoring report forms as less than the value of the limit of detection. For example, if a substance is not detected at a concentration of 0.01 mg/l, report the value as < 0.01 mg/l. At present, two methods are considered to be acceptable to IDEM, amperometric and DPD colorimetric methods, for chlorine concentrations at the level of 0.06 mg/l.

| <u>Parameter</u> | <u>LOD</u> | <u>LOQ</u> |
|------------------|------------|------------|
| Chlorine | 0.02 mg/l | 0.06 mg/l |

Case-Specific MDL

The permittee may determine a case-specific Method Detection Level (MDL) using one of the analytical methods specified above, or any other test method which is approved by IDEM prior to use. The MDL shall be derived by the procedure specified for MDLs contained in 40 CFR Part 136, Appendix B, and the limit of quantitation shall be set equal to 3.18 times the MDL. Other methods may be used if first approved by the U.S. EPA and IDEM.

- [10] The *E. coli* limitations and monitoring requirements apply from April 1 through October 31 annually. The monthly average *E. coli* value shall be calculated as a geometric mean.

IDEM has specified the following methods as allowable for the detection and enumeration of *Escherichia coli* (*E. coli*):

1. Coliscan MF® Method
2. EPA Method 1603 Modified m-TEC agar
3. mColi Blue-24®
4. Colilert® MPN Method or Colilert-18® MPN Method

2. Minimum Narrative Limitations

At all times the discharge from any and all point sources specified within this permit shall not cause receiving waters:

- a. including the mixing zone, to contain substances, materials, floating debris, oil, scum or other pollutants:
 - (1) that will settle to form putrescent or otherwise objectionable deposits;
 - (2) that are in amounts sufficient to be unsightly or deleterious;
 - (3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance;
 - (4) which are in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill aquatic life, other animals, plants, or humans;
 - (5) which are in concentrations or combinations that will cause or contribute to the growth of aquatic plants or algae to such a degree as to create a nuisance, be unsightly, or otherwise impair the designated uses.
- b. outside the mixing zone, to contain substances in concentrations which on the basis of available scientific data are believed to be sufficient to injure, be chronically toxic to, or be carcinogenic, mutagenic, or teratogenic to humans, animals, aquatic life, or plants.

B. MONITORING AND REPORTING

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge flow and shall be taken at times which reflect the full range and concentration of effluent parameters normally expected to be present. Samples shall not be taken at times to avoid showing elevated levels of any parameters.

2. Data on Plant Operation

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation Form, as appropriate, in accordance with 327 IAC 5-2-13. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by this permit.

3. Monthly Reporting

The permittee shall submit accurate monitoring reports to the Indiana Department of Environmental Management containing results obtained during the previous monitoring period and shall be postmarked no later than the 28th day of the month following each completed monitoring period. The first report shall be submitted by the 28th day of the month following the monitoring period in which the permit becomes effective. These reports shall include, but not necessarily be limited to, the Discharge Monitoring Report (DMR) and the Monthly Report of Operation (MRO). All reports shall be mailed to IDEM, Office of Water Quality – Mail Code 65-42, Compliance Data Section, 100 North Senate Ave., Indianapolis, Indiana 46204-2251. In lieu of mailing paper reports the permittee may submit its reports to IDEM electronically by using the NetDMR application, upon registration and approval receipt. Electronically submitted reports (using NetDMR) have the same deadline as mailed reports. The Regional Administrator may request the permittee to submit monitoring reports to the Environmental Protection Agency if it is deemed necessary to assure compliance with the permit.

A calendar week will begin on Sunday and end on Saturday. Partial weeks consisting of four or more days at the end of any month will include the remaining days of the week, which occur in the following month in order to calculate a consecutive seven-day average. This value will be reported as a weekly average or seven-day average on the MRO for the month containing the partial week of four or more days. Partial calendar weeks consisting of less than four days at the end of any month will be carried forward to the succeeding month and reported as a weekly average or a seven-day average for the calendar week that ends with the first Saturday of that month.

4. Definitions

a. Calculation of Averages

Pursuant to 327 IAC 5-2-11(a)(5), the calculation of the average of discharge data shall be determined as follows: For all parameters except fecal coliform and *E. coli*, calculations that require averaging of sample analyses or measurements of daily discharges shall use an arithmetic mean unless otherwise specified in this permit. For fecal coliform, the monthly average discharge and weekly average discharge, as concentrations, shall be calculated as a geometric mean. For *E. coli*, the monthly average discharge, as a concentration, shall be calculated as a geometric mean.

b. Terms

- (1) “Monthly Average” -The monthly average discharge means the total mass or flow-weighted concentration of all daily discharges during a calendar month on which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar month. The monthly average discharge limitation is the highest allowable average monthly discharge for any calendar month.

- (2) "Weekly Average" - The weekly average discharge means the total mass or flow weighted concentration of all daily discharges during any calendar week for which daily discharges are sampled or measured, divided by the number of daily discharges sampled and/or measured during such calendar week. The average weekly discharge limitation is the maximum allowable average weekly discharge for any calendar week.
- (3) "Daily Maximum" - The daily maximum discharge limitation is the maximum allowable daily discharge for any calendar day. The "daily discharge" means the total mass of a pollutant discharged during the calendar day or, in the case of a pollutant limited in terms other than mass pursuant to 327 IAC 5-2-11(e), the average concentration or other measurement of the pollutant specified over the calendar day or any twenty-four hour period that represents the calendar day for purposes of sampling.
- (4) "24-hour Composite" - The 24-hour Composite Sample consists of a minimum of two (2) grab samples, one collected at a time representing the daily peak flow, and the other sample collected at a time representing the average daily flow. The grab samples for the composites shall be proportioned to flow. A flow proportioned composite sample is obtained by:
 - (a) recording the discharge flow rate at the time each individual sample is taken,
 - (b) adding together the discharge flow rates recorded from each individual sampling time to formulate the "total flow value,"
 - (c) dividing the discharge flow rate of each individual sampling time by the total flow value to determine its percentage of the total flow value, and
 - (d) multiplying the volume of the total composite sample by each individual sample's percentage to determine the volume of that individual sample which will be included in the total composite sample.

Alternatively, a 24-hour composite sample may be obtained by an automatic sampler on an equal time interval basis over a twenty-four hour period provided that a minimum of 24 samples are taken and combined prior to analysis. The samples do not need to be flow-proportioned if the permittee collects samples in this manner.

- (5) CBOD₅: Five-day Carbonaceous Biochemical Oxygen Demand
- (6) TSS: Total Suspended Solids
- (7) *E. coli*: Escherichia coli bacteria
- (8) The "Regional Administrator" is defined as the Region V Administrator, U.S. EPA, located at 77 West Jackson Boulevard, Chicago, Illinois 60604.

- (9) The "Commissioner" is defined as the Commissioner of the Indiana Department of Environmental Management, located at the following address: 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.
- (10) Limit of Detection or LOD is defined as a measurement of the concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero (0) for a particular analytical method and sample matrix. The LOD is equivalent to the Method Detection Level or MDL.
- (11) Limit of Quantitation or LOQ is defined as a measurement of the concentration of a contaminant obtained by using a specified laboratory procedure calibrated at a specified concentration about the method detection level. It is considered the lowest concentration at which a particular contaminant can be quantitatively measured using a specified laboratory procedure for monitoring of the contaminant. This term is also called the limit of quantification or quantification level.
- (12) Method Detection Level or MDL is defined as the minimum concentration of an analyte (substance) that can be measured and reported with a ninety-nine percent (99%) confidence that the analyte concentration is greater than zero (0) as determined by the procedure set forth in 40 CFR Part 136, Appendix B. The method detection level or MDL is equivalent to the LOD.

5. Test Procedures

The analytical and sampling methods used shall conform to the current version of 40 CFR, Part 136, unless otherwise specified within this permit. Multiple editions of Standard Methods for the Examination of Water and Wastewater are currently approved for most methods, however, 40 CFR Part 136 should be checked to ascertain if a particular method is approved for a particular analyte. The approved methods may be included in the texts listed below. However, different but equivalent methods are allowable if they receive the prior written approval of the State agency and the U.S. Environmental Protection Agency.

- a. Standard Methods for the Examination of Water and Wastewater
18th, 19th, or 20th Editions, 1992, 1995 or 1998 American Public Health Association, Washington, D.C. 20005.
- b. A.S.T.M. Standards, Part 23, Water; Atmospheric Analysis
1972 American Society for Testing and Materials, Philadelphia, PA 19103.
- c. Methods for Chemical Analysis of Water and Wastes
June 1974, Revised, March 1983, Environmental Protection Agency, Water Quality Office, Analytical Quality Control Laboratory, 1014 Broadway, Cincinnati, OH 45202.

6. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record and maintain records of all monitoring information on activities under this permit, including the following information:

- a. The exact place, date, and time of sampling or measurements;
- b. The person(s) who performed the sampling or measurements;
- c. The dates and times the analyses were performed;
- d. The person(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of all required analyses and measurements.

7. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monthly Discharge Monitoring Report and on the Monthly Report of Operation form. Such increased frequency shall also be indicated on these forms. Any such additional monitoring data which indicates a violation of a permit limitation shall be followed up by the permittee, whenever feasible, with a monitoring sample obtained and analyzed pursuant to approved analytical methods. The results of the follow-up sample shall be reported to the Commissioner in the Monthly Discharge Monitoring Report.

8. Records Retention

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation, shall be retained for a minimum of three (3) years. In cases where the original records are kept at another location, a copy of all such records shall be kept at the permitted facility. The three-year period shall be extended:

- a. automatically during the course of any unresolved litigation regarding the discharge of pollutants by the permittee or regarding promulgated effluent guidelines applicable to the permittee; or
- b. as requested by the Regional Administrator or the Indiana Department of Environmental Management.

C. REOPENING CLAUSES

In addition to the reopening clause provisions cited at 327 IAC 5-2-16, the following reopening clauses are incorporated into this permit:

1. This permit may be modified or, alternately, revoked and reissued after public notice and opportunity for hearing to incorporate effluent limitations reflecting the results of a wasteload allocation if the Department of Environmental Management determines that such effluent limitations are needed to assure that State Water Quality Standards are met in the receiving stream.
2. This permit may be modified due to a change in sludge disposal standards pursuant to Section 405(d) of the Clean Water Act, if the standards when promulgated contain different conditions, are otherwise more stringent, or control pollutants not addressed by this permit.
3. This permit may be modified, or, alternately, revoked and reissued, to comply with any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent limitation or standard so issued or approved:
 - a. contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
 - b. controls any pollutant not limited in the permit.
4. This permit may be modified, or alternately, revoked and reissued, after public notice and opportunity for hearing, to include a case-specific Method Detection Level (MDL). The permittee must demonstrate that such action is warranted in accordance with the procedure specified under Appendix B, 40 CFR Part 136, or approved by the Indiana Department of Environmental Management.

PART II

STANDARD CONDITIONS FOR NPDES PERMITS

A. GENERAL CONDITIONS

1. Duty to Comply

The permittee shall comply with all terms and conditions of this permit in accordance with 327 IAC 5-2-8(1) and all other requirements of 327 IAC 5-2-8. Any permit noncompliance constitutes a violation of the Clean Water Act and IC 13 and is grounds for enforcement action or permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

2. Duty to Mitigate

In accordance with 327 IAC 5-2-8(3), the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with this permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine the nature and impact of the noncompliance.

3. Duty to Provide Information

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the facility that:

- a. could significantly change the nature of, or increase the quantity of, pollutants discharged; or
- b. the Commissioner may request to evaluate whether such cause exists.

In accordance with 327 IAC 5-1-3(a)(5), the permittee must also provide any information reasonably requested by the Commissioner.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must obtain and submit a renewal of this permit in accordance with 327 IAC 5-3-2(a)(2). It is the permittee's responsibility to obtain and submit the application. In accordance with 327 IAC 5-2-3(c), the owner of the facility or

operation from which a discharge of pollutants occurs is responsible for applying for and obtaining the NPDES permit, except where the facility or operation is operated by a person other than an employee of the owner in which case it is the operator's responsibility to apply for and obtain the permit. The application must be submitted at least 180 days before the expiration date of this permit. This deadline may be extended if:

- a. permission is requested in writing before such deadline;
- b. IDEM grants permission to submit the application after the deadline; and
- c. the application is received no later than the permit expiration date.

As required under 327 IAC 5-2-3(g)(1) and (2), POTWs with design influent flows equal to or greater than one million (1,000,000) gallons per day and POTWs with an approved pretreatment program or that are required to develop a pretreatment program, will be required to provide the results of whole effluent toxicity testing as part of their NPDES renewal application.

5. Transfers

In accordance with 327 IAC 5-2-8(4)(D), this permit is nontransferable to any person except in accordance with 327 IAC 5-2-6(c). This permit may be transferred to another person by the permittee, without modification or revocation and reissuance being required under 327 IAC 5-2-16(c)(1) or 16(e)(4), if the following occurs:

- a. the current permittee notified the Commissioner at least thirty (30) days in advance of the proposed transfer date.
- b. a written agreement containing a specific date of transfer of permit responsibility and coverage between the current permittee and the transferee (including acknowledgment that the existing permittee is liable for violations up to that date, and the transferee is liable for violations from that date on) is submitted to the Commissioner.
- c. the transferee certifies in writing to the Commissioner their intent to operate the facility without making such material and substantial alterations or additions to the facility as would significantly change the nature or quantities of pollutants discharged and thus constitute cause for permit modification under 327 IAC 5-2-16(d).
However, the Commissioner may allow a temporary transfer of the permit without permit modification for good cause, e.g., to enable the transferee to purge and empty the facility's treatment system prior to making alterations, despite the transferee's intent to make such material and substantial alterations or additions to the facility.

- d. the Commissioner, within thirty (30) days, does not notify the current permittee and the transferee of the intent to modify, revoke and reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

The Commissioner may require modification or revocation and reissuance of the permit to identify the new permittee and incorporate such other requirements as may be necessary under the Clean Water Act or state law.

6. Permit Actions

In accordance with 327 IAC 5-2-16(b) and 327 IAC 5-2-8(4), this permit may be modified, revoked and reissued, or terminated for cause, including, but not limited to, the following:

- a. Violation of any terms or conditions of this permit;
- b. Failure of the permittee to disclose fully all relevant facts or misrepresentation of any relevant facts in the application, or during the permit issuance process; or
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge controlled by the permittee (e.g., plant closure, termination of the discharge by connecting to a POTW, a change in state law or information indicating the discharge poses a substantial threat to human health or welfare).

Filing of either of the following items does not stay or suspend any permit condition: (1) a request by the permittee for a permit modification, revocation and reissuance, or termination, or (2) submittal of information specified in Part II.A.3 of the permit including planned changes or anticipated noncompliance.

The permittee shall submit any information that the permittee knows or has reason to believe would constitute cause for modification or revocation and reissuance of the permit at the earliest time such information becomes available, such as plans for physical alterations or additions to the permitted facility that:

1. could significantly change the nature of, or increase the quantity of, pollutants discharged; or
2. the commissioner may request to evaluate whether such cause exists.

7. Property Rights

Pursuant to 327 IAC 5-2-8(6) and 327 IAC 5-2-5(b), the issuance of this permit does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to persons or private property or an invasion of rights, any infringement of federal, state, or local laws or regulations. The issuance of the permit also does not

preempt any duty to obtain any other state, or local assent required by law for the discharge or for the construction or operation of the facility from which a discharge is made.

8. Severability

In accordance with 327 IAC 1-1-3, the provisions of this permit are severable and, if any provision of this permit or the application of any provision of this permit to any person or circumstance is held invalid, the invalidity shall not affect any other provisions or applications of the permit which can be given effect without the invalid provision or application.

9. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject to under Section 311 of the Clean Water Act.

10. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 510 of the Clean Water Act or state law.

11. Penalties for Violation of Permit Conditions

Pursuant to IC 13-30-4, a person who violates any provision of this permit, the water pollution control laws; environmental management laws; or a rule or standard adopted by the Water Pollution Control Board is liable for a civil penalty not to exceed twenty-five thousand dollars (\$25,000) per day of any violation. Pursuant to IC 13-30-5, a person who obstructs, delays, resists, prevents, or interferes with (1) the department; or (2) the department's personnel or designated agent in the performance of an inspection or investigation commits a class C infraction.

Pursuant to IC 13-30-10, a person who intentionally, knowingly, or recklessly violates any provision of this permit, the water pollution control laws or a rule or standard adopted by the Water Pollution Control Board commits a class D felony punishable by the term of imprisonment established under IC 35-50-2-7(a) (up to one year), and/or by a fine of not less than five thousand dollars (\$5,000) and not more than fifty thousand dollars (\$50,000) per day of violation. A person convicted for a violation committed after a first conviction of such person under this provision is subject to a fine of not more than one hundred thousand dollars (\$100,000) per day of violation, or by imprisonment for not more than two (2) years, or both.

12. Penalties for Tampering or Falsification

In accordance with 327 IAC 5-2-8(9), the permittee shall comply with monitoring, recording, and reporting requirements of this permit. The Clean Water Act, as well as IC 13-30-10, provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under a permit shall, upon conviction, be punished by a fine of not more than ten thousand dollars (\$10,000) per violation, or by imprisonment for not more than one hundred eighty (180) days per violation, or by both.

13. Toxic Pollutants

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Clean Water Act for a toxic pollutant injurious to human health, and that standard or prohibition is more stringent than any limitation for such pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition in accordance with 327 IAC 5-2-8(5). Effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants injurious to human health are effective and must be complied with, if applicable to the permittee, within the time provided in the implementing regulations, even absent permit modification.

14. Operator Certification

The permittee shall have the wastewater treatment facilities under the responsible charge of an operator certified by the Commissioner in a classification corresponding to the classification of the wastewater treatment plant as required by IC 13-18-11-11 and 327 IAC 5-22. In order to operate a wastewater treatment plant the operator shall have qualifications as established in 327 IAC 5-22-7. The permittee shall designate one (1) person as the certified operator with complete responsibility for the proper operations of the wastewater facility.

327 IAC 5-22-10.5(a) provides that a certified operator may be designated as being in responsible charge of more than one (1) wastewater treatment plant, if it can be shown that he will give adequate supervision to all units involved. Adequate supervision means that sufficient time is spent at the plant on a regular basis to assure that the certified operator is knowledgeable of the actual operations and that test reports and results are representative of the actual operations conditions. In accordance with 327 IAC 5-22-3(11), "responsible charge" means the person responsible for the overall daily operation, supervision, or management of a wastewater facility.

Pursuant to 327 IAC 5-22-10(4), the permittee shall notify IDEM when there is a change of the person serving as the certified operator in responsible charge of the wastewater treatment facility. The notification shall be made no later than thirty (30) days after a change in the operator.

15. Construction Permit

Except in accordance with 327 IAC 3, the permittee shall not construct, install, or modify any water pollution treatment/control facility as defined in 327 IAC 3-1-2(24). Upon completion of any construction, the permittee must notify the Compliance Data Section of the Office of Water Quality in writing.

16. Inspection and Entry

In accordance with 327 IAC 5-2-8(7), the permittee shall allow the Commissioner, or an authorized representative, (including an authorized contractor acting as a representative of the Commissioner) upon the presentation of credentials and other documents as may be required by law, to:

- a. Enter upon the permittee's premises where a point source, regulated facility, or activity is located or conducted, or where records must be kept pursuant to the conditions of this permit;
- b. Have access to and copy, at reasonable times, any records that must be kept under the terms and conditions of this permit;
- c. Inspect at reasonable times any facilities, equipment or methods (including monitoring and control equipment), practices, or operations regulated or required pursuant to this permit; and
- d. Sample or monitor at reasonable times, any discharge of pollutants or internal wastestreams for the purposes of evaluating compliance with the permit or as otherwise authorized.

17. New or Increased Discharge of Pollutants

This permit prohibits the permittee from undertaking any action that would result in a new or increased discharge of a bioaccumulative chemical of concern (BCC) or a new or increased permit limit for a regulated pollutant that is not a BCC unless one of the following is completed prior to the commencement of the action:

- a. Information is submitted to the Commissioner demonstrating that the proposed new or increased discharges will not cause a significant lowering of water quality as defined under 327 IAC 2-1.3-2(50). Upon review of this information, the Commissioner may request additional information or may determine that the proposed increase is a significant lowering of water quality and require the submittal of an antidegradation demonstration.
- b. An antidegradation demonstration is submitted to and approved by the Commissioner in accordance with 327 IAC 2-1.3-5 and 327 IAC 2-1.3-6.

B. MANAGEMENT REQUIREMENTS

1. Facility Operation, Maintenance and Quality Control

- a. In accordance with 327 IAC 5-2-8(8), the permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for collection and treatment that are:

- (1) installed or used by the permittee; and
- (2) necessary for achieving compliance with the terms and conditions of the permit.

Neither 327 IAC 5-2-8(8), nor this provision, shall be construed to require the operation of installed treatment facilities that are unnecessary for achieving compliance with the terms and conditions of the permit. Taking redundant treatment units off line does not violate the bypass provisions of the permit, provided that the permittee is at all times: maintaining in good working order and efficiently operating all facilities and systems; providing best quality effluent; and achieving compliance with the terms and conditions of the permit.

- b. The permittee shall operate the permitted facility in a manner which will minimize upsets and discharges of excessive pollutants. The permittee shall properly remove and dispose of excessive solids and sludges.
- c. The permittee shall provide an adequate operating staff which is duly qualified to carry out the operation, maintenance, and testing functions required to ensure compliance with the conditions of this permit.
- d. Maintenance of all waste collection, control, treatment, and disposal facilities shall be conducted in a manner that complies with the bypass provisions set forth below.
- e. Any extensions to the sewer system must continue to be constructed on a separated basis. Plans and specifications, when required, for extension of the sanitary system must be submitted to the Facility Construction and Engineering Support Section, Office of Water Quality in accordance with 327 IAC 3-2-1. There shall also be an ongoing preventative maintenance program for the sanitary sewer system.

2. Bypass of Treatment Facilities

Pursuant to 327 IAC 5-2-8(11):

- a. Terms as defined in 327 IAC 5-2-8(11)(A):

- (1) "Bypass" means the intentional diversion of a waste stream from any portion of a treatment facility.

- (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
- b. Bypasses, as defined above, are prohibited, and the Commissioner may take enforcement action against a permittee for bypass, unless:
- (1) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage, as defined above;
 - (2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance; and
 - (3) The permittee submitted notices as required under Part II.B.2.d; or
 - (4) The condition under Part II.B.2.f below is met.
- c. Bypasses that result in death or acute injury or illness to animals or humans must be reported in accordance with the "Spill Response and Reporting Requirements" in 327 IAC 2-6.1, including calling 888/233-7745 as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the bypass are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.
- d. The permittee must provide the Commissioner with the following notice:
- (1) If the permittee knows or should have known in advance of the need for a bypass (anticipated bypass), it shall submit prior written notice. If possible, such notice shall be provided at least ten (10) days before the date of the bypass for approval by the Commissioner.
 - (2) The permittee shall orally report or fax a report of an unanticipated bypass within 24 hours of becoming aware of the bypass event. The permittee must also provide a written report within five (5) days of the time the permittee becomes aware of the bypass event. The written report must contain a description of the noncompliance (i.e. the bypass) and its cause; the period of noncompliance, including exact dates and times; if the cause of noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the bypass event. If a complete fax or email submittal is sent within 24 hours of the time that the

permittee became aware of the unanticipated bypass event, then that report will satisfy both the oral and written reporting requirement.

- e. The Commissioner may approve an anticipated bypass, after considering its adverse effects, if the Commissioner determines that it will meet the conditions listed above in Part II.B.2.b. The Commissioner may impose any conditions determined to be necessary to minimize any adverse effects.
- f. The permittee may allow any bypass to occur that does not cause a violation of the effluent limitations in the permit, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Part II.B.2.b.,d and e of this permit.

3. Upset Conditions

Pursuant to 327 IAC 5-2-8(12):

- a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- b. An upset shall constitute an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Paragraph c of this subsection, are met.
- c. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence, that:
 - (1) An upset occurred and the permittee has identified the specific cause(s) of the upset;
 - (2) The permitted facility was at the time being operated in compliance with proper operation and maintenance procedures;
 - (3) The permittee complied with any remedial measures required under "Duty to Mitigate", Part II.A.2; and
 - (4) The permittee submitted notice of the upset as required in the "Incident Reporting Requirements," Part II.C.3, or 327 IAC 2-6.1, whichever is applicable. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

- d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof pursuant to 40 CFR 122.41(n)(4).

4. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed from or resulting from treatment or control of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering waters of the State and to be in compliance with all Indiana statutes and regulations relative to liquid and/or solid waste disposal.

- a. Collected screenings, slurries, sludges, and other such pollutants shall be disposed of in accordance with provisions set forth in 329 IAC 10, 327 IAC 6.1, or another method approved by the Commissioner.
- b. The permittee shall comply with existing federal regulations governing solids disposal, and with applicable provisions of 40 CFR Part 503, the federal sludge disposal regulation standards.
- c. The permittee shall notify the Commissioner prior to any changes in sludge use or disposal practices.
- d. The permittee shall maintain records to demonstrate its compliance with the above disposal requirements.

5. Power Failures

In accordance with 327 IAC 5-2-10 and 327 IAC 5-2-8(13) in order to maintain compliance with the effluent limitations and prohibitions of this permit, the permittee shall either:

- a. provide an alternative power source sufficient to operate facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit, or
- b. shall halt, reduce or otherwise control all discharge in order to maintain compliance with the effluent limitations and conditions of this permit upon the reduction, loss, or failure of one or more of the primary sources of power to facilities utilized by the permittee to maintain compliance with the effluent limitations and conditions of this permit.

6. Unauthorized Discharge

Any overflow or release of sanitary wastewater from the wastewater treatment facilities or collection system that results in a discharge to waters of the state and is not specifically authorized by this permit is expressly prohibited. These discharges are subject to the reporting requirements in Part II.C.3 of this permit.

C. REPORTING REQUIREMENTS

1. Planned Changes in Facility or Discharge

Pursuant to 327 IAC 5-2-8(10)(F) and 5-2-16(d), the permittee shall give notice to the Commissioner as soon as possible of any planned alterations or additions to the facility (which includes any point source) that could significantly change the nature of, or increase the quantity of, pollutants discharged. Following such notice, the permit may be modified to revise existing pollutant limitations and/or to specify and limit any pollutants not previously limited. Material and substantial alterations or additions to the permittee's operation that were not covered in the permit (e.g., production changes, relocation or combination of discharge points, changes in the nature or mix of products produced) are also cause for modification of the permit. However those alterations which constitute total replacement of the process or the production equipment causing the discharge converts it into a new source, which requires the submittal of a new NPDES application.

2. Monitoring Reports

Pursuant to 327 IAC 5-2-8(9), 327 IAC 5-2-13, and 327 IAC 5-2-15, monitoring results shall be reported at the intervals and in the form specified in "Data On Plant Operation", Part I.B.2.

3. Incident Reporting Requirements

Pursuant to 327 IAC 5-2-8(10) and 327 IAC 5-1-3, the permittee shall orally report to the Commissioner information on the following incidents within 24 hours from the time permittee becomes aware of such occurrence. If the incident meets the emergency criteria of item b (Part II.C.3.b) or 327 IAC 2-6.1, then the report shall be made as soon as possible, but within two (2) hours of discovery. However, under 327 IAC 2-6.1-3(1), when the constituents of the discharge are regulated by this permit, and death or acute injury or illness to animals or humans does not occur, the reporting requirements of 327 IAC 2-6.1 do not apply.

- a. Any unanticipated bypass which exceeds any effluent limitation in the permit;
- b. Any emergency incident which may pose a significant danger to human health or the environment. Reports under this item shall be made as soon as the permittee becomes aware of the incident by calling 317/233-7745 (888/233-7745 toll free in Indiana). This number should only be called when reporting these emergency events;
- c. Any upset (as defined in Part II.B.3 above) that exceeds any technology-based effluent limitations in the permit;
- d. Any release, including basement backups, from the sanitary sewer system (including satellite sewer systems operated or maintained by the permittee) not specifically authorized by this permit. Reporting of known releases from private laterals not caused by a problem in the sewer system owned or operated by the permittee is not

required under Part II.C.3, however, documentation of such events must be maintained by the permittee and available for review by IDEM staff; or

- e. Any discharge from any outfall from which discharge is explicitly prohibited by this permit as well as any discharge from any other outfall or point not listed in this permit.

The permittee can make the oral reports by calling 317/232-8670 during regular business hours. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. For incidents involving effluent limit violations or discharges, the written submission shall contain: a description of the event and its cause; the period of occurrence, including exact dates and times, and, if the event has not concluded, the anticipated time it is expected to continue; and steps taken or planned to reduce, mitigate and eliminate the event and steps taken or planned to prevent its recurrence. For sewer releases which do not meet the definition of a discharge, the written submission shall contain: a description of the event and its believed cause; the period of occurrence; and any steps taken or planned to mitigate the event and steps taken or planned to prevent its recurrence. The permittee may submit a "Bypass Overflow/Incident Report" or a "Noncompliance Notification Report", whichever is applicable, to IDEM at 317/232-8637 or 317/232-8406 or to wwreports@idem.IN.gov. If a complete fax or email submittal is sent within 24 hours of the time that the permittee became aware of the occurrence, then that report will satisfy both the oral and written reporting requirements.

4. Other Noncompliance

Pursuant to 327 IAC 5-2-8(10)(D), the permittee shall report any instance of noncompliance not reported under the "Incident Reporting Requirements" in Part II.C.3 at the time the pertinent Discharge Monitoring Report is submitted. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent the noncompliance.

5. Other Information

Pursuant to 327 IAC 5-2-8(10)(E), where the permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or in any report to the Commissioner, the permittee shall promptly submit such facts or corrected information to the Commissioner.

6. Signatory Requirements

Pursuant to 327 IAC 5-2-22 and 327 IAC 5-2-8(14):

- a. All reports required by the permit and other information requested by the Commissioner shall be signed and certified by a person described below or by a duly authorized representative of that person:
 - (1) For a corporation: by a principal executive defined as a president, secretary, treasurer, any vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy-making functions for the corporation or the manager of one or more manufacturing, production, or operating facilities employing more than two hundred fifty (250) persons or having gross annual sales or expenditures exceeding twenty-five million dollars (\$25,000,000) (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - (2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
 - (3) For a federal, state, or local governmental body or any agency or political subdivision thereof: by either a principal executive officer or ranking elected official.
- b. A person is a duly authorized representative only if:
 - (1) The authorization is made in writing by a person described above.
 - (2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and
 - (3) The authorization is submitted to the Commissioner.
- c. Certification. Any person signing a document identified under paragraphs a and b of this section, shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are

significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

7. Availability of Reports

Except for data determined to be confidential under 327 IAC 12.1, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Indiana Department of Environmental Management and the Regional Administrator. As required by the Clean Water Act, permit applications, permits, and effluent data shall not be considered confidential.

8. Penalties for Falsification of Reports

IC 13-30 and 327 IAC 5-2-8(14) provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than 180 days per violation, or by both.

9. Progress Reports

In accordance with 327 IAC 5-2-8(10)(A), reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date.

10. Advance Notice for Planned Changes

In accordance with 327 IAC 5-2-8(10)(B), the permittee shall give advance notice to IDEM of any planned changes in the permitted facility, any activity, or other circumstances that the permittee has reason to believe may result in noncompliance with permit requirements.

11. Additional Requirements for POTWs and/or Treatment Works Treating Domestic Sewage

- a. All POTWs shall identify, in terms of character and volume of pollutants, any significant indirect discharges into the POTW which are subject to pretreatment standards under section 307(b) and 307 (c) of the CWA.
- b. All POTWs must provide adequate notice to the Commissioner of the following:
 - (1) Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to section 301 or 306 of the CWA if it were directly discharging those pollutants.

- (2) Any substantial change in the volume or character of pollutants being introduced into that POTW by any source where such change would render the source subject to pretreatment standards under section 307(b) or 307(c) of the CWA or would result in a modified application of such standards.

As used in this clause, "adequate notice" includes information on the quality and quantity of effluent introduced into the POTW, and any anticipated impact of the change on the quantity or quality of the effluent to be discharged from the POTW.

- c. This permit incorporates any conditions imposed in grants made by the U.S. EPA and/or IDEM to a POTW pursuant to Sections 201 and 204 of the Clean Water Act, that are reasonably necessary for the achievement of effluent limitations required by Section 301 of the Clean Water Act.
- d. This permit incorporates any requirements of Section 405 of the Clean Water Act governing the disposal of sewage sludge from POTWs or any other treatment works treating domestic sewage for any use for which rules have been established in accordance with any applicable rules.
- e. POTWs must develop and submit to the Commissioner a POTW pretreatment program when required by 40 CFR 403 and 327 IAC 5-19-1, in order to assure compliance by industrial users of the POTW with applicable pretreatment standards established under Sections 307(b) and 307(c) of the Clean Water Act. The pretreatment program shall meet the criteria of 327 IAC 5-19-3 and, once approved, shall be incorporated into the POTW's NPDES permit.

D. ADDRESSES

1. Cashiers Office

Indiana Department of Environmental Management
Cashiers Office – Mail Code 50-10C
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Cashiers Office:

- a. NPDES permit applications (new, renewal or modifications) with fee
- b. Construction permit applications with fee

2. Municipal NPDES Permits Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Municipal NPDES Permits Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Municipal NPDES Permits Section:

- a. Preliminary Effluent Limits request letters
- b. Comment letters pertaining to draft NPDES permits
- c. NPDES permit transfer of ownership requests
- d. NPDES permit termination requests
- e. Notifications of substantial changes to a treatment facility, including new industrial sources
- f. Combined Sewer Overflow (CSO) Operational Plans
- g. CSO Long Term Control Plans (LTCP)
- h. Stream Reach Characterization and Evaluation Reports (SRCER)

3. Compliance Data Section

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Compliance Data Section:

- a. Discharge Monitoring Reports (DMRs)
- b. Monthly Reports of Operation (MROs)
- c. Monthly Monitoring Reports (MMRs)
- d. CSO MROs
- e. Gauging station and flow meter calibration documentation

- f. Compliance schedule progress reports
- g. Completion of Construction notifications
- h. Whole Effluent Toxicity Testing reports
- i. Toxicity Reduction Evaluation (TRE) plans and progress reports
- j. Bypass/Overflow Reports
- k. Anticipated Bypass/Overflow Reports
- l. Streamlined Mercury Variance Annual Reports

4. Pretreatment Group

Indiana Department of Environmental Management
Office of Water Quality – Mail Code 65-42
Compliance Data Section – Pretreatment Group
100 N. Senate Avenue
Indianapolis, Indiana 46204-2251

The following correspondence shall be sent to the Pretreatment Group:

- a. Organic Pollutant Monitoring Reports
- b. Significant Industrial User (SIU) Quarterly Noncompliance Reports
- c. Pretreatment Program Annual Reports
- d. Sewer Use Ordinances
- e. Enforcement Response Plans (ERP)
- f. Sludge analytical results

Briefing Memo
January 28, 2016

Galena Wastewater Treatment Plant
located at 6651 Highway 150, Floyd Knobs, Indiana, Floyd County

| | | |
|-------------------------|------------|---------------|
| <u>Outfall Location</u> | Latitude: | 38° 20' 54" N |
| | Longitude: | 85° 55' 48" W |

NPDES Permit No. IN0052019

Background

This is the modification of the NPDES permit for the Galena Wastewater Treatment Plant. The facility's current permit was effective on October 1, 2015 and has an expiration date of September 30, 2020. A request for permit modification was received from the permittee on January 27, 2016. The permittee requests a permit modification to reflect the change of ownership from Wastewater One, LLC to Aqua Indiana, Inc.

Modification

The following changes have been made for the modification of the NPDES permit:

| | |
|--------------|--|
| Page 1 of 27 | This page has been modified to reflect the change of ownership to Aqua Indiana, Inc. and also to include the modification effective date for the permit. |
|--------------|--|

Expiration Date

The expiration date of the permit has not changed. The permit, as modified, will expire at midnight on September 30, 2020.

Drafted by: John Donnellan
January 28, 2016

Briefing Memo

February 2, 2015

Galena Wastewater Treatment Plant
located at 6651 Highway 150, Floyd Knobs, Indiana, Floyd County

| | | |
|-------------------------|------------|---------------|
| <u>Outfall Location</u> | Latitude: | 38° 20' 54" N |
| | Longitude: | 85° 55' 48" W |

NPDES Permit No. IN0052019

Background

This is the proposed renewal of the NPDES permit for the Galena Wastewater Treatment Plant which was issued on August 6, 2010 and has an expiration date of September 30, 2015. The permittee submitted an application for renewal which was received on January 26, 2015. The permittee currently operates a Class I, 0.037 MGD extended aeration treatment facility consisting of a flow equalization tank, an aerobic digester, an aeration tank, a clarifier, effluent chlorination/dechlorination, an effluent flow meter, and a post aeration unit. Final solids are hauled off site.

Collection System

The collection system is comprised of 100% separate sanitary sewers by design with no overflow or bypass points.

Spill Reporting Requirements

Reporting requirements associated with the Spill Reporting, Containment, and Response requirements of 327 IAC 2-6.1 are included in Part II.B.2.c. and Part II.C.3. of the NPDES permit. Spills from the permitted facility meeting the definition of a spill under 327 IAC 2-6.1-4(15), the applicability requirements of 327 IAC 2-6.1-1, and the Reportable Spills requirements of 327 IAC 2-6.1-5 (other than those meeting an exclusion under 327 IAC 2-6.1-3 or the criteria outlined below) are subject to the Reporting Responsibilities of 327 IAC 2-6.1-7.

It should be noted that the reporting requirements of 327 IAC 2-6.1 do not apply to those discharges or exceedences that are under the jurisdiction of an applicable permit when the substance in question is covered by the permit and death or acute injury or illness to animals or humans does not occur. In order for a discharge or exceedence to be under the jurisdiction of this NPDES permit, the substance in question (a) must have been discharged in the normal course of operation from an outfall listed in this permit, and (b) must have been discharged from an outfall for which the permittee has authorization to discharge that substance.

Solids Disposal

The permittee is required to dispose of its sludge in accordance with 329 IAC 10, 327 IAC 6.1, or 40 CFR Part 503.

Receiving Stream

The facility discharges to a tributary to Little Indian Creek via Outfall 001. The receiving water has a seven day, ten year low flow ($Q_{7,10}$) of 0 cubic feet per second at the outfall location. The receiving stream is designated for full body contact recreational use and shall be capable of supporting a well-balanced warm water aquatic community in accordance with 327 IAC 2-1.

Industrial Contributions

There is no industrial flow to the wastewater treatment plant. This NPDES permit does not authorize the facility to accept industrial contributions until the permittee has provided the Indiana Department of Environmental Management with a characterization of the waste, including volume amounts, and this Office has determined whether effluent limitations are needed to ensure the State water quality standards are met in the receiving stream.

Antidegradation

327 IAC 2-1.3 outlines the state's Antidegradation Standards and Implementation Procedures. The Tier 1 antidegradation standard found in 327 IAC 2-1.3-3(a) applies to all surface waters of the state regardless of their existing water quality. Based on this standard, for all surface waters of the state, existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected. IDEM implements the Tier 1 antidegradation standard by requiring NPDES permits to contain effluent limits and best management practices for regulated pollutants that ensure the narrative and numeric water quality criteria applicable to the designated use are achieved in the water and any designated use of the downstream water is maintained and protected.

The Tier 2 antidegradation standard found in 327 IAC 2-1.3-3(b) applies to surface waters of the state where the existing quality for a parameter is better than the water quality criterion for that parameter established in 327 IAC 2-1-6. These surface waters are considered high quality for the parameter and this high quality shall be maintained and protected unless the commissioner finds that allowing a significant lowering of water quality is necessary and accommodates important social or economic development in the area in which the waters are located. IDEM implements the Tier 2 antidegradation standard for regulated pollutants with numeric water quality criteria quality adopted in or developed pursuant to 327 IAC 2-1 and utilizes the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6.

According to 327 IAC 2-1.3-1(b), the antidegradation implementation procedures in 327 IAC 2-1.3-5 and 2-1.3-6 apply to a proposed new or increased loading of a regulated pollutant to surface waters of the state from a deliberate activity subject to the Clean Water Act, including a change in process or operation that will result in a significant lowering of water quality. The NPDES permit does not propose to establish a new or increased loading of a regulated pollutant; therefore, the Antidegradation Implementation Procedures in 327 IAC 2-1.3-5 and 2-1.3-6 do not apply to the permitted discharge.

Effluent Limitations and Rationale

The effluent limitations proposed herein are based on Indiana Water Quality Standards, NPDES regulations, and the Small Sanitary Discharger Rule in 327 IAC 5-10-5. These limits are in accordance with antibacksliding regulations specified in 327 IAC 5-2-10(11)(A). Monitoring frequencies are based upon facility size and type. The final effluent limitations to be limited and/or monitored include: Flow, Carbonaceous Biochemical Oxygen Demand (CBOD₅), Total Suspended Solids (TSS), Ammonia-nitrogen (NH₃-N), pH, Dissolved Oxygen (DO), Total Residual Chlorine (TRC), and *Escherichia coli* (*E. coli*).

