NEWVILLE BOROUGH WATER AND SEWER AUTHORITY

CUMBERLAND COUNTY, PA

MUNICIPAL WASTELOAD MANAGEMENT

CHAPTER 94

ANNUAL REPORT- CALENDAR YEAR 2017

February, 2018

WM. F. HILL & ASSOC., INC.
PROFESSIONAL ENGINEERS
CIVIL ✧ MUNICIPAL ✧ ENVIRONMENTAL

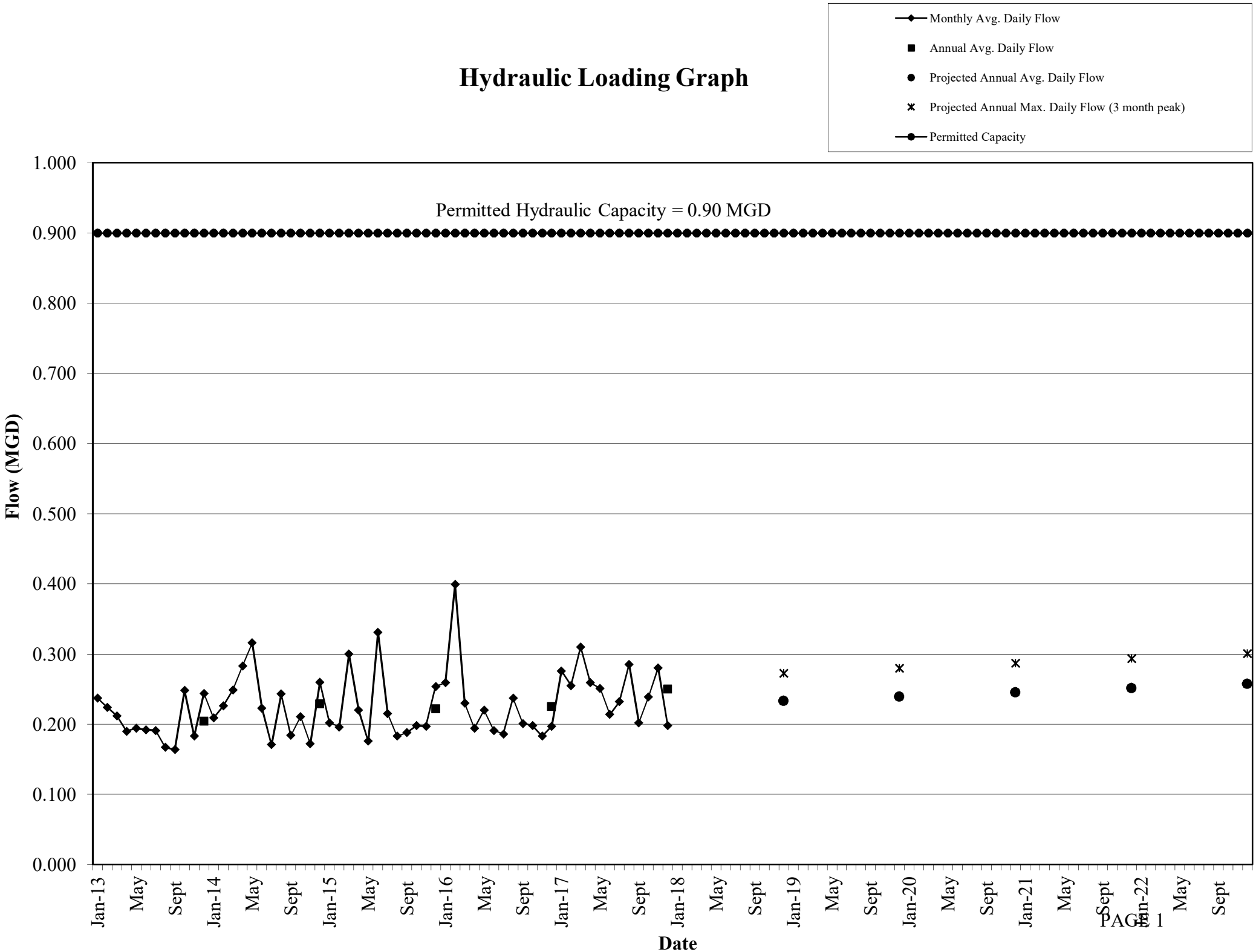
207 Baltimore Street
Gettysburg, Pennsylvania 17325

