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EXHIBIT E3

2018 CHAPTER 94 REPORT TO DEP  
FOR WESTERN SERVICE AREA

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**DELAWARE COUNTY  
REGIONAL WATER QUALITY  
CONTROL AUTHORITY**



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**CHAPTER 94  
MUNICIPAL WASTELOAD  
MANAGEMENT  
2018 ANNUAL REPORT**

**WESTERN SERVICE AREA  
WESTERN REGIONAL TREATMENT PLANT**



## CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

**For Calendar Year: 2018**

- ☒ 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:	<b>DELCORA</b>	Permit No.:	<b>PA0027103</b>
Mailing Address:	<b>P.O. Box 999</b>	Effective Date:	<b>May 1, 2014</b>
City, State, Zip:	<b>Chester, PA 19016-0999</b>	Expiration Date:	<b>April 30, 2017</b>
Contact Person:	<b>Charles Hurst, P.E.</b>	Renewal Due Date:	<b>Nov. 1, 2017</b>
Title:	<b>Director of Engineering</b>	Municipality:	<b>Chester City</b>
Phone:	<b>610-876-5523 X 297</b>	County:	<b>Delaware</b>
Email:	<b>hurstc@delcora.org</b>	Consultant Name:	<b>Roger W. Lehman, P.E.</b>

### 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 (**Attachment 1 and Attachment 4 Report, Appendix A**)
- ☒ DEP Chapter 94 Spreadsheet used (**Attachment 2 and Attachment 4 Report Appendix A**)
- ☐ 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 (**Attachment 3 and Attachment 4 Report, Appendix A**)
- ☒ DEP Chapter 94 Spreadsheet used (**Attachment 2 and Attachment 4 Report, Appendix A**)
- ☐ 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))

**DEP Chapter 94 spreadsheet was used.**

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:**

**A project to construct a pump stations and force main to eliminate the Rose Valley Sewage Treatment Plant was completed in 2018. AS of 3 May 2018, flow from this service area is now pumped to Middletown Township Sewer Authority where it will be conveyed to the Chester Ridley Creek Pump Station for tranmission to the Western Regional Treatment Plant for disposal.**

**Another project completed in 2018 replaced the inflent pump station (PS-6) at the WRTP. The existing influent pump station (EPS-1) that ws replaced serves the western end of the City of Chester and the Borough of Trainer.**

**A table of approved Sewer Planning Modules is provided in Appendix A2 of the Attachment 4 Report.**

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))

**As presented in Attachment 4, Sections V through VII, a preventative maintenance program has been established to clean and monitor the separate sanitary sewers, combined sanitary sewers, and pump stations that DELCORA owns or operates under contract.**

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:**

**Attachment 4 Report, Appendix B contains the 2018 SSO/DWO Reports.**



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 – **8 pump stations, 5 lift stations, see Attachment 4 Report, Section VIII**)
- ☒ Discussion of condition of each pump station attached (**Attachment 4 Report, Section V and Appendix A3.**)

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 4 Report, Appendix D**)
- ☒ Industrial pretreatment report as required in an NPDES permit attached (**Attachment 4 Report, Appendix D**)

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 (**N/A**)

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 (**N/A**)

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 4 Report, Section VII and Appendix C**)

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 (**Attachment 4 Report, Appendix E**)

### 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).

Robert J. Willert

Name of Responsible Official



Signature

610-876-5523 x110

Telephone No.

3/26/19

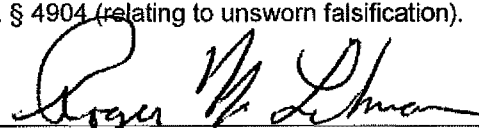
Date

### 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).

Roger W. Lehman, P.E.

Name of Preparer



Signature

610-701-3708

Telephone No.