Final Effluent Limitations

The summer monitoring period runs from May 1 through November 30 of each year and the winter monitoring period runs from December 1 through April 30 of each year. The disinfection season runs from April 1 through October 31 of each year. The mass limits for CBOD₅, TSS, and ammonia-nitrogen are calculated by multiplying the average design flow (in MGD) by the corresponding concentration value and by 8.345.

Influent Monitoring

The raw influent and the wastewater from intermediate unit treatment processes, as well as the final effluent shall be sampled and analyzed for the pollutants and operational parameters specified by the applicable Monthly Report of Operation Form, as appropriate, in accordance with 327 IAC 5-2-13 and Part I.B.2 of the permit. Except where the permit specifically states otherwise, the sample frequency for the raw influent and intermediate unit treatment process shall be at a minimum the same frequency as that for the final effluent. The measurement frequencies specified in each of the tables in Part I.A. are the minimum frequencies required by the permit.

Flow

Flow is to be measured five (5) times weekly as a 24-hour total. Reporting of flow is required by 327 IAC 5-2-13.

CBOD₅

CBOD₅ is limited to 15 mg/l (4.6 lbs/day) as a monthly average and 23 mg/l (7.1 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, CBOD₅ is limited to 25 mg/l (7.7 lbs/day) as a monthly average and 40 mg/l (12.4 lbs/day) as a weekly average. The permit requires a monthly average percent removal of not less than 85%. The percent removal is to be calculated from a comparison of raw influent to final effluent sampling results and is to be reported as a monthly average. Monitoring is to be conducted weekly by grab sampling. The CBOD₅ concentration limitations included in this permit are set in accordance with the Small Sanitary Discharger Rule in 327 IAC 5-10-5 and are the same as the concentration limitations found in the facility's previous permit. The 85% removal requirement is included in accordance with 40 CFR 133.102 and is a new requirement for this facility.

TSS

TSS is limited to 18 mg/l (5.6 lbs/day) as a monthly average and 27 mg/l (8.3 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, TSS is limited to 30 mg/l (9.3 lbs/day) as a monthly average and 45 mg/l (13.9 lbs/day) as a weekly average. The permit requires a monthly average percent removal of not less than 85%. The percent removal is to be calculated from a comparison of raw influent to final effluent sampling results and is to be reported as a monthly average. Monitoring is to be conducted weekly by grab composite sampling. The TSS concentration limitations included in this permit are set in accordance with the Small Sanitary Discharger Rule in 327 IAC 5-10-5 and are the same as the concentration limitations found in the facility's previous permit. The 85% removal requirement is included in accordance with 40 CFR 133.102 and is a new requirement for this facility.

Ammonia-nitrogen

Ammonia-nitrogen is limited to 1.1 mg/l (0.34 lbs/day) as a monthly average and 1.6 mg/l (0.49 lbs/day) as a weekly average during the summer monitoring period. During the winter monitoring period, ammonia-nitrogen is limited to 1.6 mg/l (0.49 lbs/day) as a monthly average and 2.4 mg/l (0.74 lbs/day) as a weekly average. Monitoring is to be conducted weekly by grab sampling. The ammonia-nitrogen concentration limitations included in this permit are set in accordance with the the Small Sanitary Discharger Rule in 327 IAC 5-10-5 and are the same as the concentration limitations found in the facility's previous permit.

pH

The pH limitations have been based on 40 CFR 133.102 which is cross-referenced in 327 IAC 5-5-3. To ensure conditions necessary for the maintenance of a well-balanced aquatic community, the pH of the final effluent must be between 6.0 and 9.0 standard units in accordance

with provisions in 327 IAC 2-1-6(b)(2). pH must be measured two (2) times weekly by grab sampling. These pH limitations are the same as the limitations found in the facility's previous permit.

Dissolved Oxygen

Dissolved oxygen shall not fall below 6.0 mg/l as a daily minimum average during the summer monitoring period. During the winter monitoring period, dissolved oxygen shall not fall below 5.0 mg/l as a daily minimum average. These dissolved oxygen limitations are based on the Small Sanitary Discharger Rule in 327 IAC 5-10-5 and are the same as the concentration limitations found in the facility's previous permit. Dissolved oxygen measurements must be based on the average of two (2) grab samples taken within a 24-hr. period. This monitoring is to be conducted two (2) times weekly.

Total Residual Chlorine

Disinfection of the effluent is required from April 1 through October 31, annually. The chlorine residual shall be maintained at a concentration not less than 0.5 mg/l as measured at the effluent end of the chlorine contact tank for the term of the permit. The daily maximum chlorine residual value at the chlorine contact tank shall also be reported. Effluent dechlorination will be required in order to protect aquatic life. In accordance with Indiana Water Quality Standards, the final effluent limits (end-of-pipe) for TRC are 0.01 mg/l monthly average and 0.02 mg/l daily maximum. Compliance will be demonstrated if the observed effluent concentrations are less than the limit of quantitation (0.06 mg/l). Disinfection requirements are established in 327 IAC 5-10-6. This monitoring is to be conducted two (2) times weekly by grab sampling.

E. coli

The *E. coli* limitations and monitoring requirements apply from April 1 through October 31, annually. *E. coli* is limited to 125 count/100 ml as a monthly average, and 235 count/100 ml as a daily maximum. The monthly average *E. coli* value shall be calculated as a geometric mean. This monitoring is to be conducted weekly by grab sampling. These *E. coli* limitations are set in accordance with regulations specified in 327 IAC 5-10-6.

Backsliding

None of the concentration limits included in this permit conflict with antibacksliding regulations found in 327 IAC 5-2-10(11)(A), therefore, backsliding is not an issue.

Reopening Clauses

Four reopening clauses were incorporated into the permit in Part I.C. One clause is to incorporate effluent limits from any further wasteload allocations performed; a second clause is to allow for changes in the sludge disposal standards; a third clause is to incorporate any applicable effluent limitation or standard issued or approved under section 301(b)(2)(C), (D) and (E), 304(b)(2), and 307(a)(2) of the Clean Water Act; and a fourth clause is to include a case-specific Method Detection Level (MDL).

Compliance Status

The permittee has no enforcement actions at the time of this permit preparation.

Expiration Date

A five-year NPDES permit is proposed.

Drafted by: John Donnellan
February 2, 2015

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

PUBLIC NOTICE NO. 2016- 2C- RD
DATE OF NOTICE: FEBRUARY 17, 2016
DATE RESPONSE DUE: MARCH 17, 2016

The Office of Water Quality proposes the following NPDES DRAFT PERMIT:

MINOR – MODIFICATION

GALENA (town) WWTP, Permit No. IN0052019, FLOYD COUNTY, 6651 HWY 51, Floyd Knobs IN. This municipal permit modification reflects the change of ownership from Wastewater One, LLC to Aqua Indiana, Inc. Permit Manager: John Donnellan, 317/234-0865, jdonnell@idem.in.gov. Published in the Tribune.

PROCEDURES TO FILE A RESPONSE

Draft can be viewed or copied (10¢ per page) at IDEM/OWQ NPDES PS, 100 N. Senate Av, (Rm 1203) Indianapolis, IN, 46204 (east end elevators) from 9 – 4, M - F, (except state holidays). A copy of the Draft Permit is on file at the local County Health Department. Please tell others you think would be interested in this matter. For your rights & responsibilities see: Public Participation: <http://www.in.gov/idem/5474.htm> or Citizen Guide: <http://www.in.gov/idem/5903.htm>.

Response Comments: The proposed decision to issue a permit is tentative. Interested persons are invited to submit written comments on the Draft permit. All comments must be postmarked no later than the Response Date noted to be considered in the decision to issue a Final permit. Deliver or mail all requests or comments to the attention of the Permit Writer at the above address, (mail code 65-42 PS).

To Request a Public Hearing:

Any person may request a Public Hearing. A written request must be submitted to the above address on or before the Response Date noted. The written request shall include: the name and address of the person making the request, the interest of the person making the request, persons represented by the person making the request, the reason for the request and the issues proposed for consideration at the Hearing. IDEM will determine whether to hold a Public Hearing based on the comments and the rationale for the request. Public Notice of such a Hearing will be published in at least one newspaper in the geographical area of the discharge and sent to anyone submitting written comments and/or making such request and whose name is on the mailing list at least 30 days prior to the Hearing.

STATE OF INDIANA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
PUBLIC NOTICE NO: 2015 – 4F – F
DATE OF NOTICE: APRIL 16, 2015

The Office of Water Quality issues the following NPDES FINAL PERMIT.

MINOR – RENEWAL

GALENA (town) WWTP, Permit No. IN0052019, FLOYD COUNTY, 6651 HWY 150, Floyd Knobs, IN. This municipal facility discharges 0.037 million gallons daily of sanitary wastewater into an unnamed tributary to Little Indiana Creek. Contact Permit Manager: John Donnellan, 317/234-0865, jdonnell@idem.in.gov.

APPEAL PROCEDURES FOR FINAL PERMITS

The Final Permits are available for review & copies at IDEM, Indiana Government Center, North Bldg, 100 N Senate Ave, Indianapolis, IN, Rm 1203, Office of Water Quality/NPDES Permit Section, from 9 – 4, M - F (copies 10¢ per page). Each Final Permit is available at the respective, local County Health Department. See these sites for your rights & responsibilities: Public Participation: <http://www.in.gov/idem/5474.htm>; Citizen Guide: <http://www.in.gov/idem/5903.htm>. **Please tell others you think would be interested in this matter**

Appeal Procedure: Any person affected by the issuance of the Final Permit may appeal by filing a Petition for Administrative Review with the Office of Environmental Adjudication **within** eighteen (18) days of the date of this Public Notice. Any appeal request must be filed in accordance with IC 4-21.5-3-7 and must include facts demonstrating that the party requesting appeal is the applicant; a person aggrieved or adversely affected or is otherwise entitled to review by law.

Timely filing: The Petition for Administrative Review must be received by the Office of Environmental Adjudication (OEA) **within** 18 days of the date of this Public Notice; either by U.S. Mail postmark or by private carrier with dated receipt. This Petition for Administrative Review represents a request for an Adjudicatory Hearing, therefore must:

- state the name and address of the person making the request;
- identify the interest of the person making the request;
- identify any persons represented by the person making the request;
- state specifically the reasons for the request;
- state specifically the issues proposed for consideration at the hearing;
- identify the Final Permit Rule terms and conditions which, in the judgment of the person making the request, would be appropriate to satisfy the requirements of the law governing this NPDES Permit rule.

If the person filing the Petition for Administrative Review desires any part of the NPDES Final Permit Rule to be stayed pending the outcome of the appeal, a Petition for Stay must be included in the appeal request, identifying those parts to be stayed. Both Petitions shall be mailed or delivered to the address here:
Phone: 317/232-8591.

Environmental Law Judge
Office of Environmental Adjudication
IGC – North Building- Rm 501
100 N. Senate Avenue
Indianapolis IN 46204

Stay Time frame: If the Petition (s) is filed **within** eighteen (18) days of the mailing of this Public Notice, the effective date of any part of the permit, within the scope of the Petition for Stay is suspended for fifteen (15) days. The Permit will become effective again upon expiration of the fifteen (15) days, unless or until an Environmental Law Judge stays the permit action in whole or in part.

Hearing Notification: Pursuant to Indiana Code, when a written request is submitted, the OEA will provide the petitioner or any person wanting notification, with the Notice of pre-hearing conferences, preliminary hearings, hearing stays or orders disposing of the Petition for Administrative Review. Petition for Administrative Review must be filed in compliance with the procedures and time frames outlined above. Procedural or scheduling questions should be directed to the OEA at the phone listed above.



**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
SEMI PUBLIC AND MINOR MUNICIPAL PERMIT APPLICATION**

State Form 54924 (2-12)

Approved by State Board of Accounts, 2012

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER QUALITY

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
SEMI PUBLIC AND MINOR MUNICIPAL
PERMIT APPLICATION PACKAGE**

This is an application for a National Pollutant Discharge Elimination System (NPDES) permit to discharge treated sanitary wastewater from a semi-public, minor municipal, State, or Federally owned wastewater treatment facility. Facilities with design flows of one (1) million gallons per day (MGD), or greater, are considered major facilities and must complete a Major Municipal Discharger Application.

Included in this package is a checklist noting all items to be submitted with the application. Please ensure that all items appearing on the checklist are accurately completed and submitted to avoid delays and/or denial of the application. Also included in this application package is an application form, a potentially affected persons form, instructions for completion of these forms, and information regarding the fifty dollar (\$50) application fee. For assistance in completing this application, call 317/ 232-8760.

The following information **must** be included as part of the NPDES permit application:

- ☒ Completed, signed Application Form
- ☒ Fifty dollar (\$50) Permit Application Fee
- ☒ Potentially Affected Persons List
- ☒ Topographic map showing plant and outfall(s) location(s)
- ☒ Additional facility diagrams, Combined Sewer Overflow (CSO) listings, etc. necessary to adequately describe facility

Return Completed Application, Fee and Associated Materials to:

Indiana Department of Environmental Management
Cashiers Office – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

- I. FACILITY NAME Galena Waste water Treatment Plant
- II. CURRENT NPDES PERMIT NUMBER IN0052019 (New applicants will be assigned a number later.)
- III. MAILING ADDRESS
Address: 1829 E. Spring St. Suite 106
City: New Albany State: IN ZIP: 47150
- IV. OWNER OR LEGALLY RESPONSIBLE PARTY (TOWN BOARD/COUNCIL PRESIDENT, MAYOR, SUPERINTENDENT)
Name: Stephen R. Tolliver Title: President
Address: 1829 E. Spring St. Suite 106
City: New Albany State: IN ZIP: 47150
E-mail address: Steve@AUSLLC.COM Telephone number: (812) 284-9243
- V. WASTEWATER TREATMENT PLANT CERTIFIED OPERATOR
Name: Lowell Howard Certification number: 12392
Classification: Class III
Address: 1829 E. Spring St. Suite 106
City: New Albany State: IN ZIP: 47150
E-mail address: _____ Work telephone number: (812) 284-9243
- VI. RESIDENT MANAGER OR PERSON IN CHARGE ON SITE
Name: Stephen R. Tolliver
Address: 1829 E. Spring St. Suite 106
City: New Albany State: IN ZIP: 47150
E-mail address: Steve@AUSLLC.COM Telephone number: (812) 284-9243
- VII. CONSULTANT / ENGINEER: (IF APPLICABLE) N/A
Name: _____ Company: _____
Address: _____
City: _____ State: _____ ZIP: _____
E-mail address: _____ Telephone number: () - _____

NPDES SEMI PUBLIC AND MINOR MUNICIPAL INSTRUCTION SHEET

These instructions are provided to clarify the requirements of the NPDES Semi Public and Minor Municipal Permit Application. Each numbered statement corresponds to the numbered items in the application.

1. Check the appropriate box to indicate the type of ownership:

Semi-Public: any facility not municipally, state, or federally owned (i.e., mobile home parks, schools, restaurants, etc.)

Minor Municipal: any municipally owned facility with a design flow of less than 1 million gallons per day (MGD) (towns, cities)

State Owned: a facility owned by a state agency (state parks, state prisons, etc.)

Federally Owned: a facility owned by a federal agency (military installation, national park, federal penitentiary, etc.)

2. Type of permit requested:

New: the facility has never operated under an NPDES permit

Renewal: the facility is currently operating under a current or expired NPDES permit

Modification: the facility is operating under an NPDES permit but has made or is making significant changes (i.e., treatment process, or amount of flow)

3. Fill in issuance and expiration dates for current or expired NPDES permits.
4. List the actual physical location of the plant so that a person who has never been there can pinpoint it on a map. The description should include street names and addresses, county road numbers, and/or U.S. Geological Survey quadrangle name, section, township and range when applicable.
5. Insert the appropriate volumes in million gallons per day (MGD).

The Average Design Flow is defined as the volume of flow which the facility is designed to treat.

The Average Flow is defined as the average monthly volume of flow through the facility. This number is obtained by averaging the reported flows from the last twelve (12) months of operation.

The Maximum Flow is defined as the maximum amount of flow that the facility is designed to treat.

6. Check the appropriate type of sewer system. If the system is combined storm and sanitary sewers, then also include the percentage of the sewer system that is combined.
7. A Bypass Point is defined as any point in the system where wastewater can be intentionally diverted to avoid treatment at the facility. Check the appropriate box to indicate whether such points exist. Also, list the corresponding 3-digit ID number of each bypass, a detailed location description, and the receiving stream. If more than three (3) bypass points exist, attach a supplemental sheet to this application.
8. An Overflow Point is defined as any point in the collection system where wastewater can be unintentionally discharged from the collection system. Check the appropriate box to indicate whether such points exist. Also, list the corresponding 3-digit ID number of each overflow, a detailed location description, and the receiving stream. If more than three (3) overflow points exist, attach a supplemental sheet to this application.
9. Enter the number of existing plant outfalls other than bypass or overflow points. List all outfalls by their 3-digit ID numbers and provide a detailed description of their location (preferably using longitude and latitude) and their respective receiving streams. Mark each point on a topographic map.

10. Check whether the facility discharges within two (2) miles upstream of any lake, reservoir, or sinkhole. If it does, provide the name of the lake, reservoir, or state that it enters a sinkhole. The distance is to be calculated from the actual outfall point to the receiving stream's entry point to any lake, reservoir, or sinkhole.
11. Check whether the facility discharges within forty (40) miles upstream of any lake, reservoir, or sinkhole. If it does, provide the name of the lake, reservoir, or state that it enters a sinkhole. The distance is to be calculated from the actual outfall point to the receiving stream's entry point to any lake, reservoir, or sinkhole.
12. Enter the distance from this facility to the nearest publicly-owned treatment works measured as a straight line from facility to facility. Also, identify the name of the treatment facility.
13. List the name of the stream receiving the facility's discharge. If the receiving stream is an unnamed ditch, swale, or field tile, then also list the first named water body that the receiving stream flows into (i.e., an unnamed ditch to Blue River).
14. Identify any industries which contribute industrial process wastewater to the collection system. Also, estimate the percentage of total volume of influent that industrial wastewaters comprise and check all the contaminants that have the potential to be present in the industrial wastewaters.
15. If the facility is a municipal treatment facility with significant industrial flow, or is a new facility, enter the population served as well as the population equivalent. The population equivalent is defined by 327 IAC 5-22-3(9) as the calculated population which would contribute a particular amount of biochemical oxygen demand (BOD) per day, using the base of seventeen-hundredths (0.17) pounds of five (5) day BOD per capita per day.
16. If the facility is a semi-public treatment facility, enter the number of customers served.
17. Check the box that describes the level of treatment provided by the treatment facility. Note that any treatment facility designed to remove ammonia is considered to provide advanced treatment.
18. Indicate whether the facility operates as a controlled or continuous discharger. A controlled discharge is defined by 327 IAC 5-1-2-(8) as a discharge of wastewater from a wastewater treatment plant which is designed and operated to control the volume of discharge, either by manual adjustment or by an automated control mechanism, such that the discharge rate does not exceed a prescribed fraction of the stream flow rate at any given time.
19. Check all treatment processes currently in operation at the facility.
20. Check the type of disinfection utilized by the facility, as well as the application method used (i.e., Chlorine tablets, Chlorine gas, etc.). Do the same for the dechlorination question. If the facility utilizes ultra-violet (UV) light disinfection, also indicate whether a UV light intensity meter is installed. If another method of disinfection is utilized, or none at all, please explain.
21. Check the type of sludge handling method(s) utilized. If another method is used, explain.
22. Check the method of sludge disposal utilized. For land application of solid or liquid wastes, include the land application permit number as well. If another method of disposal is utilized, please explain.
23. List any recent, on-going, or proposed construction or change in treatment processes. Describe the construction or changes in detail, including the IDEM construction permit number and month of issuance. Add additional sheets, if necessary.
24. Describe the facility in detail including all equipment, processes and layout. Include a flow diagram, and a copy of a topographic map marking the location of the facility, all combined sewer overflow (CSO) and bypass points, and all plant outfalls.

**NPDES SEMI PUBLIC AND MINOR MUNICIPAL
PERMIT APPLICATION**

FACILITY NAME: Galena WWT

NPDES PERMIT NUMBER: IN00 52019

1. Facility Type:

☒ Semi-Public ☐ Minor Municipal ☐ State Owned ☐ Federally Owned

2. Type of Permit Action Requested:

☐ New ☒ Renewal ☐ Modification

3. If Facility has an Existing Permit:

Date of Issuance (month/day/year): 10/01/2010 Date of Expiration (month/day/year): 09/30/2015

4. Facility Location: List the actual physical location of the plant so that a person who has never been there can pinpoint it on a map. The description should include street names and addresses, county road numbers, and/or U.S. Geological Survey quadrangle name, section, township and range when applicable.

Address: Approx. 1 mile east of Galena, @ Hwy 150,

City: Floyd/Knobs State: IN ZIP: _____ County: USA

in South west 1/4 of Section 11, Township 2 South, Range 5
East, Georgetown Quadrangle, Floyd County INDIANA

5. Facility Capacity: Please answer the following questions in million gallons per day (MGD):

Average Design Flow .037 Average Flow .033 Maximum Flow .074

6. Collection System: (check one of the following)

☒ 100 % Sanitary Sewers ☐ Combined Storm and Sanitary Sewers

If combined, what percentage of collection system is combined? _____ %

7. Does the treatment system contain any bypass points? ☐ Yes ☒ No

If Yes, provide the bypass ID number(s) and corresponding location(s). (Attach additional sheets, if necessary.)

| | |
|------------------|-------------------------|
| ID number: _____ | Location: _____ |
| | Receiving Stream: _____ |
| ID number: _____ | Location: _____ |
| | Receiving Stream: _____ |
| ID number: _____ | Location: _____ |
| | Receiving Stream: _____ |

NPDES PERMIT NUMBER: IN00 52019

8. Does the treatment system contain any overflow points? ☐ Yes ☒ No

If Yes, provide the bypass ID number(s) and corresponding location(s). (Attach additional sheets, if necessary.)

ID number: _____, Location: _____
Latitude/Longitude: _____
Receiving Stream: _____
ID number: _____, Location: _____
Latitude/Longitude: _____
Receiving Stream: _____

9. Facility Outfalls:

Number of separate plant outfalls (other than bypass or overflow points): _____

List all separate plant outfalls below: (Attach additional sheets, if necessary.)

ID number: 001 Location: about 50 feet north of WWTP
Latitude/Longitude: _____
Receiving Stream: unnamed tributary to Little Indian Creek
ID number: _____, Location: _____
Latitude/Longitude: _____
Receiving Stream: _____

10. Does the facility discharge within two (2) miles upstream of a lake, reservoir, or sinkhole?

☐ Yes ☒ No If Yes, name of lake, reservoir, or sinkhole: _____

11. Does the facility discharge within forty (40) miles upstream of a lake or reservoir?

☐ Yes ☒ No If Yes, name of lake, reservoir, or sinkhole: _____

12. What is the distance from this facility to the nearest publicly-owned treatment works? 10 Miles

What is the name of this facility? New Albany POTW

13. Receiving Stream:

Name of receiving stream: (If the immediate receiving stream is an unnamed ditch, swale, or field tile, so specify, but also give the name of the stream to which it is tributary.) unnamed tributary to Little Indian Creek to Ohio River

14. Waste Contributors:

Both Municipal and Non-Municipal:

List any industrial process water contributors: none

Percentage of flow due to industry: _____%

Does the discharge contain or have the potential to contain the following? (Check all that apply.)

☐ Al ☐ Cd ☐ Cr ☐ Cu ☐ Pb ☐ Hg ☐ Zn ☐ CN ☐ Ni ☐ Phenols

Others: _____

15. Municipal:

Population Served: 124 Population Equivalent: _____

NPDES PERMIT NUMBER: IN00 52019

16. Semi-Public: (Enter the number of customers currently served by the facility.)

Number of students: K thru 6 _____ Higher grades: _____
Number of mobile home units: _____ Number of campground lots, or motel units: _____
Beds: (If facility serves as a nursing home, hospital, etc.) _____
Commercial Establishments: _____

17. Treatment Description:

Type of Treatment:

☐ Primary ☒ Secondary ☐ Advanced

18. Is your facility designed to operate as a controlled discharger? ☐ Yes ☒ No

19. Treatment Processes: (Check all that apply.)

| | | |
|--|---|--|
| <input checked="" type="checkbox"/> Regular Activated Sludge | <input type="checkbox"/> Rotating Biological Contactors | <input type="checkbox"/> Anaerobic Digestion |
| <input type="checkbox"/> Two Day Lagoon | <input type="checkbox"/> Extended Aeration | <input type="checkbox"/> Aerobic Digestion |
| <input type="checkbox"/> Phosphorus Removal | <input type="checkbox"/> Oxidation Ditch | <input type="checkbox"/> Nitrification |
| <input type="checkbox"/> Rapid Sand Filter | <input type="checkbox"/> Sequential Batch Reactor | <input type="checkbox"/> Aerated Lagoons |
| <input type="checkbox"/> Microstrainer | <input checked="" type="checkbox"/> Post Aeration | <input type="checkbox"/> Trickling Filter |
| <input type="checkbox"/> Waste Stabilization Lagoon | <input checked="" type="checkbox"/> Flow Equalization | <input checked="" type="checkbox"/> Flow Meter |
| <input type="checkbox"/> Septic Tank | <input type="checkbox"/> Constructed Wetland | |

☐ If other processes are used, please check and explain as part of the facility description in item 24.

20. Disinfection:

☒ Chlorination Type/Method: 3" tablets
☒ Dechlorination Type/Method: 3" tablets
☐ Ultra-violet Light If ultra-violet light is used, is a UV light intensity meter installed? ☐ Yes ☐ No
☐ Other Method: (Please explain.) _____

21. Sludge Handling/Disposal:

Handling: (Check all that apply.)

☐ Sludge Thickener ☐ Sludge Drying Beds ☐ Belt Dryer ☐ Sludge Lagoons ☐ Composting
Other types of Dewatering: (Please explain.) Sludge is hauled liquid to another facility for dewatering.

22. Disposal: (Check all that apply.)

☐ Land Application Liquid Permit Number _____ ☐ Land Application Dried Permit Number _____
☐ Landfill ☐ Incineration ☐ Stockpile ☒ Hauling (hauler name) B&H
Other: _____

NPDES PERMIT NUMBER: IN00 52019

23. Facility Construction/Modification:

Is the facility proposing any new construction or facility modification at this time?

☐ Yes ☒ No

If Yes, describe in detail the nature of the construction including proposed time tables, IDEM Construction Permit Approval Number, and date of construction approval:

24. Facility Description:

Provide a narrative description of the wastewater treatment facility detailing equipment and plant layout. Providing a separate, detailed flow diagram or design summary is also recommended.

Influent bar screen, flow equalization tank, extended aeration
plant with chlorination/dechlorination tablet feeders,
flow meter, and post aeration

Signature Block:

This application **must** be signed by a person in responsible charge (such as the owner, partner, a corporate officer, school board president, school superintendent, etc.) to be valid. This signature, attests to the following:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information to be true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Stephen R. Tolliver

(Printed Name of Person Signing)

01/19/2015

(Date of Application) (month/day/year)

President

(Title)

Stephen R. Tolliver

(Signature of Applicant)

Return Completed Application, Fee and Associated Materials to:

Indiana Department of Environmental Management
Cashiers Office – Mail Code 50-10C
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

OWQ Form: Affected

TO: Applicant

FROM: Indiana Department of Environmental Management
Office of Water Quality
Municipal NPDES Permits Section

SUBJECT: Identification of Potentially Affected Persons

The Administrative Orders and Procedures Act (AOPA) IC 4-21.5, requires that the Department of Environmental Management (IDEM) give notice of its decision on your application to the following persons:

- (a) each person to whom the decision is specifically directed;
- (b) each person to whom a law requires notice be given;
- (c) each competitor who has applied to the IDEM for a mutually exclusive license, if issuance is the subject of the decision and the competitor's application has not been denied in an order for which all rights to judicial review have been waived or exhausted;
- (d) each person who has provided the IDEM with a written request for notification of the decision;
- (e) each person who has a substantial and direct proprietary interest in the issuance the (permit) (variance);
- (f) each person whose absence as a party in the proceeding concerning the (permit) (variance) decision would deny another party complete relief in the proceeding or who claims an interest related to the issuance of the (permit) (variance) and is so situated that the disposition of the matter, in the person's absence may:

- (1) as a practical matter impair or impede the person's ability to protect that interest, or
- (2) leave any other person who is a party to a proceeding concerning the permit subject to a substantial risk of incurring multiple or otherwise inconsistent obligations by reason of the person's claim interest.

IC 4-21.5-3-5(f) provides that IDEM may request your assistance in identifying these people.

Additionally, IC 13-15-3-1 requires IDEM to send notice that the permit application has been received by the department to the following:

- (a) The county executive of a county affected by the permit application.
- (b) The executive of a city that is affected by the permit application.
- (c) The executive of a town council of a town affected by the permit application.

Please provide on the following form the names of those persons affected by these statutes, and include mailing labels with your application. These mailing labels should have the names and addresses of the affected parties along with our mailing code (65-42PS) listed above each affected party listing.

Example: 65-42PS
John Doe
111 Circle Drive
City, State, ZIP Code

IDENTIFICATION OF POTENTIALLY AFFECTED PERSONS

Please list here any and all persons whom you have reason to believe have a substantial or proprietary interest in this matter, or could otherwise be considered to be potentially affected under the law. Failure to notify any person who is later determined to be potentially affected could result in voiding our decision on procedural grounds. To ensure conformance with Administrative Orders and Procedures Act (AOPA) and to avoid reversal of a decision, please list all such parties. The letter attached to this form will further explain the requirements under the AOPA. Attach additional names and addresses on a separate sheet of paper, as needed. Please indicate below the type of action you are requesting.

| | |
|---|--|
| Name <u>Floyd County Health Dept.</u> Street <u>1917 Bond Rd.</u> City, State, and ZIP <u>New Albany IN. 47150</u> | Name _____ Street _____ City, State, and ZIP _____ |
| Name <u>Floyd County Plan Commission</u> Street <u>City - County Bldg. 311 Hous Sp</u> City, State, and ZIP <u>New Albany IN. 47150</u> | Name _____ Street _____ City, State, and ZIP _____ |
| Name _____ Street _____ City, State, and ZIP _____ | Name _____ Street _____ City, State, and ZIP _____ |
| Name _____ Street _____ City, State, and ZIP _____ | Name _____ Street _____ City, State, and ZIP _____ |

Please complete this form by signing the following statement:

I certify that to the best of my knowledge I have listed all potentially affected parties, as defined by IC 4-21.5.

| | |
|--|---------------------------------------|
| Signature <u>Stephen R. Pollner</u> | Date (month/day/year) <u>01/19/15</u> |
| Printed Name <u>Stephen R. Pollner</u> | |
| Facility Name <u>Galena WWTP</u> | |
| Address <u>1829 G Spring St Suite 106</u> <u>New Albany, IN 47150</u> | |

Type of Action: (check one)

- ☐ NPDES Permit-327 IAC 5
- ☐ Land Application Permit-327 IAC 6.1
- ☐ Confined Feeding Approval-IC 13-18-10
- ☐ Sewer Ban Waiver Request-327 IAC 4
- ☐ Operator Certification-327 IAC 5-22
- ☐ Pretreatment Permit -327 IAC 5
- ☐ Construction Permit-327 IAC 3

If Fee Is Required, Return To: (include NPDES permit number on check)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 Cashiers Office - Mail Code 50-10C
 100 North Senate Avenue
 Indianapolis, Indiana 46204-2251

If No Fee Is Required, Return To:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
 Office of Water Quality - Mail Code 65-42
 Municipal Permit Section
 100 North Senate Avenue
 Indianapolis, Indiana 46204-2251

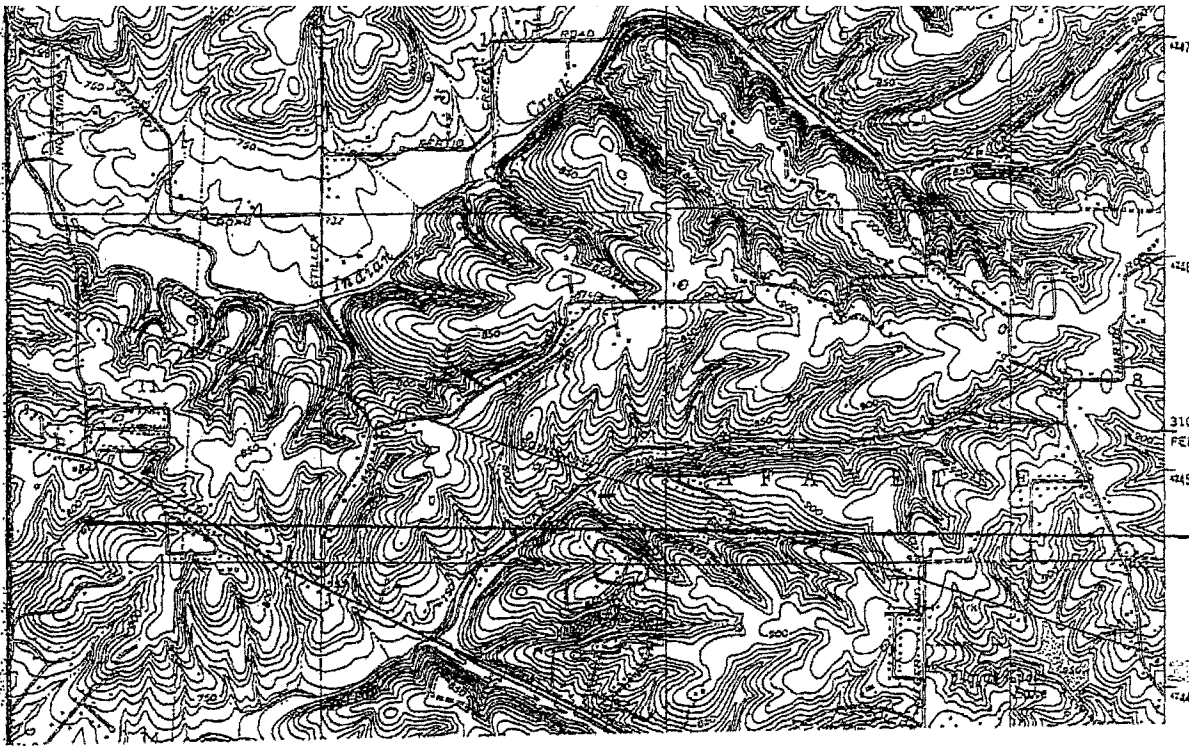
FEE INFORMATION FOR NPDES PERMIT APPLICATIONS

The following revised fees were established, pursuant to IC 13-18-20-12 to defray the costs of processing the permit applications for the NPDES permit program from **all** NPDES permit applicants:

- (1) When an application is filed with the Indiana Department of Environmental Management (IDEM), concerning a NPDES Permit action a fifty dollar (\$50) application fee must be remitted. A permit action includes an application for an initial permit, the renewal of a permit, the modification of a permit, or a variance of a permit or permit limitation. If the application fee is not remitted the IDEM shall deny the permit application.
- (2) The permittee will remit the fee at the time the application, or a request for modification is filed with the IDEM. No fee will be assessed for permit modifications initiated by the IDEM.
- (3) For construction activity subject to 327 IAC 15-5, a fee of one hundred dollars (\$100) shall be submitted with a Notice of Intent (NOI) letter.
- (4) **The fees specified above will be payable to the Indiana Department of Environmental Management.** Any fee submitted will not be refundable once substantive processing of the permit application has commenced.

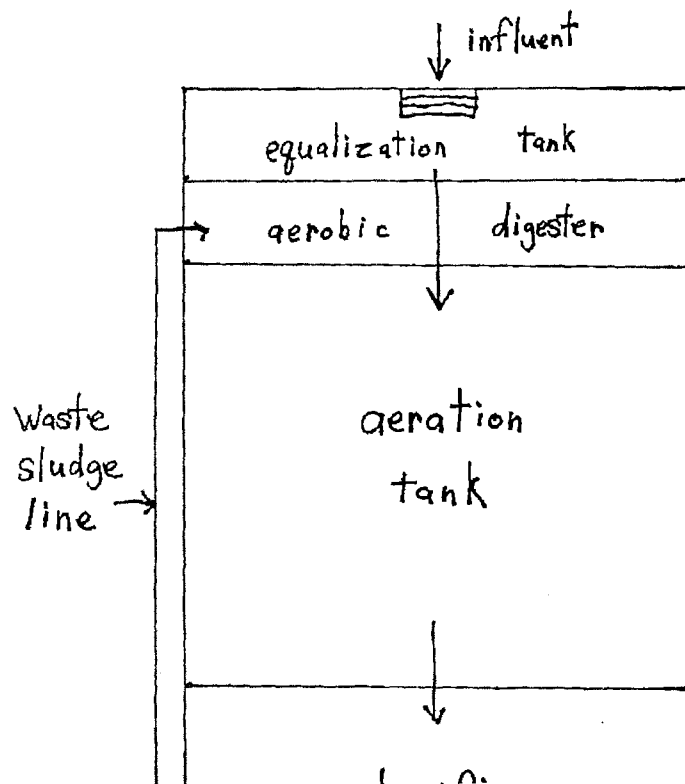
Additionally the issuance of (or existence of) a NPDES Permit will require the permittee to pay an annual fee for which billing will be made by the IDEM, all in accordance with IC 13-18-20. If there are any questions pertaining to the annual fee schedule contained in the regulation, they should be directed to the Operations Section of the Office of Water Quality at 317/232-8472.

Please send the completed forms and appropriate fee together with a cover letter to the **Indiana Department of Environmental Management, Cashiers Office – Mail Code 50-10C, 100 North Senate Avenue, Indianapolis, Indiana 46204-2251.**



Discharge
001
Existing NPE
Permit No.
0052019

Galena Wastewater Treatment Plant





Stephen R. Tolliver, Sr.
President

Indiana Department of Environmental Management
Cashiers Office- Mail Code 50-10C
100 North Senate Avenue
Indianapolis, Indiana 46204-2251

January 21, 2015

To whom it may concern:

See attached NPDES Permit Renewal Application for IN0052019 & \$50.00 Check.

Re: Galena Wastewater Treatment Plant

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Stephen R. Tolliver Sr.", is written over a horizontal line.

Stephen R. Tolliver Sr.
President

Enclosures

Cc: Wally Howard
Justin Laswell
Mike Amburn
file

ATTACHMENT C

ATTACHMENT C

APPROVED BY
CONFERENCE MINUTES
30-Day Filing No. 50144
April 25, 2018
INDIANA UTILITY REGULATORY COMMISSION

I.U.R.C. No. S-6
Replacement Sheet No. 1

Schedule of Sewer Rates and Charges - S-6

Applicability: Applicable to current and future customers receiving water utility service from system operated by the Wymberly Division of Aqua Indiana, Inc. and previously operated by Wymberly Sanitary Works, Inc. in Floyd County, Indiana.

RATE FOR RESIDENTIAL CUSTOMERS

Sanitary Sewage Disposal Service, Flat Rate \$ 77.48 per month

RATE FOR COMMERCIAL CUSTOMERS

Base charge, regardless of water usage \$ 1.94 per month
Variable charge, based on metered water usage \$ 3.34 per 1,000 gallons

NON-RECURRING RATE

Tap-Inspection Fee \$ 175.00
Reconnection Fee \$ 15.00

LATE PAYMENT PENALTY FEE

The Company will collect a late payment charge in the amount of ten percent (10%) of the first three dollars (\$3.00) of a delinquent amount and three percent (3%) of the delinquent amount excess of three dollars (\$3.00).

CAPACITY CHARGE

Capacity charge \$ 2,800.00

A capacity charge will be billed for each connection. One-half of the capacity charge is to be paid upon request for service and one-half to be paid upon connection of service.

ATTACHMENT D

2017

Annual Report

AQUASM

ATTACHMENT D

Proud to be part of our nation's water and wastewater infrastructure solution.

Forward-Looking Information

This document includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the “Securities Act”) and Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Forward-looking statements are based on management’s beliefs and assumptions. Various factors may cause actual results to be materially different than the suggested outcomes within forward-looking statements. Accordingly, there is no assurance that such results will be realized. For details on the uncertainties that may cause the Company’s actual future results to be materially different than those expressed in our forward-looking statements, see our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q filed with the Securities and Exchange Commission (“SEC”) and available on the SEC’s website at www.sec.gov. In light of these risks, uncertainties, and assumptions, the events described in the forward-looking statements might not occur or might occur to a different extent or at a different time than described. Forward-looking statements speak only as of the date they are made. Aqua America, Inc. expressly disclaims an obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.