(717) 334 – 9137

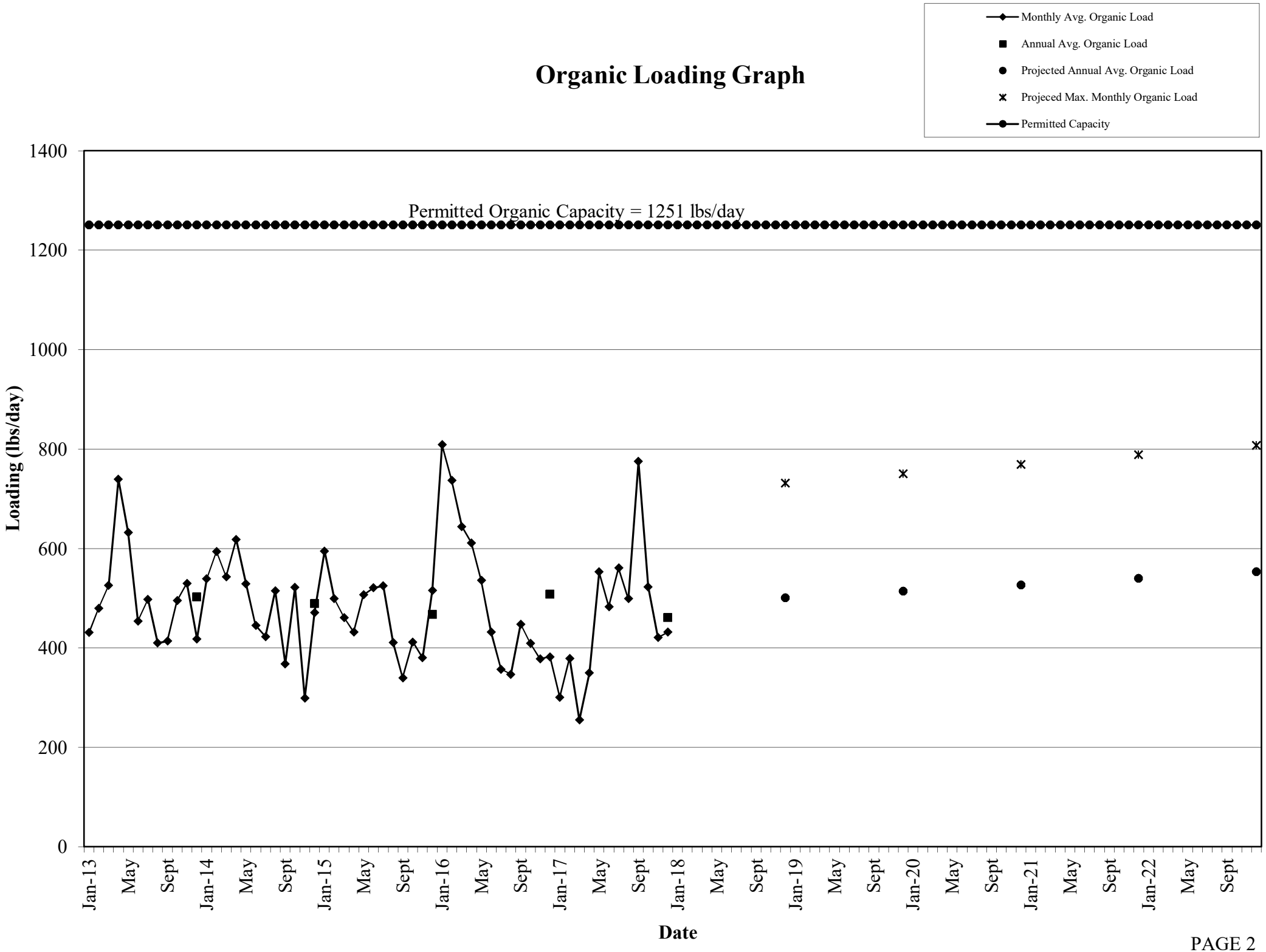
NEWVILLE BOROUGH WATER AND SEWER AUTHORITY
MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