26 March 2019

Date

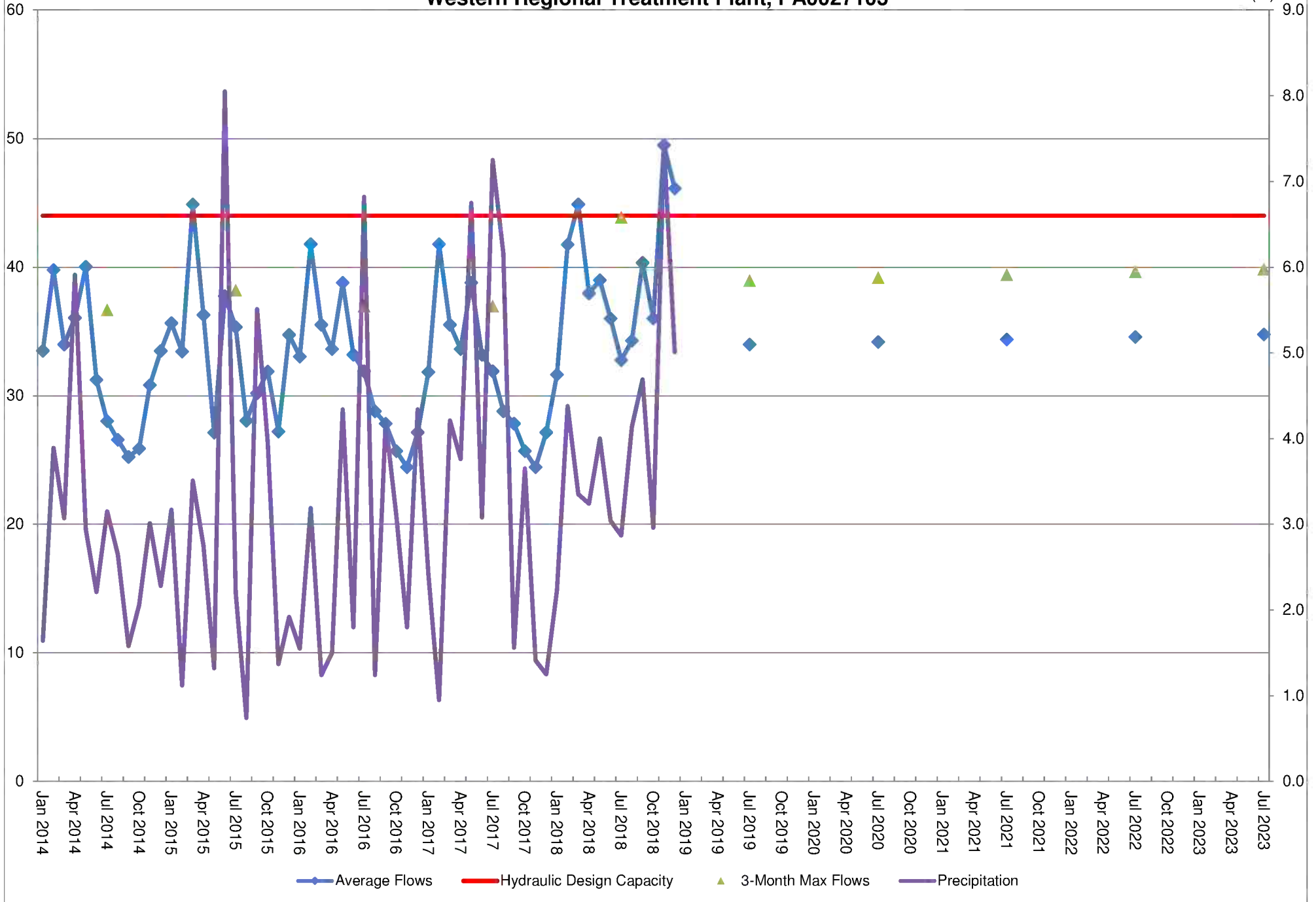
# **Attachment 1**

## **Hydraulic Line Graph**

# 5-Year Measured and Projected Hydraulic Loads Western Regional Treatment Plant, PA0027103

MGD

Precip  
(in)