Aqua America's Core Values: Integrity, Respect and the Pursuit of Excellence.

At Aqua, our values are close to heart, embedded at the core of our company and reinforce the commitment we have to being exceptional. They are the principles that guide and inspire our work as a leader in the renewal of our nation's water and wastewater infrastructure for stronger communities.

Integrity: Aqua is a place of honesty, good character and trust. We care about one another, our customers and our mission of protecting and providing Earth's most essential resource.

Respect: We are committed to one another, our customers, the community and the environment. We respect our well-being and the importance of time with family and friends.

Excellence: Whether at home or at work, we seek growth and development opportunities and excel in safety and customer service. We work to uphold a successful company that maximizes shareholder value.

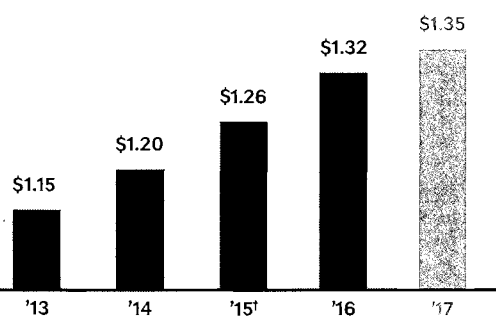
At Aqua, we approach every day with **integrity, respect and the pursuit of excellence** to be the best we can be.

Financial Highlights

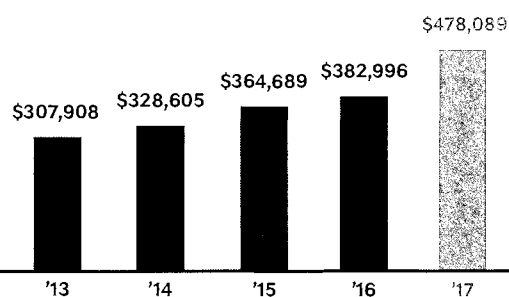
in thousands of dollars, except per-share amounts

| | 2017 | 2016 | % Change |
|--|-------------|-------------|----------|
| Operating revenues | \$809,525 | \$819,875 | (1.3%) |
| Regulated segment | | | |
| Operating revenues | \$804,905 | \$800,107 | 0.6% |
| Operating and maintenance expense | \$286,962 | \$285,347 | (0.6%) |
| Net income | \$239,738 | \$234,182 | 2.4% |
| Diluted net income per common share | \$1.35 | \$1.32 | 2.2% |
| Annualized dividend rate <small>per common share (12/31)</small> | \$0.818 | \$0.765 | 7.0% |
| Total assets | \$6,332,463 | \$6,158,991 | 2.8% |
| Number of utility customers served | 982,849 | 972,265 | 1.1% |

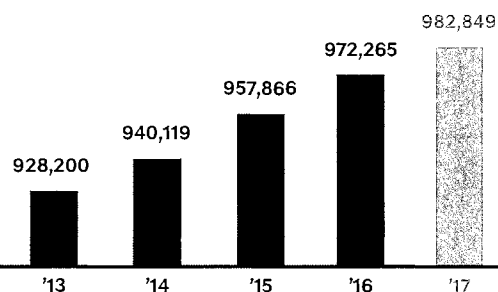
Diluted Net Income per Common Share



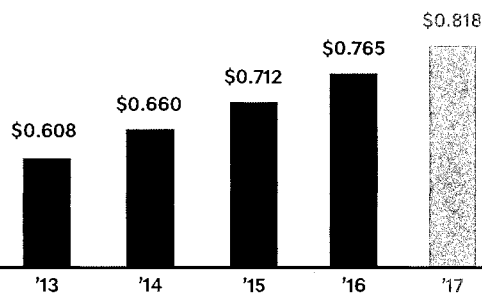
Capital Spending (existing operations)



Utility Customer Connections (continuing operations)



Dividend per Share (annualized)



[†]2015: Income from Continuing Operations adjusted for Joint Venture Impairment Charge (a Non-GAAP Financial Measure).
2015 Income from Continuing Operations per Share was \$1.14

A message from the Chairman & CEO

Christopher H. Franklin

Chairman, President, and Chief Executive Officer



The year 2017 ushered in a renewed national dialogue on the state of our country's infrastructure. Throughout the year, the nation's roads, bridges, water and wastewater systems were a topic of conversation from the Oval Office to dining room tables across the country. From calls for urgent investment in rapidly deteriorating infrastructure to frank discussions over how to fund such a vast need, it's been a critically important conversation – and one that Aqua has long been championing.

The state of our nation's water infrastructure

When it comes to water and wastewater infrastructure, the reality is that the United States has more than 1 million miles of underground pipe, much of which is nearly a century old and in dire need of replacement. According to the American Water Works Association, it will cost an estimated \$1 trillion to maintain and expand drinking water service to meet demands over the next 20 years. There is no question that upgrading water and wastewater infrastructure is a major challenge facing our country, and Aqua is proud to be leading the charge when it comes to offering a viable solution. As one of the largest publicly regulated water companies in the country, we are actively renewing and improving infrastructure through thoughtful and continuous capital investment. In fact, in 2017 alone, we invested \$478 million in water and wastewater infrastructure.

Aqua America's role in infrastructure renewal

Most importantly, our investment has had a direct impact on the communities we serve across our eight-state footprint – communities like:

- University Park, Illinois, where we were able to significantly improve water quality with a 14-mile pipeline project
- Lakes of Mission Grove, Texas, which lacked its own wastewater plant
- Southeastern Pennsylvania, where main breaks were reduced by 70 percent following significant infrastructure investments

You can read more about the investment Aqua has made in these communities in the pages that follow.

In September, I had the great honor of addressing the U.S. House of Representatives' Transportation and Infrastructure Committee's Subcommittee on Water Resources and the Environment, where I explained to legislators why publicly regulated utilities like Aqua are well positioned to play a major role in helping more cities and towns across the country address their water and wastewater needs. As I told Congress, the road to repairing and replacing water and wastewater infrastructure in the country should include private capital going to work to help solve the problem. In speaking out on these issues, I hope to continue encouraging discourse on the importance of infrastructure investment, and about our willingness to be a part of the solution.

Investment in water infrastructure is an important component of our business strategy. It ensures that we can continue to provide safe and reliable water and wastewater services, which in turn leads to increased customer confidence and supports Aqua's excellent reputation. Additionally, this investment is the base from which we grow shareholder value.

A three-pronged strategy for growth

Our work to continue building shareholder value manifests itself in our three-pronged growth strategy. The company has followed this strategy for two years and it is proving successful. The first prong of the strategy is our work to become the solution chosen by middle-market municipal water and wastewater utilities as they face the financial, compliance and operational challenges of running utility systems. Unlike elected officials who must share their daily focus beyond running a utility with responsibilities in human services, public safety, and roads and bridges, among other challenges, our dedicated employees at Aqua focus their undivided time improving and maintaining water and wastewater infrastructure.

Since we've applied our three-pronged strategy two years ago, we've acquired more customers from municipal systems than we had in the previous eight years, and our pipeline of opportunities is stronger than ever before.

The second prong of our strategy focuses on the acquisition of regulated utilities. Over many years, we've developed a deep expertise installing pipe and plant and successfully recovering the cost of the capital and return on the capital through the regulatory process. In fact, we've installed 538 miles of main, just in the past three years. Our expertise in this area can be more broadly applied to solve infrastructure rehabilitation issues faced by other utilities through a disciplined acquisition program. Management and the board continue to explore opportunities to apply our core expertise by seeking relationships that could lead to the acquisition of additional regulated operations.

While market premiums for mergers and acquisitions remain elevated, our work in this area remains active and the team is attentive to potential opportunities in the regulated market.

Our third prong in the growth strategy considers market-based opportunities. These are acquisition opportunities that are outside the regulated business but would complement the regulated business and capitalize on our core strengths.

Our activity in this area requires that any opportunity would be scalable, would come with a management team and would provide a product or service that would include regulated utilities as their customers. Although we have considered several market-based opportunities, the regulated market has been particularly active and has required the largest portion of management's time.

Since 2015, we have sold the small, market-based businesses that were determined not to be scalable and have focused almost entirely on the regulated business. While market-based opportunities remain in our strategy, our near-term activity will focus primarily on the regulated business.

A strong commitment to stakeholders

For the last 25 years, I have been proud to work for a company that is driven by talented, motivated employees who give back to the communities in which we operate. On behalf of the senior leadership team and board of directors, I thank each employee who focuses every day on supporting Aqua's mission to protect and provide Earth's most essential resource. I'd also like to extend a special thanks to our shareholders for your continued confidence and support, which enables us to execute on our goals so successfully.

As Americans and as the current stewards of our country's infrastructure, we believe we have a responsibility not only to our company and our shareholders, but also to our fellow citizens, to invest in and maintain our infrastructure. Our infrastructure is basic to our quality of life, commerce and security – our commitment has never been stronger.

With appreciation,



According to the American Water Works Association, it will cost an estimated \$1 trillion to maintain and expand drinking water service to meet demands over the next 20 years.



Renewed Infrastructure Benefits Customers and the Environment

Aqua Pennsylvania owns and is responsible for 5,800 miles of pipe—varying in size, type and age—in 32 counties. Much of this water infrastructure is approaching the end of its useful lifecycle, making it susceptible to main breaks, service interruptions and water discoloration. It also increases customer dissatisfaction and what's known as non-revenue water – water lost through leaks, breaks, and so on, before it passes through a customer meter. Managing a distribution system of this size requires substantial planning, expertise and foresight.



“

Over the past few years, Aqua has shown the Treasure Lake Property Owners Association their true ability in water supply service and customer care. Aqua has gone above and beyond in their efforts while working with the TLPOA including the assistance of traffic control, road closures and detours, and clean-up of work areas. The entire Aqua staff has shown us a great level of understanding and respect when it comes to our needs and requirements at Treasure Lake. We look forward to building a stronger and more efficient water system with Aqua in the future.

”

Shirley Elmore, CMCA, AMS, PCAM
General Manager
Treasure Lake Property Owners Association



When we purchased the Treasure Lake system, only 60 percent of the water leaving the well stations reached customers. We have since replaced 15 percent of the distribution system, increasing deliverability to nearly 80 percent with a goal to increase that further by the end of 2019.

Patrick Burke
Director, Operations
Aqua Pennsylvania

SOLUTION

Aqua Pennsylvania has proactively focused on its main replacement program to better serve its customers. In 2017 alone, Aqua Pennsylvania completed nearly 200 projects, replacing 135 miles of main with an investment of \$141 million. Over the life of the main replacement program, Aqua Pennsylvania has replaced more than 1,700 miles of pipe with an investment of \$1.4 billion.

OUTCOME

Aqua Pennsylvania's investment in the state's water and wastewater infrastructure continues to benefit customers and the environment alike. When the program started, the pipes were on a 900-year replacement cycle. Today, that has been significantly reduced to a 90-year replacement cycle. The benefits of the main replacement program have been most dramatic in its southeastern division—the largest with 4,600 miles of main that serve 1 million people. Main breaks there have been reduced by 70 percent to an all-time low of eight breaks per 100 miles of pipe, per year, and customer complaints have fallen by 59 percent. Non-revenue water also continues to trend downward, reducing expenses for power and treatment chemicals, which ultimately protects our ecosystem. In 2017, non-revenue water was 17.5 percent, which is excellent for a system the size and age of the southeast division.





Expertise and Persistence Delivers for Illinois Residents and Businesses

Residents and businesses of University Park, Illinois were served by a water source that contained high levels of iron, calcium and magnesium, creating taste and hardness issues. Many relied on water softeners and filters to reduce hardness. While the water met all U.S. Environmental Protection Agency regulations, it fell short of customer expectations. The well source was simply not good, leaving Aqua Illinois with a complicated problem.

SOLUTION

Aqua Illinois conducted a feasibility study to explore a set of potential solutions; enhancing wells, improving treatments or running a pipeline from a better water source to University Park. Extending the pipeline would be complex both physically and financially, requiring Aqua Illinois to navigate jurisdiction issues, obtain easements and design around waterways and farm fields. Thanks to the experienced and dedicated staff of Aqua Illinois, construction began in late 2016 and successfully concluded in November 2017. The 14 miles of new pipeline runs from Aqua Illinois' award-winning Kankakee plant to its customers in University Park.



A huge upside is the cost savings and no more lugging bags of salt down to the water softener. Now our water comes straight to the tap clean and ready to drink.

Joe Dascenzo
Resident
Monee, IL



“ Since Aqua started delivering filtered and softened water from the Kankakee Water Treatment Plant, Arctic Glacier Ice has seen the water quality characteristics improve dramatically. As a result of the improved water quality, Arctic Glacier Ice is now able to produce crystal clear ice of the highest quality for our customers. ”

Tim Teehan
Operations Manager
Arctic Glacier Ice

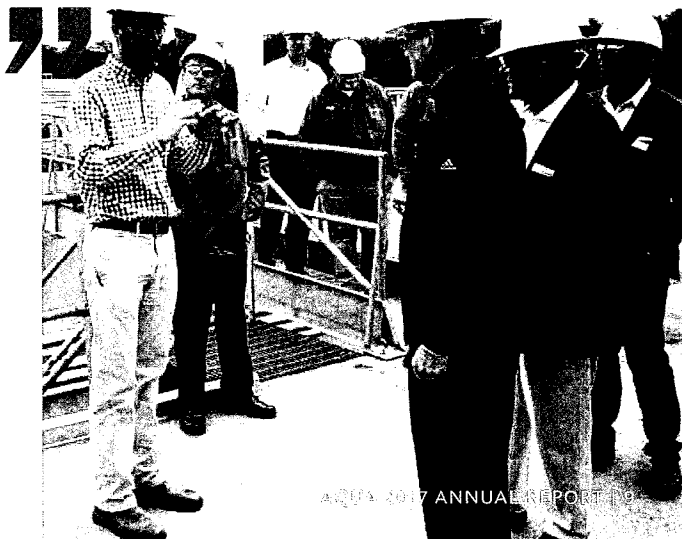
OUTCOME

Aqua Illinois is proud that both residents and businesses are benefiting from this expansive project. University Park customers have seen a **90 percent reduction in iron** and a **70 percent reduction in hardness**. The pipeline project also increased water capacity, which is attracting new economic development to the area.



“ I have made it a top priority of my administration to improve water quality and attract growth to our community. Working with Aqua, University Park now has the best tasting water in the State and a reliable water system capable of promoting quality residential, commercial, and industrial growth in our community. ”

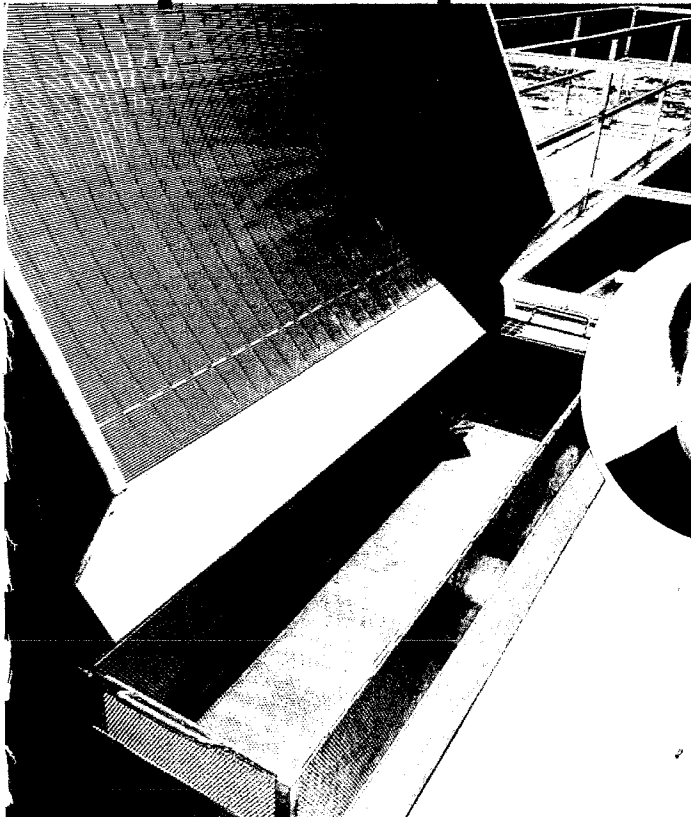
Vivian Covington
Mayor
Village of University Park, IL





New Texas Wastewater Plant Increases Capacity Five-Fold

When Aqua Texas acquired the Lakes of Mission Grove system, the community's population was so low that the volume of wastewater produced couldn't sustain its own treatment plant. This required Aqua Texas to haul wastewater to a treatment plant each day.



“It’s essential that we adequately plan for the growth of the systems for the families we serve.”

Bob Laughman
President
Aqua Texas

The completion of the wastewater treatment plant makes the Lakes of Mission Grove subdivision one of the most desirable small communities in the county.

Carolyn Schiller

Resident

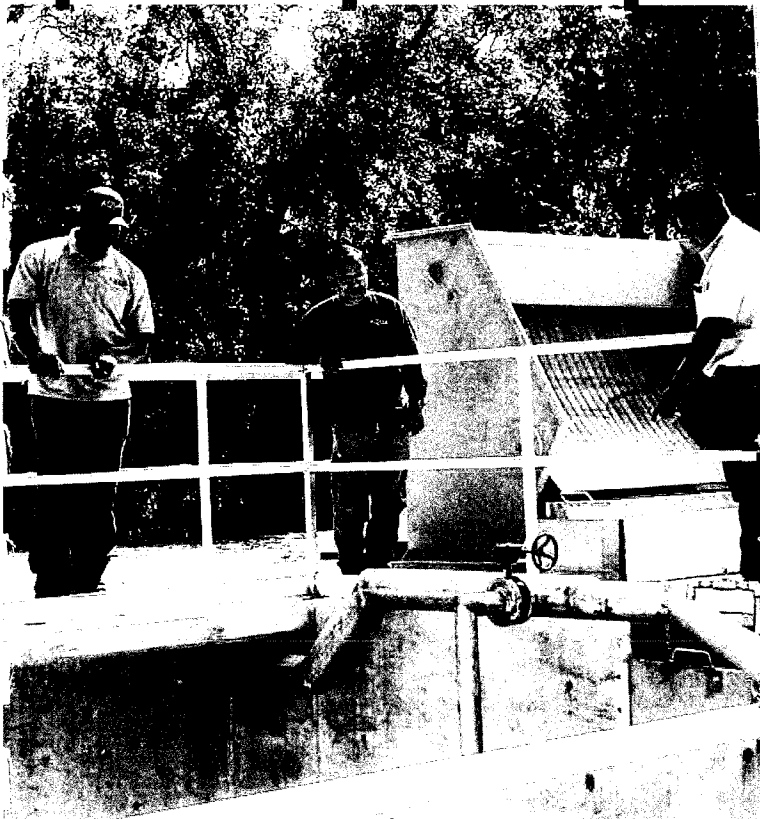
Lakes of Mission Grove Homeowners Association

SOLUTION

When the community's population started to rapidly grow, Aqua was able to plan for a new wastewater treatment plant that could serve current residents and new families to come. In 2016, Aqua Texas began the bidding process for the engineering of what would become a \$1.2 million plant to serve the Lakes of Mission Grove residents.

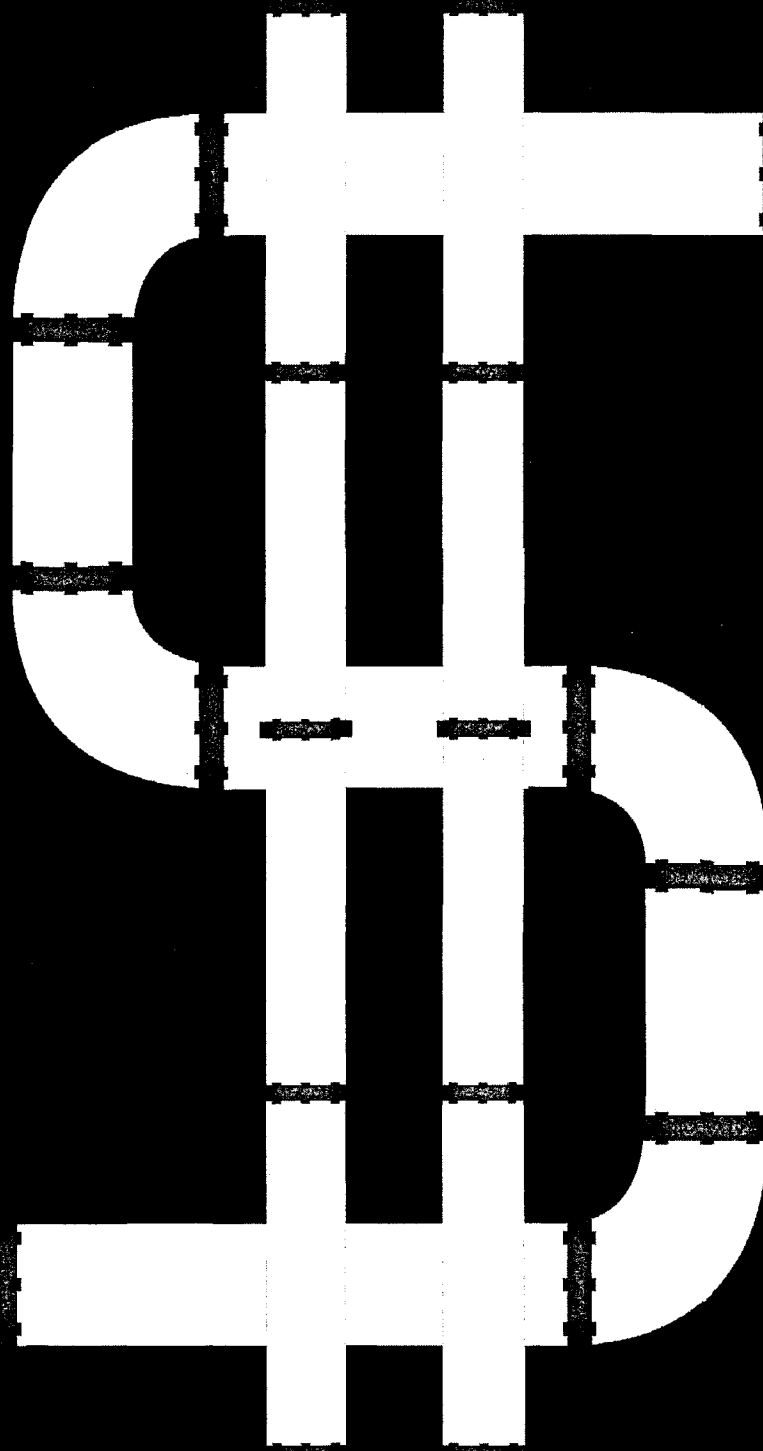
OUTCOME

The project successfully concluded in November 2017, providing a new treatment capacity of 135,000 gallons of wastewater per day, serving an additional 500 homes. The efficient new plant provides significant operational savings and increased environmental benefits.



2017

Financial Data



AQUASM

AQUA AMERICA, INC. AND SUBSIDIARIES
Management's Discussion and Analysis of Financial Condition and Results of Operations
(In thousands of dollars, except per share amounts)

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this Annual Report (the "Annual Report") are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 that are made based upon, among other things, our current assumptions, expectations, plans, and beliefs concerning future events and their potential effect on us. These forward-looking statements involve risks, uncertainties and other factors, many of which are outside our control that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. In some cases you can identify forward-looking statements where statements are preceded by, followed by or include the words "believes," "expects," "anticipates," "plans," "future," "potential," "probably," "predictions," "intends," "will," "continue," "in the event" or the negative of such terms or similar expressions.

Because forward-looking statements involve risks and uncertainties, there are important factors that could cause actual results to differ materially from those expressed or implied by these forward-looking statements, including but not limited to:

- changes in general economic, business, credit and financial market conditions;
- changes in governmental laws, regulations and policies, including those dealing with taxation, the environment, health and water quality, and public utility regulation;
- the profitability of future acquisitions;
- changes to the rules or our assumptions underlying our determination of what qualifies for an income tax deduction for qualifying utility asset improvements;
- the decisions of governmental and regulatory bodies, including decisions on rate increase requests;
- our ability to file rate cases on a timely basis to minimize regulatory lag;
- abnormal weather conditions, including those that result in water use restrictions;
- changes in, or unanticipated, capital requirements;
- changes in our credit rating or the market price of our common stock;
- changes in valuation of strategic ventures;
- our ability to integrate businesses, technologies or services which we may acquire;
- our ability to manage the expansion of our business;
- our ability to treat and supply water or collect and treat wastewater;
- the extent to which we are able to develop and market new and improved services;
- the effect of the loss of major customers;
- our ability to retain the services of key personnel and to hire qualified personnel as we expand;
- labor disputes;
- increasing difficulties in obtaining insurance and increased cost of insurance;
- cost overruns relating to improvements to, or the expansion of, our operations;
- increases in the costs of goods and services;
- civil disturbance or terroristic threats or acts;
- the continuous and reliable operation of our information technology systems, including the impact of cyber security attacks or other cyber-related events;
- changes in accounting pronouncements;
- litigation and claims; and
- changes in environmental conditions, including the effects of climate change.

Given these risks and uncertainties, you should not place undue reliance on any forward-looking statements. You should read this Annual Report completely and with the understanding that our actual future results, performance and achievements may be materially different from what we expect. These forward-looking statements represent assumptions, expectations, plans, and beliefs only as of the date of this Annual Report. Except for our ongoing obligations to disclose certain information under the federal securities laws, we are not obligated, and assume no obligation, to update these forward-looking statements, even though our situation may change in the future. For further information or other factors

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

which could affect our financial results and such forward-looking statements, see *Risk Factors* included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017.

OVERVIEW

The following discussion and analysis of our financial condition and results of operations should be read together with our Consolidated Financial Statements and related Notes included in this Annual Report. This discussion contains forward-looking statements that are based on management's current expectations, estimates and projections about our business, operations and financial performance. All dollar amounts are in thousands of dollars, except per share amounts.

The Company

Aqua America, Inc., (referred to as "Aqua America", the "Company", "we", "us", or "our"), a Pennsylvania corporation, is the holding company for regulated utilities providing water or wastewater services to an estimated three million people in Pennsylvania, Ohio, Texas, Illinois, North Carolina, New Jersey, Indiana, and Virginia. Our largest operating subsidiary is Aqua Pennsylvania, Inc., which accounted for approximately 52% of our operating revenues and approximately 74% of our net income for 2017. As of December 31, 2017, Aqua Pennsylvania provided water or wastewater services to approximately one-half of the total number of people we serve. Aqua Pennsylvania's service territory is located in the suburban areas in counties north and west of the City of Philadelphia and in 27 other counties in Pennsylvania. Our other regulated utility subsidiaries provide similar services in seven other states. In addition, the Company's market-based activities are conducted through Aqua Infrastructure, LLC and Aqua Resources, Inc. Aqua Infrastructure provides non-utility raw water supply services for firms in the natural gas drilling industry. Aqua Resources provides water and wastewater service through two operating and maintenance contracts with municipal authorities close to our utility companies' service territory; and offers, through a third party, water and sewer line repair service and protection solutions to households. In 2017, we completed the sale of business units that are reported within the Company's market-based subsidiary, Aqua Resources, which installed and tested devices that prevent the contamination of potable water and repaired water and wastewater systems, and repaired and performed maintenance on water and wastewater systems. Additionally, during 2016 we completed the sale of business units within Aqua Resources, which were reported as assets held for sale in the Company's consolidated balance sheets, which provided liquid waste hauling and disposal services, and inspection, and cleaning and repair of storm and sanitary wastewater lines.

Industry Mission

The mission of the regulated water utility industry is to provide quality and reliable water service at reasonable rates to customers, while earning a fair return for shareholders. A number of challenges face the industry, including:

- strict environmental, health and safety standards;
- aging utility infrastructure and the need for substantial capital investment;
- economic regulation by state, and/or, in some cases, local government;
- declining consumption per customer as a result of conservation;
- lawsuits and the need for insurance; and
- the impact of weather and sporadic drought conditions on water sales demand.

Economic Regulation

Most of our water and wastewater utility operations are subject to regulation by their respective state utility commissions, which have broad administrative power and authority to regulate billing rates, determine franchise areas and conditions of service, approve acquisitions, and authorize the issuance of securities. The utility commissions also generally establish uniform systems of accounts and approve the terms of contracts with affiliates and customers, business combinations with other utility systems, and loans and other financings. The policies of the utility commissions often differ from state to state, and may change over time. A small number of our operations are subject to rate regulation by county or city government. Over time, the regulatory party in a particular state may change, as was the case for our Texas operations where, in 2014, economic regulation changed from the Texas Commission on Environmental Quality to the Public Utility Commission of Texas. The profitability of our utility operations is influenced to a great extent by the timeliness and

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

adequacy of rate allowances in the various states in which we operate. One consideration we may undertake in evaluating which states to focus our growth and investment strategy is whether a state provides for consolidated rates, a surcharge for replacing and rehabilitating infrastructure and other systems, and other regulatory policies that promote infrastructure investment and efficiency in processing rate cases.

Rate Case Management Capability – We strive to achieve the industry's mission by effective planning, efficient investments, and productive use of our resources. We maintain a rate case management capability to pursue timely and adequate returns on the capital investments that we make in improving our distribution system, treatment plants, information technology systems, and other infrastructure. This capital investment creates assets that are used and useful in providing utility service, and is commonly referred to as rate base. Timely and adequate rate relief is important to our continued profitability and in providing a fair return to our shareholders; thus, providing access to capital markets to help fund these investments. Accordingly, the objective of our rate case management strategy is to provide that the rates of our utility operations reflect, to the extent practicable, the timely recovery of increases in costs of operations (primarily labor and employee benefits, electricity, chemicals, transportation, maintenance expenses, insurance and claims costs, and costs to comply with environmental regulations), capital, and taxes. In pursuing our rate case strategy, we consider the amount of net utility plant additions and replacements made since the previous rate decision, the changes in the cost of capital, changes in our capital structure, and changes in operating and other costs. Based on these assessments, our utility operations periodically file rate increase requests with their respective state utility commissions or local regulatory authorities. In general, as a regulated enterprise, our water and wastewater rates are established to provide full recovery of utility operating costs, taxes, interest on debt used to finance capital investments, and a return on equity used to finance capital investments. Our ability to recover our expenses in a timely manner and earn a return on equity employed in the business helps determine the profitability of the Company. As of December 31, 2017, the Company's rate base is estimated to be \$4,125,000, which is comprised of:

- \$2,874,000 filed with respective state utility commissions or local regulatory authorities; and
- \$1,251,000 not yet filed with respective state utility commissions or local regulatory authorities.

Our water and wastewater operations are composed of 53 rate divisions, each of which requires a separate rate filing for the evaluation of the cost of service and recovery of investments in connection with the establishment of tariff rates for that rate division. When feasible and beneficial to our utility customers, we have sought approval from the applicable state utility commission to consolidate rate divisions to achieve a more even distribution of costs over a larger customer base. All of the eight states in which we operate currently permit us to file a revenue requirement using some form of consolidated rates for some or all of the rate divisions in that state.

Revenue Surcharges – Six states in which we operate water utilities, and five states in which we operate wastewater utilities, permit us to add a surcharge to their respective bills to offset the additional depreciation and capital costs associated with capital expenditures related to replacing and rehabilitating infrastructure systems. In all other states, water and wastewater utilities absorb all of the depreciation and capital costs of these projects between base rate increases without the benefit of additional revenues. The gap between the time that a capital project is completed and the recovery of its costs in rates is known as regulatory lag. This surcharge is intended to substantially reduce regulatory lag, which often acts as a disincentive to water and wastewater utilities to rehabilitate their infrastructure. In addition, some states permit our subsidiaries to use a surcharge or credit on their bills to reflect allowable changes in costs, such as changes in state tax rates, other taxes and purchased water costs, until such time as the new costs are fully incorporated in base rates.

Effects of Inflation – Recovery of the effects of inflation through higher water and wastewater rates is dependent upon receiving adequate and timely rate increases. However, rate increases are not retroactive and often lag increases in costs caused by inflation. On occasion, our regulated utility companies may enter into rate settlement agreements, which require us to wait for a period of time to file the next base rate increase request. These agreements may result in regulatory lag whereby inflationary increases in expenses may not yet be reflected in rates, or a gap may exist between when a capital project is completed and the start of its recovery in rates. Even during periods of moderate inflation, the effects of inflation can have a negative impact on our operating results.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

Growth-Through-Acquisition Strategy

Part of our strategy to meet the industry challenges is to actively explore opportunities to expand our utility operations through acquisitions of water and wastewater utilities either in areas adjacent to our existing service areas or in new service areas, and to explore acquiring market-based businesses that are complementary to our regulated water and wastewater operations. To complement our growth strategy, we routinely evaluate the operating performance of our individual utility systems, and in instances where limited economic growth opportunities exist or where we are unable to achieve favorable operating results or a return on equity that we consider acceptable, we will seek to sell the utility system and reinvest the proceeds in other utility systems. Consistent with this strategy, we are focusing our acquisitions and resources in states where we have critical mass of operations in an effort to achieve economies of scale and increased efficiency. Our growth-through-acquisition strategy allows us to operate more efficiently by sharing operating expenses over more utility customers and provides new locations for future earnings growth through capital investment. Another element of our growth strategy is the consideration of opportunities to expand by acquiring other utilities, including those that may be in a new state if they provide promising economic growth opportunities and a return on equity that we consider acceptable. The ability to successfully execute this strategy and meet the industry challenges is largely due to our core competencies, financial position, and our qualified and trained workforce, which we strive to retain by treating employees fairly and providing our employees with development and growth opportunities.

During 2017, we completed four acquisitions, which along with the organic growth in our existing systems, represents 10,584 new customers. During 2016, we completed 19 acquisitions, which along with the organic growth in our existing systems, represents 15,282 new customers. During 2015, we completed 16 acquisitions, which along with the organic growth in our existing systems, represents 17,747 new customers.

We believe that utility acquisitions, organic growth, and a potential expansion of our market-based business will continue to be the primary sources of growth for us. With approximately 53,000 community water systems in the U.S., 82% of which serve less than 3,300 customers, the water industry is the most fragmented of the major utility industries (telephone, natural gas, electric, water, and wastewater). In the states where we operate regulated utilities, we believe there are approximately 14,500 community water systems of widely-varying size, with the majority of the population being served by government-owned water systems.

Although not as fragmented as the water industry, the wastewater industry in the U.S. also presents opportunities for consolidation. According to the U.S. Environmental Protection Agency's ("EPA") most recent survey of wastewater treatment facilities (which includes both government-owned facilities and regulated utility systems) in 2012, there are approximately 15,000 such facilities in the nation serving approximately 76% of the U.S. population. The remaining population represents individual homeowners with their own treatment facilities; for example, community on-lot disposal systems and septic tank systems. The vast majority of wastewater facilities are government-owned rather than regulated utilities. The EPA survey also indicated that there are approximately 4,000 wastewater facilities in operation in the states where we operate regulated utilities.

Because of the fragmented nature of the water and wastewater utility industries, we believe that there are many potential water and wastewater system acquisition candidates throughout the United States. We believe the factors driving the consolidation of these systems are:

- the benefits of economies of scale;
- the increasing cost and complexity of environmental regulations;
- the need for substantial capital investment;
- the need for technological and managerial expertise;
- the desire to improve water quality and service;
- limited access to cost-effective financing;
- the monetizing of public assets to support, in some cases, the declining financial condition of municipalities; and
- the use of system sale proceeds by a municipality to accomplish other public purposes.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

We are actively exploring opportunities to expand our water and wastewater utility operations through regulated utility acquisitions or otherwise, including the management of publicly-owned facilities in a public-private partnership. We intend to continue to pursue acquisitions of government-owned and regulated water and wastewater utility systems that provide services in areas near our existing service territories or in new service areas. It is our intention to focus on growth opportunities in states where we have critical mass, which allows us to improve economies of scale through spreading our fixed costs over more customers – this cost efficiency should enable us to reduce the size of future rate increases. Currently, the Company seeks to acquire businesses in the U.S. regulated sector, which includes water and wastewater utilities and other regulated utilities, and to pursue growth ventures in market-based activities, by acquiring businesses that provide water and wastewater or other utility-related services, and investing in infrastructure projects.

Sendout

Sendout represents the quantity of treated water delivered to our distribution systems. We use sendout as an indicator of customer demand. Weather conditions tend to impact water consumption, particularly during the late spring, summer, and early fall when discretionary and recreational use of water is at its highest. Consequently, a higher proportion of annual operating revenues are realized in the second and third quarters. In general, during this period, an extended period of hot and dry weather increases water consumption, while above-average rainfall and cool weather decreases water consumption. Conservation efforts, construction codes that require the use of low-flow plumbing fixtures, as well as mandated water use restrictions in response to drought conditions can reduce water consumption. We believe an increase in conservation awareness by our customers, including the increased use of more efficient plumbing fixtures and appliances, may continue to result in a long-term structural trend of declining water usage per customer. These gradual long-term changes are normally taken into account by the utility commissions in setting rates, whereas significant short-term changes in water usage, resulting from drought warnings, water use restrictions, or extreme weather conditions, may not be fully reflected in the rates we charge between rate proceedings.

On occasion, drought warnings and water use restrictions are issued by governmental authorities for portions of our service territories in response to extended periods of dry weather conditions, regardless of our ability to meet unrestricted customer water demands. The timing and duration of the warnings and restrictions can have an impact on our water revenues and net income. In general, water consumption in the summer months is affected by drought warnings and restrictions to a higher degree because discretionary and recreational use of water is highest during the summer months, particularly in our northern service territories. At other times of the year, warnings and restrictions generally have less of an effect on water consumption. Currently, portions of our northern and central Texas service areas have conservation water restrictions. Drought warnings and watches result in the public being asked to voluntarily reduce water consumption.

The geographic diversity of our utility customer base reduces the effect of our exposure to extreme or unusual weather conditions in any one area of the country. During the year ended December 31, 2017, our operating revenues were derived principally from the following states: approximately 52% in Pennsylvania, 13% in Ohio, 9% in Texas, 8% in Illinois, and 7% in North Carolina.

Performance Measures Considered by Management

We consider the following financial measures (and the period to period changes in these financial measures) to be the fundamental basis by which we evaluate our operating results:

- earnings per share;
- operating revenues;
- income from continuing operations;
- earnings before interest, taxes, and depreciation (“EBITD”);
- earnings before income taxes as compared to our operating budget;
- net income; and
- the dividend rate on common stock.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

In addition, we consider other key measures in evaluating our utility business performance within our Regulated segment:

- our number of utility customers;
- the ratio of operations and maintenance expense compared to operating revenues (this percentage is termed "operating expense ratio");
- return on revenues (income from continuing operations divided by operating revenues);
- rate base growth;
- return on equity (net income divided by stockholders' equity); and
- the ratio of capital expenditures to depreciation expense.

Furthermore, we review the measure of earnings before unusual items that are noncash and not directly related to our core business, such as the measure of adjusted earnings to remove the joint venture impairment charge, which was recognized in 2015. Refer to Note 1 – *Summary of Significant Accounting Policies – Investment in Joint Venture* in this Annual Report for information regarding the impairment charge. We review these measurements regularly and compare them to historical periods, to our operating budget as approved by our Board of Directors, and to other publicly-traded water utilities.

Our operating expense ratio is one measure that we use to evaluate our operating efficiency and management effectiveness of our regulated operations. Our operating expense ratio is affected by a number of factors, including the following:

- **Regulatory lag** – Our rate filings are designed to provide for the recovery of increases in costs of operations (primarily labor and employee benefits, electricity, chemicals, transportation, maintenance expenses, insurance and claim costs, and costs to comply with environmental regulations), capital, and taxes. The revenue portion of the operating expense ratio can be impacted by the timeliness of recovery of, and the return on capital investments. The operating expense ratio is further influenced by regulatory lag (increases in operations and maintenance expenses not yet recovered in rates or a gap between the time that a capital project is completed and the start of its cost recovery in rates). The operating expense ratio is also influenced by decreases in operating revenues without a commensurate decrease in operations and maintenance expense, such as changes in customer water consumption as impacted by adverse weather conditions, conservation trends, or as a result of utility rates incorporating the effects of income tax benefits derived from deducting qualifying utility asset improvements for tax purposes that are capitalized for book purposes in Aqua Pennsylvania and consequently forgoing operating revenue increases. During periods of inflation, our operations and maintenance expenses may increase, impacting the operating expense ratio, as a result of regulatory lag, since our rate cases may not be filed timely and are not retroactive.
- **Acquisitions** – In general, acquisitions of smaller undercapitalized utility systems in some areas may initially increase our operating expense ratio if the operating revenues generated by these operations are accompanied by a higher ratio of operations and maintenance expenses as compared to other operational areas of the company that are more densely populated and have integrated operations. In these cases, the acquired operations are characterized as having relatively higher operating costs to fixed capital costs, in contrast to the majority of our operations, which generally consist of larger, interconnected systems, with higher fixed capital costs (utility plant investment) and lower operating costs per customer. In addition, we operate market-based subsidiary companies, Aqua Resources and Aqua Infrastructure. The cost-structure of these market-based companies differs from our utility companies in that, although they may generate free cash flow, these companies have a higher ratio of operations and maintenance expenses to operating revenues and a lower capital investment and, consequently, a lower ratio of fixed capital costs versus operating revenues in contrast to our regulated operations. As a result, the operating expense ratio is not comparable between the businesses. These market-based subsidiary companies are not a component of our Regulated segment.