TABLE OF CONTENTS

Hydraulic Loading Graph



Organic Loading Graph



3. DISCUSSION OF HYDRAULIC AND ORGANIC LOADING PROJECTIONS

The Newville Borough Water and Sewer Authority currently serves the Borough of Newville, portions of North Newton Township, West Pennsboro Township, and Penn Township. The Newville Borough Water and Sewer Authority Wastewater Treatment Facility was upgraded and placed into operation in 2009. The facility is a Sequencing Batch Reactor designed and permitted to handle an average daily flow of 600,000 gallons per day and has an organic capacity of 1,251 pounds per day. The wastewater treatment facility is designed with a peak daily flow of 900,000 gpd, and a peak wet weather flow of 1,300,000 gpd.

In 2017, one (1) new sanitary sewer connections were made to the sanitary sewer system which account for an addition of 1 EDU's to the system. One thousand one hundred ninety-one (1191) EDU's were connected to the collection system by December 31, 2017. No new connections were made to North Newton Township or West Pennsboro Township totaling one connection added in Newville Borough. Annual daily flow for 2017 averaged 250,000 gallons/day; the three-month maximum average daily flow was 280,000 gallons/day.

Annual flow equates to 33 EDU's for the first year, followed by 28 EDU's per year until 2022, Table 1, page 4. The above figures include all four municipalities within the service area. An EDU based on water use is calculated using the current county average household census data of 2.38 persons per EDU multiplied by 65 gal/day per person which equals 155 gal/day per EDU. This flow per EDU is only based on water use and does not include any infiltration. Based on the Cumberland County average of 2.38 persons per EDU and 90 gal/day per person, including infiltration, the hydraulic loading would be estimated at 214 gal/day per EDU for future connections. The hydraulic loading for each month of the past five years is plotted on the Hydraulic Loading Graph, page 1, for January, 2013 through December, 2017. The data necessary to determine the hydraulic loading was obtained from operating records at the wastewater treatment facility. These hydraulic loads for the past five years are tabulated in Exhibit A.

Table 1

Newville Borough Water and Sewer Authority- Proposed Connections- EDU's
Estimated Hydraulic Loading from New Connections during the next five (5) years (EDU's)

Municipality Name	**2018**	**2019**	**2020**	**2021**	**2022**
Newville Borough					
Newville Misc.	2	2	2	2	2
West Pennsboro Township					
West Pennsboro Township	10	10	10	10	10
Green Ridge Village	4	4	4	4	4
Big Springs School District Area	2	2	2	2	2
North Newton Township					
North Newton Hills	0	0	0	0	0
Penn Township					
Commercial Dev, Misc.	15	10	10	10	10
Annual EDU Increase	33	28	28	28	28
Increase Flow	7062	5992	5992	5992	5992

(1) Information obtained from Green Ridge Village.

(2) As per discussion with North Newton Township Secretary (1/17/2018)

(3) Annual EDU increase x 2.38 persons/EDU x 90 gallons per day/person = increase flow (GPD)

The organic loading for each month of the past year is plotted on Page 2 for January, 2013 through December, 2017. The data necessary to determine the organic loading was obtained from operating records at the wastewater treatment facility. These organic loads for the past five years are tabulated in Exhibit B.

The projected annual organic loads were determined by multiplying the 5-year annual average daily influent BOD (mg/l) by the projected annual average daily wastewater flows. Exhibit D contains information relative to the projected organic loads.