We continue to evaluate initiatives to help control operating costs and improve efficiencies.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

Consolidated Selected Financial and Operating Statistics

Our selected five-year consolidated financial and operating statistics follow:

| Years ended December 31, | 2017 | 2016 | 2015 | 2014 | 2013 |
|---|------------|------------|------------|------------|------------|
| Utility customers: | | | | | |
| Residential water | 807,872 | 801,190 | 791,404 | 779,665 | 771,660 |
| Commercial water | 40,956 | 40,582 | 40,151 | 39,614 | 39,237 |
| Industrial water | 1,338 | 1,349 | 1,353 | 1,357 | 1,368 |
| Other water | 19,430 | 19,036 | 17,420 | 17,412 | 17,230 |
| Wastewater | 113,253 | 110,108 | 107,538 | 102,071 | 98,705 |
| Total utility customers | 982,849 | 972,265 | 957,866 | 940,119 | 928,200 |
| Operating revenues: | | | | | |
| Residential water | \$ 483,865 | \$ 484,901 | \$ 477,773 | \$ 460,013 | \$ 457,404 |
| Commercial water | 130,373 | 131,170 | 126,677 | 122,795 | 121,178 |
| Industrial water | 27,880 | 27,916 | 28,021 | 27,369 | 25,263 |
| Other water | 65,324 | 62,983 | 56,997 | 59,474 | 57,446 |
| Wastewater | 87,560 | 82,780 | 79,399 | 76,472 | 73,062 |
| Other utility | 9,903 | 10,357 | 10,746 | 9,934 | 10,174 |
| Regulated segment total | 804,905 | 800,107 | 779,613 | 756,057 | 744,527 |
| Other and eliminations | 4,620 | 19,768 | 34,591 | 23,846 | 17,366 |
| Consolidated operating revenues | \$ 809,525 | \$ 819,875 | \$ 814,204 | \$ 779,903 | \$ 761,893 |
| Operations and maintenance expense | \$ 287,206 | \$ 304,897 | \$ 309,310 | \$ 288,556 | \$ 283,561 |
| Joint venture impairment charge (1) | \$ - | \$ - | \$ 21,433 | \$ - | \$ - |
| Income from continuing operations | \$ 239,738 | \$ 234,182 | \$ 201,790 | \$ 213,884 | \$ 202,871 |
| Net income | \$ 239,738 | \$ 234,182 | \$ 201,790 | \$ 233,239 | \$ 221,300 |
| Capital expenditures | \$ 478,089 | \$ 382,996 | \$ 364,689 | \$ 328,605 | \$ 307,908 |
| Operating Statistics | | | | | |
| Selected operating results as a percentage of operating revenues: | | | | | |
| Operations and maintenance | 35.5% | 37.2% | 38.0% | 37.0% | 37.2% |
| Depreciation and amortization | 16.9% | 16.2% | 15.8% | 16.2% | 16.3% |
| Taxes other than income taxes | 7.0% | 6.9% | 6.8% | 6.5% | 6.9% |
| Interest expense, net | 10.9% | 9.8% | 9.4% | 9.8% | 10.1% |
| Income from continuing operations | 29.6% | 28.6% | 24.8% | 27.4% | 26.6% |
| Return on Aqua America stockholders' equity | 12.2% | 12.7% | 11.7% | 14.1% | 14.4% |
| Ratio of capital expenditures to depreciation expense | 3.5 | 2.9 | 2.9 | 2.7 | 2.6 |
| Effective tax rate | 6.6% | 8.2% | 6.9% | 10.5% | 9.5% |

- (1) Represents a \$21,433 (\$32,975 pre-tax) joint venture impairment charge. This amount represents our share of the impairment charge recognized by our joint venture that operates a private pipeline to supply raw water to firms with natural gas well drilling operations.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

RESULTS OF OPERATIONS

Our income from continuing operations has grown at an annual compound rate of approximately 5.7% and our net income has grown at an annual compound rate of approximately 4.1% during the five-year period ended December 31, 2017. During the past five years, operating revenues grew at a compound rate of 1.5% and operating expenses grew at a compound rate of 2.1%.

Operating Segments

We have identified ten operating segments and we have one reportable segment based on the following:

- Eight segments are composed of our water and wastewater regulated utility operations in the eight states where we provide these services. These operating segments are aggregated into one reportable segment since each of these operating segments has the following similarities: economic characteristics, nature of services, production processes, customers, water distribution and/or wastewater collection methods, and the nature of the regulatory environment. Our single reportable segment is named the Regulated segment.
- Two segments are not quantitatively significant to be reportable and are composed of Aqua Resources and Aqua Infrastructure. These segments are included as a component of "Other," in addition to corporate costs that have not been allocated to the Regulated segment and intersegment eliminations. Corporate costs include general and administrative expenses, and interest expense.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

The following table provides the Regulated segment and consolidated information for the years ended December 31, 2017, 2016, and 2015:

| | 2017 | | | 2016 | | |
|---|-------------------|---------------------------|-------------------|-------------------|---------------------------|-------------------|
| | Regulated | Other and Eliminations | Consolidated | Regulated | Other and Eliminations | Consolidated |
| Operating revenues | \$ 804,905 | \$ 4,620 | \$ 809,525 | \$ 800,107 | \$ 19,768 | \$ 819,875 |
| Operations and maintenance expense | 286,962 | 244 | 287,206 | 285,347 | 19,550 | 304,897 |
| Taxes other than income taxes | 54,524 | 2,104 | 56,628 | 53,916 | 2,469 | 56,385 |
| Earnings (loss) before interest, taxes, depreciation and amortization | <u>\$ 463,419</u> | <u>\$ 2,272</u> | 465,691 | <u>\$ 460,844</u> | <u>\$ (2,251)</u> | 458,593 |
| Depreciation and amortization | | | 136,724 | | | 133,008 |
| Operating income | | | 328,967 | | | 325,585 |
| Other expense (income): | | | | | | |
| Interest expense, net | | | 88,341 | | | 80,594 |
| Allowance for funds used during construction | | | (15,211) | | | (8,815) |
| Gain on sale of other assets | | | (484) | | | (378) |
| Equity income in joint venture | | | (331) | | | (976) |
| Provision for income taxes | | | 16,914 | | | 20,978 |
| Net income | | | <u>\$ 239,738</u> | | | <u>\$ 234,182</u> |

| | 2015 | | |
|--|-------------------|---------------------------|-------------------|
| | Regulated | Other and Eliminations | Consolidated |
| Operating revenues | \$ 779,613 | \$ 34,591 | \$ 814,204 |
| Operations and maintenance expense | 282,866 | 26,444 | 309,310 |
| Taxes other than income taxes | 52,361 | 2,696 | 55,057 |
| Earnings before interest, taxes, depreciation and amortization | <u>\$ 444,386</u> | <u>\$ 5,451</u> | 449,837 |
| Depreciation and amortization | | | 128,737 |
| Operating income | | | 321,100 |
| Other expense (income): | | | |
| Interest expense, net | | | 76,536 |
| Allowance for funds used during construction | | | (6,219) |
| Gain on sale of other assets | | | (468) |
| Gain on extinguishment of debt | | | (678) |
| Equity loss in joint venture | | | 35,177 |
| Provision for income taxes | | | 14,962 |
| Net income | | | <u>\$ 201,790</u> |

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

Consolidated Results

Operating Revenues – Operating revenues totaled \$809,525 in 2017, \$819,875 in 2016, and \$814,204 in 2015. Our Regulated segment's revenues totaled \$804,905 in 2017, \$800,107 in 2016, and \$779,613 in 2015. The growth in our Regulated segment's revenues over the past three years is a result of increases in our water and wastewater rates and our customer base. Rate increases implemented during the past three years have provided additional operating revenues of \$6,143 in 2017, \$4,319 in 2016, and \$8,503 in 2015. Negatively impacting revenues in 2017 was a decrease in customer water consumption primarily due to unfavorable weather conditions during the year. The number of customers increased at an annual compound rate of 1.4% over the past three years due to acquisitions and organic growth, adjusted to exclude customers associated with utility system dispositions. Acquisitions in our Regulated segment have provided additional water and wastewater revenues of \$1,695 in 2017, \$8,201 in 2016, and \$8,900, in 2015.

On June 7, 2012, Aqua Pennsylvania reached a settlement agreement in its last rate filing with the Pennsylvania Public Utility Commission, which in addition to a water rate increase, provided for a reduction in current income tax expense as a result of the recognition of qualifying income tax benefits upon Aqua Pennsylvania changing its tax accounting method to permit the expensing of qualifying utility asset improvement costs that historically had been capitalized and depreciated for book and tax purposes. In December 2012, Aqua Pennsylvania implemented this change which provides for the flow-through of income tax benefits that resulted in a substantial reduction in income tax expense and greater net income and cash flow. As a result, Aqua Pennsylvania was able to suspend its water Distribution System Improvement Charges from January 1, 2013 to September 30, 2017, when it resumed the use of a water Distribution System Improvement Charge on October 1, 2017. Aqua Pennsylvania was able to lengthen the amount of time until its next base rate case, which is expected to be filed in 2018. During 2017, 2016, and 2015, the income tax accounting change resulted in income tax benefits of \$84,766, \$78,530, and \$72,944 that reduced the Company's current income tax expense and increased net income. The Company recognized a tax deduction on its 2012 Federal tax return of \$380,000 for qualifying capital expenditures made prior to 2012. Based on the settlement agreement, beginning in 2013, the Company began to amortize 1/10th of these expenditures, or \$38,000 annually, which reduced income tax expense and increased the Company's net income by \$16,734, which is included in the income tax benefits noted previously. In accordance with the settlement agreement, this amortization is expected to reduce income tax expense during periods when qualifying parameters are met.

Our operating subsidiaries received rate increases representing estimated annualized revenues of \$7,558 in 2017 resulting from five base rate decisions, \$3,434 in 2016 resulting from six rate decisions, and \$3,347 in 2015 resulting from four rate decisions. Revenues from these increases realized in the year of grant were \$6,343 in 2017, \$1,788 in 2016, and \$2,887 in 2015. As of December 31, 2017, our operating subsidiaries have filed two rate requests, which are being reviewed by the state utility commissions, proposing an aggregate increase of \$13,888 in annual revenues. During 2018, we intend to file five additional rate requests proposing an aggregate of approximately \$80,000 of increased annual revenues; the timing and extent to which our rate increase requests may be granted will vary by state. Our planned rate filings for 2018 are subject to the issuance of procedural orders directing how the Federal tax law changes are to be reflected in our utility customer rates.

Currently, Pennsylvania, Illinois, Ohio, Indiana, New Jersey, and North Carolina allow for the use of a surcharge for replacing and rehabilitating infrastructure systems. The rate increases under this surcharge typically adjust periodically based on additional qualified capital expenditures completed or anticipated in a future period. This surcharge is capped as a percentage of base rates, generally at 5% to 12.75% of base rates, and is reset to zero when new base rates that reflect the costs of those additions become effective or when a utility's earnings exceed a regulatory benchmark. These surcharges provided revenues of \$10,255 in 2017, \$7,379 in 2016, and \$3,261 in 2015.

Our Regulated segment also includes operating revenues of \$9,903 in 2017, \$10,357 in 2016, and \$10,746 in 2015 associated with contract operations that are integrated into the regulated utility business and operations. These amounts vary over time according to the level of activity associated with the utility contract operations.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

In addition to the Regulated segment operating revenues, we recognized market-based revenues that are associated with Aqua Resources and Aqua Infrastructure of \$4,798 in 2017, \$20,091 in 2016, and \$34,909 in 2015. The decrease in revenues in 2017 and 2016 is due to the disposition of business units within Aqua Resources.

Operations and Maintenance Expenses – Operations and maintenance expenses totaled \$287,206 in 2017, \$304,897 in 2016, and \$309,310 in 2015. Most elements of operating costs are subject to the effects of inflation and changes in the number of customers served. Several elements are subject to the effects of changes in water consumption, weather, and the degree of water treatment required due to variations in the quality of the raw water. The principal elements of operating costs are labor and employee benefits, electricity, chemicals, transportation, maintenance expenses, insurance and claims costs, and costs to comply with environmental regulations. Electricity and chemical expenses vary in relationship to water consumption, raw water quality, and price changes. Maintenance expenses are sensitive to extremely cold weather, which can cause water mains to rupture, resulting in additional costs to repair the affected main.

Operations and maintenance expenses decreased in 2017, as compared to 2016, by \$17,691 or 5.8%, primarily due to:

- decreases in market-based activities expenses of \$15,933 due to the disposition of business units within Aqua Resources;
- a decrease in water production costs of \$6,301 primarily due to a reduction in purchased water expense of \$4,794 due to replacing a purchased water supply with the Company's own water supply source;
- a decrease in the Company's self-insured employee medical benefit program expense of \$4,838;
- offset by \$4,102 for the timing of expenses incurred for the maintenance of our utility systems and the purchase of supplies, as well as other increases in operations and maintenance expenses.

Operations and maintenance expenses decreased in 2016 as compared to 2015 by \$4,413 or 1.4%, primarily due to:

- decreases in market-based activities expenses of \$10,393 due to the disposition of business units within Aqua Resources;
- a decrease in water production costs of \$3,156;
- the effects of the recognition in 2015 of:
 - leadership transition expenses of \$2,510,
 - the recording of a reserve of \$1,862 for water rights held for future use, and
 - the recording of a legal contingency reserve of \$1,580;
- the reversal of a reserve for a legal contingency of \$1,580;
- offset by an increase in postretirement benefits of \$5,554; and
- additional operating costs associated with acquisitions of \$4,538, as well as other increases in operations and maintenance expenses.

Depreciation and Amortization Expenses – Depreciation expense was \$136,302 in 2017, \$130,987 in 2016, and \$125,290 in 2015, and has increased principally as a result of the significant capital expenditures made to expand and improve our utility facilities, and our acquisitions of new utility systems.

Amortization expense was \$422 in 2017, \$2,021 in 2016, and \$3,447 in 2015, and has decreased primarily due to the completion of the recovery of our costs associated with various rate filings. Expenses associated with filing rate cases are deferred and amortized over periods that generally range from one to three years.

Taxes Other than Income Taxes – Taxes other than income taxes totaled \$56,628 in 2017, \$56,385 in 2016, and \$55,057 in 2015. The increase in 2017 was primarily due to an increase in gross receipts, excise and franchise taxes of \$949, and an increase in taxes assessed resulting from the pumping of ground water in Texas of \$486 due to higher water production volume and rates, offset by a \$978 decrease in property taxes primarily due to a favorable ruling on a property tax appeal in Ohio. The increase in 2016 was primarily due to an increase of \$578 for pumping fees in Texas due to higher water production, a rate increase, and the addition of two water systems, and an increase in gross receipts, excise and franchise taxes of \$502.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

Interest Expense, net – Net interest expense was \$88,341 in 2017, \$80,594 in 2016, and \$76,536 in 2015. Interest income of \$202 in 2017, \$217 in 2016, and \$272 in 2015 was netted against interest expense. Net interest expense increased in 2017 due to an increase in average borrowings of \$157,768 and an increase in short-term and long-term interest rates. Net interest expense increased in 2016 due to an increase in average short-term borrowings of \$9,808 at higher short-term interest rates and an increase in average outstanding fixed rate long-term debt of \$98,006 partially offset by a decline in long-term interest rates. Interest income decreased in 2017 due to lower investment rates. The weighted average cost of fixed rate long-term debt was 4.35% at December 31, 2017, 4.26% at December 31, 2016, and 4.57% at December 31, 2015. The weighted average cost of fixed and variable rate long-term debt was 4.29% at December 31, 2017, 4.23% at December 31, 2016, and 4.44% at December 31, 2015.

Allowance for Funds Used During Construction – The allowance for funds used during construction (“AFUDC”) was \$15,211 in 2017, \$8,815 in 2016, and \$6,219 in 2015, and varies as a result of changes in the average balance of utility plant construction work in progress, to which AFUDC is applied, changes in the AFUDC rate which is based predominantly on short-term interest rates, changes in the balance of short-debt, and changes in the amount of AFUDC related to equity. The increase in 2017 and 2016 is primarily due to an increase in the AFUDC rate as a result of an increase in the amount of AFUDC related to equity and in 2017 and 2016, and an increase in the average balance of utility plant construction work in progress, to which AFUDC is applied. The amount of AFUDC related to equity was \$11,633 in 2017, \$6,561 in 2016, and \$4,621 in 2015.

Gain on Sale of Other Assets – Gain on sale of other assets totaled \$484 in 2017, \$378 in 2016, and \$468 in 2015, and consists of the sales of property, plant and equipment and marketable securities.

Gain on Extinguishment of Debt – The gain on extinguishment of debt of \$678 in 2015 results from the recognition of the unamortized issuance premium for the early redemption of \$95,985 of tax-exempt bonds at 5.00% that were originally maturing between 2035 and 2038.

Equity (Earnings) Loss in Joint Venture – Equity (earnings) loss in joint venture totaled \$(331) in 2017, \$(976) in 2016, and \$35,177 in 2015. The equity earnings in 2017 primarily resulted from the sale of raw water to firms in the natural gas drilling industry. The equity earnings in 2016 resulted from the recognition of a connection fee earned by the joint venture in 2016 for which our share was \$1,831 and a reduction in depreciation expense resulting from the noncash impairment charge recognized by the joint venture on its long-lived assets in 2015. In 2015, a noncash impairment charge was recognized by the joint venture on its long-lived assets for which our share was \$32,975. The impairment charge was recognized in 2015 as a result of a determination that the long-lived assets, primarily consisting of a pipeline and pump station, had become impaired due to a marked decline in natural gas prices in 2015, a distinguishable reduction in the volume of water sales by the joint venture which led to a lowered forecast in 2015 on future water sales volumes by the joint venture, as well as changes in the natural gas industry and market conditions. At the time of the impairment, these market conditions were largely associated with natural gas prices, which sharply declined in 2015 and this downturn no longer appeared to be temporary and instead was expected to be a long-term condition.

Income Taxes – Our effective income tax rate was 6.6% in 2017, 8.2% in 2016, and 6.9% in 2015. The effective income tax rate for 2017, 2016, and 2015 was affected by the 2012 income tax accounting change for qualifying utility asset improvements at Aqua Pennsylvania which resulted in a \$84,766, \$78,530, and \$72,944 net reduction to the Company's 2017, 2016, and 2015 Federal and state income tax expense, respectively. As of December 31, 2017, the Company has an unrecognized tax benefit related to the Company's change in its tax accounting method for qualifying utility asset improvement costs, of which up to \$24,243 of these tax benefits would further reduce the Company's effective income tax rate in the event the Company does sustain all, or a portion, of its tax position in the period this information is determined. Offsetting this reduction was the effect of the revaluation of our deferred income tax assets and liabilities, triggered by the TCJA, which resulted in the recognition of additional income tax expense of \$3,141 to the extent revalued deferred income taxes are not believed to be recoverable in utility customer rates.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

Summary –

| | Years ended December 31, | | |
|------------------------------|--------------------------|------------|------------|
| | 2017 | 2016 | 2015 |
| Operating income | \$ 328,967 | \$ 325,585 | \$ 321,100 |
| Net income | 239,738 | 234,182 | 201,790 |
| Diluted net income per share | 1.35 | 1.32 | 1.14 |

The changes in diluted net income per share in 2017 and 2016 over the previous years were due to the aforementioned changes.

Although we have experienced increased income in the recent past, continued adequate rate increases reflecting increased operating costs and new capital investments, are important to the future realization of improved profitability.

Fourth Quarter Results – The following table provides our fourth quarter results:

| | Three Months Ended December 31, | |
|--|---------------------------------|------------|
| | 2017 | 2016 |
| Operating revenues | \$ 203,312 | \$ 196,799 |
| Operations and maintenance | 79,243 | 77,550 |
| Depreciation | 34,794 | 33,342 |
| Amortization | 64 | 654 |
| Taxes other than income taxes | 12,238 | 13,291 |
| | 126,339 | 124,837 |
| Operating income | 76,973 | 71,962 |
| Other expense (income): | | |
| Interest expense, net | 23,217 | 20,458 |
| Allowance for funds used during construction | (4,641) | (2,369) |
| (Gain) loss on sale of other assets | (162) | 12 |
| Equity loss in joint venture | 71 | 167 |
| Income before income taxes | 58,488 | 53,694 |
| Provision for income taxes | 5,015 | 4,045 |
| Net income | \$ 53,473 | \$ 49,649 |

The increase in operating revenues of \$6,513 was primarily due to an increase in water and wastewater rates and infrastructure rehabilitation surcharges of \$4,247, an increase in customer water consumption, and additional revenues of \$438 associated with a larger customer base due to utility acquisitions, offset by a decrease in market-based activities revenue of \$2,323 due to dispositions.

The increase in operations and maintenance expense of \$1,693 is due primarily to \$3,490 associated with the timing of expenses incurred for the maintenance of our utility systems and the purchase of supplies, an increase in postretirement benefits expense of \$1,249, offset by a decrease in market-based activities expenses of \$2,952, and a decrease in water production costs of \$1,842 due to replacing a purchased water supply with the Company's own water supply source.

Depreciation expense increased by \$1,452 primarily due to the utility plant placed in service since December 31, 2016.

The decrease in other taxes of \$1,053 is primarily due to a decrease in property taxes of \$1,466 due to a favorable property tax appeal in Ohio, offset by an increase in capital stock taxes of \$199 due to the effect of a reversal of a reserve

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

from the prior year, and an increase in taxes assessed resulting from the pumping of ground water in Texas of \$166 due to higher water production volume and rates.

Interest expense increased by \$2,759 due to an increase in the average outstanding debt balance.

AFUDC increased by \$2,272 due to an increase in the average balance of utility plant construction work in progress, to which AFUDC is applied, and an increase in the AFUDC rate as a result of an increase in the amount of AFUDC related to equity.

The provision for income taxes increased by \$970 primarily as a result of the revaluation of our deferred income tax assets and liabilities, triggered by the TCJA, which resulted in the recognition of additional income tax expense of \$3,141 to the extent revalued deferred income taxes are not believed to be recoverable in utility customer rates, offset by the effect of additional tax deductions recognized in the fourth quarter of 2017 for certain qualifying infrastructure improvements for Aqua Pennsylvania.

LIQUIDITY AND CAPITAL RESOURCES

Consolidated Cash Flow and Capital Expenditures

Net operating cash flows from continuing operations, dividends paid on common stock, capital expenditures used in continuing operations, including allowances for funds used during construction, and expenditures for acquiring water and wastewater systems for our continuing operations for the five years ended December 31, 2017 were as follows:

| | Net Operating Cash Flows | Dividends | Capital Expenditures | Acquisitions |
|------|-----------------------------|-------------------|----------------------|------------------|
| 2013 | \$ 365,803 | \$ 102,889 | \$ 307,908 | \$ 14,997 |
| 2014 | 364,888 | 112,106 | 328,605 | 14,616 |
| 2015 | 370,794 | 121,248 | 364,689 | 28,989 |
| 2016 | 396,163 | 130,923 | 382,996 | 9,423 |
| 2017 | 381,318 | 140,660 | 478,089 | 5,860 |
| | <u>\$ 1,878,966</u> | <u>\$ 607,826</u> | <u>\$ 1,862,287</u> | <u>\$ 73,885</u> |

Included in capital expenditures for the five-year period are: expenditures for the rehabilitation of existing water and wastewater systems, the expansion of our water and wastewater systems, modernization and replacement of existing treatment facilities, water meters, office facilities, information technology, vehicles, and equipment. During this five-year period, we received \$31,657 of customer advances and contributions in aid of construction to finance new water mains and related facilities that are not included in the capital expenditures presented in the above table. In addition, during this period, we have made repayments of debt of \$978,762, and have refunded \$22,607 of customers' advances for construction. Dividends increased during the past five years as a result of annual increases in the dividends declared and paid and increases in the number of shares outstanding.

Our planned 2018 capital program, exclusive of the costs of new mains financed by advances and contributions in aid of construction, is estimated to be approximately \$500,000 in infrastructure improvements for the communities we serve. The 2018 capital program is expected to include \$213,200 for infrastructure rehabilitation surcharge qualified projects. On January 1, 2013, Aqua Pennsylvania reset its water infrastructure rehabilitation surcharge to zero resulting from the change in its tax method of accounting for qualifying utility asset improvements as described below. Although we were not eligible to use an infrastructure rehabilitation surcharge with our Aqua Pennsylvania water customers from January 1, 2013 to September 30, 2017, we were able to use the income tax savings derived from the qualifying utility asset improvements to maintain Aqua Pennsylvania's capital investment program. Our planned 2018 capital program in Pennsylvania is estimated to be approximately \$337,000, a portion of which is expected to be eligible as a deduction for qualifying utility asset improvements for Federal income tax purposes. Our overall 2018 capital program, along with \$113,769 of debt repayments and \$160,973 of other contractual cash obligations, as reported in the section captioned

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

"Management's Discussion and Analysis of Financial Condition and Results of Operations – *Contractual Obligations*", has been, or is expected to be, financed through internally-generated funds, our revolving credit facilities, and the issuance of long-term debt.

Future utility construction in the period 2019 through 2020, including recurring programs, such as the ongoing replacement or rehabilitation of water meters and water mains, water treatment plant upgrades, storage facility renovations, and additional transmission mains to meet customer demands, exclusive of the costs of new mains financed by advances and contributions in aid of construction, is estimated to require aggregate expenditures of approximately \$875,000. We anticipate that approximately one-half of these expenditures will require external financing. We expect to refinance \$189,025 of long-term debt during this period as they become due with new issues of long-term debt, internally-generated funds, and our revolving credit facilities. The estimates discussed above do not include any amounts for possible future acquisitions of water and wastewater systems or the financing necessary to support them.

Our primary sources of liquidity are cash flows from operations (including the allowed deferral of Federal income tax payments), borrowings under various short-term lines of credit and other credit facilities, and customer advances and contributions in aid of construction. Our cash flow from operations, or internally-generated funds, is impacted by the timing of rate relief, water consumption, and changes in Federal tax laws with respect to the reduction in the corporate income tax rate, and accelerated tax depreciation or deductions for utility construction projects. We fund our capital and typical acquisitions through internally-generated funds, supplemented by short-term lines of credit. Over time, we partially repay or pay-down our short-term lines of credit with long-term debt. The ability to finance our future construction programs, as well as our acquisition activities, depends on our ability to attract the necessary external financing and maintain internally-generated funds. Timely rate orders permitting compensatory rates of return on invested capital will be required by our operating subsidiaries to achieve an adequate level of earnings and cash flow to enable them to secure the capital they will need to operate and to maintain satisfactory debt coverage ratios.

On June 7, 2012, Aqua Pennsylvania reached a settlement agreement in its rate filing with the Pennsylvania Public Utility Commission, which in addition to a water rate increase, provided for a reduction in current income tax expense as a result of the recognition of qualifying income tax benefits upon Aqua Pennsylvania changing its tax accounting method to permit the expensing of qualifying utility asset improvement costs that have historically been capitalized and depreciated for book and tax purposes. In December 2012, Aqua Pennsylvania implemented this change, which resulted in a substantial reduction in income tax expense and greater net income and cash flow, and as a result allowed Aqua Pennsylvania to suspend its water Distribution System Improvement Charges from January 1, 2013 to September 30, 2017, and lengthen the amount of time until the next Aqua Pennsylvania rate case, which is expected to be filed in 2018. As a result of the Pennsylvania rate order, income tax benefits reduced the Company's current income tax expense and increased net income by \$84,766 in 2017, \$78,530 in 2016, and \$72,944 in 2015. The Company recognized a tax deduction on its 2012 Federal tax return of \$380,000 for qualifying capital expenditures made prior to 2012, and based on the settlement agreement, beginning in 2013, the Company began to amortize 1/10th of these expenditures or \$38,000 annually, which reduced income tax expense and increased the Company's net income by \$16,734. In accordance with the settlement agreement, this amortization is expected to reduce income tax expense during periods when qualifying parameters are met.

Acquisitions

As part of the Company's growth-through-acquisition strategy, the Company has entered into purchase agreements to acquire the water or wastewater utility system assets of six municipalities for a total combined purchase price in cash of \$150,700. The purchase price for these pending acquisitions is subject to certain adjustments at closing, and the pending acquisitions are subject to regulatory approvals, including the final determination of the fair value of the rate base acquired. Closings for these acquisitions are expected to occur by the end of 2018, which is subject to the timing of the regulatory approval process. These acquisitions are expected to add approximately 16,325 customers in two of the states in which the Company operates.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

During the past five years, we have expended cash of \$73,885 and issued 439,943 shares of common stock, valued at \$12,845 at the time of acquisition, related to the acquisition of utility systems, both water and wastewater utilities, as well as investments in supplying raw water to the natural gas drilling industry.

In 2017, we completed four acquisitions of water and wastewater utility systems for \$5,860 in cash in two of the states in which we operate, adding 1,003 customers.

In January 2016, we acquired the water and wastewater utility system assets of Superior Water Company, Inc., which provided public water service to 4,108 customers in portions of Berks, Chester, and Montgomery counties in Pennsylvania. The total purchase price for the utility system was \$16,750, which consisted of the issuance of 439,943 shares of the Company's common stock and \$3,905 in cash. Additionally, during 2016, we completed 18 acquisitions of water and wastewater utility systems for \$5,518 in cash in eight of the states in which we operate, adding 2,469 customers.

In April 2015, we acquired the water and wastewater utility system assets of North Maine Utilities, located in the Village of Glenview, Illinois serving 7,409 customers. The total purchase price consisted of \$23,079 in cash. Additionally, during 2015, we completed 14 acquisitions of water and wastewater utility systems for \$5,210 in cash in six of the states in which we operate, adding 3,170 customers.

During 2014, we completed 16 acquisitions of water and wastewater utility systems for \$10,530 in cash in seven of the states in which we operate, adding 6,148 customers. Further, in 2014, we acquired two market-based businesses that specialized in inspecting, cleaning and repairing storm and sanitary sewer lines, as well as providing water distribution system services and training to waterworks operators. The total purchase price in aggregate was \$4,810 and both these businesses were subsequently sold in November 2016 and January 2017.

During 2013, we completed 15 acquisitions of water and wastewater utility systems for \$14,997 in cash in four of the states in which we operate, adding 5,991 customers.

We continue to pursue the acquisition of water and wastewater utility systems, and explore other utility acquisitions that may be in a new state. Our typical acquisitions are expected to be financed with short-term debt with subsequent repayment from the proceeds of long-term debt, retained earnings, or equity issuances.

Joint Venture

In September 2011, one of our subsidiaries entered into a joint venture with a firm that operates natural gas pipelines and processing plants for the construction and operation of a private pipeline system to supply raw water to natural gas well drilling operations in the Marcellus Shale in north-central Pennsylvania (the "Joint Venture"). We own 49% of the Joint Venture. The 56 mile pipeline construction and permitted intake on the Susquehanna River cost \$109,000. As of December 31, 2017, our capital contributions since inception totaled \$53,643 in cash. This investment has been financed through the issuance of long-term debt. Our 49% investment in the Joint Venture is an unconsolidated affiliate and is accounted for under the equity method of accounting. Our initial investment is carried at cost. Subsequently, the carrying amount of our investment is adjusted to reflect capital contributions or distributions, our equity in earnings and losses since the commencement of the system's operations, and a decline in the fair value of our investment. In 2015, an impairment charge was recognized by the joint venture on its long-lived assets, of which the Company's share totaled \$32,975 (\$21,433 after-tax), representing our share of the noncash impairment charge as further described in Note 1 -- *Summary of Significant Accounting Policies – Investment in Joint Venture* in this Annual Report.

Dispositions

We routinely review and evaluate areas of our business and operating divisions and, over time, may sell utility systems or portions of systems. In 2017, the Company sold two business units within Aqua Resources, which resulted in total proceeds of \$867, and recognized a net loss of \$324. In 2016, the Company sold two business units within Aqua Resources, which resulted in total proceeds of \$4,459, and recognized a net loss of \$543.

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(In thousands of dollars, except per share amounts)

In December 2014, we completed the sale of our water utility system in southwest Allen County Indiana to the City of Fort Wayne, Indiana for \$67,011, which is comprised of \$50,100 in addition to \$16,911 the city initially paid the Company towards its water and wastewater system assets in the northern part of Fort Wayne in 2008. We recognized a gain on sale of \$29,210 (\$17,611 after-tax) in the fourth quarter of 2014. In addition, as a result of this transaction, Aqua Indiana expanded its sewer customer base by accepting new wastewater flows from the City. Additionally, in March, 2014, we completed the sale of our wastewater treatment facility in Georgia.

In 2013, in accordance with our strategy to focus our resources on states where we have critical mass to improve our economies of scale and expect future economic growth, we sold water and wastewater systems in Florida, through five separate sales transactions. The Company received total net proceeds from these sales of \$88,934, and recognized a gain on sale of \$21,178 (\$13,766 after-tax).

Additionally, in June 2013, the Company sold a water and wastewater utility system in Texas for net proceeds of \$3,400. The sale resulted in the recognition of a gain on sale of these assets, net of expenses, of \$1,025 (\$615 after-tax).

Despite these transactions, one of our primary strategies continues to be to acquire additional utility systems, to maintain our existing systems where there is a strategic business benefit, and to actively oppose unilateral efforts by municipal governments to acquire any of our operations.

Sources of Capital

Since net operating cash flow plus advances and contributions in aid of construction have not been sufficient to fully fund cash requirements, we issued \$1,670,223 of long-term debt and obtained other short-term borrowings during the past five years. At December 31, 2017, we have a \$250,000 long-term revolving credit facility that expires in February 2021, of which \$19,811 was designated for letter of credit usage, \$170,189 was available for borrowing, and \$60,000 of borrowings were outstanding at December 31, 2017. In addition, we have short-term lines of credit of \$135,500, of which \$131,850 was available as of December 31, 2017. These short-term lines of credit are subject to renewal on an annual basis. Although we believe we will be able to renew these facilities, there is no assurance that they will be renewed, or what the terms of any such renewal will be.

Our consolidated balance sheet historically has had a negative working capital position, whereby routinely our current liabilities exceed our current assets. Management believes that internally-generated funds along with existing credit facilities and the proceeds from the issuance of long-term debt will be adequate to provide sufficient working capital to maintain normal operations and to meet our financing requirements for at least the next twelve months.

Our loan and debt agreements require us to comply with certain financial covenants, which among other things, subject to specific exceptions, limit the Company's ratio of consolidated total indebtedness to consolidated total capitalization, and require a minimum level of earnings coverage over interest expense. During 2017, we were in compliance with our debt covenants under our credit facilities. Failure to comply with our debt covenants could result in an event of default, which could result in us being required to repay or refinance our borrowings before their due date, possibly limiting our future borrowings, and increasing our borrowing costs.

The Company has a universal shelf registration statement, which was filed with the SEC in February 2015, which allows for the potential future offer and sale by us, from time to time, in one or more public offerings, of an indeterminate amount of our common stock, preferred stock, debt securities, and other securities specified therein at indeterminate prices. The Company's Board of Directors has authorized the Company to issue up to \$500,000 of our common stock, preferred stock, debt securities, and other securities specified therein under this universal shelf registration statement. The Company has not issued any securities to date under this universal shelf registration statement. This registration statement expires in February 2018, and we intend to file a new three-year universal shelf registration statement.

In addition, we have a shelf registration statement, which was filed with the SEC on February 27, 2015, to permit the offering from time to time of an aggregate of \$500,000 of our common stock and shares of preferred stock in connection

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

with acquisitions. During 2016, we issued 439,943 shares of common stock totaling \$12,845 to acquire a water system. The balance remaining available for use under the acquisition shelf registration as of December 31, 2017 is \$487,155.

We will determine the form and terms of any securities issued under the universal shelf registration statement and the acquisition shelf registration statement at the time of issuance.

We offer a Dividend Reinvestment and Direct Stock Purchase Plan (the "Plan") that provides a convenient and economical way to purchase shares of the Company. Under the direct stock purchase portion of the Plan, shares are issued throughout the year. The dividend reinvestment portion of the Plan offers a five percent discount on the purchase of shares of common stock with reinvested dividends. As of the December 2017 dividend payment, holders of 9.9% of the common shares outstanding participated in the dividend reinvestment portion of the Plan. The shares issued under the Plan are either original issue shares or shares purchased by the Company's transfer agent in the open-market. During the past five years, we have sold 551,788 original issue shares of common stock for net proceeds of \$13,625 through the dividend reinvestment portion of the Plan, and we used the proceeds to invest in our operating subsidiaries, to repay short-term debt, and for general corporate purposes. In 2017, 2016, and 2015, 447,753, 484,645, and 535,439 shares of common stock were purchased under the dividend reinvestment portion of the Plan by the Company's transfer agent in the open-market for \$15,168, \$14,916, and \$14,380, respectively.

The Company's Board of Directors has authorized us to repurchase our common stock, from time to time, in the open market or through privately negotiated transactions. In 2014, we repurchased 560,000 shares of our common stock in the open market for \$13,280. In December 2014, the Company's Board of Directors authorized a share buyback program of up to 1,000,000 shares to minimize share dilution through timely and orderly share repurchases. In December 2015, the Company's Board of Directors added 400,000 shares to this program. In 2015, we repurchased 805,000 shares of our common stock in the open market for \$20,502. In 2016, we did not repurchase any shares of our common stock in the open market under this program. This program expired on December 31, 2016.

Off-Balance Sheet Financing Arrangements

We do not engage in any off-balance sheet financing arrangements. We do not have any interest in entities referred to as variable interest entities, which includes special purpose entities and other structured finance entities.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

Contractual Obligations

The following table summarizes our contractual cash obligations as of December 31, 2017:

| | Payments Due By Period | | | | |
|--|------------------------|---------------------|-------------|-------------|----------------------|
| | Total | Less than 1 year | 1 - 3 years | 3 - 5 years | More than 5 years |
| Long-term debt | \$ 2,143,127 | \$ 113,769 | \$ 189,025 | \$ 121,966 | \$ 1,718,367 |
| Interest on fixed-rate, long-term debt (1) | 1,366,407 | 77,497 | 148,277 | 131,248 | 1,009,385 |
| Operating leases (2) | 20,080 | 1,919 | 2,957 | 2,148 | 13,056 |
| Unconditional purchase obligations (3) | 31,510 | 4,853 | 8,989 | 8,024 | 9,644 |
| Other purchase obligations (4) | 63,064 | 63,064 | - | - | - |
| Pension plan obligation (5) | 12,484 | 12,484 | - | - | - |
| Other obligations (6) | 11,932 | 1,156 | 2,035 | 2,118 | 6,623 |
| Total | \$ 3,648,604 | \$ 274,742 | \$ 351,283 | \$ 265,504 | \$ 2,757,075 |

- (1) Represents interest payable on fixed rate, long-term debt. Amounts reported may differ from actual due to future refinancing of debt.
- (2) Represents operating leases that are noncancelable, before expiration, for the lease of motor vehicles, buildings, land and other equipment.
- (3) Represents our commitment to purchase minimum quantities of water as stipulated in agreements with other water purveyors. We use purchased water to supplement our water supply, particularly during periods of peak customer demand. Our actual purchases may exceed the minimum required levels.
- (4) Represents an approximation of the open purchase orders for goods and services purchased in the ordinary course of business.
- (5) Represents contributions to be made to pension plan.
- (6) Represents expenditures estimated to be required under legal and binding contractual obligations.

In addition to these obligations, we pay refunds on customers' advances for construction over a specific period of time based on operating revenues related to developer-installed water mains or as new customers are connected to and take service from such mains. After all refunds are paid, any remaining balance is transferred to contributions in aid of construction. The refund amounts are not included in the above table because the refund amounts and timing are dependent upon several variables, including new customer connections, customer consumption levels and future rate increases, which cannot be accurately estimated. Portions of these refund amounts are payable annually through 2027 and amounts not paid by the contract expiration dates become non-refundable.

In addition to the obligations disclosed in the contractual obligations table above, we have uncertain tax positions of \$17,583. Although we believe our tax positions comply with applicable law, we have made judgments as to the sustainability of each uncertain tax position based on its technical merits. Due to the uncertainty of future cash outflows, if any, associated with our uncertain tax positions, we are unable to make a reasonable estimate of the timing or amounts that may be paid. See Note 7 – *Income Taxes* in this Annual Report for further information on our uncertain tax positions.