The influent BOD averaged 245 mg/l for 2017, the 5-year average was 268 mg/l. Projected one-month maximum organic loading is based on the ratio of 1.46 mg/l (5-year average).

4. WAREHOUSE RESERVE CAPACITY STATUS

At the present time there are four warehouse companies that are applying to reserve capacity within the WWTF. They are as follows:

- Verus P7/Ritner at Fickes Road- requesting 4,000 GPD, at the moment there is no reserved capacity.

- Verus/Exter at 801 Centerville Rd.- requesting 4,000 GPD, tapping fees to be finalized but a portion has already been paid.

- Ridge Development at Rt. 233 Ickes Property- requesting 4,000 GPD, at this time no tapping fees have been paid.

- Clarius at 3455 Ritner Hwy.- requesting 2,000 GPD, at this time no tapping fees have been paid.

5. INDUSTRIAL WASTE REPORT

At the present time, there are no industrial waste discharges to the WWTF.

6. COLLECTION SYSTEM CONSTRUCTION

In 2008, construction of a sanitary sewer extension to serve the Key Logistics Site Development (Lauth) in Penn Township was completed. This project consisted of 2 pumping stations, one located in Penn Township and the other in West Pennsboro Township, approximately 1,550 feet of 8-inch gravity sewer located in West Pennsboro Township, and approximately 16,900 feet of 6-inch force main. Currently, the Newville Borough Water and Sewer Authority maintains the Penn Township pumping station and related force main. Wastewater facilities in West Pennsboro Township were dedicated in December 2012 to West Pennsboro Township. All facilities dedicated to West Pennsboro Township are discussed within their Chapter 94 report including the pumping station flows and related capacity.

There was no new sanitary sewer collection system construction in 2017.

7. SEWER SYSTEM MONITORING, MAINTENANCE, AND REHABILITATION

The sanitary collection system currently consists of approximately 10 miles of gravity sewers in the range of 8" to 12" diameter, North Newton Hills pumping station (P.S. #2), the Route 233 pumping station (P.S. #3) located in Penn Township and the main lift station (P.S. #1) at the wastewater treatment facility.

In the past, repairs to the sanitary sewer system have been completed to improve the overall performance of the gravity sanitary sewers. This has contributed to reducing sanitary flow in the past. The Authority should continue to seek out sources of infiltration, e.g. roof drains, sump pumps, etc. on a continuing basis.

8. CONDITION OF SEWER SYSTEM

The sanitary sewer collection system within the Borough is considered to be in good condition. Inspections and repairs are made to the sanitary sewer system as needed.

9. CONDITION OF THE PUMPING STATION (Service History)

Currently, there are three pumping stations being maintained by the Authority, one located in the North Newton Hills Subdivision (P.S. #2), one located along Route 233 in Penn Township (P.S. # 3), and the lift station (P.S. #1) at the wastewater treatment facility. All wastewater flows by gravity to the lift station (P.S. #1) at the wastewater treatment facility. A new raw influent pump was installed in 2000. One additional lift pump was installed in 2001 and the third pump was installed in 2003. All pumps have now been replaced at the main lift station. In 2012, Envirep serviced all three pumps and replaced the wear plate and impeller in both pumps 1 and 2. Envirep, in 2013, serviced all three pumps. Pump #1 had a new wear plate and rotation assembly replaced in 2014 and in 2016. The lift station is considered to be in good condition. The North Newton Hills pumping station (P.S. #2) was installed in July 2005 and is considered to be in excellent condition. In 2013, Groff's Septic cleaned the North Newton Hills pumping station's wetwell. A new rotating assembly was installed in August 2014. The Route 233 pumping station (P.S. #3) was placed in operation in 2008 as part of the sanitary sewer extension to serve the Key Logistics Site Development. In 2015, the OmniSite dialers for both the Route 233 pumping station and the Sequencing Batch Reactor were upgraded. The Route 233 pumping station is in excellent condition. Table 2 shows the safe design and maximum rated hydraulic capacity, present estimated connected EDU's and flow rates, and the 2017 (year-end) projected connected EDU's and flow rates for each pumping station. As indicated in Table 2, all stations have adequate capacity to handle their respective projected flows.