We will fund these contractual obligations with cash flows from operations and liquidity sources held by or available to us.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

The Company is routinely involved in legal matters, including both asserted and unasserted legal claims, during the ordinary course of business. See Note 9 – *Commitments and Contingencies* in this Annual Report for a discussion of the Company's legal matters. It is not always possible for management to make a meaningful estimate of the potential loss or range of loss associated with such litigation. Also, unanticipated changes in circumstances and/or revisions to the assessed probability of the outcomes of legal matters could result in expenses being incurred in future periods as well as an increase in actual cash required to resolve the legal matter.

Capitalization

The following table summarizes our capitalization during the past five years:

| December 31, | 2017 | 2016 | 2015 | 2014 | 2013 |
|-----------------------------------|--------|--------|--------|--------|--------|
| Long-term debt (1) | 52.3% | 50.8% | 50.8% | 49.4% | 50.3% |
| Aqua America stockholders' equity | 47.7% | 49.2% | 49.2% | 50.6% | 49.7% |
| | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

(1) Includes current portion, as well as our borrowings under a variable rate revolving credit agreement of \$60,000 at December 31, 2017, \$25,000 at December 31, 2016, \$60,000 at December 31, 2015, \$72,000 at December 31, 2014, and \$0 at December 31, 2013.

Over the past five years, the changes in the capitalization ratios primarily resulted from the issuance of debt to finance our acquisitions and capital program, growth in net income, the issuance of common stock, and the declaration of dividends.

INCOME TAX MATTERS

Tax Cuts and Jobs Act of 2017

On December 22, 2017, President Trump signed the TCJA into law. Substantially all of the provisions of the TCJA are effective for tax years beginning after December 31, 2017, except as noted below. The TCJA includes significant changes to the Code and the taxation of business entities, and includes specific provisions related to regulated public utilities. Significant changes include a reduction in the corporate federal income tax rate from 35% to 21%, and a limitation on the utilization of NOLs arising after December 31, 2017 to 80% of taxable income with an indefinite carryforward. The specific provisions related to regulated public utilities in the TCJA generally allow for the continued deductibility of interest expense, the elimination of full expensing for tax purposes of certain property acquired after September 27, 2017 and the continuation of certain rate normalization requirements for accelerated depreciation benefits. Our market-based companies still qualify for 100% deductibility of qualifying property acquired after September 27, 2017.

The Company's regulated operations accounting for income taxes are impacted by the FASB's accounting guidance for regulated operations. Reductions in accumulated deferred income tax balances due to the reduction in the corporate income tax rates to 21% under the provisions of the TCJA results in amounts previously collected from utility customers for these deferred taxes to be refundable to such customers, generally through reductions in future rates. The TCJA includes provisions that stipulate how these excess deferred taxes are to be passed back to customers for certain accelerated tax depreciation benefits. Potential refunds of other deferred taxes will be determined by our state regulators. Our state regulatory commissions have or are in the process of issuing procedural orders directing how the tax law changes are to be reflected in our utility customer rates. In addition, we have two rate cases currently in progress in two states in which TCJA is expected to be addressed in the new base rates. The December 31, 2017 consolidated balance sheet reflects the impact of the TCJA on our regulatory assets and liabilities, which reduced our regulatory assets by \$357,262 and increased our regulatory liabilities by \$303,320. These adjustments had no impact on our 2017 cash flows.

As of December 31, 2017, resulting from the TCJA enactment, our deferred income tax assets and liabilities were revalued based upon the new corporate income tax rate of 21%. The revaluation of our deferred income tax assets and liabilities resulted in the recognition of additional income tax expense of \$3,141 to the extent revalued deferred income taxes are not believed to be recoverable in utility customer rates.

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our financial condition and results of operations are impacted by the methods, assumptions, and estimates used in the application of critical accounting policies. The following accounting policies are particularly important to our financial condition or results of operations, and require estimates or other judgments of matters of uncertainty. Changes in the estimates or other judgments included within these accounting policies could result in a significant change to the financial statements. We believe our most critical accounting policies include revenue recognition, the use of regulatory assets and liabilities, the valuation of our long-lived assets (which consist primarily of utility plant in service, regulatory assets, and goodwill) our accounting for post-retirement benefits, and our accounting for income taxes. We have discussed the selection and development of our critical accounting policies and estimates with the Audit Committee of the Board of Directors.

Revenue Recognition — Our utility revenues recognized in an accounting period include amounts billed to customers on a cycle basis and unbilled amounts based on estimated usage from the last billing to the end of the accounting period. The estimated usage is based on our judgment and assumptions; our actual results could differ from these estimates, which would result in operating revenues being adjusted in the period that the revision to our estimates is determined. In Virginia, we commence the billing of our utility customers, under new rates, upon authorization from the respective utility commission and before the final commission rate order is issued. The revenue recognized reflects an estimate based on our judgment of the final outcome of the commission's ruling. We monitor the applicable facts and circumstances regularly, and revise the estimate as required. The revenue billed and collected prior to the final ruling is subject to refund based on the commission's final ruling.

Regulatory Assets and Liabilities — We defer costs and credits on the balance sheet as regulatory assets and liabilities when it is probable that these costs and credits will be recognized in the rate-making process in a period different from when the costs and credits were incurred. These deferred amounts, both assets and liabilities, are then recognized in the income statement in the same period that they are reflected in our rates charged for water or wastewater service. In the event that our assessment as to the probability of the inclusion in the rate-making process is incorrect, the associated regulatory asset or liability would be adjusted to reflect the change in our assessment or change in regulatory approval.

Valuation of Long-Lived Assets, Goodwill and Intangible Assets — We review our long-lived assets for impairment, including utility plant in service and investment in joint venture. We also review regulatory assets for the continued application of the Financial Accounting Standards Board's ("FASB") accounting guidance for regulated operations. Our review determines whether there have been changes in circumstances or events, such as regulatory disallowances, or abandonments, that have occurred that require adjustments to the carrying value of these assets. Adjustments to the carrying value of these assets would be made in instances where their inclusion in the rate-making process is unlikely. For utility plant in service, we would recognize an impairment loss for any amount disallowed by the respective utility commission. For our equity method investment in joint venture, the Company evaluates whether it has experienced a decline in the value of its investment that is other than temporary in nature. We would recognize an impairment loss if the fair value of our investment is less than the carrying amount of the investment, and the decline in value is considered other than temporary. Additionally, the Company would recognize its share of an impairment loss if the joint venture determines that the carrying amount of the joint venture's assets exceeds the sum of the joint venture's undiscounted estimated cash flows.

Our long-lived assets, which consist primarily of utility plant in service, regulatory assets and investment in joint venture, are reviewed for impairment when changes in circumstances or events occur. These circumstances or events could include a decline in the market value or physical condition of a long-lived asset, an adverse change in the manner in which long-lived assets are used or planned to be used, a change in historical trends, operating cash flows associated with the long-lived assets, changes in macroeconomic conditions, industry and market conditions, or overall financial performance. When these circumstances or events occur, we determine whether it is more likely than not that the fair value of those assets is less than their carrying amount. If we determine that it is more likely than not (that is, the likelihood of more than 50 percent), we would recognize an impairment charge if it is determined that the carrying amount of an asset exceeds the sum of the undiscounted estimated cash flows. In this circumstance, we would recognize an impairment

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

charge equal to the difference between the carrying amount and the fair value of the asset. Fair value is estimated to be the present value of future net cash flows associated with the asset, discounted using a discount rate commensurate with the risk and remaining life of the asset. This assessment requires significant management judgment and estimates that are based on budgets, general strategic business plans, historical trends and other data and relevant factors. These estimates include significant inherent uncertainties, since they involve forecasting future events. If changes in circumstances or events occur, or estimates and assumptions that were used in this review are changed, we may be required to record an impairment charge on our long-lived assets.

We have an investment in a joint venture, for which we own 49%, and use the equity method of accounting to account for this joint venture. The joint venture operates a private pipeline system to supply raw water to natural gas well drilling operations in the Marcellus Shale in north central Pennsylvania. In the fourth quarter of 2015, the joint venture recognized an impairment charge on its long-lived assets, of which the Company's share totaled \$32,975 (\$21,433 after-tax), representing our share of the noncash impairment charge. Refer to Note 1 – *Summary of Significant Accounting Policies – Property, Plant and Equipment and Depreciation*, and *Investment in Joint Venture* in this Annual Report for additional information regarding the review of long-lived assets for impairment. See also *Consolidated Results – Equity (Earnings) Loss in Joint Venture* above in this Annual Report.

We test the goodwill attributable for each of our reporting units for impairment at least annually on July 31, or more often, if circumstances indicate a possible impairment may exist. When testing goodwill for impairment, we may assess qualitative factors, including macroeconomic conditions, industry and market considerations, cost factors, overall financial performance, and entity specific events, for some or all of our reporting units to determine whether it's more likely than not that the fair value of a reporting unit is less than its carrying amount. Alternatively, based on our assessment of the qualitative factors previously noted, we may perform a quantitative goodwill impairment test by determining the fair value of a reporting unit based on a discounted cash flow analysis. If we perform a quantitative test and determine that the fair value of a reporting unit is less than its carrying amount, we would record an impairment loss for the amount by which a reporting unit's carrying amount exceeds its fair value, not to exceed the carrying amount of goodwill. The assessment requires significant management judgment and estimates that are based on budgets, general strategic business plans, historical trends and other data and relevant factors. If changes in circumstances or events occur, or estimates and assumptions that were used in our impairment test change, we may be required to record an impairment charge for goodwill. Refer to Note 1 – *Summary of Significant Accounting Policies – Goodwill* in this Annual Report for information regarding the results of our annual impairment test.

Accounting for Post-Retirement Benefits — We maintain a qualified and a non-qualified defined benefit pension plan and plans that provide for post-retirement benefits other than pensions. Accounting for pension and other post-retirement benefits requires an extensive use of assumptions about the discount rate, expected return on plan assets, the rate of future compensation increases received by our employees, mortality, turnover and medical costs. Each assumption is reviewed annually with assistance from our actuarial consultant, who provides guidance in establishing the assumptions. The assumptions are selected to represent the average expected experience over time and may differ in any one year from actual experience due to changes in capital markets and the overall economy. These differences will impact the amount of pension and other post-retirement benefits expense that we recognize.

Our discount rate assumption, which is used to calculate the present value of the projected benefit payments of our post-retirement benefits, was determined by selecting a hypothetical portfolio of high quality corporate bonds appropriate to match the projected benefit payments of the plans. The selected bond portfolio was derived from a universe of Aa-graded corporate bonds, all of which were noncallable (or callable with make-whole provisions), and have at least \$50,000 in outstanding value. The discount rate was then developed as the rate that equates the market value of the bonds purchased to the discounted value of the projected benefit payments of the plans. A decrease in the discount rate would increase our post-retirement benefits expense and benefit obligation. After reviewing the hypothetical portfolio of bonds, we selected a discount rate of 3.66% for our pension plan and 3.73% for our other post-retirement benefit plans as of December 31, 2017, which represent a 47 and 52 basis-point decrease as compared to the discount rates selected at December 31, 2016, respectively. Our post-retirement benefits expense under these plans is determined using the discount rate as of the

AQUA AMERICA, INC. AND SUBSIDIARIES

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)

(In thousands of dollars, except per share amounts)

beginning of the year, which was 4.13% for our pension plan and 4.25% for our other-postretirement benefit plans for 2017, and will be 3.66% for our pension plan and 3.73% for our other post-retirement benefit plans for 2018.

Our expected return on plan assets is determined by evaluating the asset class return expectations with our advisors as well as actual, long-term, historical results of our asset returns. The Company's market-related value of plan assets is equal to the fair value of the plans' assets as of the last day of its fiscal year, and is a determinant for the expected return on plan assets, which is a component of post-retirement benefits expense. The allocation of our plans' assets impacts our expected return on plan assets. In 2017, we changed the targeted allocation of the plans' assets to reflect 50% to 70% return seeking assets, and 30% to 50% liability hedging assets, which replaced the former targeted allocation of 25% to 75% domestic equities, 0% to 10% international equities, 25% to 50% fixed income, 0% to 5% alternative investments, and 0% to 20% cash and cash equivalents. Our post-retirement benefits expense increases as the expected return on plan assets decreases. We believe that our actual long-term asset allocations on average will approximate our targeted allocations. Our targeted allocations are driven by our investment strategy to earn a reasonable rate of return while maintaining risk at acceptable levels through the diversification of investments across and within various asset categories. For 2017, we used a 7.00% expected return on plan assets assumption which will decrease to 6.75% for 2018.

Funding requirements for qualified defined benefit pension plans are determined by government regulations and not by accounting pronouncements. In accordance with funding rules and our funding policy, during 2018 our pension contribution is expected to be \$12,484. Future years' contributions will be subject to economic conditions, plan participant data and the funding rules in effect at such time as the funding calculations are performed, though we expect future changes in the amount of contributions and expense recognized to be generally included in customer rates.

Accounting for Income Taxes — We estimate the amount of income tax payable or refundable for the current year and the deferred income tax liabilities and assets that results from estimating temporary differences resulting from the treatment of specific items, such as depreciation, for tax and financial statement reporting. Generally, these differences result in the recognition of a deferred tax asset or liability on our consolidated balance sheet and require us to make judgments regarding the probability of the ultimate tax impact of the various transactions we enter into. Based on these judgments, we may record tax reserves or adjustments to valuation allowances on deferred tax assets to reflect the expected realization of future tax benefits. Actual income taxes could vary from these estimates and changes in these estimates can increase income tax expense in the period that these changes in estimates occur.

Our determination of what qualifies as a capital cost versus a tax deduction, for qualifying utility asset improvements, as it relates to our income tax accounting method change beginning in 2012, is subject to subsequent adjustment as well as IRS audits, changes in income tax laws, including regulations regarding tax-basis depreciation as it applies to our capital expenditures, or qualifying utility asset improvements, the expiration of a statute of limitations, or other unforeseen matters could impact the tax benefits that have already been recognized. We establish reserves for uncertain tax positions based upon management's judgment as to the sustainability of these positions. These accounting estimates related to the uncertain tax position reserve require judgments to be made as to the sustainability of each uncertain tax position based on its technical merits. We believe our tax positions comply with applicable law and that we have adequately recorded reserves as required. However, to the extent the final tax outcome of these matters is different than our estimates recorded, we would then need to adjust our tax reserves which could result in additional income tax expense or benefits in the period that this information is known.

IMPACT OF RECENT ACCOUNTING PRONOUNCEMENTS

We describe the impact of recent accounting pronouncements in Note 1 – *Summary of Significant Accounting Policies* in this Annual Report.

AQUA AMERICA, INC. AND SUBSIDIARIES
Management's Report On Internal Control Over Financial Reporting

Management of Aqua America, Inc. (the "Company") is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) under the Securities Exchange Act of 1934. The Company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America. The Company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company's assets that could have a material effect on the financial statements.

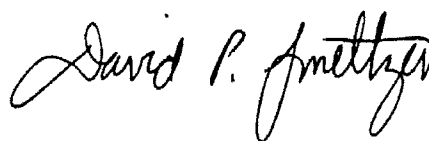
Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In assessing the effectiveness of internal control over financial reporting, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in *Internal Control-Integrated Framework* (2013). As a result of management's assessment and based on the criteria in the framework, management has concluded that, as of December 31, 2017, the Company's internal control over financial reporting was effective.

The effectiveness of our internal control over financial reporting as of December 31, 2017 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which is included herein.



Christopher H. Franklin
Chairman, President and Chief Executive Officer



David P. Smeltzer
Executive Vice President and Chief Financial Officer

February 28, 2018

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of Aqua America, Inc.:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets and statements of capitalization of Aqua America Inc. and its subsidiaries as of December 31, 2017 and 2016, and the related consolidated statements of net income, of comprehensive income, of equity and of cash flows for each of the three years in the period ended December 31, 2017, including the related notes (collectively referred to as the “consolidated financial statements”). We also have audited the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2017 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with

generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

A handwritten signature in black ink, appearing to read "Robert T. Howard" followed by a stylized "UP" or similar mark.

Philadelphia, Pennsylvania

February 28, 2018

We have served as the Company's auditor since 2000.

AQUA AMERICA, INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(In thousands of dollars, except per share amounts)

| | December 31, | |
|---|--------------|--------------|
| | 2017 | 2016 |
| Assets | | |
| Property, plant and equipment, at cost | \$ 7,003,993 | \$ 6,509,117 |
| Less: accumulated depreciation | 1,604,133 | 1,507,502 |
| Net property, plant and equipment | 5,399,860 | 5,001,615 |
| Current assets: | | |
| Cash and cash equivalents | 4,204 | 3,763 |
| Accounts receivable and unbilled revenues, net | 98,596 | 97,394 |
| Inventory, materials and supplies | 14,361 | 12,961 |
| Prepayments and other current assets | 12,542 | 12,804 |
| Assets held for sale | 1,543 | 1,728 |
| Total current assets | 131,246 | 128,650 |
| Regulatory assets | 713,971 | 948,647 |
| Deferred charges and other assets, net | 38,485 | 30,845 |
| Investment in joint venture | 6,671 | 7,026 |
| Goodwill | 42,230 | 42,208 |
| Total assets | \$ 6,332,463 | \$ 6,158,991 |
| Liabilities and Equity | | |
| Aqua America stockholders' equity: | | |
| Common stock at \$.50 par value, authorized 300,000,000 shares, issued 180,700,251 and 180,311,345 in 2017 and 2016 | \$ 90,350 | \$ 90,155 |
| Capital in excess of par value | 807,135 | 797,513 |
| Retained earnings | 1,132,556 | 1,032,844 |
| Treasury stock, at cost, 2,986,308 and 2,916,969 shares in 2017 and 2016 | (73,280) | (71,113) |
| Accumulated other comprehensive income | 860 | 669 |
| Total stockholders' equity | 1,957,621 | 1,850,068 |
| Long-term debt, excluding current portion | 2,029,358 | 1,759,962 |
| Less: debt issuance costs | 21,605 | 22,357 |
| Long-term debt, excluding current portion, net of debt issuance costs | 2,007,753 | 1,737,605 |
| Commitments and contingencies (See Note 9) | | |
| Current liabilities: | | |
| Current portion of long-term debt | 113,769 | 150,671 |
| Loans payable | 3,650 | 6,535 |
| Accounts payable | 59,165 | 47,256 |
| Book overdraft | 21,629 | 12,616 |
| Accrued interest | 21,359 | 18,367 |
| Accrued taxes | 23,764 | 25,607 |
| Other accrued liabilities | 41,152 | 40,484 |
| Total current liabilities | 284,488 | 301,536 |
| Deferred credits and other liabilities: | | |
| Deferred income taxes and investment tax credits | 769,073 | 1,269,253 |
| Customers' advances for construction | 93,186 | 91,843 |
| Regulatory liabilities | 541,910 | 250,635 |
| Other | 107,341 | 115,583 |
| Total deferred credits and other liabilities | 1,511,510 | 1,727,314 |
| Contributions in aid of construction | 571,091 | 542,468 |
| Total liabilities and equity | \$ 6,332,463 | \$ 6,158,991 |

See accompanying notes to consolidated financial statements.

AQUA AMERICA, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF NET INCOME
(In thousands of dollars)

| | Years ended December 31, | | |
|--|--------------------------|------------|------------|
| | 2017 | 2016 | 2015 |
| Operating revenues | \$ 809,525 | \$ 819,875 | \$ 814,204 |
| Operating expenses: | | | |
| Operations and maintenance | 287,206 | 304,897 | 309,310 |
| Depreciation | 136,302 | 130,987 | 125,290 |
| Amortization | 422 | 2,021 | 3,447 |
| Taxes other than income taxes | 56,628 | 56,385 | 55,057 |
| Total operating expenses | 480,558 | 494,290 | 493,104 |
| Operating income | 328,967 | 325,585 | 321,100 |
| Other expense (income): | | | |
| Interest expense, net | 88,341 | 80,594 | 76,536 |
| Allowance for funds used during construction | (15,211) | (8,815) | (6,219) |
| Gain on sale of other assets | (484) | (378) | (468) |
| Gain on extinguishment of debt | - | - | (678) |
| Equity (earnings) loss in joint venture | (331) | (976) | 35,177 |
| Income before income taxes | 256,652 | 255,160 | 216,752 |
| Provision for income taxes | 16,914 | 20,978 | 14,962 |
| Net income | \$ 239,738 | \$ 234,182 | \$ 201,790 |
| Net income per common share: | | | |
| Basic | \$ 1.35 | \$ 1.32 | \$ 1.14 |
| Diluted | \$ 1.35 | \$ 1.32 | \$ 1.14 |
| Average common shares outstanding during the period: | | | |
| Basic | 177,612 | 177,273 | 176,788 |
| Diluted | 178,175 | 177,846 | 177,517 |
| Cash dividends declared per common share | \$ 0.7920 | \$ 0.7386 | \$ 0.6860 |

See accompanying notes to consolidated financial statements.

AQUA AMERICA, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In thousands of dollars)

| | Years ended December 31, | | |
|--|--------------------------|-------------------|-------------------|
| | 2017 | 2016 | 2015 |
| Net income | \$ 239,738 | \$ 234,182 | \$ 201,790 |
| Other comprehensive income, net of tax: | | | |
| Unrealized holding gain (loss) on investments, net of tax expense (benefit) of \$102, \$21, and \$(53) for the years ended December 31, 2017, 2016, and 2015, respectively | 191 | 39 | (101) |
| Reclassification of gain on sale of investment to net income, net of tax expense of \$30 for the twelve months ended December 31, 2016 (1) | - | (57) | - |
| Comprehensive income | <u>\$ 239,929</u> | <u>\$ 234,164</u> | <u>\$ 201,689</u> |

See accompanying notes to consolidated financial statements.

(1) Amount of pre-tax gain of \$87 reclassified from accumulated other comprehensive income to gain on sale of other assets on the consolidated statement of net income for the year ended December 31, 2016.

AQUA AMERICA, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CAPITALIZATION
(In thousands of dollars, except per share amounts)

| | December 31, | |
|---|----------------------------|--------------|
| | 2017 | 2016 |
| Aqua America stockholders' equity: | | |
| Common stock, \$.50 par value | \$ 90,350 | \$ 90,155 |
| Capital in excess of par value | 807,135 | 797,513 |
| Retained earnings | 1,132,556 | 1,032,844 |
| Treasury stock, at cost | (73,280) | (71,113) |
| Accumulated other comprehensive income | 860 | 669 |
| Total stockholders' equity | 1,957,621 | 1,850,068 |
| Long-term debt of subsidiaries (substantially collateralized by utility plant): | | |
| <u>Interest Rate Range</u> | <u>Maturity Date Range</u> | |
| 0.00% to 0.99% | 2023 to 2033 | 4,196 |
| 1.00% to 1.99% | 2019 to 2035 | 12,914 |
| 2.00% to 2.99% | 2019 to 2033 | 19,254 |
| 3.00% to 3.99% | 2019 to 2056 | 475,232 |
| 4.00% to 4.99% | 2020 to 2057 | 631,599 |
| 5.00% to 5.99% | 2019 to 2043 | 205,578 |
| 6.00% to 6.99% | 2018 to 2036 | 44,000 |
| 7.00% to 7.99% | 2022 to 2027 | 32,335 |
| 8.00% to 8.99% | 2021 to 2025 | 6,092 |
| 9.00% to 9.99% | 2018 to 2026 | 25,700 |
| 10.00% to 10.99% | 2018 | 6,000 |
| | 1,462,900 | 1,247,224 |
| Notes payable to bank under revolving credit agreement, variable rate, due 2021 | 60,000 | 25,000 |
| Unsecured notes payable: | | |
| Bank notes at 1.975% and 2.48% due 2018 and 2019 | 100,000 | 100,000 |
| Notes at 3.01% and 3.59% due 2027 and 2041 | 245,000 | 245,000 |
| Notes ranging from 4.62% to 4.87%, due 2018 through 2024 | 122,800 | 133,600 |
| Notes ranging from 5.20% to 5.95%, due 2018 through 2037 | 152,427 | 159,809 |
| Total long-term debt | 2,143,127 | 1,910,633 |
| Current portion of long-term debt | 113,769 | 150,671 |
| Long-term debt, excluding current portion | 2,029,358 | 1,759,962 |
| Less: debt issuance costs | 21,605 | 22,357 |
| Long-term debt, excluding current portion, net of debt issuance costs | 2,007,753 | 1,737,605 |
| Total capitalization | \$ 3,965,374 | \$ 3,587,673 |

See accompanying notes to consolidated financial statements.

AQUA AMERICA, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY
(In thousands of dollars)

| | Common stock | Capital in excess of par value | Retained earnings | Treasury stock | Accumulated Other Comprehensive Income | Noncontrolling Interest | Total |
|--|-----------------|--------------------------------------|----------------------|-------------------|---|----------------------------|--------------|
| Balance at December 31, 2014 | \$ 89,296 | \$ 758,145 | \$ 849,952 | \$ (42,838) | \$ 788 | \$ 40 | \$ 1,655,383 |
| Net income | - | - | 201,790 | - | - | - | 201,790 |
| Other comprehensive loss, net of income tax benefit of \$53 | - | - | - | - | (101) | - | (101) |
| Dividends | - | - | (121,248) | - | - | - | (121,248) |
| Sale of stock (26,295 shares) | 13 | 664 | - | - | - | - | 677 |
| Repurchase of stock (981,585 shares) | - | - | - | (25,247) | - | - | (25,247) |
| Equity compensation plan (321,402 shares) | 161 | (161) | - | - | - | - | - |
| Exercise of stock options (424,709 shares) | 212 | 7,328 | - | - | - | - | 7,540 |
| Stock-based compensation | - | 5,860 | (433) | - | - | - | 5,427 |
| Employee stock plan tax benefits | - | 2,602 | - | - | - | - | 2,602 |
| Other | - | (853) | - | - | - | (40) | (893) |
| Balance at December 31, 2015 | 89,682 | 773,585 | 930,061 | (68,085) | 687 | - | 1,725,930 |
| Net income | - | - | 234,182 | - | - | - | 234,182 |
| Other comprehensive loss, net of income tax benefit of \$9 | - | - | - | - | (18) | - | (18) |
| Dividends | - | - | (130,923) | - | - | - | (130,923) |
| Stock issued for acquisition (439,943 shares) | 220 | 12,625 | - | - | - | - | 12,845 |
| Sale of stock (47,478 shares) | 24 | 1,364 | - | - | - | - | 1,388 |
| Repurchase of stock (97,400 shares) | - | - | - | (3,028) | - | - | (3,028) |
| Equity compensation plan (231,502 shares) | 115 | (115) | - | - | - | - | - |
| Exercise of stock options (228,762 shares) | 114 | 4,146 | - | - | - | - | 4,260 |
| Stock-based compensation | - | 5,390 | (476) | - | - | - | 4,914 |
| Employee stock plan tax benefits | - | 1,329 | - | - | - | - | 1,329 |
| Other | - | (811) | - | - | - | - | (811) |
| Balance at December 31, 2016 | 90,155 | 797,513 | 1,032,844 | (71,113) | 669 | - | 1,850,068 |
| Net income | - | - | 239,738 | - | - | - | 239,738 |
| Other comprehensive income, net of income tax of \$102 | - | - | - | - | 191 | - | 191 |
| Dividends | - | - | (140,660) | - | - | - | (140,660) |
| Sale of stock (45,121 shares) | 23 | 1,430 | - | - | - | - | 1,453 |
| Repurchase of stock (69,339 shares) | - | - | - | (2,167) | - | - | (2,167) |
| Equity compensation plan (169,258 shares) | 85 | (85) | - | - | - | - | - |
| Exercise of stock options (174,527 shares) | 87 | 2,786 | - | - | - | - | 2,873 |
| Stock-based compensation | - | 6,342 | (348) | - | - | - | 5,994 |
| Cumulative effect of change in accounting principle - windfall tax benefit | - | - | 982 | - | - | - | 982 |
| Other | - | (851) | - | - | - | - | (851) |
| Balance at December 31, 2017 | \$ 90,350 | \$ 807,135 | \$ 1,132,556 | \$ (73,280) | \$ 860 | \$ - | \$ 1,957,621 |

See accompanying notes to consolidated financial statements.

AQUA AMERICA, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands of dollars)

| | Years ended December 31, | | |
|--|--------------------------|------------|------------|
| | 2017 | 2016 | 2015 |
| Cash flows from operating activities: | | | |
| Net income | \$ 239,738 | \$ 234,182 | \$ 201,790 |
| Adjustments to reconcile net income to net cash flows from operating activities: | | | |
| Depreciation and amortization | 136,724 | 133,008 | 128,737 |
| Deferred income taxes | 13,780 | 17,250 | 16,506 |
| Provision for doubtful accounts | 4,986 | 5,505 | 5,765 |
| Stock-based compensation | 6,342 | 5,390 | 5,860 |
| (Gain) loss on sale of utility system and market-based business unit | 774 | (744) | - |
| Gain on sale of other assets | (484) | (378) | (468) |
| Gain on extinguishment of debt | - | - | (678) |
| Equity (earnings) loss in joint venture | (331) | (976) | 35,177 |
| Net change in receivables, inventory and prepayments | (6,458) | (3,974) | (6,520) |
| Net change in payables, accrued interest, accrued taxes and other accrued liabilities | (763) | 4,756 | (3,469) |
| Pension and other postretirement benefits contributions | (16,240) | (9,505) | (16,184) |
| Other | 3,250 | 11,649 | 4,278 |
| Net cash flows from operating activities | 381,318 | 396,163 | 370,794 |
| Cash flows from investing activities: | | | |
| Property, plant and equipment additions, including the debt component of allowance for funds used during construction of \$3,578, \$2,220, and \$1,598 | (478,089) | (382,996) | (364,689) |
| Acquisitions of utility systems and other, net | (5,860) | (9,423) | (28,989) |
| Release of funds previously restricted for construction activity | - | - | 47 |
| Net proceeds from the sale of utility systems and other assets | 1,342 | 7,746 | 648 |
| Other | 2,223 | 1,464 | (1,079) |
| Net cash flows used in investing activities | (480,384) | (383,209) | (394,062) |
| Cash flows from financing activities: | | | |
| Customers' advances and contributions in aid of construction | 7,312 | 7,263 | 5,904 |
| Repayments of customers' advances | (6,536) | (3,763) | (3,977) |
| Net repayments of short-term debt | (2,885) | (10,186) | (1,677) |
| Proceeds from long-term debt | 591,024 | 503,586 | 560,544 |
| Repayments of long-term debt | (359,068) | (373,087) | (400,407) |
| Change in cash overdraft position | 9,012 | (8,076) | (739) |
| Proceeds from issuing common stock | 1,453 | 1,388 | 677 |
| Proceeds from exercised stock options | 2,873 | 4,260 | 7,540 |
| Share-based compensation windfall tax benefits | - | 1,332 | 1,842 |
| Repurchase of common stock | (2,167) | (3,028) | (25,247) |
| Dividends paid on common stock | (140,660) | (130,923) | (121,248) |
| Other | (851) | (1,186) | (853) |
| Net cash flows (used in) from financing activities | 99,507 | (12,420) | 22,359 |
| Net increase (decrease) in cash and cash equivalents | 441 | 534 | (909) |
| Cash and cash equivalents at beginning of year | 3,763 | 3,229 | 4,138 |
| Cash and cash equivalents at end of year | \$ 4,204 | \$ 3,763 | \$ 3,229 |
| Cash paid during the year for: | | | |
| Interest, net of amounts capitalized | \$ 81,771 | \$ 72,662 | \$ 74,724 |
| Income taxes | 3,177 | 2,739 | 6,902 |
| Non-cash investing activities: | | | |
| Property, plant and equipment additions purchased at the period end, but not yet paid | \$ 45,385 | \$ 35,145 | \$ 25,612 |
| Non-cash customer advances for construction | 39,220 | 26,234 | 27,992 |

See accompanying notes to consolidated financial statements.

See Note 2 – *Acquisitions*, Note 10 – *Long-term Debt and Loans Payable*, and Note 14 – *Employee Stock and Incentive Plan* for a description of non-cash activities.

AQUA AMERICA, INC. AND SUBSIDIARIES
Notes to Consolidated Financial Statements
(In thousands of dollars, except per share amounts)

Note 1 – Summary of Significant Accounting Policies

Nature of Operations — Aqua America, Inc. (“Aqua America,” the “Company,” “we,” “our”, or “us”) is the holding company for regulated utilities providing water or wastewater services concentrated in Pennsylvania, Ohio, Texas, Illinois, North Carolina, New Jersey, Indiana, and Virginia. Our largest operating subsidiary is Aqua Pennsylvania, Inc., which accounted for approximately 52% of our operating revenues and approximately 74% of our net income for 2017. As of December 31, 2017, Aqua Pennsylvania provided water or wastewater services to approximately one-half of the total number of people we serve. Aqua Pennsylvania’s service territory is located in the suburban areas north and west of the City of Philadelphia and in 27 other counties in Pennsylvania. The Company’s other regulated utility subsidiaries provide similar services in seven other states. In addition, the Company’s market-based activities are conducted through Aqua Infrastructure LLC and Aqua Resources, Inc. Aqua Infrastructure provides non-utility raw water supply services for firms in the natural gas drilling industry. Aqua Resources provides water and wastewater services through two operating and maintenance contracts with municipal authorities close to our utility companies’ service territory; and offers, through a third party, water and wastewater line repair service and protection solutions to households. In 2017, we completed the sale of business units that are reported within the Company’s market-based subsidiary, Aqua Resources, which installed and tested devices that prevent the contamination of potable water and repaired water and wastewater systems, and repaired and performed maintenance on water and wastewater systems. Additionally, during 2016 we completed the sale of business units within Aqua Resources, which were reported as assets held for sale in the Company’s consolidated balance sheets, which provided liquid waste hauling and disposal services, and inspection, and cleaning and repair of storm and sanitary wastewater lines.

The Company has identified ten operating segments and has one reportable segment named the Regulated segment. The reportable segment is comprised of eight operating segments for our water and wastewater regulated utility companies which are organized by the states where we provide these services. These operating segments are aggregated into one reportable segment since each of the Company’s operating segments has the following similarities: economic characteristics, nature of services, production processes, customers, water distribution or wastewater collection methods, and the nature of the regulatory environment. In addition, Aqua Resources and Aqua Infrastructure are not quantitatively significant to be reportable and are included as a component of “Other,” in addition to corporate costs that have not been allocated to the Regulated segment and intersegment eliminations.

Regulation — Most of the operating companies that are regulated public utilities are subject to regulation by the utility commissions of the states in which they operate. The respective utility commissions have jurisdiction with respect to rates, service, accounting procedures, issuance of securities, acquisitions and other matters. Some of the operating companies that are regulated public utilities are subject to rate regulation by county or city government. Regulated public utilities follow the Financial Accounting Standards Board’s (“FASB”) accounting guidance for regulated operations, which provides for the recognition of regulatory assets and liabilities as allowed by regulators for costs or credits that are reflected in current rates or are considered probable of being included in future rates. The regulatory assets or liabilities are then relieved as the cost or credit is reflected in rates.

Use of Estimates in Preparation of Consolidated Financial Statements — The preparation of consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

AQUA AMERICA, INC. AND SUBSIDIARIES
Notes to Consolidated Financial Statements (continued)
(In thousands of dollars, except per share amounts)

Basis of Presentation — The consolidated financial statements include the accounts of the Company and its subsidiaries. All intercompany accounts and transactions have been eliminated. Certain prior period amounts have been reclassified to conform to the current period presentation in the consolidated statements of cash flows:

- pension and other postretirement benefit contributions; and
- as a result of the adoption in 2017 of the FASB's accounting guidance on the classification of certain cash receipts and cash payments, the presentation of debt extinguishment costs (refer to Note 1 — *Summary of Significant Accounting Policies, Recent Accounting Pronouncements*).

Additionally, certain prior period amounts have been reclassified to conform to the current period presentation:

- in the consolidated balance sheets for the presentation of book overdraft, and
- in Note 17 — *Segment Information* of total assets for Other and Eliminations for the reclassification of regulatory assets previously reflected within Other and Eliminations that are now presented with the Regulated segment.

Recognition of Revenues — Revenues in our Regulated segment principally include amounts billed to customers on a cycle basis and unbilled amounts based on estimated usage from the latest billing to the end of the accounting period. In addition, the Company's market-based subsidiary Aqua Resources recognizes revenues when services are performed and Aqua Infrastructure recognizes revenues when services are performed. The Company's market-based subsidiaries recognized revenues of \$4,798 in 2017, \$20,091 in 2016, and \$34,909 in 2015.

Property, Plant and Equipment and Depreciation — Property, plant and equipment consist primarily of utility plant. The cost of additions includes contracted cost, direct labor and fringe benefits, materials, overheads, and for additions meeting certain criteria, allowance for funds used during construction. Water systems acquired are typically recorded at estimated original cost of utility plant when first devoted to utility service and the applicable depreciation is recorded to accumulated depreciation. The difference between the estimated original cost, less applicable accumulated depreciation, and the purchase price is recorded as goodwill, or as an acquisition adjustment within utility plant as permitted by the applicable regulatory jurisdiction. At December 31, 2017, utility plant includes a net credit acquisition adjustment of \$24,550, which is generally being amortized from 2 to 59 years. Amortization of the acquisition adjustments totaled \$2,774 in 2017, \$2,223 in 2016, and \$2,556 in 2015.

Utility expenditures for maintenance and repairs, including major maintenance projects and minor renewals and betterments, are charged to operating expenses when incurred in accordance with the system of accounts prescribed by the utility commissions of the states in which the company operates. The cost of new units of property and betterments are capitalized. Utility expenditures for water main cleaning and relining of pipes are deferred and recorded in net property, plant and equipment in accordance with the FASB's accounting guidance for regulated operations. As of December 31, 2017, \$16,430 of these costs have been incurred since the last respective rate proceeding and the Company expects to recover these costs in future rates.

The cost of software upgrades and enhancements are capitalized if they result in added functionality, which enables the software to perform tasks it was previously incapable of performing. Information technology costs associated with major system installations, conversions and improvements, such as software training, data conversion and business process reengineering costs, are deferred as a regulatory asset if the Company expects to recover these costs in future rates. If these costs are not deferred, then these costs are charged to operating expenses when incurred. As of December 31, 2017, \$34,775 of these costs have been deferred since the last respective rate proceeding as a regulatory asset, and the deferral is reported as a component of net property, plant and equipment.

AQUA AMERICA, INC. AND SUBSIDIARIES
Notes to Consolidated Financial Statements (continued)
(In thousands of dollars, except per share amounts)

When units of utility property are replaced, retired or abandoned, the recorded value thereof is credited to the asset account and such value, together with the net cost of removal, is charged to accumulated depreciation. To the extent the Company anticipates recovery of the cost of removal or other retirement costs through rates after the retirement costs are incurred, a regulatory asset is recorded as those costs are incurred. In some cases, the Company recovers retirement costs through rates during the life of the associated asset and before the costs are incurred. These amounts, which are not yet utilized, result in a regulatory liability being reported based on the amounts previously recovered through customer rates.

The straight-line remaining life method is used to compute depreciation on utility plant. Generally, the straight-line method is used with respect to transportation and mechanical equipment, office equipment and laboratory equipment.

Long-lived assets of the Company, which consist primarily of utility plant in service, regulatory assets, and investment in joint venture, are reviewed for impairment when changes in circumstances or events occur. These circumstances or events could include a disallowance of utility plant in service or regulatory assets by the respective utility commission, a decline in the market value or physical condition of a long-lived asset, an adverse change in the manner in which long-lived assets are used or planned to be used, a change in historical trends, operating cash flows associated with the long-lived assets, changes in macroeconomic conditions, industry and market conditions, or overall financial performance. When these circumstances or events occur, the Company determines whether it is more likely than not that the fair value of those assets is less than their carrying amount. If the Company determines that it is more likely than not (that is, the likelihood of more than 50 percent), the Company would recognize an impairment charge if it is determined that the carrying amount of an asset exceeds the sum of the undiscounted estimated cash flows. In this circumstance, the Company would recognize an impairment charge equal to the difference between the carrying amount and the fair value of the asset. Fair value is estimated to be the present value of future net cash flows associated with the asset, discounted using a discount rate commensurate with the risk and remaining life of the asset. There has been no change in circumstances or events that have occurred that require adjustments to the carrying values of the Company's long-lived assets, except for an impairment charge recognized by the joint venture on its long-lived assets in 2015.

Allowance for Funds Used During Construction — The allowance for funds used during construction ("AFUDC") represents the capitalized cost of funds used to finance the construction of utility plant. In general, AFUDC is applied to construction projects requiring more than one month to complete. No AFUDC is applied to projects funded by customer advances for construction, contributions in aid of construction, or applicable state-revolving fund loans. AFUDC includes the net cost of borrowed funds and a rate of return on other funds when used, and is recovered through water rates as the utility plant is depreciated. The amount of AFUDC related to equity funds in 2017 was \$11,633, 2016 was \$6,561, and 2015 was \$4,621. No interest was capitalized by our market-based businesses.

Cash and Cash Equivalents — The Company considers all highly liquid investments with an original maturity of three months or less, which are not restricted for construction activity, to be cash equivalents.