Table 2 – Newville Borough Water and Sewer Authority – Wastewater Pumping Stations

Pumping Station	Safe Design Capacity (MGD)	Max. Rated Capacity (MGD)	2017 Connected EDU's	2017 Average Flow (MGD)	2017 Peak Flow (MGD)	2019 Projected EDU's (MGD)	2019 Average Flow (MGD)	2019 Peak Flow (MGD)
#1 – WWTF Lift Station Pump 1 – 250 gpm Pump 2 – 375 gpm Pump 3 – 500 gpm	0.648	1.296	1191	0.250	0.660	1252	0.263	0.690
#2 – North Newton Hills P.S. Pumps 1 & 2 – 100 gpm	0.072	0.144	37	0.006	0.011	39	0.0065	0.012
#3 – Rt. 233 Pump Station (Penn Township) Pumps 1 & 2 – 200 gpm	0.144	0.288	30	0.008	0.012	45	0.012	0.020

Safe Design and Maximum Rated Capacities are determined by the following:

Safe Design Capacity
P.S. #1 – Pumps 2 &3 operating in parallel at 900 gpm for 12 hours
P.S. #2 – One pump operating at 100 gpm for 12 hours
P.S. #3 – One pump operating at 200 gpm for 12 hours

Maximum Rated Capacity
P.S. #1 – Pumps 2 & 3 operating in parallel at 900 gpm for 24 hours
P.S. #2 – One pump operating at 100 gpm for 24 hours

P.S. #3 – One pump operating at 200 gpm for 24 hours

10. CONDITION OF TREATMENT PLANT

The treatment plant is maintained and operated by Newville Borough Water and Sewer Authority personnel. Laboratory analyses are being performed on a regular basis. Authority personnel maintain an exceptional file of operating data. For the year of 2017 the plant has been meeting its effluent criteria for CBOD, Suspended Solids, Ammonia, and Nitrogen.

The Consulting Engineer makes periodic inspections and provides recommendations for improvements, maintenance, and repairs to the wastewater treatment facility. In the Consulting Engineer's opinion, the wastewater treatment facility is in very good condition. Based on the 3-month peak average daily flow (5-year average), the Newville Borough Water and Sewer Authority Wastewater Treatment Facility is currently hydraulically loaded to twenty nine percent (29%) of the peak hydraulic design capacity (0.900 MGD) in accordance with Exhibit A.

Annual precipitation of 42.5", as per submitted eDMR's, for calendar year 2017 represents an above average year based on total precipitation.

11. PROPOSED DEVELOPMENTS / EXTENSIONS

Table 1, on Page 4, represents a flow estimate for future extensions and additional utilized capacity.

12. BIOSOLIDS PRODUCTION AND DISPOSAL

During the year 2017, the Newville Borough Water and Sewer Authority generated 684,000 gallons (47 dry tons) of liquid biosolids. 366,000 gallons of liquid biosolids equating to 23 dry tons, were taken to the City of Harrisburg for disposal.

The Newville Borough Water and Sewer Authority presently has 10,000 sq. ft. of reed beds that will handle approximately 400,000 gallons annually of liquid biosolids at 2.0% solids concentration. No dry tons were taken from the reed beds this year. During 2017, 318,029 gallons of liquid biosolids were applied to reed beds (at approximately 1.8% solids).