The Company had a book overdraft, which represents transactions that have not cleared the bank accounts at the end of the period, for specific disbursement cash accounts of \$21,629 and \$12,616 at December 31, 2017 and 2016, respectively. The Company transfers cash on an as-needed basis to fund these items as they clear the bank in subsequent periods. The balance of the book overdraft is reported as book overdraft and the change in the book overdraft balance is reported as cash flows from financing activities, due to our ability to fund the overdraft with the Company's credit facility.

Funds Restricted for Construction Activity — The proceeds received from specific financings for construction and capital improvement of utility facilities are held in escrow until the designated expenditures are incurred. These amounts are reported as funds restricted for construction activity and are expected to be released over time as the capital projects are funded. As of December 31, 2017 and 2016, the Company did not have any funds restricted for construction activity.

AQUA AMERICA, INC. AND SUBSIDIARIES
Notes to Consolidated Financial Statements (continued)
(In thousands of dollars, except per share amounts)

Accounts Receivable — Accounts receivable are recorded at the invoiced amounts, which consists of billed and unbilled revenues. The allowance for doubtful accounts is the Company's best estimate of the amount of probable credit losses in our existing accounts receivable, and is determined based on historical write-off experience and the aging of account balances. The Company reviews the allowance for doubtful accounts quarterly. Account balances are written off against the allowance when it is probable the receivable will not be recovered. When utility customers request extended payment terms, credit is extended based on regulatory guidelines, and collateral is not required.

Inventories, Materials and Supplies — Inventories are stated at cost. Cost is determined using the first-in, first-out method.

Regulatory Assets, Deferred Charges and Other Assets — Deferred charges and other assets consist primarily of assets held to compensate employees in the future who participate in the Company's deferred compensation plan and other costs. Other costs, for which the Company has received or expects to receive prospective rate recovery, are deferred as a regulatory asset and amortized over the period of rate recovery in accordance with the FASB's accounting guidance for regulated operations. See Note – 6 *Regulatory Assets and Liabilities* for further information regarding the Company's regulatory assets.

Marketable equity securities are carried on the balance sheet at fair market value, and changes in fair value are included in other comprehensive income.

Investment in Joint Venture — The Company uses the equity method of accounting to account for our 49% investment in a joint venture with a firm in the natural gas industry for the construction and operation of a private pipeline system to supply raw water to natural gas well drilling operations in the Marcellus Shale in north-central Pennsylvania, which commenced operations in 2012. Our initial investment is carried at cost. Subsequently, the carrying amount of our investment is adjusted to reflect capital contributions or distributions, and our equity in earnings or losses since the commencement of the system's operations, as well as a decline in the fair value of our investment. Our share of equity earnings or losses in the joint venture is reported in the consolidated statements of net income as equity (earnings) losses in joint venture. During 2017 and 2016 we received distributions of \$686 and \$1,666, respectively. For our equity method investment in joint venture, the Company evaluates whether it has experienced a decline in the value of its investment that is other than temporary in nature. We would recognize an impairment loss if the fair value of our investment is less than the carrying amount of the investment, and the decline in value is considered other than temporary. Additionally, the Company would recognize its share of an impairment loss if the joint venture determines that the carrying amount of the joint venture's assets exceeds the sum of the joint venture's undiscounted estimated cash flows.

During 2015, the joint venture experienced the following events:

- a decline in natural gas prices, in 2015,
- a distinguishable reduction in the volume of water sales by the joint venture which led to a lowered forecast in 2015 on future water sales volumes by the joint venture, and
- changes in the natural gas industry and market conditions.

At the time, these market conditions were largely associated with natural gas prices, which sharply declined in 2015 and this downturn no longer appeared temporary and instead was expected to be a long-term condition. It was then determined that the carrying amount of the joint venture's long-lived assets exceeded the sum of the joint venture's undiscounted estimated cash flows, which resulted in the recognition of a noncash impairment charge of \$32,975 (\$21,433 after-tax) in 2015, representing the Company's share of the impairment charge. The impairment charge, on a pre-tax basis, is reported as equity loss in joint venture on the Company's consolidated statements of income. The amount of the impairment charge recognized by the joint venture is equal to the difference between the carrying value and the fair value of the long-lived assets. Fair value is estimated to be the present value of the future net cash flows associated with the assets, discounted using a rate commensurate with the risk and remaining life of the assets.

AQUA AMERICA, INC. AND SUBSIDIARIES
Notes to Consolidated Financial Statements (continued)
(In thousands of dollars, except per share amounts)

Goodwill — Goodwill represents the excess cost over the fair value of net tangible and identifiable intangible assets acquired through acquisitions. Goodwill is not amortized but is tested for impairment annually, or more often, if circumstances indicate a possible impairment may exist. When testing goodwill for impairment, we may assess qualitative factors, including macroeconomic conditions, industry and market considerations, cost factors, overall financial performance, and entity specific events, for some or all of our reporting units to determine whether it's more likely than not that the fair value of a reporting unit is less than its carrying amount. Alternatively, based on our assessment of the qualitative factors previously noted, we may perform a quantitative goodwill impairment test by determining the fair value of a reporting unit based on a discounted cash flow analysis. If we perform a quantitative test and determine that the fair value of a reporting unit is less than its carrying amount, we would record an impairment loss for the amount by which a reporting unit's carrying amount exceeds its fair value, not to exceed the carrying amount of goodwill. The Company tested the goodwill attributable for each of our reporting units for impairment as of July 31, 2017, and concluded that the estimated fair value of each reporting unit, which has goodwill recorded, exceeded the reporting unit's carrying amount, indicating that none of the Company's goodwill was impaired. The following table summarizes the changes in the Company's goodwill:

| | Regulated Segment | Other | Consolidated |
|---|----------------------|----------|--------------|
| Balance at December 31, 2015 | \$ 27,246 | \$ 6,620 | \$ 33,866 |
| Goodwill acquired during year | 10,378 | - | 10,378 |
| Reclassifications to utility plant acquisition adjustment | (98) | - | (98) |
| Disposition | (159) | (1,232) | (1,391) |
| Classified as assets held for sale | | (547) | (547) |
| Balance at December 31, 2016 | 37,367 | 4,841 | 42,208 |
| Goodwill acquired during year | 72 | - | 72 |
| Reclassifications to utility plant acquisition adjustment | (50) | - | (50) |
| Balance at December 31, 2017 | \$ 37,389 | \$ 4,841 | \$ 42,230 |

The reclassification of goodwill to utility plant acquisition adjustment results from a mechanism approved by the applicable utility commission. The mechanism provides for the transfer over time, and the recovery through customer rates, of goodwill associated with some acquisitions upon achieving specific objectives.

The goodwill allocated to a disposition or classified as assets held for sale results from the allocation of goodwill for market-based business units based on their relative fair value as compared to Aqua Resource's fair value.

Income Taxes — The Company accounts for some income and expense items in different time periods for financial and tax reporting purposes. Deferred income taxes are provided on specific temporary differences between the tax basis of the assets and liabilities, and the amounts at which they are carried in the consolidated financial statements. The income tax effect of temporary differences not currently recovered in rates is recorded as deferred taxes with an offsetting regulatory asset or liability. These deferred income taxes are based on the enacted tax rates expected to be in effect when such temporary differences are projected to reverse. Valuation allowances are established when necessary to reduce deferred tax assets to the amount more likely than not to be realized. Investment tax credits are deferred and amortized over the estimated useful lives of the related properties. Judgment is required in evaluating the Company's Federal and state tax positions. Despite management's belief that the Company's tax return positions are fully supportable, the Company establishes reserves when it believes that its tax positions are likely to be challenged and it may not fully prevail in these challenges. The Company's provision for income taxes includes interest, penalties and reserves for uncertain tax positions.

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In 2012, the Company changed its tax method of accounting for qualifying utility asset improvement costs in Aqua Pennsylvania effective with the tax year ended December 31, 2012 and for prior tax years. The tax accounting method was changed to permit the expensing of qualifying utility asset improvement costs that were previously being capitalized and depreciated for book and tax purposes. This change was implemented in response to a June 2012 rate order issued by the Pennsylvania Public Utility Commission to Aqua Pennsylvania, which provides for a reduction in current income tax expense as a result of the recognition of income tax benefits for qualifying utility asset improvements. This change results in a significant reduction in the effective income tax rate, a reduction in current income tax expense, and reduces the amount of taxes currently payable. For qualifying capital expenditures made prior to 2012, the resulting tax benefits have been deferred as of December 31, 2012 and, in accordance with the rate order, a ten year amortization of the income tax benefits, which reduces future income tax expense, commenced in 2013.

Customers' Advances for Construction and Contributions in Aid of Construction — Water mains, other utility property or, in some instances, cash advances to reimburse the Company for its costs to construct water mains or other utility property, are contributed to the Company by customers, real estate developers and builders in order to extend utility service to their properties. The value of these contributions is recorded as customers' advances for construction. Over time, the amount of non-cash contributed property will vary based on the timing of the contribution of the non-cash property and the volume of non-cash contributed property received in connection with development in our service territories. The Company makes refunds on these advances over a specific period of time based on operating revenues related to the property, or as new customers are connected to and take service from the applicable water main. After all refunds are made, any remaining balance is transferred to contributions in aid of construction. Contributions in aid of construction include direct non-refundable contributions and the portion of customers' advances for construction that become non-refundable.

Based on regulatory conventions in states where the Company operates, generally our subsidiaries depreciate contributed property and amortize contributions in aid of construction at the composite rate of the related property. Contributions in aid of construction and customers' advances for construction are deducted from the Company's rate base for rate-making purposes, and therefore, no return is earned on contributed property.

Stock-Based Compensation — The Company records compensation expense in the financial statements for stock-based awards based on the grant date fair value of those awards. Stock-based compensation expense includes an estimate for pre-vesting forfeitures and is recognized over the requisite service periods of the awards on either a straight-line basis, or the graded vesting method, which is generally commensurate with the vesting term.

Fair Value Measurements — The Company follows the FASB's accounting guidance for fair value measurements and disclosures, which defines fair value and establishes a framework for using fair value to measure assets and liabilities. That framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy are as follows:

- Level 1: unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access;
- Level 2: inputs other than Level 1 that are observable, either directly or indirectly, such as quoted market prices in active markets for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in non-active markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; or
- Level 3: inputs that are unobservable and significant to the fair value measurement.

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The asset's or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs. Additionally, assets that are measured at fair value using the net asset value ("NAV") per share practical expedient are not classified in the fair value hierarchy. There have been no changes in the valuation techniques used to measure fair value or asset or liability transfers between the levels of the fair value hierarchy for the years ended December 31, 2017 and 2016.

Recent Accounting Pronouncements — In March 2017, the FASB issued updated accounting guidance on the presentation of net periodic pension and postretirement benefit cost (net benefit cost). Historically, net benefit cost is reported as an employee cost within operating income, net of amounts capitalized. The guidance requires the bifurcation of net benefit cost. The service cost component will be presented with other employee compensation costs in operating income and the other components of net benefit cost will be reported separately outside of operating income, and will not be eligible for capitalization. The guidance is effective for annual reporting periods beginning after December 15, 2017, and interim periods within that reporting period, and is to be applied retrospectively for the presentation of the service cost component and the other components of net benefit cost, and on a prospective basis for the capitalization of only the service cost component of net benefit cost. On January 1, 2018, the Company adopted the updated guidance, which did not have a material impact on its results of operations or financial position.

In January 2017, the FASB issued updated accounting guidance that eliminates step 2 of the current goodwill impairment test, which requires a hypothetical purchase price allocation to measure goodwill impairment. A goodwill impairment loss will instead be measured at the amount by which a reporting unit's carrying amount exceeds its fair value, not to exceed the carrying amount of goodwill. The guidance will be effective for annual reporting periods beginning after December 15, 2019, and interim periods within that reporting period, with early adoption permitted for any impairment test performed on testing dates after January 1, 2017. The Company elected to early adopt the provisions of the updated guidance, for its annual impairment valuation performed in the third quarter of 2017, and the provisions of the updated guidance did not have an impact on its results of operations or financial position.

In August 2016, the FASB issued updated accounting guidance on the classification of certain cash receipts and cash payments in the statement of cash flows, which is intended to reduce diversity in practice in how certain transactions are classified in the statement of cash flows. This guidance is effective for fiscal years, and interim periods within those years, beginning after December 15, 2017, and early adoption is permitted. The Company has elected to early adopt the provisions of the updated guidance, which resulted in the reclassification of \$375 debt extinguishment costs for 2016, from cash flows from operating to financing activities to conform to the new classification.

In March 2016, the FASB issued updated accounting guidance on simplifying the accounting for share-based payments, which includes several aspects of the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. The updated guidance was effective for fiscal years beginning after December 15, 2016, and interim periods within those fiscal years, with early adoption available. On January 1, 2017, the Company adopted the updated guidance, prospectively, and recognized a previously unrecognized windfall tax benefit for stock-based compensation of \$982, associated with the Company's 2012 Federal net operating loss, which was recorded as an adjustment to deferred income taxes and retained earnings (refer to the presentation of "cumulative effect of change in accounting principle – windfall tax benefit" on the Company's Consolidated Statement of Equity). Additionally, income tax benefits in excess of compensation costs or tax deficiencies for share-based compensation are now recorded to our income tax provision, instead of historically to stockholder's equity, which impacts our effective tax rate. Lastly, all tax-related cash flows resulting from share-based payments are reported prospectively as operating activities on the statement of cash flows, a change from the historical requirement to present tax benefits as an inflow from financing activities and an outflow from operating activities.

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In February 2016, the FASB issued updated accounting guidance on accounting for leases, which requires lessees to establish a right-of-use asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. For income statement purposes, leases will be classified as either operating or finance. Operating leases will result in straight-line expense while finance leases will result in a front-loaded expense pattern. The updated accounting guidance is effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years, with early adoption available. The Company is evaluating the requirements of the updated guidance to determine the impact of adoption. Refer to Note 9 – *Commitments and Contingencies* for further information on the Company's leases.

In January 2016, the FASB issued updated accounting guidance on the recognition and measurement of financial assets and financial liabilities, which amends certain aspects of recognition, measurement, presentation, and disclosure of financial instruments, including the requirement to measure certain equity investments at fair value with changes in fair value recognized in net income. The updated guidance is effective for interim and annual periods beginning after December 31, 2017. On January 1, 2018, the Company adopted the updated guidance, which did not have a material impact on its results of operations or financial position.

In May 2014, the FASB issued updated accounting guidance on recognizing revenue from contracts with customers, which outlines a single comprehensive model that an entity will apply to determine the measurement of revenue and timing of recognition. The underlying principle is that an entity will recognize revenue to depict the transfer of goods or services to customers at an amount that the entity expects to be entitled to in exchange for those goods or services. The updated guidance also requires additional disclosure about the nature, amount, timing, and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to fulfill a contract. The updated guidance is effective for annual periods beginning after December 15, 2017, and interim periods therein, using either of the following transition methods: (i) a full retrospective approach reflecting the application of the updated guidance in each prior reporting period, or (ii) a modified retrospective approach with the cumulative effect of initially adopting the updated guidance recognized through retained earnings at the date of adoption. In 2016, the Company performed an evaluation of the requirements of the updated guidance and believes that the impact of adoption will not result in a material change in the Company's measurement of revenue. In 2017, the American Institute of Certified Public Accountants ("AICPA") power and utility entities revenue recognition task force determined that contributions in aid of construction are not in the scope of the new standard, and submitted its recommendation to the AICPA's revenue recognition working group for approval. The Company implemented the updated guidance using the modified retrospective approach on January 1, 2018, which did not result in a change in the Company's measurement of revenue, and reached the following conclusions:

- The Company's tariff sale contracts, including those with lower credit quality customers, are generally deemed to be probable of collection, and thus the timing of revenue recognition will continue to be concurrent with the delivery of water and wastewater services, consistent with our current practice.
- Contributions in aid of construction are outside of the scope of the standard, and will continue to be accounted for as a noncurrent liability.

Note 2 – Acquisitions

As part of the Company's growth-through-acquisition strategy, the Company has entered into purchase agreements to acquire the water or wastewater utility system assets of six municipalities for a total combined purchase price in cash of \$150,700. The purchase price for these pending acquisitions is subject to certain adjustments at closing, and the pending acquisitions are subject to regulatory approvals, including the final determination of the fair value of the rate base acquired. Closings for these acquisitions are expected to occur by the end of 2018, which is subject to the timing of the regulatory approval process. These acquisitions are expected to add approximately 16,325 customers in two of the states in which the Company operates.

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Pursuant to the Company's growth-through-acquisition strategy, the Company completed the following acquisitions:

In 2017, the Company completed four acquisitions of water and wastewater utility systems in two states adding 1,003 customers. The total purchase price of these utility systems consisted of \$5,860 in cash, which resulted in \$72 of goodwill being recorded. The operating revenues included in the consolidated financial statements of the Company during the period owned by the Company for the utility systems acquired in 2017 are \$461. The pro forma effect of the businesses acquired is not material either individually or collectively to the Company's results of operations.

In January 2016, the Company acquired Superior Water Company, Inc., which provides public water service to 4,108 customers in portions of Berks, Chester, and Montgomery counties in Pennsylvania. The total purchase price for the utility system was \$16,750, which consisted of the issuance of 439,943 shares of the Company's common stock and \$3,905 in cash. The purchase price allocation for this acquisition consisted primarily of acquired property, plant and equipment of \$25,167, contributions in aid of construction of \$16,565, and goodwill of \$8,622. Additionally, during 2016, the Company completed 18 acquisitions of water and wastewater utility systems in various states adding 2,469 customers. The total purchase price of these utility systems consisted of \$5,518 in cash. The operating revenues included in the consolidated financial statements of the Company during the period owned by the Company for the utility systems acquired were \$4,896 in 2017 and \$3,809 in 2016. The pro forma effect of the businesses acquired is not material either individually or collectively to the Company's results of operations.

In April 2015, the Company acquired the water and wastewater utility system assets of North Maine Utilities, located in the Village of Glenview, Illinois serving approximately 7,400 customers. The total purchase price consisted of \$23,079 in cash. The purchase price allocation for this acquisition consists primarily of acquired property, plant and equipment. Additionally, in 2015, the Company completed 14 acquisitions of water and wastewater utility systems in various states adding 3,170 customers. The total purchase price of these utility systems consisted of \$5,210 in cash. The operating revenues included in the consolidated financial statements of the Company during the period owned by the Company for the utility systems acquired were \$10,868 in 2017, \$10,708 in 2016, and \$6,662 in 2015. The pro forma effect of the businesses acquired is not material either individually or collectively to the Company's results of operations.

Note 3 –Dispositions

The following dispositions have not been presented as discontinued operations in the Company's consolidated financial statements as they do not qualify as discontinued operations, since their disposal does not represent a strategic shift that has a major effect on our operations or financial results. The gains or loss disclosed below are reported in the consolidated statements of net income as a component of operations and maintenance expense. These business units were reported within the Company's market-based subsidiary, Aqua Resources, and were included in "Other" in the Company's segment information.

Dispositions Completed in 2017 and 2016

In the second quarter of 2016, the Company decided to market for sale two business units that are reported within the Company's market-based subsidiary, Aqua Resources. One business unit installed and tested devices that prevent the contamination of potable water and repaired water and wastewater systems, for which the sale was completed in January 2017. The other business unit repaired and performed maintenance on water and wastewater systems, for which the sale was completed in June 2017. These business units were reported as assets held for sale in the Company's December 31, 2016 consolidated balance sheet included in this Annual Report. These transactions resulted in total proceeds of \$867 and the recognition of a net loss of \$324.

In the third quarter of 2016, the Company marketed for sale a business unit which inspects, cleans and repairs storm and sanitary wastewater lines. In November 2016, this business unit was sold for \$1,059 in cash and resulted in a loss on sale of \$1,081. Further, in December 2015, the Company decided to sell a business unit which provides liquid waste hauling

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and disposal services. During the second quarter of 2016, this business unit was sold for \$3,400 in cash and resulted in a gain on sale of \$537.

Dispositions Reported as Assets Held for Sale at December 31, 2017

In the first quarter of 2017, the Company decided to market for sale a water system that serves approximately 265 customers. This water system is reported as assets held for sale in the Company's consolidated balance sheet.

Note 4 – Property, Plant and Equipment

| | December 31, | | Approximate Range of Useful Lives | Weighted Average Useful Life |
|---|---------------------|---------------------|-----------------------------------|------------------------------|
| | 2017 | 2016 | | |
| Utility plant and equipment: | | | | |
| Mains and accessories | \$ 3,134,900 | \$ 2,898,560 | 30 - 93 years | 79 years |
| Services, hydrants, treatment plants and reservoirs | 1,753,433 | 1,621,972 | 5 - 85 years | 51 years |
| Operations structures and water tanks | 296,736 | 283,635 | 14 - 85 years | 47 years |
| Miscellaneous pumping and purification equipment | 768,962 | 733,074 | 12 - 90 years | 41 years |
| Meters, data processing, transportation and operating equipment | 768,655 | 733,837 | 4 - 63 years | 25 years |
| Land and other non-depreciable assets | 103,357 | 98,529 | - | - |
| Utility plant and equipment | 6,826,043 | 6,369,607 | | |
| Utility construction work in progress | 201,902 | 163,565 | - | - |
| Net utility plant acquisition adjustment | (24,550) | (25,683) | 2 - 59 years | 31 years |
| Non-utility plant and equipment | 598 | 1,628 | 3 - 25 years | 13 years |
| Total property, plant and equipment | <u>\$ 7,003,993</u> | <u>\$ 6,509,117</u> | | |

Note 5 – Accounts Receivable

| | December 31, | |
|--------------------------------------|------------------|------------------|
| | 2017 | 2016 |
| Billed utility revenue | \$ 65,695 | \$ 63,518 |
| Unbilled revenue | 35,042 | 34,635 |
| Other | 4,930 | 6,336 |
| | <u>105,667</u> | <u>104,489</u> |
| Less allowance for doubtful accounts | 7,071 | 7,095 |
| Net accounts receivable | <u>\$ 98,596</u> | <u>\$ 97,394</u> |

The Company's utility customers are located principally in the following states: 47% in Pennsylvania, 15% in Ohio, 10% in North Carolina, 8% in Texas, and 7% in Illinois. No single customer accounted for more than one percent of the Company's regulated operating revenues during the years ended December 31, 2017, 2016, and 2015. The following table summarizes the changes in the Company's allowance for doubtful accounts:

| | 2017 | 2016 | 2015 |
|------------------------------------|-----------------|-----------------|-----------------|
| Balance at January 1, | \$ 7,095 | \$ 5,873 | \$ 5,365 |
| Amounts charged to expense | 4,986 | 5,500 | 5,762 |
| Accounts written off | (6,135) | (5,410) | (6,513) |
| Recoveries of accounts written off | 1,125 | 1,132 | 1,259 |
| Balance at December 31, | <u>\$ 7,071</u> | <u>\$ 7,095</u> | <u>\$ 5,873</u> |

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Note 6 – Regulatory Assets and Liabilities

The regulatory assets represent costs that are probable to be fully recovered from customers in future rates while regulatory liabilities represent amounts that are expected to be refunded to customers in future rates or amounts recovered from customers in advance of incurring the costs. Except for income taxes, regulatory assets and regulatory liabilities are excluded from the Company's rate base and do not earn a return. The components of regulatory assets and regulatory liabilities are as follows:

| | December 31, 2017 | | December 31, 2016 | |
|--|----------------------|---------------------------|----------------------|---------------------------|
| | Regulatory Assets | Regulatory Liabilities | Regulatory Assets | Regulatory Liabilities |
| Income taxes | \$ 584,067 | \$ 438,750 | \$ 814,418 | \$ 157,266 |
| Utility plant retirement costs | 5,367 | 35,249 | 4,986 | 31,288 |
| Post-retirement benefits | 112,532 | 65,964 | 119,519 | 59,882 |
| Accrued vacation | 2,198 | - | 1,984 | - |
| Water tank painting | 3,259 | 1,855 | 2,111 | 2,143 |
| Fair value adjustment of long-term debt assumed in acquisition | 2,901 | - | 3,268 | - |
| Rate case filing expenses and other | 3,647 | 92 | 2,361 | 56 |
| | <u>\$ 713,971</u> | <u>\$ 541,910</u> | <u>\$ 948,647</u> | <u>\$ 250,635</u> |

Items giving rise to deferred state income taxes, as well as a portion of deferred Federal income taxes related to specific differences between tax and book depreciation expense, are recognized in the rate setting process on a cash basis or as a reduction in current income tax expense and will be recovered as they reverse. Amounts include differences that arise between specific utility asset improvement costs capitalized for book and deducted as an expense for tax purposes. Additionally, the recording of AFUDC for equity funds results in the recognition of a regulatory asset for income taxes, which represents amounts due related to the revenue requirement.

A portion of the regulatory liability for income taxes is related to Aqua Pennsylvania's income tax accounting change for the tax benefits realized on the Company's 2012 tax return, which have not yet reduced current income tax expense due to the ten year amortization period which began in 2013. This amortization was stipulated in a June 2012 rate order issued to Aqua Pennsylvania and is subject to specific parameters being met each year. Beginning in 2013, the Company amortized \$38,000, annually, of its deferred income tax benefits, which reduced current income tax expense and increased the Company's net income by \$16,734.

On December 22, 2017, President Trump signed the TCJA into law, which reduced the Federal corporate income tax rate from 35% to 21%. Reductions in accumulated deferred income tax balances due to the reduction in the corporate income tax rate to 21% under the provisions of the TCJA will result in amounts previously collected from utility customers for these deferred taxes to be refundable to such customers, generally through reductions in future rates. The TCJA includes provisions that stipulate how these excess deferred taxes relating to certain accelerated tax depreciation benefits are to be passed back to customers. Potential refunds of other deferred taxes will be determined by our state regulators. The December 31, 2017 consolidated balance sheet reflects the impact of the TCJA on our regulatory assets and liabilities, and reduces our regulatory assets by \$357,262 and increases our regulatory liabilities by \$303,320. These adjustments had no impact on our 2017 cash flows.

The regulatory asset for utility plant retirement costs, including cost of removal, represents costs already incurred that are expected to be recovered in future rates over a five year recovery period. The regulatory liability for utility plant retirement costs represents amounts recovered through rates during the life of the associated asset and before the costs are incurred.

The regulatory asset for accrued vacation represents costs that would otherwise be charged to operations and maintenance expense for vacation that is earned by employees, which is recovered as a cost of service.

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The regulatory asset for post-retirement benefits, which includes pension and other post-retirement benefits, primarily reflects a regulatory asset that has been recorded for the costs that would otherwise be charged to stockholders' equity for the underfunded status of the Company's pension and other post-retirement benefit plans. The Company also has a regulatory asset related to post-retirement benefits costs that represent costs already incurred which are now being recovered in rates over 10 years. The regulatory liability for post-retirement benefits represents costs recovered in rates in excess of post-retirement benefits expense.

Expenses associated with water tank painting are deferred and amortized over a period of time as approved in the regulatory process. Water tank painting costs are generally being amortized over a period ranging from 1 to 15 years. The regulatory liability for water tank painting costs represents amounts recovered through rates and before the costs are incurred.

The Company recorded a fair value adjustment for fixed rate, long-term debt assumed in acquisitions that matures in various years ranging from 2022 to 2029. The regulatory asset or liability results from the rate setting process continuing to recognize the historical interest cost of the assumed debt.

The regulatory asset related to rate case filing expenses and other represents the costs associated with filing for rate increases that are deferred and amortized over periods that generally range from one to five years, and costs incurred by the Company for which it has received or expects to receive rate recovery.

The regulatory asset related to the costs incurred for information technology software projects and water main cleaning and relining projects are described in Note 1 – *Summary of Significant Accounting Policies – Property, Plant and Equipment and Depreciation*.

Note 7 – Income Taxes

The provision for income taxes consists of:

| | Years Ended December 31, | | |
|-------------------|--------------------------|------------------|------------------|
| | 2017 | 2016 | 2015 |
| Current: | | | |
| Federal | \$ 1,297 | \$ 2,046 | \$ 2,624 |
| State | 1,837 | 1,682 | (4,168) |
| | <u>3,134</u> | <u>3,728</u> | <u>(1,544)</u> |
| Deferred: | | | |
| Federal | 21,376 | 21,489 | 12,649 |
| State | (7,596) | (4,239) | 3,857 |
| | <u>13,780</u> | <u>17,250</u> | <u>16,506</u> |
| Total tax expense | <u>\$ 16,914</u> | <u>\$ 20,978</u> | <u>\$ 14,962</u> |

The statutory Federal tax rate is 35% and for states with a corporate net income tax, the state corporate net income tax rates range from 3% to 9.99% for all years presented.

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The reasons for the differences between amounts computed by applying the statutory Federal corporate income tax rate to income before income tax expense are as follows:

| | Years Ended December 31, | | |
|---|--------------------------|-----------|-----------|
| | 2017 | 2016 | 2015 |
| Computed Federal tax expense at statutory rate | \$ 89,828 | \$ 89,306 | \$ 75,863 |
| Decrease in Federal tax expense related to an income tax accounting change for qualifying utility asset improvement costs | (69,325) | (62,831) | (59,488) |
| State income taxes, net of Federal tax benefit | (3,743) | (1,662) | (202) |
| Increase in tax expense for depreciation expense to be recovered in future rates | 199 | 199 | 199 |
| Stock-based compensation | (595) | (227) | (174) |
| Deduction for Aqua America common dividends paid under employee benefit plan | (455) | (455) | (456) |
| Amortization of deferred investment tax credits | (376) | (405) | (421) |
| Federal tax rate change | 3,141 | - | - |
| Other, net | (1,760) | (2,947) | (359) |
| Actual income tax expense | \$ 16,914 | \$ 20,978 | \$ 14,962 |

In 2012, the Company changed its tax method of accounting for qualifying utility system repairs in Aqua Pennsylvania effective with the tax year ended December 31, 2012 and for prior tax years. The tax accounting method was changed to permit the expensing of qualifying utility asset improvement costs that were previously being capitalized and depreciated for book and tax purposes. This change was implemented in response to a June 2012 rate order issued by the Pennsylvania Public Utility Commission to Aqua Pennsylvania which provides for a reduction in current income tax expense as a result of the flow-through recognition of some income tax benefits due to the income tax accounting change. The Company recorded income tax benefits of \$84,766, \$78,530, and \$72,944 during 2017, 2016, and 2015, respectively. The Company recognized a tax deduction on its 2012 Federal tax return of \$380,000 for qualifying capital expenditures made prior to 2012, and based on the rate order, in 2013, the Company began to amortize 1/10th of these expenditures. In accordance with the rate order, the amortization is expected to reduce current income tax expense during periods when qualifying parameters are met. Beginning in 2013, the Company amortized the qualifying capital expenditures made prior to 2012 and recognized \$38,000, annually, of deferred income tax benefits, which reduced current income tax expense and increased the Company's net income by \$16,734. The Company's effective income tax rate for 2017, 2016, and 2015 was 6.6%, 8.2%, and 6.9%, respectively.

The Company establishes reserves for uncertain tax positions based upon management's judgment as to the sustainability of these positions. These accounting estimates related to the uncertain tax position reserve require judgments to be made as to the sustainability of each uncertain tax position based on its technical merits. The Company believes its tax positions comply with applicable law and that it has adequately recorded reserves as required. However, to the extent the final tax outcome of these matters is different than the estimates recorded, the Company would then adjust its tax reserves or unrecognized tax benefits in the period that this information becomes known. The Company has elected to recognize accrued interest and penalties related to uncertain tax positions as income tax expense.

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The following table provides the changes in the Company's unrecognized tax benefits:

| | 2017 | 2016 |
|---|------------------|------------------|
| Balance at January 1, | \$ 28,099 | \$ 28,016 |
| Additions based on tax position related to the current year | 705 | 83 |
| Effect of Federal tax rate change | (11,221) | - |
| Balance at December 31, | <u>\$ 17,583</u> | <u>\$ 28,099</u> |

The unrecognized tax benefits relate to the income tax accounting change, and the tax position is attributable to a temporary difference. The Company does not anticipate material changes to its unrecognized tax benefits within the next year. As a result of the regulatory treatment afforded by the income tax accounting change in Pennsylvania and despite this position being a temporary difference, as of December 31, 2017 and 2016, \$24,243 and \$20,674 and, respectively, of these tax benefits would have an impact on the Company's effective income tax rate in the event the Company does sustain all, or a portion, of its tax position.

The following table provides the components of net deferred tax liability:

| | December 31, | December 31, |
|---|-------------------|---------------------|
| | 2017 | 2016 |
| Deferred tax assets: | | |
| Customers' advances for construction | \$ 17,123 | \$ 21,738 |
| Costs expensed for book not deducted for tax, principally accrued expenses | 12,956 | 15,751 |
| Utility plant acquisition adjustment basis differences | 1,752 | 3,114 |
| Post-retirement benefits | 36,353 | 38,269 |
| Tax loss and credit carryforwards | 56,642 | 77,911 |
| Other | 2,348 | 2,137 |
| | <u>127,174</u> | <u>158,920</u> |
| Less valuation allowance | 11,623 | 9,486 |
| | <u>115,551</u> | <u>149,434</u> |
| Deferred tax liabilities: | | |
| Utility plant, principally due to depreciation and differences in the basis of fixed assets due to variation in tax and book accounting | 795,537 | 1,104,032 |
| Deferred taxes associated with the gross-up of revenues necessary to recover, in rates, the effect of temporary differences | 46,143 | 269,773 |
| Tax effect of regulatory asset for post-retirement benefits | 36,353 | 38,269 |
| Deferred investment tax credit | 6,591 | 6,613 |
| | <u>884,624</u> | <u>1,418,687</u> |
| Net deferred tax liability | <u>\$ 769,073</u> | <u>\$ 1,269,253</u> |

At December 31, 2017, the Company has a cumulative Federal NOL of \$63,302. The Company believes the Federal NOLs are more likely than not to be recovered and require no valuation allowance. The Company's Federal NOLs do not begin to expire until 2032.

In 2012 and 2011, as a result of the Company's Federal cumulative NOLs the Company ceased recognizing the windfall tax benefit associated with stock-based compensation, because the deduction did not reduce income taxes payable. As of December 31, 2015, the Company utilized all of the 2011 NOL and recognized a windfall tax benefit of \$588. As a result

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of the adoption on January 1, 2017 of the FASB's updated accounting guidance on simplifying the accounting for share-based payments, the Company recognized a windfall tax benefit of \$982 associated with the Company's 2012 Federal NOL, which was recorded as an adjustment to retained earnings.

At December 31, 2017, the Company has a cumulative state NOL of \$627,258, a portion of which is offset by a valuation allowance because the Company does not believe these NOLs are more likely than not to be realized. The state NOLs do not begin to expire until 2023.

The Company has unrecognized tax positions that result in the associated tax benefit being unrecognized. The Company's Federal and state NOL carryforwards are reduced by an unrecognized tax position, on a gross basis, of \$64,476 and \$85,380, respectively, which results from the Company's adoption in 2013 of the FASB's accounting guidance on the presentation of an unrecognized tax benefit when a net operating loss carryforward, a similar tax loss, or a tax credit carryforward exists. The amounts of the Company's Federal and state NOL carryforwards prior to being reduced by the unrecognized tax positions are \$127,778 and \$712,638, respectively. The Company records its unrecognized tax benefit as a reduction to its deferred income tax liability.

As of December 31, 2017, the Company's Federal income tax returns for all years through 2011 have been closed. Tax years 2012 through 2017 remain open to Federal examination. The statute remains open for the Company's state income tax returns for tax years 2014 through 2017 in the various states in which it conducts business.

On December 22, 2017, President Trump signed the TCJA into law. Substantially all of the provisions of the TCJA are effective for taxable years beginning after December 31, 2017. The TCJA includes significant changes to the Code and the taxation of business entities, and includes specific provisions related to regulated public utilities. Significant changes that impact the Company included in the TCJA are a reduction in the corporate federal income tax rate from 35% to 21%, effective January 1, 2018, and a limitation of the utilization of NOLs arising after December 31, 2017 to 80% of taxable income with an indefinite carryforward. The specific TCJA provisions related to our regulated entities generally allow for the continued deductibility of interest expense, the elimination of full expensing for tax purposes of certain property acquired after September 27, 2017 and the continuation of certain rate normalization requirements for accelerated depreciation benefits. Our market-based companies still qualify for 100% deductibility of qualifying property acquired after September 27, 2017.

Changes in the Code from the TCJA had a material impact on our financial statements in 2017. In accordance with the FASB's accounting guidance for income taxes, the tax effects of changes in tax laws must be recognized in the period in which the law is enacted, or December 22, 2017 for the TCJA. Additionally, deferred tax assets and liabilities are required to be measured at the enacted tax rate expected to apply when temporary differences are to be realized or settled. Thus, at the date of enactment, the Company's deferred taxes were re-measured based upon the new tax rate. For our regulated entities, the change in deferred taxes is recorded as either an offset to a regulatory asset or liability and may be subject to refund to customers. In instances where the deferred tax balances are not in ratemaking, such as the Company's market-based operations, the change in deferred taxes is recorded as an adjustment to our deferred tax provision. To the extent the revalued deferred income tax assets and liabilities were outside of our regulated operations and are not believed to be recoverable in utility customer rates, the revalued amount of \$3,141 was recognized as additional deferred income tax expense during the quarter ended December 31, 2017.

The staff of the SEC has recognized the complexity of reflecting the impacts of the TCJA, and on December 22, 2017 issued guidance, which clarifies accounting for income taxes if information is not yet available or complete and provides for up to a one year period in which to complete the required analyses and accounting (the measurement period). The guidance describes three scenarios (or "buckets") associated with a company's status of accounting for income tax reform: (1) a company is complete with its accounting for certain effects of tax reform, (2) a company is able to determine a reasonable estimate for certain effects of tax reform and records that estimate as a provisional amount, or (3) a company is not able to determine a reasonable estimate and therefore continues to apply the FASB's accounting guidance, based on the provisions of the tax laws that were in effect immediately prior to the TCJA being enacted.

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The Company has completed or has made a reasonable estimate for the measurement and accounting of the effect of the TCJA which have been reflected in the December 31, 2017 financial statements. The accounting for these completed and provisional items, described below, increased the 2017 deferred income tax provision by \$3,141 for the year ending December 31, 2017, and decreased the accumulated deferred income tax liability by \$303,320 at December 31, 2017.

One of our states, Pennsylvania, has not yet issued an accounting or procedural order addressing how the TCJA changes are to be reflected in our utility customer rates. As of December 31, 2017, the Company has provisionally estimated that \$175,108 of deferred income tax liabilities for our Pennsylvania subsidiary will be a regulatory liability. Additionally, two operating divisions in one of our states operate under locally-negotiated contractual rates with their respective counties, and it is expected that negotiations will result in a contract that will pass back the effects of the reduction in the corporate net income tax rate under the TCJA; however, these negotiations have not yet started. As of December 31, 2017, the Company has provisionally estimated that \$9,419 of deferred income tax liabilities for these two divisions will be a regulatory liability. Overall, the Company has applied a reasonable interpretation of the impact of the TCJA and a reasonable estimate of the regulatory resolution. Further clarification of the TCJA and regulatory resolution may change the amounts estimated of the deferred income tax provision and the accumulated deferred income tax liability.

The Company's regulated operations accounting for income taxes are impacted by the FASB's accounting guidance for regulated operations. Reductions in accumulated deferred income tax balances due to the reduction in the Federal corporate income tax rates to 21% under the provisions of the TCJA will result in amounts previously collected from utility customers for these deferred taxes to be refundable to such customers, generally through reductions in future rates. The TCJA includes provisions that stipulate how these excess deferred taxes related to certain accelerated tax depreciation deduction benefits are to be passed back to customers. Potential refunds of other deferred taxes will be determined by our state regulators. Our state regulatory commissions have or are in the process of issuing procedural orders directing how the tax law changes are to be reflected in our utility customer rates. In addition, we have two rate cases currently in progress in two states in which the TCJA is expected to be addressed in the new base rates. The December 31, 2017 consolidated balance sheet reflects the impact of the TCJA on our regulatory assets and liabilities which reduced our regulatory assets by \$357,262 and increased our regulatory liabilities by \$303,320. These adjustments had no impact on our 2017 cash flows.

Note 8 – Taxes Other than Income Taxes

The following table provides the components of taxes other than income taxes:

| | Years Ended December 31, | | |
|--------------------------------------|--------------------------|-----------|-----------|
| | 2017 | 2016 | 2015 |
| Property | \$ 25,810 | \$ 26,788 | \$ 26,545 |
| Gross receipts, excise and franchise | 13,458 | 12,510 | 11,847 |
| Payroll | 9,477 | 9,772 | 9,539 |
| Regulatory assessments | 2,552 | 2,630 | 2,689 |
| Pumping fees | 5,057 | 4,571 | 3,993 |
| Other | 274 | 114 | 444 |
| Total taxes other than income taxes | \$ 56,628 | \$ 56,385 | \$ 55,057 |

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Note 9 – Commitments and Contingencies

Commitments – The Company leases motor vehicles, buildings and other equipment under operating leases that are noncancelable. The future annual minimum lease payments due are as follows:

| 2018 | 2019 | 2020 | 2021 | 2022 | Thereafter |
|----------|----------|--------|--------|--------|------------|
| \$ 1,312 | \$ 1,010 | \$ 743 | \$ 585 | \$ 365 | \$ 250 |

The Company leases parcels of land on which treatment plants and other facilities are situated and adjacent parcels that are used for watershed protection. The operating leases are noncancelable, expire between 2019 and 2052, and contain renewal provisions. Some leases are subject to an adjustment every five years based on changes in the Consumer Price Index. Subject to the aforesaid adjustment, during each of the next five years, an average of \$602 of annual lease payments for land is due, and the aggregate of the years remaining approximates \$12,806.

The Company maintains agreements with other water purveyors for the purchase of water to supplement its water supply, particularly during periods of peak demand. The agreements stipulate purchases of minimum quantities of water to the year 2026. The estimated annual commitments related to such purchases through 2022 are expected to average \$4,373 and the aggregate of the years remaining approximates \$9,644.

The Company has entered into purchase obligations, in the ordinary course of business, that include agreements for water treatment processes at some of its wells in a small number of its divisions. The 20 year term agreement provides for the use of treatment equipment and media used in the treatment process and are subject to adjustment based on changes in the Consumer Price Index. The future contractual cash obligations related to these agreements are as follows:

| 2018 | 2019 | 2020 | 2021 | 2022 | Thereafter |
|----------|----------|----------|----------|----------|------------|
| \$ 1,157 | \$ 1,007 | \$ 1,028 | \$ 1,048 | \$ 1,069 | \$ 6,623 |

Rent expense under operating leases, purchased water expense, and water treatment expenses under these agreements were as follows:

| | Years Ended December 31, | | |
|---|--------------------------|----------|----------|
| | 2017 | 2016 | 2015 |
| Operating lease expense | \$ 2,241 | \$ 2,776 | \$ 2,440 |
| Purchased water under long-term agreements | 8,558 | 13,955 | 13,718 |
| Water treatment expense under contractual agreement | 945 | 940 | 972 |

Contingencies – The Company is routinely involved in various disputes, claims, lawsuits and other regulatory and legal matters, including both asserted and unasserted legal claims, in the ordinary course of business. The status of each such matter, referred to herein as a loss contingency, is reviewed and assessed in accordance with applicable accounting rules regarding the nature of the matter, the likelihood that a loss will be incurred, and the amounts involved. As of December 31, 2017, the aggregate amount of \$18,961 is accrued for loss contingencies and is reported in the Company's consolidated balance sheet as other accrued liabilities and other liabilities. These accruals represent management's best estimate of probable loss (as defined in the accounting guidance) for loss contingencies or the low end of a range of losses if no single probable loss can be estimated. For some loss contingencies, the Company is unable to estimate the amount of the probable loss or range of probable losses. While the final outcome of these loss contingencies cannot be predicted with certainty, and unfavorable outcomes could negatively impact the Company, at this time in the opinion of management, the final resolution of these matters are not expected to have a material adverse effect on the Company's financial position, results of operations or cash flows. Further, Aqua America has insurance coverage for a number of these loss contingencies, and as of December 31, 2017, estimates that approximately \$7,131 of the amount accrued for

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these matters are probable of recovery through insurance, which amount is also reported in the Company's consolidated balance sheet as deferred charges and other assets, net.

Although the results of legal proceedings cannot be predicted with certainty, there are no pending legal proceedings to which the Company or any of its subsidiaries is a party or to which any of its properties is the subject that are material or are expected to have a material effect on the Company's financial position, results of operations or cash flows.

Additionally, the Company self-insures its employee medical benefit program, and maintains stop-loss coverage to limit the exposure arising from these claims. The Company's reserve for these claims totaled \$1,451 and \$1,770 at December 31, 2017 and 2016 and represents a reserve for unpaid claim costs, including an estimate for the cost of incurred but not reported claims.

Note 10 – Long-term Debt and Loans Payable

Long-term Debt – The consolidated statements of capitalization provide a summary of long-term debt as of December 31, 2017 and 2016. The supplemental indentures with respect to specific issues of the first mortgage bonds restrict the ability of Aqua Pennsylvania and other operating subsidiaries of the Company to declare dividends, in cash or property, or repurchase or otherwise acquire the stock of these companies. Loan agreements for Aqua Pennsylvania and other operating subsidiaries of the Company have restrictions on minimum net assets. As of December 31, 2017, restrictions on the net assets of the Company were \$1,443,473 of the total \$1,957,621 in net assets. Included in this amount were restrictions on Aqua Pennsylvania's net assets of \$1,090,062 of their total net assets of \$1,528,172. As of December 31, 2017, \$1,396,003 of Aqua Pennsylvania's retained earnings of \$1,416,003 and \$142,700 of the retained earnings of \$189,000 of other subsidiaries were free of these restrictions. Some supplemental indentures also prohibit Aqua Pennsylvania and some other subsidiaries of the Company from making loans to, or purchasing the stock of, the Company.

Sinking fund payments are required by the terms of specific issues of long-term debt. Excluding amounts due under the Company's revolving credit agreement, the future sinking fund payments and debt maturities of the Company's long-term debt are as follows:

| Interest Rate Range | 2018 | 2019 | 2020 | 2021 | 2022 | Thereafter |
|---------------------|------------|------------|-----------|-----------|-----------|--------------|
| 0.00% to 0.99% | \$ 464 | \$ 464 | \$ 463 | \$ 464 | \$ 466 | \$ 1,875 |
| 1.00% to 1.99% | 51,327 | 1,222 | 1,158 | 910 | 888 | 7,409 |
| 2.00% to 2.99% | 1,766 | 51,813 | 1,863 | 1,913 | 1,965 | 9,934 |
| 3.00% to 3.99% | 2,807 | 2,758 | 2,555 | 2,594 | 2,541 | 706,977 |
| 4.00% to 4.99% | 11,195 | 50,404 | 16,616 | 15,297 | 237 | 660,650 |
| 5.00% to 5.99% | 20,595 | 36,126 | 18,120 | 8,402 | 17,979 | 256,783 |
| 6.00% to 6.99% | 13,000 | - | - | - | - | 31,000 |
| 7.00% to 7.99% | 484 | 569 | 615 | 666 | 358 | 29,643 |
| 8.00% to 8.99% | 431 | 566 | 613 | 1,665 | 721 | 2,096 |
| 9.00% to 9.99% | 5,700 | 700 | 2,400 | 4,900 | - | 12,000 |
| 10.00% to 10.99% | 6,000 | - | - | - | - | - |
| Total | \$ 113,769 | \$ 144,622 | \$ 44,403 | \$ 36,811 | \$ 25,155 | \$ 1,718,367 |

In October 2017, Aqua Pennsylvania issued \$75,000 of first mortgage bonds, of which \$35,000 is due in 2054, \$20,000 is due in 2055, and \$20,000 is due in 2057 with interest rates of 4.06%, 4.07%, and 4.09%, respectively. The proceeds from these bonds were used to repay existing indebtedness and for general corporate purposes.

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In July 2017 Aqua Illinois issued \$100,000 of first mortgage bonds consisting of the following:

| Amount | Interest Rate | Maturity |
|----------|---------------|----------|
| \$25,000 | 3.64% | 2032 |
| \$6,000 | 3.89% | 2037 |
| \$15,000 | 3.90% | 2038 |
| \$10,000 | 4.18% | 2047 |
| \$22,000 | 4.22% | 2049 |
| \$22,000 | 4.24% | 2050 |

The proceeds from these bonds were used to repay existing indebtedness and for general corporate purposes.

In July 2017, Aqua Pennsylvania issued \$80,000 of first mortgage bonds, of which \$40,000 is due in 2055 and \$40,000 is due in 2057 with interest rates of 4.04% and 4.06%, respectively. The proceeds from these bonds were used to repay existing indebtedness and for general corporate purposes.

In January 2017, Aqua Pennsylvania issued \$50,000 of first mortgage bonds, of which \$10,000 is due in 2042 and \$40,000 is due in 2044 with interest rates of 3.65% and 3.69%, respectively. The proceeds from these bonds were used to repay existing indebtedness and for general corporate purposes.

In December 2016, Aqua Pennsylvania issued \$85,000 of first mortgage bonds, of which \$25,000 is due in 2051 and \$60,000 is due in 2056 with interest rates of 3.85% and 3.95%, respectively. In January 2017, Aqua Pennsylvania issued \$50,000 of first mortgage bonds, of which \$10,000 is due in 2042 and \$40,000 is due in 2044 with interest rates of 3.65% and 3.69%, respectively. The proceeds from these bonds were used to repay existing indebtedness and for general corporate purposes.

In November 2016, the Company issued \$125,000 of senior notes, of which \$35,000 is due in 2031, \$30,000 is due in 2034, \$25,000 is due in 2035, \$10,000 is due in 2038, and \$25,000 is due in 2041 with interest rates of 3.01%, 3.19%, 3.25%, 3.41%, and 3.57%, respectively. The proceeds from these bonds were used to repay existing indebtedness and for general corporate purposes.

As of December 31, 2017 and 2016, the Company did not have any funds restricted for construction activity.

The weighted average cost of long-term debt at December 31, 2017 and 2016 was 4.29% and 4.23%, respectively. The weighted average cost of fixed rate long-term debt at December 31, 2017 and 2016 was 4.36% and 4.26%, respectively.

The Company has a five-year \$250,000 unsecured revolving credit facility, with four banks that expires in February 2021. This facility includes a \$15,000 sublimit for daily demand loans. Funds borrowed under this facility are classified as long-term debt and are used to provide working capital as well as support for letters of credit for insurance policies and other financing arrangements. As of December 31, 2017, the Company has the following sublimits and available capacity under the credit facility: \$50,000 letter of credit sublimit, \$30,189 of letters of credit available capacity, \$0 borrowed under the swing-line commitment, and \$60,000 of funds borrowed under the agreement. Interest under this facility is based at the Company's option, on the prime rate, an adjusted Euro-Rate, an adjusted federal funds rate or at rates offered by the banks. A facility fee is charged on the total commitment amount of the agreement. Under this facility the average cost of borrowings was 1.91% and 1.54%, and the average borrowing was \$48,333 and \$89,374, during 2017 and 2016, respectively.

The Company is obligated to comply with covenants under some of its loan and debt agreements. These covenants contain a number of restrictive financial covenants, which among other things limit, subject to specific exceptions, the Company's ratio of consolidated total indebtedness to consolidated total capitalization, and require a minimum level of earnings coverage over interest expense. During 2017, the Company was in compliance with its debt covenants under its

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loan and debt agreements. Failure to comply with the Company's debt covenants could result in an event of default, which could result in the Company being required to repay or finance its borrowings before their due date, possibly limiting the Company's future borrowings, and increasing its borrowing costs.

Loans Payable – In November 2017, Aqua Pennsylvania renewed its \$100,000 364-day unsecured revolving credit facility with four banks. The funds borrowed under this agreement are classified as loans payable and used to provide working capital. As of December 31, 2017 and 2016, funds borrowed under the agreement were \$3,650 and \$5,545, respectively. Interest under this facility is based, at the borrower's option, on the prime rate, an adjusted federal funds rate, an adjusted London Interbank Offered Rate corresponding to the interest period selected, an adjusted Euro-Rate corresponding to the interest period selected or at rates offered by the banks. This agreement restricts short-term borrowings of Aqua Pennsylvania. A commitment fee of 0.05% is charged on the total commitment amount of Aqua Pennsylvania's revolving credit agreement. The average cost of borrowing under the facility was 1.78% and 1.18%, and the average borrowing was \$21,913 and \$29,760, during 2017 and 2016, respectively. The maximum amount outstanding at the end of any one month was \$66,466 and \$52,905 in 2017 and 2016, respectively.

At December 31, 2017 and 2016, the Company had other combined short-term lines of credit of \$35,500. Funds borrowed under these lines are classified as loans payable and are used to provide working capital. As of December 31, 2017 and 2016, funds borrowed under the short-term lines of credit were \$0 and \$990, respectively. The average borrowing under the lines was \$908 and \$2,944 during 2017 and 2016, respectively. The maximum amount outstanding at the end of any one month was \$990 in 2017 and \$9,440 in 2016, respectively. Interest under the lines is based at the Company's option, depending on the line, on the prime rate, an adjusted Euro-Rate, an adjusted federal funds rate or at rates offered by the banks. The average cost of borrowings under all lines during 2017 and 2016 was 1.81% and 1.24%, respectively.

Interest Income and Expense— Interest income of \$202, \$217, and \$272 was netted against interest expense on the consolidated statement of net income for the years ended December 31, 2017, 2016, and 2015, respectively. The total interest cost was \$88,543, \$80,811, and \$76,808 in 2017, 2016, and 2015, including amounts capitalized for borrowed funds of \$3,578, \$2,220, and \$1,598, respectively.

Note 11 – Fair Value of Financial Instruments

Financial instruments are recorded at carrying value in the financial statements and approximate fair value, with the exception of long-term debt, as of the dates presented. The fair value of these instruments is disclosed below in accordance with current accounting guidance related to financial instruments.

The fair value of cash and cash equivalents, which is comprised of uninvested cash, is determined based on level 1 methods and assumptions. As of December 31, 2017 and 2016, the carrying amounts of the Company's cash and cash equivalents were \$4,204 and \$3,763, which equates to their fair value. The fair value of "available-for-sale" securities to fund our deferred compensation and non-qualified pension plan liabilities, which represents mutual and money market funds, is determined based on quoted market prices from active markets utilizing level 1 methods and assumptions. As of December 31, 2017 and 2016, the carrying amount of these securities was \$21,776 and \$20,342. As of December 31, 2017 and 2016, the carrying amount of the Company's loans payable was \$3,650 and \$6,535, respectively, which equates to their estimated fair value.

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The carrying amounts and estimated fair values of the Company's long-term debt is as follows:

| | December 31, | |
|----------------------|--------------|--------------|
| | 2017 | 2016 |
| Carrying amount | \$ 2,143,127 | \$ 1,910,633 |
| Estimated fair value | 2,262,785 | 2,018,933 |

The fair value of long-term debt has been determined by discounting the future cash flows using current market interest rates for similar financial instruments of the same duration utilizing level 2 methods and assumptions. The Company's customers' advances for construction have a carrying value of \$93,186 and \$91,843 at December 31, 2017 and 2016, respectively. Their relative fair values cannot be accurately estimated because future refund payments depend on several variables, including new customer connections, customer consumption levels and future rate increases. Portions of these non-interest bearing instruments are payable annually through 2027 and amounts not paid by the respective contract expiration dates become non-refundable. The fair value of these amounts would, however, be less than their carrying value due to the non-interest bearing feature.

Note 12 – Stockholders' Equity

At December 31, 2017, the Company had 300,000,000 shares of common stock authorized; par value \$0.50. Shares outstanding and treasury shares held were as follows:

| | December 31, | | |
|--------------------|--------------|-------------|-------------|
| | 2017 | 2016 | 2015 |
| Shares outstanding | 177,713,943 | 177,394,376 | 176,544,091 |
| Treasury shares | 2,986,308 | 2,916,969 | 2,819,569 |

At December 31, 2017, the Company had 1,770,819 shares of authorized but unissued Series Preferred Stock, \$1.00 par value.

The Company has a universal shelf registration statement with the SEC to allow for the potential future sale by the Company, from time to time, in one or more public offerings, of an indeterminate amount of our common stock, preferred stock, debt securities and other securities specified therein at indeterminate prices. This registration statement expires in February 2018, and we intend to file a new three-year universal shelf registration statement.

In 2015, the Company filed a registration statement with the SEC which permits the offering, from time to time, of an aggregate of \$500,000 in shares of common stock and shares of preferred stock in connection with acquisitions. During 2016, 439,943 shares of common stock totaling \$12,845 were issued by the Company to acquire a water utility system. The balance remaining available for use under the acquisition shelf registration as of December 31, 2017 is \$487,155.

The form and terms of any securities issued under the universal shelf registration statement and the acquisition shelf registration statement will be determined at the time of issuance.

The Company has a Dividend Reinvestment and Direct Stock Purchase Plan ("Plan") that allows reinvested dividends to be used to purchase shares of common stock at a five percent discount from the current market value. Under the direct stock purchase program, shares are purchased by investors at a five percent discount from the market price. The shares issued under the Plan are either shares purchased by the Company's transfer agent in the open-market or original issue shares. In 2017, 2016, and 2015, 447,753, 484,645, and 535,439 shares of the Company were purchased under the dividend reinvestment portion of the Plan by the Company's transfer agent in the open-market for \$15,168, \$14,916, and \$14,380, respectively. During 2017 and 2016, under the dividend reinvestment portion of the Plan, 45,121 and 47,478

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original issue shares of common stock were sold, providing the Company with proceeds of \$1,453 and \$1,388, respectively.

In December 2014, the Company's Board of Directors authorized a share buyback program, commencing in 2015, of up to 1,000,000 shares to minimize share dilution through timely and orderly share repurchases. In December 2015, the Company's Board of Directors added 400,000 shares to this program. The specific timing, amount and other terms of repurchases depend on market conditions, regulatory requirements and other factors. In 2016, we did not repurchase any shares of our common stock in the open market. In 2015, we repurchased 805,000 shares of the Company's common stock in the open market for \$20,502. In 2014, we repurchased 560,000 shares of our common stock in the open market for \$13,280. This program expired on December 31, 2016.

The Company's accumulated other comprehensive income is reported in the stockholders' equity section of the consolidated balance sheets, the consolidated statements of equity, and the related components of other comprehensive income are reported in the consolidated statements of comprehensive income. The Company reports its unrealized gains or losses on investments as other comprehensive income and accumulated other comprehensive income. The Company recorded a regulatory asset for its underfunded status of its pension and other post-retirement benefit plans that would otherwise be charged to other comprehensive income, as it anticipates recovery of its costs through customer rates.

Note 13 – Net Income per Common Share and Equity per Common Share

Basic net income per share is based on the weighted average number of common shares outstanding. Diluted net income per share is based on the weighted average number of common shares outstanding and potentially dilutive shares. The dilutive effect of employee stock-based compensation is included in the computation of diluted net income per share. The dilutive effect of stock-based compensation is calculated by using the treasury stock method and expected proceeds upon exercise or issuance of the stock-based compensation. The following table summarizes the shares, in thousands, used in computing basic and diluted net income per share:

| | Years ended December 31, | | |
|---|--------------------------|---------|---------|
| | 2017 | 2016 | 2015 |
| Average common shares outstanding during the period for basic computation | 177,612 | 177,273 | 176,788 |
| Effect of dilutive securities: | | | |
| Employee stock-based compensation | 563 | 573 | 729 |
| Average common shares outstanding during the period for diluted computation | 178,175 | 177,846 | 177,517 |

For the years ended December 31, 2017, 2016, and 2015, all of the Company's employee stock options were included in the calculation of diluted net income per share as the calculated cost to exercise the stock options was less than the average market price of the Company's common stock during these periods.

Equity per common share was \$11.02 and \$10.43 at December 31, 2017 and 2016, respectively. These amounts were computed by dividing Aqua America stockholders' equity by the number of shares of common stock outstanding at the end of each year.

Note 14 – Employee Stock and Incentive Plan

Under the Company's 2009 Omnibus Equity Compensation Plan, as amended as of February 27, 2014 (the "2009 Plan"), as approved by the Company's shareholders to replace the 2004 Equity Compensation Plan (the "2004 Plan"), stock options, stock units, stock awards, stock appreciation rights, dividend equivalents, and other stock-based awards may be granted to employees, non-employee directors, and consultants and advisors. No further grants may be made under the 2004 Plan. The 2009 Plan authorizes 6,250,000 shares for issuance under the plan. A maximum of 3,125,000 shares under the 2009 Plan may be issued pursuant to stock award, stock units and other stock-based awards, subject to adjustment as provided in the 2009 Plan. During any calendar year, no individual may be granted (i) stock options and

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stock appreciation rights under the 2009 Plan for more than 500,000 shares of common stock in the aggregate or (ii) stock awards, stock units or other stock-based awards under the 2009 Plan for more than 500,000 shares of Company stock in the aggregate, subject to adjustment as provided in the 2009 Plan. Awards to employees and consultants under the 2009 Plan are made by a committee of the Board of Directors, except that with respect to awards to the Chief Executive Officer, the committee recommends those awards for approval by the non-employee directors of the Board of Directors. In the case of awards to non-employee directors, the Board of Directors makes such awards. At December 31, 2017, 3,720,624 shares underlying stock-based compensation awards were still available for grant under the 2009 Plan.

The recording of compensation expense for share-based compensation has no impact on net cash flows and results in the reclassification on the consolidated cash flow statements of related tax benefits from cash flows from operating activities to cash flows from financing activities to the extent these tax benefits exceed the associated compensation cost.

Performance Share Units – During 2017, 2016, and 2015, the Company granted performance share units. A performance share unit (“PSU”) represents the right to receive a share of the Company’s common stock if specified performance goals are met over the three year performance period specified in the grant, subject to exceptions through the respective vesting periods, generally three years. Each grantee is granted a target award of PSUs, and may earn between 0% and 200% of the target amount depending on the Company’s performance against the performance goals.

The performance goals of the 2017, 2016, and 2015 PSU grants consisted of the following metrics:

| | Performance Grant of: | | |
|--|-----------------------|-------|------|
| | 2017 | 2016 | 2015 |
| Metric 1 – Company’s total shareholder return (“TSR”) compared to the TSR for a specific peer group of investor-owned water companies (a market-based condition) | 26.47% | 27.5% | 30% |
| Metric 2 – Company’s TSR compared to the TSR for the companies listed in the Standard and Poor’s Midcap Utilities Index (a market-based condition) | 26.47% | 27.5% | 30% |
| Metric 3 – Achievement of a targeted cumulative level of rate base growth as a result of acquisitions (a performance-based condition) | 23.53% | - | - |
| Metric 4 – Achievement of targets for maintaining consolidated operations and maintenance expenses over the three year measurement period (a performance-based condition) | 23.53% | - | - |
| Metric 5 – Achievement of a targeted cumulative level of rate base growth as a result of acquisitions (a performance-based condition) | - | 25.0% | - |
| Metric 6 – Achievement of targets for maintaining consolidated operations and maintenance expenses over the three year measurement period (a performance-based condition) | - | 20.0% | - |
| Metric 7 – Maintaining an average ratio of operations and maintenance expenses as a percentage of revenues at Aqua Pennsylvania compared to a target average ratio for the three year performance period (a performance-based condition) | - | - | 20% |
| Metric 8 – Earning a cumulative total earnings before taxes for the Company’s operations other than Aqua Pennsylvania for the three year performance period compared to a target (a performance-based condition) | - | - | 20% |

The following table provides the compensation expense and income tax benefit for PSUs:

| | Years ended December 31, | | |
|--|--------------------------|----------|----------|
| | 2017 | 2016 | 2015 |
| Stock-based compensation within operations and maintenance expense | \$ 4,351 | \$ 3,823 | \$ 4,419 |
| Income tax benefit | 1,766 | 1,552 | 1,796 |

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The following table summarizes nonvested PSU transactions for the year ended December 31, 2017:

| | Number of Share Units | Weighted Average Fair Value |
|---|--------------------------|-----------------------------------|
| Nonvested share units at beginning of period | 476,896 | \$ 27.96 |
| Granted | 125,202 | 30.79 |
| Performance criteria adjustment | (33,502) | 28.14 |
| Forfeited | (22,664) | 28.68 |
| Share units vested in prior period and issued in current period | 32,400 | 25.31 |
| Share units issued | (125,999) | 36.37 |
| Nonvested share units at end of period | <u>452,333</u> | 26.16 |

A portion of the fair value of PSUs was estimated at the grant date based on the probability of satisfying the market-based conditions associated with the PSUs using the Monte Carlo valuation method, which assesses the probabilities of various outcomes of market conditions. The other portion of the fair value of the PSUs associated with performance-based conditions was based on the fair market value of the Company's stock at the grant date, regardless of whether the market-based condition is satisfied. The fair value of each PSU grant is amortized into compensation expense on a straight-line basis over their respective vesting periods, generally 36 months. The accrual of compensation costs is based on an estimate of the final expected value of the award, and is adjusted as required for the portion based on the performance-based condition. The Company assumes that forfeitures will be minimal, and recognizes forfeitures as they occur, which results in a reduction in compensation expense. As the payout of the PSUs includes dividend equivalents, no separate dividend yield assumption is required in calculating the fair value of the PSUs. The recording of compensation expense for PSUs has no impact on net cash flows. The following table provides the assumptions used in the pricing model for the grant, the resulting grant date fair value of PSUs, and the intrinsic value and fair value of PSUs that vested during the year:

| | Years ended December 31, | | |
|---|--------------------------|----------|----------|
| | 2017 | 2016 | 2015 |
| Expected term (years) | 3.0 | 3.0 | 3.0 |
| Risk-free interest rate | 1.49% | 0.91% | 1.03% |
| Expected volatility | 17.9% | 17.9% | 16.9% |
| Weighted average fair value of PSUs granted | \$ 30.79 | \$ 28.89 | \$ 26.46 |
| Intrinsic value of vested PSUs | \$ 3,926 | \$ 5,912 | \$ 7,964 |
| Fair value of vested PSUs | \$ 3,207 | \$ 5,104 | \$ 6,416 |

As of December 31, 2017, \$4,945 of unrecognized compensation costs related to PSUs is expected to be recognized over a weighted average period of approximately 1.7 years. The aggregate intrinsic value of PSUs as of December 31, 2017 was \$18,114. The aggregate intrinsic value of PSUs is based on the number of nonvested share units and the market value of the Company's common stock as of the period end date.

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Restricted Stock Units — A restricted stock unit (“RSU”) represents the right to receive a share of the Company’s common stock and is valued based on the fair market value of the Company’s stock on the date of grant. RSUs are eligible to be earned at the end of a specified restricted period, generally three years, beginning on the date of grant. In some cases, the right to receive the shares is subject to specific performance goals established at the time the grant is made. The Company assumes that forfeitures will be minimal, and recognizes forfeitures as they occur, which results in a reduction in compensation expense. As the payout of the RSUs includes dividend equivalents, no separate dividend yield assumption is required in calculating the fair value of the RSUs. The following table provides the compensation expense and income tax benefit for RSUs:

| | Years ended December 31, | | |
|--|--------------------------|----------|----------|
| | 2017 | 2016 | 2015 |
| Stock-based compensation within operations and maintenance expense | \$ 1,183 | \$ 1,061 | \$ 1,076 |
| Income tax benefit | 489 | 438 | 444 |

The following table summarizes nonvested RSU transactions for the year ended December 31, 2017:

| | Number of Stock Units | Weighted Average Fair Value |
|--|--------------------------|-----------------------------------|
| Nonvested stock units at beginning of period | 109,273 | \$ 28.48 |
| Granted | 41,293 | 30.37 |
| Stock units vested but not paid | (1,467) | 31.47 |
| Stock units vested and issued | (26,914) | 26.45 |
| Forfeited | (5,398) | 31.03 |
| Nonvested stock units at end of period | <u>116,787</u> | <u>29.46</u> |

The following table summarizes the value of RSUs:

| | Years ended December 31, | | |
|---|--------------------------|----------|----------|
| | 2017 | 2016 | 2015 |
| Weighted average fair value of RSUs granted | \$ 30.37 | \$ 32.08 | \$ 26.00 |
| Intrinsic value of vested RSUs | 896 | 805 | 2,327 |
| Fair value of vested RSUs | 751 | 605 | 1,904 |

As of December 31, 2017, \$1,401 of unrecognized compensation costs related to RSUs is expected to be recognized over a weighted average period of approximately 1.7 years. The aggregate intrinsic value of RSUs as of December 31, 2017 was \$4,582. The aggregate intrinsic value of RSUs is based on the number of nonvested stock units and the market value of the Company’s common stock as of the period end date.

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Stock Options – A stock option represents the option to purchase a number of shares of common stock of the Company as specified in the stock option grant agreement at the exercise price per share as determined by the closing market price of our common stock on the grant date. Stock options are exercisable in installments of 33% annually, starting one year from the grant date and expire ten years from the grant date. The vesting of stock options granted in 2017 are subject to the achievement of the following performance goal: the Company achieves at least an adjusted return on equity equal to 150 basis points below the return on equity granted by the Pennsylvania Public Utility Commission during the Company's Pennsylvania subsidiary's last rate proceeding. The adjusted return on equity equals net income, excluding net income or loss from acquisitions which have not yet been incorporated into a rate application as of the last year end, divided by equity which excludes equity applicable to acquisitions which are not yet incorporated in a rate application during the award period.

The fair value of each stock option is amortized into compensation expense using the graded vesting method, which results in the recognition of compensation costs over the requisite service period for each separately vesting tranche of the stock options as though the stock options were, in substance, multiple stock option grants. The following table provides compensation expense and income tax benefit for stock options:

| | Years ended December 31, | | |
|---|--------------------------|------|------|
| | 2017 | 2016 | 2015 |
| Stock-based compensation within operations and maintenance expenses | \$ 245 | \$ - | \$ - |
| Income tax benefit | 208 | 260 | 193 |

There were no stock options granted during the years ended December 31, 2016, and 2015.

Options under the plans were issued at the closing market price of the stock on the day of the grant. The fair value of options was estimated at the grant date using the Black-Scholes option-pricing model, which relies on assumptions that require management's judgment. The following table provides the assumptions used in the pricing model for grants and the resulting grant date fair value of stock options granted in the period reported:

| | Year ended December 31, | |
|----------------------------------|-------------------------|-------|
| | 2017 | |
| Expected term (years) | | 5.45 |
| Risk-free interest rate | | 2.01% |
| Expected volatility | | 17.7% |
| Dividend yield | | 2.51% |
| Grant date fair value per option | \$ | 4.07 |

The Company assumes that forfeitures will be minimal, and recognizes forfeitures as they occur, which results in a reduction in compensation expense.

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The following table summarizes stock option transactions for the year ended December 31, 2017:

| | Shares | Weighted Average Exercise Price | Weighted Average Remaining Life (years) | Aggregate Intrinsic Value |
|--------------------------------|-----------|--|--|------------------------------|
| Outstanding, beginning of year | 427,335 | \$ 15.55 | | |
| Granted | 120,127 | 30.47 | | |
| Forfeited | (5,191) | 30.47 | | |
| Expired / Cancelled | (2,812) | 14.26 | | |
| Exercised | (174,527) | 16.46 | | |
| Outstanding at end of year | 364,932 | \$ 19.83 | 3.7 | \$ 7,081 |
| Exercisable at end of year | 249,996 | \$ 14.93 | 1.2 | \$ 6,074 |

The intrinsic value of stock options is the amount by which the market price of the stock on a given date, such as at the end of the period or on the day of exercise, exceeded the closing market price of stock on the date of grant. The following table summarizes the intrinsic value of stock options exercised:

| | Years ended December 31, | | |
|--------------------------------------|--------------------------|----------|----------|
| | 2017 | 2016 | 2015 |
| Intrinsic value of options exercised | \$ 2,767 | \$ 2,945 | \$ 4,154 |

The following table summarizes information about the options outstanding and options exercisable as of December 31, 2017:

| | Options Outstanding | | | Options Exercisable | |
|------------------|---------------------|--|------------------------------------|---------------------|------------------------------------|
| | Shares | Weighted Average Remaining Life (years) | Weighted Average Exercise Price | Shares | Weighted Average Exercise Price |
| Range of prices: | | | | | |
| \$13.00 - 14.99 | 89,770 | 2.1 | \$ 13.72 | 89,770 | \$ 13.72 |
| \$15.00 - 15.99 | 101,167 | 1.2 | 15.30 | 101,167 | 15.30 |
| \$16.00 - 16.99 | 59,059 | 0.2 | 16.15 | 59,059 | 16.15 |
| \$17.00 - 30.99 | 114,936 | 9.1 | 30.47 | - | - |
| | <u>364,932</u> | <u>3.7</u> | <u>19.83</u> | <u>249,996</u> | <u>14.93</u> |

As of December 31, 2017, there was \$223 of total unrecognized compensation costs related to nonvested stock options granted under the plans. The cost is expected to be recognized over a weighted average period of approximately 1.5 years.

Restricted Stock – Restricted stock awards provide the grantee with the rights of a shareholder, including the right to receive dividends and to vote such shares, but not the right to sell or otherwise transfer the shares during the restriction period. Restricted stock awards result in compensation expense which is equal to the fair market value of the stock on the date of the grant and is amortized ratably over the restriction period. The Company expects forfeitures of restricted stock to be de minimis.

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The following table summarizes the value of restricted stock awards:

| | Years ended December 31, | | |
|---|--------------------------|------|--------|
| | 2017 | 2016 | 2015 |
| Intrinsic value of restricted stock awards vested | \$ - | \$ - | \$ 860 |
| Fair value of restricted stock awards vested | - | - | 553 |

As of December 31, 2017, there were no unrecognized compensation costs related to nonvested restricted stock as restricted stock was fully amortized in 2014. Additionally, there was no restricted stock granted during the years ended December 31, 2017, 2016, and 2015.

Stock Awards – The following table provides compensation costs for stock-based compensation related to stock awards:

| | Years ended December 31, | | |
|--|--------------------------|--------|--------|
| | 2017 | 2016 | 2015 |
| Stock-based compensation within operations and maintenance expense | \$ 563 | \$ 506 | \$ 365 |
| Income tax benefit | 233 | 210 | 151 |

The following table summarizes the value of stock awards:

| | Years ended December 31, | | |
|---|--------------------------|--------|--------|
| | 2017 | 2016 | 2015 |
| Intrinsic and fair value of stock awards vested | \$ 563 | \$ 506 | \$ 365 |
| Weighted average fair value of stock awards granted | 34.42 | 31.87 | 26.44 |

The following table summarizes stock award transactions for year ended December 31, 2017:

| | Number of Stock Awards | Weighted Average Fair Value |
|---|---------------------------|-----------------------------------|
| Nonvested stock awards at beginning of period | - | \$ - |
| Granted | 16,345 | 34.42 |
| Vested | (16,345) | 34.42 |
| Nonvested stock awards at end of period | - | - |

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Note 15 – Pension Plans and Other Post-retirement Benefits

The Company maintains a qualified, defined benefit pension plan that covers its full-time employees who were hired prior to April 1, 2003. Retirement benefits under the plan are generally based on the employee's total years of service and compensation during the last five years of employment. The Company's policy is to fund the plan annually at a level which is deductible for income tax purposes and which provides assets sufficient to meet its pension obligations over time. To offset some limitations imposed by the Internal Revenue Code with respect to payments under qualified plans, the Company has a non-qualified Supplemental Pension Benefit Plan for Salaried Employees in order to prevent some employees from being penalized by these limitations, and to provide certain retirement benefits based on employee's years of service and compensation. The Company also had non-qualified Supplemental Executive Retirement Plans, which were terminated in 2016, for some current and retired employees. The net pension costs and obligations of the qualified and non-qualified plans are included in the tables which follow. Employees hired after April 1, 2003 may participate in a defined contribution plan that provides a Company matching contribution on amounts contributed by participants and an annual profit-sharing contribution based upon a percentage of the eligible participants' compensation.

Effective July 1, 2015, the Company added a permanent lump sum option to the form of benefit payments offered to participants of the qualified defined benefit pension plan upon retirement or termination. The plan paid \$8,858 and \$9,990 to participants who elected this option during 2017 and 2016.

In addition to providing pension benefits, the Company offers post-retirement benefits other than pensions to employees hired before April 1, 2003 and retiring with a minimum level of service. These benefits include continuation of medical and prescription drug benefits, or a cash contribution toward such benefits, for eligible retirees and life insurance benefits for eligible retirees. The Company funds these benefits through various trust accounts. The benefits of retired officers and other eligible retirees are paid by the Company and not from plan assets due to limitations imposed by the Internal Revenue Code.

In 2016, the Company recognized a settlement loss of \$2,895, which results from lump sum payments from the non-qualified plans exceeding the threshold of service and interest cost for the period. A settlement loss is the recognition of unrecognized pension benefit costs that would have been incurred in subsequent periods. The Company recorded this settlement loss as a regulatory asset, as it is probable of recovery in future rates, which will be amortized into pension benefit costs.

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The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid in the years indicated:

| | Pension Benefits | Other Post-retirement Benefits |
|-----------|------------------|--------------------------------|
| Years: | | |
| 2018 | \$ 20,516 | \$ 2,249 |
| 2019 | 20,462 | 2,553 |
| 2020 | 21,580 | 2,777 |
| 2021 | 20,674 | 2,957 |
| 2022 | 21,538 | 3,177 |
| 2023-2027 | 106,397 | 18,764 |

The changes in the benefit obligation and fair value of plan assets, the funded status of the plans and the assumptions used in the measurement of the company's benefit obligation are as follows:

| | Pension Benefits | | Other Post-retirement Benefits | |
|---|------------------|------------|--------------------------------|-----------|
| | 2017 | 2016 | 2017 | 2016 |
| Change in benefit obligation: | | | | |
| Benefit obligation at January 1, | \$ 308,172 | \$ 306,539 | \$ 69,312 | \$ 65,137 |
| Service cost | 3,174 | 3,179 | 1,020 | 1,014 |
| Interest cost | 12,434 | 13,038 | 2,947 | 2,927 |
| Actuarial loss | 18,516 | 15,321 | 4,047 | 1,400 |
| Plan participants' contributions | - | - | 124 | 170 |
| Benefits paid | (21,317) | (21,861) | (1,490) | (1,336) |
| Settlements | - | (7,742) | - | - |
| Special termination benefits | - | (302) | - | - |
| Benefit obligation at December 31, | 320,979 | 308,172 | 75,960 | 69,312 |
| Change in plan assets: | | | | |
| Fair value of plan assets at January 1, | 242,360 | 238,605 | 46,085 | 43,704 |
| Actual return on plan assets | 33,278 | 17,375 | 5,188 | 2,149 |
| Employer contributions | 16,032 | 16,285 | 500 | 1,360 |
| Benefits paid | (21,317) | (21,861) | (1,323) | (1,128) |
| Settlements | - | (7,742) | - | - |
| Special termination benefits | - | (302) | - | - |
| Asset transfer | - | - | (2,700) | - |
| Fair value of plan assets at December 31, | 270,353 | 242,360 | 47,750 | 46,085 |
| Funded status of plan: | | | | |
| Net liability recognized at December 31, | \$ 50,626 | \$ 65,812 | \$ 28,210 | \$ 23,227 |

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The following table provides the net liability recognized on the consolidated balance sheets at December 31,:

| | Pension Benefits | | Other Post-retirement Benefits | |
|--------------------------|------------------|------------------|--------------------------------|------------------|
| | 2017 | 2016 | 2017 | 2016 |
| Current liability | \$ 396 | \$ 613 | \$ - | \$ - |
| Noncurrent liability | 50,230 | 65,199 | 28,210 | 23,227 |
| Net liability recognized | <u>\$ 50,626</u> | <u>\$ 65,812</u> | <u>\$ 28,210</u> | <u>\$ 23,227</u> |

At December 31, 2017 and 2016, the Company's pension plans had benefit obligations in excess of its plan assets. The following tables provide the projected benefit obligation, the accumulated benefit obligation and fair market value of the plan assets as of December 31,:

| | Projected Benefit Obligation Exceeds the Fair Value of Plan Assets | | | |
|------------------------------|--|---------|------|---------|
| | 2017 | | 2016 | |
| Projected benefit obligation | \$ | 320,979 | \$ | 308,172 |
| Fair value of plan assets | | 270,353 | | 242,360 |

| | Accumulated Benefit Obligation Exceeds the Fair Value of Plan Assets | | | |
|--------------------------------|--|---------|------|---------|
| | 2017 | | 2016 | |
| Accumulated benefit obligation | \$ | 301,473 | \$ | 291,889 |
| Fair value of plan assets | | 270,353 | | 242,360 |

The following table provides the components of net periodic benefit costs for the years ended December 31,:

| | Pension Benefits | | | Other Post-retirement Benefits | | |
|---|------------------|------------------|-----------------|--------------------------------|-----------------|-----------------|
| | 2017 | 2016 | 2015 | 2017 | 2016 | 2015 |
| Service cost | \$ 3,174 | \$ 3,179 | \$ 3,349 | \$ 1,020 | \$ 1,014 | \$ 1,224 |
| Interest cost | 12,434 | 13,038 | 12,955 | 2,947 | 2,927 | 2,802 |
| Expected return on plan assets | (17,077) | (16,910) | (18,702) | (2,589) | (2,647) | (2,923) |
| Amortization of prior service cost (credit) | 579 | 578 | 174 | (509) | (549) | (687) |
| Amortization of actuarial loss | 8,003 | 7,153 | 5,993 | 1,165 | 926 | 1,282 |
| Settlement loss | - | 2,895 | - | - | - | - |
| Special termination benefits | - | 302 | - | - | - | - |
| Net periodic benefit cost | <u>\$ 7,113</u> | <u>\$ 10,235</u> | <u>\$ 3,769</u> | <u>\$ 2,034</u> | <u>\$ 1,671</u> | <u>\$ 1,698</u> |

The Company records the underfunded status of its pension and other post-retirement benefit plans on its consolidated balance sheets and records a regulatory asset for these costs that would otherwise be charged to stockholders' equity, as the Company anticipates recoverability of the costs through customer rates to be probable. The Company's pension and other post-retirement benefit plans were underfunded at December 31, 2017 and 2016. Changes in the plans' funded status will affect the assets and liabilities recorded on the balance sheet. Due to the Company's regulatory treatment, the recognition of the funded status is recorded as a regulatory asset pursuant to the FASB's accounting guidance for regulated operations.