The following summarizes the alternatives for the disposal of biosolids:

Disposal Site	Permit No.
City of Harrisburg	WH-0210-10
Denny McCullough Farm	PABIS 3502 (expired)
David Hockenberry Farm	PABIS 3503
Cumberland County Landfill WWTF	PA-0083 941

There are no future plans to utilize the Denny McCullough Farm for biosolids application.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2017

☒ Permittee is owner and/or operator of a POTW or other sewage treatment facility
☐ Permittee is owner and/or operator of a collection system tributary to a POTW not owned/operated by permittee

GENERAL INFORMATION			
Permittee Name:	**Newville Borough Water & Sewer Authority**	Permit No.:	**PA0046221**
Mailing Address:	**99 Cove Alley**	Effective Date:	**August 1, 2015**
City, State, Zip:	**Newville, PA 17241**	Expiration Date:	**July 31, 2020**
Contact Person:	**Roger Hoover**	Renewal Due Date:	**February 2, 2020**
Title:	**Chairman**	Municipality:	**Newville Borough**
Phone:	**(717) 776-7633**	County:	**Cumberland County**
Email:		Consultant Name:	**Wm. F. Hill & Assoc., Inc.**

CHAPTER 94 REPORT COMPONENTS

1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))

   Check the appropriate boxes:
   ☒ Line graph for flows attached (**Page 1**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☐ Section 1 is not applicable (report is for a collection system).

2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))

   Check the appropriate boxes:
   ☒ Line graph for organic loads attached (**Page 2**)
   ☐ DEP Chapter 94 Spreadsheet used (**Attachment**)
   ☐ Section 2 is not applicable (report is for a collection system).

3. If the DEP Chapter 94 Spreadsheet was not used to determine projections, discuss the basis for the hydraulic and organic projections. In all cases, include a description of the time needed to expand the plant to meet the load projections, if necessary, and data used to support the projections should be included in an appendix to this report. (25 Pa. Code § 94.12(a)(3))

   See Page 3 Item 3. Discussion of Hydraulic and Organic Loading Projections

4. Attach a map showing all sewer extensions constructed within the past calendar year, sewer extensions approved or exempted in the past year in accordance with Act 537 and Chapter 71, but not yet constructed, and all known proposed projects which require public sewers but are in the preliminary planning stages. The map must be accompanied by a list summarizing each extension or project and the population to be served by the extension or project. If a sewer extension approval or proposed project includes schedules describing how the project will be completed over time, the listing should include that information and the effect this build-out-rate will have on populations served. (25 Pa. Code § 94.12(a)(4))

   Check the appropriate boxes:

   ☐ Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)

   ☐ List summarizing each extension or project attached (**Attachment**)

   ☐ Schedules describing how each project will be completed over time and effects attached (**Attachment**)

   Comments:

5. Discuss the permittee's program for sewer system monitoring, maintenance, repair and rehabilitation, including routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analyses, infiltration/inflow monitoring, and, where applicable, maintenance and control of combined sewer regulators during the past year. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(5))

   Page 5 Item 6. Sewer System Monitoring, Maintenance, and Rehabilitation

6. Discuss the condition of the sewer system including portions of the system where conveyance capacity is being exceeded or will be exceeded in the next 5 years and portions where rehabilitation or cleaning is needed or is underway to maintain the integrity of the system and prevent or eliminate bypassing, CSOs, SSOs, excessive infiltration and other system problems. Attach a separate sheet if necessary. (25 Pa. Code § 94.12(a)(6))

Check the appropriate boxes:

☐ System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.

☒ System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

7. Attach a discussion on the condition of sewage pumping (pump) stations. Include a comparison of the maximum pumping rate with present maximum flows and the projected 2-year maximum flows for each station. (25 Pa. Code § 94.12(a)(7))

Check the appropriate boxes:

☐ The collection system does not contain pump stations

☒ The collection system does contain pump stations (Number – **3**)

☒ Discussion of condition of each pump station attached (**See Page 5 Item 8. Condition of Pumping Stations**)

8. If the sewage collection system receives industrial wastes (i.e., non-sanitary wastes), attach a report with the information listed below. (25 Pa. Code § 94.12(a)(8))

a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.

b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.

c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

☐ Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)

☐ Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

☐ This report demonstrates an existing hydraulic overload condition.
☐ This report demonstrates a projected hydraulic overload condition.
☐ This report demonstrates an existing organic overload condition.
☐ This report demonstrates a projected organic overload condition.

If one or more boxes above have been checked, attach a Corrective Action Plan (CAP) to reduce or eliminate present or projected overloaded conditions under §§ 94.21 and/or 94.22 (relating to existing overload and projected overload). (25 Pa. Code § 94.12(a)(9))

☐ Corrective Action Plan attached (**Attachment**)

10. Where required by the NPDES permit, attach a Sewage Sludge Management inventory that demonstrates a mass balance of solids coming in and leaving the facility over the previous calendar year.

☒ Sewage Sludge Management Inventory attached (**Attachment Exhibit, page 13**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems).

☐ Annual CSO Report attached (**Attachment**)

12. For POTWs, attach a calibration report documenting that flow measuring, indicating and recording equipment has been calibrated annually. (25 Pa. Code § 94.13(b))

☒ Flow calibration report attached (**Exhibit E Page 12**)

RESPONSIBLE OFFICIAL 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 gathered and evaluated 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Roger Hoover	
Name of Responsible Official	Signature
(717) 776-7633	
Telephone No.	Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. 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 knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

William F. Hill, P.E.	
Name of Preparer	Signature
(717) 334-9137	
Telephone No.	Date

SLUDGE GENERATION CALCULATION

Facility Name: Newville Borough Water & Sewer Authority
Permit Number: PA0046221
Date of Calculation: 5/15/2018

Required Information For Calculation

Average Daily Flow (mgd):	0.25	Digester Capacity (gal):	280,000
Influent BOD (mg/l):	245	%Solids of Outgoing Sludge:	1.8
Effluent BOD (mg/l):	3	Monitoring Period (days):	365

Wastewater Treatment Processes

Place an "X" in the box beside the corresponding treatment process. Select a maximum of Primary Clarification and one other treatment process

Primary Clarification	Contact Stabilization	RBC
Conventional Activated Sludge	SBR: X	ABF
Extended Aeration	Trickling Filter	Small Plant with low SOR (<500 gpd/sq ft)

Operational Information

BOD Removed (lbs/day):	505	TSS Removed (lbs/day):	429

Digester Information

Type of Digester

Place an "X" in the box beside the corresponding treatment process.

Aerobic Digestion: X	Anaerobic Digestion	None

Sludge Feed Rate to Digesters (gpd):	8570.83333
Digester Hydraulic Detention Time (days):	33
Estimated Total Solids Reduction (%):	0.4

Sludge Generation

dry lbs/day	257	wet lbs/day	14296
dry tons/monitoring period	47	wet tons/monitoring period	2609
gal/day	1714	gal/monitoring period	625671

Amount of Sludge Reported as Being Generated by the Facility

wet tons/monitoring period: 0

OR

dry tons/monitoring period: 47

Enter only one of the above values. The remaining value should be "0"

Is the amount reported by the generator within 15% of the calculated value? **YES**

NO explanation:

What type of information was used to calculate the above information: DMRs and Operator's Data Log

Dates used: 1/1/2017 TO 12/31/2017

Name of person performing the calculation: William F. Hill, P.E.

Control Systems 21

"Your Process Control Specialists"

CERTIFICATE of CALIBRATION

Cal Certificate # 43296

Company Name Newville
4 West St.
Newville, PA 17241

Instrument ID **N-001**

Description	Chart Recorder	**Status**	Active
Manufacturer	Partlow	**Temp °F**	70
Model Number	MRC5000, 51000011	**Cal Proc**	4.2
Serial Number	1456348-0004	**Adjusted To Improve**	No
Location	Lab	**Calibration Frequency**	Annual
Building	N/A	**Calibrated**	11/22/2017
Department	WWTP	**Next Due Date**	11/30/2018

Calibration Specifications

Group Name Recorder

Test Point	Ref Standard	Expected	Tol	UUT As Found	P/F	UUT As Left	P/F	Dev
1	4 mA	0 GPM	+/-23	0 GPM	P	0 GPM	P	0
2	12 mA	1,158 GPM	+/-23	1,157 GPM	P	1,157 GPM	P	-1
3	20 mA	2,315 GPM	+/-23	2,314 GPM	P	2,314 GPM	P	-1

Calibration Standards Used

Test Instrument ID	Manufacturer	Model Number	Serial Number	Next Cal Date
738	Fluke	725	2724139	

Equipment listed on this cert is certified in reference to our current work instructions as part of our quality system.