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The following table provides the amounts recognized in regulatory assets that have not been recognized as components of net periodic benefit cost as of December 31,:

| | Pension Benefits | | Other Post-retirement Benefits | |
|---------------------------------------|------------------|-----------|--------------------------------|-----------|
| | 2017 | 2016 | 2017 | 2016 |
| Net actuarial loss | \$ 86,750 | \$ 92,436 | \$ 15,724 | \$ 15,441 |
| Prior service cost (credit) | 3,262 | 3,841 | (1,869) | (2,378) |
| Total recognized in regulatory assets | \$ 90,012 | \$ 96,277 | \$ 13,855 | \$ 13,063 |

The following table provides the estimated net actuarial loss and prior service cost for the Company's pension plans that will be amortized from regulatory asset into net periodic benefit cost for the year ending December 31, 2018:

| | Pension Benefits | Other Post-retirement Benefits |
|-----------------------------|------------------|--------------------------------|
| Net actuarial loss | \$ 7,291 | \$ 1,182 |
| Prior service cost (credit) | 527 | (509) |

Accounting for pensions and other post-retirement benefits requires an extensive use of assumptions about the discount rate, expected return on plan assets, the rate of future compensation increases received by the Company's employees, mortality, turnover and medical costs. Each assumption is reviewed annually with assistance from the Company's actuarial consultant who provides guidance in establishing the assumptions. The assumptions are selected to represent the average expected experience over time and may differ in any one year from actual experience due to changes in capital markets and the overall economy. These differences will impact the amount of pension and other post-retirement benefit expense that the Company recognizes.

The significant assumptions related to the Company's benefit obligations are as follows:

| | Pension Benefits | | Other Post-retirement Benefits | |
|---|------------------|----------|--------------------------------|-------|
| | 2017 | 2016 | 2017 | 2016 |
| Weighted Average Assumptions Used to Determine Benefit Obligations as of December 31, | | | | |
| Discount rate | 3.66% | 4.13% | 3.73% | 4.25% |
| Rate of compensation increase | 3.0-4.0% | 3.0-4.0% | n/a | n/a |
| Assumed Health Care Cost Trend Rates Used to Determine Benefit Obligations as of December 31, | | | | |
| Health care cost trend rate | n/a | n/a | 7.0% | 6.6% |
| Rate to which the cost trend is assumed to decline (the ultimate trend rate) | n/a | n/a | 5.0% | 5.0% |
| Year that the rate reaches the ultimate trend rate | n/a | n/a | 2022 | 2020 |

n/a – Assumption is not applicable.

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The significant assumptions related to the Company's net periodic benefit costs are as follows:

| | Pension Benefits | | | Other Post-retirement Benefits | | |
|--|------------------|----------|----------|--------------------------------|------------|------------|
| | 2017 | 2016 | 2015 | 2017 | 2016 | 2015 |
| Weighted Average Assumptions Used to Determine Net Periodic Benefit Costs for Years Ended December 31, | | | | | | |
| Discount rate | 4.13% | 4.48% | 4.20% | 4.25% | 4.60% | 4.17% |
| Expected return on plan assets | 7.00% | 7.25% | 7.50% | 4.67-7.00% | 4.83-7.25% | 5.00-7.50% |
| Rate of compensation increase | 3.0-4.0% | 3.0-4.0% | 3.0-4.0% | n/a | n/a | n/a |
| Assumed Health Care Cost Trend Rates Used to Determine Net Periodic Benefit Costs for Years Ended December 31, | | | | | | |
| Health care cost trend rate | n/a | n/a | n/a | 6.6% | 7.0% | 7.0% |
| Rate to which the cost trend is assumed to decline (the ultimate trend rate) | n/a | n/a | n/a | 5.0% | 5.0% | 5.0% |
| Year that the rate reaches the ultimate trend rate | n/a | n/a | n/a | 2021 | 2021 | 2019 |

n/a – Assumption is not applicable.

Assumed health-care trend rates have a significant effect on the expense and liabilities for other post-retirement benefit plans. The health care trend rate is based on historical rates and expected market conditions. A one-percentage point change in the assumed health-care cost trend rates would have the following effects:

| | 1-Percentage-Point Increase | 1-Percentage-Point Decrease |
|---|-----------------------------|-----------------------------|
| Effect on the health-care component of the accrued other post-retirement benefit obligation | \$ 4,797 | \$ (4,369) |
| Effect on aggregate service and interest cost components of net periodic post-retirement health-care benefit cost | \$ 277 | \$ (244) |

The Company's discount rate assumption, which is utilized to calculate the present value of the projected benefit payments of our post-retirement benefits, was determined by selecting a hypothetical portfolio of high quality corporate bonds appropriate to match the projected benefit payments of the plans. The selected bond portfolio was derived from a universe of Aa-graded corporate bonds, all of which were noncallable (or callable with make-whole provisions), and have at least \$50,000 in outstanding value. The discount rate was then developed as the rate that equates the market value of the bonds purchased to the discounted value of the plan's benefit payments. The Company's pension expense and liability (benefit obligations) increases as the discount rate is reduced.

The Company's expected return on plan assets is determined by evaluating the asset class return expectations with its advisors as well as actual, long-term, historical results of our asset returns. The Company's market related value of plan assets is equal to the fair value of the plan's assets as of the last day of its fiscal year, and is a determinant for the expected return on plan assets which is a component of post-retirement benefits expense. The Company's pension expense increases as the expected return on plan assets decreases. For 2017, the Company used a 7.00% expected return on plan assets assumption which will decrease to 6.75% for 2018. The Company believes its actual long-term asset allocation on average will approximate the targeted allocation. The Company's investment strategy is to earn a reasonable rate of return while maintaining risk at acceptable levels. Risk is managed through fixed income investments to manage interest rate exposures that impact the valuation of liabilities and through the diversification of investments across and within

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various asset categories. Investment returns are compared to a total plan benchmark constructed by applying the plan's asset allocation target weightings to passive index returns representative of the respective asset classes in which the plan invests. The Retirement and Employee Benefits Committee meets quarterly to review plan investments and management monitors investment performance quarterly through a performance report prepared by an external consulting firm.

The Company's pension plan asset allocation and the target allocation by asset class are as follows:

| | | Percentage of Plan Assets at December 31, | | | Percentage of Plan Assets at December 31, |
|--------------------------|-------------------|--|---------------------------|-------------------|--|
| | Target Allocation | 2017 | | Target Allocation | 2016 |
| Return seeking assets | 50 to 70% | 64% | Domestic equities | 25 to 75% | 65% |
| Liability hedging assets | 30 to 50% | 36% | International equities | 0 to 10% | 6% |
| Total | 100% | 100% | Fixed income | 25 to 50% | 19% |
| | | | Alternative investments | 0 to 5% | 2% |
| | | | Cash and cash equivalents | 0 to 20% | 8% |
| | | | Total | 100% | 100% |

The fair value of the Company's pension plans' assets at December 31, 2017 by asset class are as follows:

| | | | | Assets measured at | | Total |
|---------------------------------|-----------|---------|---------|--------------------|--|------------|
| | Level 1 | Level 2 | Level 3 | NAV (a) | | |
| Common stock | \$ 26,902 | \$ - | \$ - | \$ - | | \$ 26,902 |
| Return seeking assets: | | | | | | |
| Global equities | - | - | - | 66,281 | | 66,281 |
| Real estate securities | - | - | - | 14,110 | | 14,110 |
| Hedge / diversifying strategies | - | - | - | 38,143 | | 38,143 |
| Credit | - | - | - | 28,395 | | 28,395 |
| Liability hedging assets | - | - | - | 91,872 | | 91,872 |
| Cash and cash equivalents | 4,650 | - | - | - | | 4,650 |
| Total pension assets | \$ 31,552 | \$ - | \$ - | \$ 238,801 | | \$ 270,353 |

- (a) Assets that are measured at fair value using the NAV per share practical expedient have not been classified in the fair value hierarchy.

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Notes to Consolidated Financial Statements (continued)
(In thousands of dollars, except per share amounts)

The fair value of the Company's pension plans' assets at December 31, 2016 by asset class are as follows:

| | Level 1 | Level 2 | Level 3 | Total |
|---|------------|-----------|---------|------------|
| Domestic equities: | | | | |
| Common stocks | \$ 152,740 | \$ - | \$ - | \$ 152,740 |
| Mutual funds | 3,668 | - | - | 3,668 |
| International equities | 13,813 | - | - | 13,813 |
| Fixed income: | | | | |
| U.S. Treasury and government agency bonds | - | 11,170 | - | 11,170 |
| Corporate and foreign bonds | - | 24,385 | - | 24,385 |
| Mutual funds | 9,752 | - | - | 9,752 |
| Alternative investments: | | | | |
| Real estate | 2,613 | - | - | 2,613 |
| Commodity funds | 1,279 | - | - | 1,279 |
| Cash and cash equivalents | 348 | 22,592 | - | 22,940 |
| Total pension assets | \$ 184,213 | \$ 58,147 | \$ - | \$ 242,360 |

Equity securities include our common stock in the amounts of \$16,471 or 6.1% and \$20,632 or 8.5% of total pension plans' assets as of December 31, 2017 and 2016, respectively.

The asset allocation for the Company's other post-retirement benefit plans and the target allocation by asset class are as follows:

| | Target Allocation | Percentage of Plan Assets at December 31, | | Target Allocation | Percentage of Plan Assets at December 31, |
|--------------------------|-------------------|--|---------------------------|-------------------|--|
| | | 2017 | | | 2016 |
| Return seeking assets | 50 to 70% | 62% | Domestic equities | 25 to 75% | 52% |
| Liability hedging assets | 30 to 50% | 38% | International equities | 0 to 10% | 3% |
| Total | 100% | 100% | Fixed income | 25 to 50% | 25% |
| | | | Alternative investments | 0 to 5% | 0% |
| | | | Cash and cash equivalents | 0 to 20% | 20% |
| | | | Total | 100% | 100% |

AQUA AMERICA, INC. AND SUBSIDIARIES
Notes to Consolidated Financial Statements (continued)
(In thousands of dollars, except per share amounts)

The fair value of the Company's other post-retirement benefit plans' assets at December 31, 2017 by asset class are as follows:

| | Level 1 | Level 2 | Level 3 | Assets measured at NAV (a) | Total |
|------------------------------------|------------------|-------------|-------------|-------------------------------|------------------|
| Return seeking assets: | | | | | |
| Global equities | \$ 9,477 | \$ - | \$ - | \$ 15,158 | \$ 24,635 |
| Real estate securities | 1,731 | - | - | 3,211 | 4,942 |
| Liability hedging assets | 5,265 | - | - | 8,961 | 14,226 |
| Cash and cash equivalents | 3,947 | - | - | - | 3,947 |
| Total other post-retirement assets | <u>\$ 20,420</u> | <u>\$ -</u> | <u>\$ -</u> | <u>\$ 27,330</u> | <u>\$ 47,750</u> |

- (a) Assets that are measured at fair value using the NAV per share practical expedient have not been classified in the fair value hierarchy.

The fair value of the Company's other post-retirement benefit plans' assets at December 31, 2016 by asset class are as follows:

| | Level 1 | Level 2 | Level 3 | Total |
|---|------------------|------------------|-------------|------------------|
| Domestic equities: | | | | |
| Common stocks | \$ 10,667 | \$ - | \$ - | \$ 10,667 |
| Mutual funds | 13,464 | - | - | 13,464 |
| International equities | 1,242 | - | - | 1,242 |
| Fixed income: | | | | |
| U.S. Treasury and government agency bonds | - | 4,968 | - | 4,968 |
| Corporate and foreign bonds | - | 6,347 | - | 6,347 |
| Alternative investments | 172 | - | - | 172 |
| Cash and cash equivalents | - | 9,225 | - | 9,225 |
| Total other post-retirement assets | <u>\$ 25,545</u> | <u>\$ 20,540</u> | <u>\$ -</u> | <u>\$ 46,085</u> |

Valuation Techniques Used to Determine Fair Value

- *Common Stocks* - Investments in common stocks are valued using unadjusted quoted prices obtained from active markets.
- *Return Seeking Assets* – Investments in return seeking assets consists of the following:
 - Global equities, which consist of common and preferred shares of stock, traded on U.S. or foreign exchanges that are valued using unadjusted quoted prices obtained from active markets, or commingled fund vehicles, consisting of such securities valued using NAV, which are not classified within the fair value hierarchy.
 - Real estate securities, which consist of securities, traded on U.S. or foreign exchanges that are valued using unadjusted quoted prices obtained from active markets, or for real estate commingle fund vehicles that are not publicly quoted, the fund administrators value the funds using the NAV per fund share, derived from the quoted prices in active markets of the underlying securities and are not classified within the fair value hierarchy.

AQUA AMERICA, INC. AND SUBSIDIARIES
Notes to Consolidated Financial Statements (continued)
(In thousands of dollars, except per share amounts)

- Hedge / diversifying strategies, which consist of a multi-manager fund vehicle having underlying exposures that collectively seek to provide low correlation of return to equity and fixed income markets, thereby offering diversification. As a multi-manager fund investment, NAV is derived from underlying manager NAVs, which are derived from the quoted prices in active markets of the underlying securities and are not classified within the fair value hierarchy.
- Credit, which consist of certain opportunistic, return-oriented credits which primarily include below investment grade bonds (i.e. high yield bonds), bank loans, and securitized debt. Credits are valued using the NAV per fund share, derived from either quoted prices in active markets of the underlying securities, or less active markets, or quotes of similar assets, and are not classified within the fair value hierarchy.
- *Liability Hedging Assets* – Investments in liability hedging assets consist of funds investing in high-quality fixed income (i.e. U.S. Treasury securities and government bonds), and for funds for which market quotations are readily available, are valued at the last reported closing price on the primary market or exchange on which they are traded. Funds for which market quotations are not readily available, are valued using the NAV per fund share, derived from the quoted prices in active markets of the underlying securities and are not classified within the fair value hierarchy.
- *Cash and Cash Equivalents* – Investments in cash and cash equivalents are comprised of both uninvested cash and money market funds. The uninvested cash is valued based on its carrying value, and the money market funds are valued utilizing the net asset value per unit based on the fair value of the underlying assets as determined by the fund's investment managers.
- *Mutual Funds* – Investments in mutual funds which consist of either equity or fixed income investments are valued using the net asset value per unit as obtained from quoted market prices from active markets.
- *International Equities* – Investments in international equities are valued using unadjusted quoted prices obtained from active markets.
- *Fixed Income* – Investments in fixed income that comprise U.S. Treasury and government agency bonds, and corporate and foreign bonds are valued utilizing pricing models that incorporate available trade, bid, and other market information to value the fixed income securities.
- *Alternative Investments* – Investments in alternative investments are comprised of either real estate funds, real estate investment trusts, or commodity funds, and are valued using unadjusted quoted prices obtained from active markets.

Funding requirements for qualified defined benefit pension plans are determined by government regulations and not by accounting pronouncements. In accordance with funding rules and the Company's funding policy, during 2018 our pension contribution is expected to be \$12,484.

The Company has a 401(k) savings plan, which is a defined contribution plan and covers substantially all employees. The Company makes matching contributions that are based on a percentage of an employee's contribution, subject to specific limitations, as well as, non-discretionary contributions based on eligible hourly wages for certain union employees, discretionary year-end contributions based on an employee's eligible compensation, and employer profit sharing contributions. Participants may diversify their Company matching account balances into other investments offered under the 401(k) savings plan. The Company's contributions, which are recorded as compensation expense, were \$5,374, \$4,988, and \$5,001, for the years ended December 31, 2017, 2016, and 2015, respectively.

Note 16 – Water and Wastewater Rates

On June 7, 2012, Aqua Pennsylvania reached a settlement agreement in its rate filing with the Pennsylvania Public Utility Commission, which in addition to a water rate increase, provided for a reduction in current income tax expense as a result of the recognition of qualifying income tax benefits upon Aqua Pennsylvania changing its tax accounting method to permit the expensing of qualifying utility asset improvement costs that historically have been capitalized and depreciated

AQUA AMERICA, INC. AND SUBSIDIARIES
Notes to Consolidated Financial Statements (continued)
(In thousands of dollars, except per share amounts)

for book and tax purposes. In December 2012, Aqua Pennsylvania implemented this change which provides for the flow-through of income tax benefits that resulted in a substantial reduction in income tax expense and greater net income and cash flow. This change allowed Aqua Pennsylvania to suspend its water Distribution System Improvement Charges in 2013 and lengthen the amount of time until the next Aqua Pennsylvania rate case. Beginning on October 1, 2017, Aqua Pennsylvania initiated a water infrastructure rehabilitation surcharge for the capital invested since the last rate proceeding and expects to file a base rate case in 2018.

The Company's operating subsidiaries were allowed rate increases totaling \$7,558 in 2017, \$3,434 in 2016, and \$3,347 in 2015, represented by five, six, and four rate decisions, respectively. Revenues from these increases realized in the year of grant were approximately \$6,343, \$1,788, and \$2,887 in 2017, 2016, and 2015, respectively.

Six states in which the Company operates permit water utilities, and in five states wastewater utilities, to add a surcharge to their water or wastewater bills to offset the additional depreciation and capital costs related to infrastructure system replacement and rehabilitation projects completed and placed into service between base rate filings. Currently, Pennsylvania, Illinois, Ohio, Indiana, New Jersey, and North Carolina allow for the use of this surcharge. The surcharge for infrastructure system replacements and rehabilitations is typically adjusted periodically based on additional qualified capital expenditures completed or anticipated in a future period, is capped as a percentage of base rates, generally at 5% to 12.75%, and is reset to zero when new base rates that reflect the costs of those additions become effective or when a utility's earnings exceed a regulatory benchmark. The surcharge for infrastructure system replacements and rehabilitations provided revenues in 2017, 2016, and 2015 of \$10,255, \$7,379, and \$3,261, respectively.

Note 17 – Segment Information

The Company has ten operating segments and one reportable segment. The Regulated segment, the Company's single reportable segment, is comprised of eight operating segments representing our water and wastewater regulated utility companies which are organized by the states where we provide water and wastewater services. These operating segments are aggregated into one reportable segment since each of these operating segments has the following similarities: economic characteristics, nature of services, production processes, customers, water distribution or wastewater collection methods, and the nature of the regulatory environment.

Two operating segments are included within the Other category below. These segments are not quantitatively significant and are comprised of Aqua Infrastructure and Aqua Resources. In addition to these segments, Other is comprised of other business activities not included in the reportable segment, including corporate costs that have not been allocated to the Regulated segment and intersegment eliminations. Corporate costs include general and administrative expenses, and interest expense.

AQUA AMERICA, INC. AND SUBSIDIARIES
Notes to Consolidated Financial Statements (continued)
(In thousands of dollars, except per share amounts)

The following table presents information about the Company's reportable segment:

| | 2017 | | | 2016 | | |
|--|------------|---------------------------|--------------|------------|---------------------------|--------------|
| | Regulated | Other and Eliminations | Consolidated | Regulated | Other and Eliminations | Consolidated |
| Operating revenues | \$ 804,905 | \$ 4,620 | \$ 809,525 | \$ 800,107 | \$ 19,768 | \$ 819,875 |
| Operations and maintenance expense | 286,962 | 244 | 287,206 | 285,347 | 19,550 | 304,897 |
| Depreciation | 136,246 | 56 | 136,302 | 131,835 | (848) | 130,987 |
| Amortization | 240 | 182 | 422 | 2,076 | (55) | 2,021 |
| Operating income (loss) | 326,935 | 2,032 | 328,967 | 326,933 | (1,348) | 325,585 |
| Interest expense, net | 81,974 | 6,367 | 88,341 | 76,222 | 4,372 | 80,594 |
| Allowance for funds used during construction | 15,211 | - | 15,211 | 8,815 | - | 8,815 |
| Equity earnings in joint venture | - | (331) | (331) | - | (976) | (976) |
| Income tax (benefit) | 14,107 | 2,807 | 16,914 | 24,956 | (3,978) | 20,978 |
| Net income (loss) | 246,548 | (6,810) | 239,738 | 234,922 | (740) | 234,182 |
| Capital expenditures | 478,077 | 12 | 478,089 | 381,965 | 1,031 | 382,996 |
| Total assets | 6,236,109 | 96,354 | 6,332,463 | 6,066,477 | 92,514 | 6,158,991 |
| Goodwill | 37,389 | 4,841 | 42,230 | 37,367 | 4,841 | 42,208 |

| | 2015 | | |
|--|------------|---------------------------|--------------|
| | Regulated | Other and Eliminations | Consolidated |
| Operating revenues | \$ 779,613 | \$ 34,591 | \$ 814,204 |
| Operations and maintenance expense | 282,866 | 26,444 | 309,310 |
| Depreciation | 125,146 | 144 | 125,290 |
| Amortization | 3,364 | 83 | 3,447 |
| Operating income | 315,876 | 5,224 | 321,100 |
| Interest expense, net | 72,703 | 3,833 | 76,536 |
| Allowance for funds used during construction | 6,219 | - | 6,219 |
| Equity loss in joint venture | - | 35,177 | 35,177 |
| Income tax (benefit) | 26,379 | (11,417) | 14,962 |
| Net Income (loss) | 224,122 | (22,332) | 201,790 |
| Capital expenditures | 363,594 | 1,095 | 364,689 |
| Total assets | 5,645,780 | 72,093 | 5,717,873 |
| Goodwill | 27,246 | 6,620 | 33,866 |

Selected Quarterly Financial Data (Unaudited)

Aqua America, Inc. and Subsidiaries

(In thousands of dollars, except per share amounts)

| | First Quarter | Second Quarter | Third Quarter | Fourth Quarter | Year |
|-------------------------------------|------------------|-------------------|------------------|-------------------|------------|
| <u>2017</u> | | | | | |
| Operating revenues | \$ 187,787 | \$ 203,418 | \$ 215,008 | \$ 203,312 | \$ 809,525 |
| Operations and maintenance expense | 69,128 | 70,853 | 67,982 | 79,243 | 287,206 |
| Operating income | 69,896 | 84,612 | 97,486 | 76,973 | 328,967 |
| Net income | 49,072 | 60,968 | 76,225 | 53,473 | 239,738 |
| Basic net income per common share | 0.28 | 0.34 | 0.43 | 0.30 | 1.35 |
| Diluted net income per common share | 0.28 | 0.34 | 0.43 | 0.30 | 1.35 |
| Dividend paid per common share | 0.1913 | 0.1913 | 0.2047 | 0.2047 | 0.7920 |
| Dividend declared per common share | 0.1913 | 0.1913 | 0.2047 | 0.2047 | 0.7920 |
| Price range of common stock: | | | | | |
| high | 32.32 | 34.41 | 34.66 | 39.55 | 39.55 |
| low | 29.41 | 31.18 | 32.30 | 33.12 | 29.41 |
| <u>2016</u> | | | | | |
| Operating revenues | \$ 192,607 | \$ 203,876 | \$ 226,593 | \$ 196,799 | \$ 819,875 |
| Operations and maintenance expense | 73,541 | 73,994 | 79,812 | 77,550 | 304,897 |
| Operating income | 72,331 | 83,493 | 97,799 | 71,962 | 325,585 |
| Net income | 51,737 | 59,626 | 73,170 | 49,649 | 234,182 |
| Basic net income per common share | 0.29 | 0.34 | 0.41 | 0.28 | 1.32 |
| Diluted net income per common share | 0.29 | 0.33 | 0.41 | 0.28 | 1.32 |
| Dividend paid per common share | 0.178 | 0.178 | 0.1913 | 0.1913 | 0.7386 |
| Dividend declared per common share | 0.178 | 0.178 | 0.1913 | 0.1913 | 0.7386 |
| Price range of common stock: | | | | | |
| high | 32.44 | 35.66 | 35.83 | 31.29 | 35.83 |
| low | 28.35 | 30.31 | 29.53 | 28.03 | 28.03 |

High and low prices of the Company's common stock are as reported on the New York Stock Exchange.

Summary of Selected Financial Data (Unaudited)
Aqua America, Inc. and Subsidiaries
(In thousands of dollars, except per share amounts)

| Years ended December 31, | 2017 | 2016 | 2015 | 2014 | 2013 |
|--|--------------|--------------|--------------|--------------|-----------|
| PER COMMON SHARE: | | | | | |
| Income from continuing operations: | | | | | |
| Basic | \$ 1.35 | \$ 1.32 | \$ 1.14 | \$ 1.21 | 1.15 |
| Diluted | 1.35 | 1.32 | 1.14 | 1.20 | 1.15 |
| Income from discontinued operations: | | | | | |
| Basic | - | - | - | 0.11 | 0.10 |
| Diluted | - | - | - | 0.11 | 0.10 |
| Net income: | | | | | |
| Basic | 1.35 | 1.32 | 1.14 | 1.32 | 1.26 |
| Diluted | 1.35 | 1.32 | 1.14 | 1.31 | 1.25 |
| Cash dividends declared and paid | 0.79 | 0.74 | 0.69 | 0.63 | 0.58 |
| Return on Aqua America stockholders' equity | 12.2% | 12.7% | 11.7% | 14.1% | 14.4% |
| Book value at year end | \$ 11.02 | \$ 10.43 | \$ 9.78 | \$ 9.37 | 8.68 |
| Market value at year end | 39.23 | 30.04 | 29.80 | 26.70 | 23.59 |
| INCOME STATEMENT HIGHLIGHTS: | | | | | |
| Operating revenues | \$ 809,525 | \$ 819,875 | \$ 814,204 | \$ 779,903 | 761,893 |
| Depreciation and amortization | 136,724 | 133,008 | 128,737 | 126,535 | 123,985 |
| Interest expense, net | 88,341 | 80,594 | 76,536 | 76,397 | 77,316 |
| Income from continuing operations before income taxes (1) | 256,652 | 255,160 | 216,752 | 239,103 | 224,104 |
| Provision for income taxes | 16,914 | 20,978 | 14,962 | 25,219 | 21,233 |
| Income from continuing operations (1) | 239,738 | 234,182 | 201,790 | 213,884 | 202,871 |
| Income from discontinued operations | - | - | - | 19,355 | 18,429 |
| Net income (1) | 239,738 | 234,182 | 201,790 | 233,239 | 221,300 |
| BALANCE SHEET HIGHLIGHTS: | | | | | |
| Total assets | \$ 6,332,463 | \$ 6,158,991 | \$ 5,717,873 | \$ 5,383,243 | 5,027,430 |
| Property, plant and equipment, net | 5,399,860 | 5,001,615 | 4,688,925 | 4,401,990 | 4,138,568 |
| Aqua America stockholders' equity | 1,957,621 | 1,850,068 | 1,725,930 | 1,655,343 | 1,534,835 |
| Long-term debt, including current portion, excluding debt issuance costs (3) | 2,143,127 | 1,910,633 | 1,779,205 | 1,619,270 | 1,554,871 |
| Total debt, excluding debt issuance costs (3) | 2,146,777 | 1,917,168 | 1,795,926 | 1,637,668 | 1,591,611 |
| ADDITIONAL INFORMATION: | | | | | |
| Operating cash flows from continuing operations | \$ 381,318 | \$ 396,163 | \$ 370,794 | \$ 364,888 | 365,803 |
| Capital expenditures | 478,089 | 382,996 | 364,689 | 328,605 | 307,908 |
| Net cash expended for acquisitions of utility systems and other | 5,860 | 9,423 | 28,989 | 14,616 | 14,997 |
| Dividends on common stock | 140,660 | 130,923 | 121,248 | 112,106 | 102,889 |
| Number of utility customers served (2) | 982,849 | 972,265 | 957,866 | 940,119 | 928,200 |
| Number of shareholders of common stock | 23,511 | 24,750 | 25,269 | 25,780 | 25,833 |
| Common shares outstanding (000) | 177,714 | 177,394 | 176,544 | 176,753 | 176,751 |
| Employees (full-time) (2) | 1,530 | 1,551 | 1,617 | 1,617 | 1,542 |

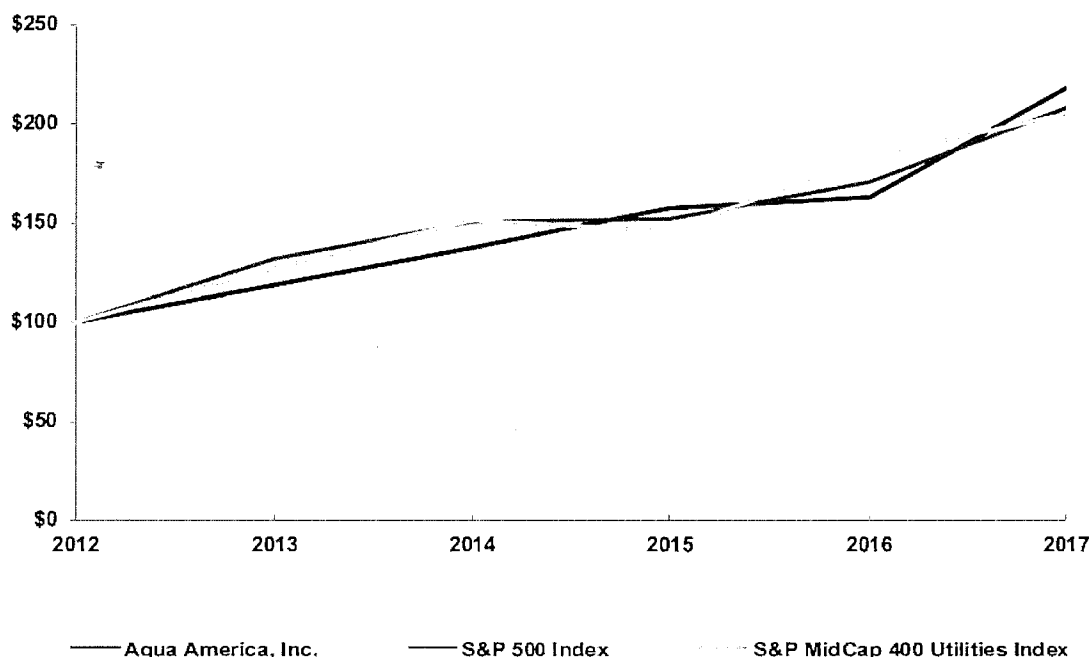
- (1) 2015 results includes Aqua America's share of a joint venture impairment charge of \$21,433 (\$32,975 pre-tax)
(2) Reflects continuing operations
(3) Debt issuance costs for the years ended December 31, 2017, 2016, 2015, 2014, and 2013 were \$21,605, \$22,357, \$23,165, \$23,509, and \$24,387, respectively

Stock Price Performance

The graph below matches the cumulative 5-Year total return of holders of Aqua America, Inc.'s common stock with the cumulative total returns of the S&P 500 index, and the S&P MidCap 400 Utilities index. The graph assumes that the value of the investment in our common stock, in each index, and in the peer group (including reinvestment of dividends) was \$100 on 12/31/2012 and tracks it through 12/31/2017.

Comparison of Five Year Cumulative Total Return*

Among Aqua America, Inc., the S&P 500 Index, and S&P MidCap 400 Utilities Index



*\$100 invested on 12/31/12 in stock or index, including reinvestment of dividends. Fiscal year ending December 31.

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Years as of December 31

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------------------|--------|--------|--------|--------|--------|--------|
| Aqua America, Inc. | 100.00 | 118.76 | 137.88 | 157.86 | 162.94 | 217.95 |
| S&P 500 Index | 100.00 | 132.39 | 150.51 | 152.59 | 170.84 | 208.14 |
| S&P MidCap 400 Utilities Index | 100.00 | 127.72 | 151.13 | 145.78 | 184.16 | 204.62 |

The stock price performance included in this graph is not necessarily indicative of future stock price performance.

Financial Reports and Investor Relations

Copies of the company's public financial reports, including annual reports and Forms 10-K and 10-Q, are available online and can be downloaded from the investor relations section of our Website at AquaAmerica.com. You may also obtain these reports by writing to us at:

Investor Relations Department
Aqua America, Inc.
762 W. Lancaster Avenue
Bryn Mawr, PA 19010-3489

Corporate Governance

We are committed to maintaining high standards of corporate governance and are in compliance with the corporate governance rules of the Securities and Exchange Commission (SEC) and the New York Stock Exchange. Copies of our key corporate governance documents, including our Corporate Governance Guidelines, Code of Ethical Business Conduct, and the charters of each committee of our Board of Directors can be obtained from the corporate governance portion of the investor relations section of our Website, AquaAmerica.com. Amendments to the Code of Ethical Business, and in the event of any grant of waiver from a provision of the Code of Conduct requiring disclosure under applicable SEC rules will be disclosed on our Website.

Annual Meeting

8:30 a.m. Eastern Daylight Time
Tuesday, May 8, 2018
Drexelbrook Banquet Facility and Corporate Center
4700 Drexelbrook Drive
Drexel Hill, PA 19026

Transfer Agent and Registrar

Computershare
P.O. Box 505000
Louisville, KY 40233
800.205.8314 or
www.computershare.com/investor

Independent Registered Public Accounting Firm

PricewaterhouseCoopers LLP
Two Commerce Square
Suite 1800
2001 Market Street
Philadelphia, PA 19103-7042

Stock Exchange

The Common Stock of the company is listed on the New York Stock Exchange and under the ticker symbol **WTR**.

Dividend Reinvestment and Direct Stock Purchase Plan

The company's Dividend Reinvestment and Direct Stock Purchase Plan ("Plan") enables shareholders to reinvest all, or a designated portion of, dividends paid on up to 100,000 shares of Common Stock in additional shares of Common Stock at a discretionary discount from a price based on the market value of the stock. The discount between 0 and 5.0 percent on the shares purchased or issued to meet the dividend reinvestment requirement will be designated by us in our sole discretion prior to the purchase or issuance of such shares. We reserve the right to change, reduce or discontinue any discount at any time without notice. In addition, shareholders may purchase additional shares of Aqua America Common Stock at any time with a minimum investment of \$50, up to a maximum of \$250,000 annually. Individuals may become shareholders by making an initial investment of at least \$500. A Plan prospectus may be obtained by calling Computershare at 800.205.8314 or by visiting www.computershare.com/investor. Please read the prospectus carefully before you invest.

IRA, Roth IRA, Education IRA

An IRA, Roth IRA or Coverdell Education Savings Account may be opened through the Plan to hold shares of Common Stock of the company and to make contributions to the IRA to purchase shares of Common Stock. Participants in the Plan may roll over an existing IRA or other qualified plan distribution in cash into an IRA under the Plan to purchase the company's Common Stock. Participants may also transfer the company's Common Stock from an existing IRA into an IRA under the Plan. A prospectus, IRA forms and a disclosure statement may be obtained by calling Computershare at 800.597.7736. Please read the prospectus carefully before you invest.

Direct Deposit

With direct deposit, Aqua America cash dividends are deposited automatically on the dividend payment date of each quarter. Shareholders will receive confirmation of their deposit in the mail. Shareholders interested in direct deposit should call the company's transfer agent at 800.205.8314.

Delivery of voting materials to shareholders sharing an address

The SEC's rules permit the Company to deliver a Notice of Internet Availability of Proxy Materials or a single set of proxy materials to one address shared by two or more of the Company's shareholders. This is intended to reduce the printing and postage expense of delivering duplicate voting materials to our shareholders who have more than one Aqua America stock account. A separate Notice of Internet Availability or proxy card is included for each of these shareholders. If you received a Notice of Internet Availability you will not receive a printed copy of the proxy materials unless you request it by following the instructions in the notice for requesting printed proxy material.

How to obtain a separate set of voting materials

If you are a registered shareholder who shares an address with another registered shareholder and have received only one Notice of Internet Availability of Proxy Materials or set of proxy material and wish to receive a separate copy for each shareholder in your household for the 2018 annual meeting, you may write or call us to request a separate copy of this material at no cost to you at 610.645.1040 or write us at:

Attn: Investor Relations
Aqua America, Inc.
762 W. Lancaster Avenue
Bryn Mawr, PA, 19010

For future annual meetings, you may request separate voting material by calling Broadridge at 866.540.9095, or by writing to Broadridge Financial Solutions, Inc., Householding Department, 51 Mercedes Way, Edgewood, New York 11717.

Account Access

Aqua America shareholders may access their account by visiting www.computershare.com/investor. Shareholders may view their account, purchase additional shares, and make changes to their account. To learn more, visit www.computershare.com/investor or call 800.205.8314.

Dividends

Aqua America has paid dividends for 73 consecutive years. The normal Common Stock dividend dates for 2018 and the first six months of 2019 are:

| Declaration Date | Ex-Dividend Date | Record Date | Payment Date |
|-------------------------|-------------------------|--------------------|---------------------|
| February 5, 2018 | February 14, 2018 | February 16, 2018 | March 1, 2018 |
| May 7, 2018 | May 16, 2018 | May 18, 2018 | June 1, 2018 |
| August 6, 2018 | August 15, 2018 | August 17, 2018 | September 1, 2018 |
| November 5, 2018 | November 14, 2018 | November 16, 2018 | December 1, 2018 |
| February 4, 2019 | February 13, 2019 | February 15, 2019 | March 1, 2019 |
| May 6, 2019 | May 15, 2019 | May 17, 2019 | June 1, 2019 |

To be an owner of record, and therefore eligible to receive the quarterly dividend, shares must have been purchased before the ex-dividend date. Owners of any share(s) on or after the ex-dividend date will not receive the dividend for that quarter. The previous owner — the owner of record — will receive the dividend.

Only the Board of Directors may declare dividends and set record dates. Therefore, the payment of dividends and these dates may change at the discretion of the Board.

Dividends paid on the company's Common Stock are subject to Federal and State income tax.

Lost Dividend Checks, Stock Certificates and Escheatment

Dividend checks lost by shareholders, or those that might be lost in the mail, will be replaced upon notification of the lost or missing check. All inquiries concerning lost or missing dividend checks should be made to the company's transfer agent at 800.205.8314. Shareholders should call or write the company's transfer agent to report a lost certificate. Appropriate documentation will be prepared and sent to the shareholder with instructions.

Escheatment is the act of reporting and transferring property to a state when the rightful owner has an invalid address or has not made contact or initiated a transaction during the state's designated dormancy period. Escheated assets are transferred to the state for safekeeping (and often liquidated) until the rightful owner makes a claim on the asset. To keep your shares of stock and uncashed dividends from being escheated, you must maintain contact (recommended at least once a year) with the company's transfer agent, especially if you recently changed your address, changed your marital status or are managing an estate following a death. Unclaimed property laws vary widely from state to state.

Safekeeping of Stock Certificates

Under the Direct Stock Purchase Plan, shareholders may have their stock certificates deposited with the transfer agent for safekeeping free of charge. Stock certificates and written instructions should be forwarded to:

Computershare, N.A.
P.O. BOX 505000
Louisville, KY 40233

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As of March 29, 2018

BOARD OF DIRECTORS

Christopher H. Franklin

*Chairman, President, and Chief Executive Officer
Aqua America, Inc.*

Director since 2015

Nicholas DeBenedictis

*Chairman Emeritus
Aqua America, Inc.*

Director since 1992

Carolyn J. Burke

*Executive Vice President, Strategy
Dynege, Inc.*

Director since 2016

Richard H. Glanton

*Founder
ElectedFace, Inc.*

Director since 1995

William P. Hankowsky

*Chairman, President, and Chief Executive Officer
Liberty Property Trust*

Director since 2004

Daniel J. Hilferty

*President and Chief Executive Officer
Independence Health Group*

Director since 2017

Wendell F. Holland, Esq.

*Partner
CFSD Group, LLC*

Director since 2011

Ellen T. Ruff

*Partner
McGuireWoods, LLP.*

Director since 2006

OFFICERS

Christopher H. Franklin

Chairman, President, and Chief Executive Officer

Richard S. Fox

Executive Vice President

Chief Operating Officer, Regulated Operations

Christopher P. Luning

Senior Vice President

General Counsel and Secretary

Robert A. Rubin

Senior Vice President

Controller and Chief Accounting Officer

Daniel J. Schuller, PhD.

Executive Vice President

Corporate Development and Strategy

David P. Smeltzer

Executive Vice President

Chief Financial Officer



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