Where applicable and noted calibrations were performed using standards whose calibration is traceable through NIST or another National Metrology Institute to the International System of Units (SI units).

Control Systems 21 utilizes the comparison method of calibration. Results are reviewed, when applicable, and any results exceeding the agreed upon specifications are indicated by red and/or bold print

All results with this certification relate only to the item(s) calibrated. This certificate shall not be reproduced except in full and with written consent of Control Systems 21. Unless otherwise noted all calibrations were performed in the field at the customers location.

Please note: *any number of factors may cause the calibration item to drift out of tolerance before the calibration interval has expired.*

Remarks or Special Requirements:

Calibration Result: Calibration Successful

Calibrated By: Chris Waldron

Finalized By: Chris Waldron 22 November 2017 10:39:03AM
Service Technician

Print Date: 11/22/2017

Control Systems 21
713 Range End Rd. • Dillsburg, PA 17019 • Voice: 717 432-5511 • Fax: 717 432-7550
email@controlsystems21.com

Control Systems 21

"Your Process Control Specialists"

CERTIFICATE of CALIBRATION

Cal Certificate # 43297

Company Name Newville
4 West St.
Newville, PA 17241

Instrument ID **N-002**

Description	Flowmeter	**Status**	Active
Manufacturer	Magne-Sonic Corp.	**Temp °F**	70
Model Number	MSC900W	**Cal Proc**	4.8
Serial Number	MSC90084301	**Adjusted To Improve**	No
Location	Lab	**Calibration Frequency**	Annual
Building	N/A	**Calibrated**	11/22/2017
Department	WWTP	**Next Due Date**	11/30/2018

Calibration Specifications

Group Name Flow Meter (15" P.B. Flume)

Test Point	Ref Standard	Tol	UUT As Found	P/F	UUT As Left	P/F	Dev
1	0.0 GPM	+/-65.0	0.0 GPM	P	0.0 GPM	P	0.0
2	54.0 GPM	+/-65.0	53.2 GPM	P	53.2 GPM	P	-0.8
3	0.0 GPM	+/-65.0	0.0 GPM	P	0.0 GPM	P	0.0

Calibration Standards Used

Test Instrument ID	Manufacturer	Model Number	Serial Number	Next Cal Date
ISCO	Isco Flow Book	N/A	N/A	
TAPE MEASURE	N/A	N/A	N/A	

Equipment listed on this cert is certified in reference to our current work instructions as part of our quality system.

Where applicable and noted calibrations were performed using standards whose calibration is traceable through NIST or another National Metrology Institute to the International System of Units (SI units).

Control Systems 21 utilizes the comparison method of calibration. Results are reviewed, when applicable, and any results exceeding the agreed upon specifications are indicated by red and/or bold print

All results with this certification relate only to the item(s) calibrated. This certificate shall not be reproduced except in full and with written consent of Control Systems 21. Unless otherwise noted all calibrations were performed in the field at the customers location.

Please note: *any number of factors may cause the calibration item to drift out of tolerance before the calibration interval has expired.*

Remarks or Special Requirements:

Calibration Result: Calibration Successful

Calibrated By: Chris Waldron

Finalized By: Chris Waldron 22 November 2017 10:44:15AM
Service Technician

Print Date: 11/22/2017

Control Systems 21
713 Range End Rd. • Dillsburg, PA 17019 • Voice: 717 432-5511 • Fax: 717 432-7550
email@controlsystems21.com