**Attachment 2**  
**PADEP Chapter 94 Spreadsheet**



# PADEP Chapter 94 Spread: Sewage Treatment Pl

Reporting Year: 2018

Facility Name: Western Regional Treatment Plant

Permit No.: PA0027103

Persons/EDU: 2.625

Existing Hydraulic Design Capacity: 44 MGD  
 Upgrade Planned in Next 5 Years? NO Year:   
 Future Hydraulic Design Capacity: MGD

Existing Organic Design Capacity: 161,000 lbs BOD5/day  
 Upgrade Planned in Next 5 Years? NO Year:   
 Future Organic Design Capacity: lbs BOD5/day

## Monthly Average Flows for Past Five Years (MGD)

Month	2014	2015	2016	2017	2018
January	33.49	35.65	33.04	31.84	31.63
February	39.78	33.43	41.78	41.78	41.76
March	33.98	44.88	35.52	35.52	44.88
April	36.05	36.28	33.62	33.62	37.96
May	40.02	27.12	38.79	38.79	38.99
June	31.23	37.74	33.18	33.18	36.0
July	28.02	35.33	31.9	31.9	32.76
August	26.58	28.05	28.79	28.79	34.27
September	25.24	30.19	27.82	27.82	40.33
October	25.88	31.88	25.69	25.69	36.0
November	30.83	27.2	24.44	24.44	49.49
December	33.48	34.73	27.14	27.14	46.11
Annual Avg	32.05	33.54	31.81	31.71	39.18
Max 3-Mo Avg	36.68	38.2	36.97	36.97	43.87
Max : Avg Ratio	1.14	1.14	1.16	1.17	1.12
Existing EDUs	100,384.0	118,738.0	119,942.0	120,347.0	120,525.8
Flow/EDU (GPD)	319.3	282.5	265.2	263.5	325.1
Flow/Capita (GPD)	121.6	107.6	101.0	100.4	123.8
Exist. Overload?	NO	NO	NO	NO	NO

## Projected Flows for Next Five Years (MGD)

	2019	2020	2021	2022	2023
New EDUs	1143.0	667.0	667.0	667.0	667.0
New EDU Flow	0.3327	0.1942	0.1942	0.1942	0.1942
Proj. Annual Avg	33.99	34.1842	34.3784	34.5726	34.7668
Proj. Max 3-Mo Avg	38.96	39.18	39.41	39.63	39.85
Proj. Overload?	NO	NO	NO	NO	NO

## Monthly Average BOD5 Loads for Past Five Years (lbs/day)

Month	2014	2015	2016	2017	2018
January	88,006	73,476	84,353	79,594	105,254
February	75,646	108,127	120,173	86,803	113,539
March	69,660	80,721	120,495	96,346	117,904
April	69,546	77,570	92,192	112,966	101,308
May	73,366	80,252	107,901	102,217	85,196
June	74,832	73,422	78,739	89,636	102,982
July	68,216	81,421	81,458	77,068	101,910
August	76,943	88,285	62,449	88,456	69,452
September	66,144	85,535	80,815	79,926	78,034
October	57,066	84,297	59,207	88,522	78,963
November	65,766	77,322	92,833	109,256	85,439
December	63,770	119,387	70,271	85,973	115,752
Annual Avg	70,747	85,818	87,574	91,397	96,311
Max Mo Avg	88,006	119,387	120,495	112,966	117,904
Max : Avg Ratio	1.24	1.39	1.38	1.24	1.22
Existing EDUs	100,384	118,738	119,942	120,347	120,526
Load/EDU	0.705	0.723	0.730	0.759	0.799
Load/Capita	0.268	0.275	0.278	0.289	0.304
Exist. Overload?	NO	NO	NO	NO	NO

## Projected BOD5 Loads for Next Five Years (lbs/day)

	2019	2020	2021	2022	2023
New EDUs	1143	667	667	667	667
New EDU Load	849.519	495.739	495.739	495.739	495.739
Proj. Annual Avg	97,161	97,656	98,152	98,648	99,144
Proj. Max Avg	125,750	126,392	127,033	127,675	128,316
Proj. Overload?	NO	NO	NO	NO	NO

Show Precipitation Data on Hydraulic Graph?

## Total Monthly Precipitation for Past Five Years (Inches)

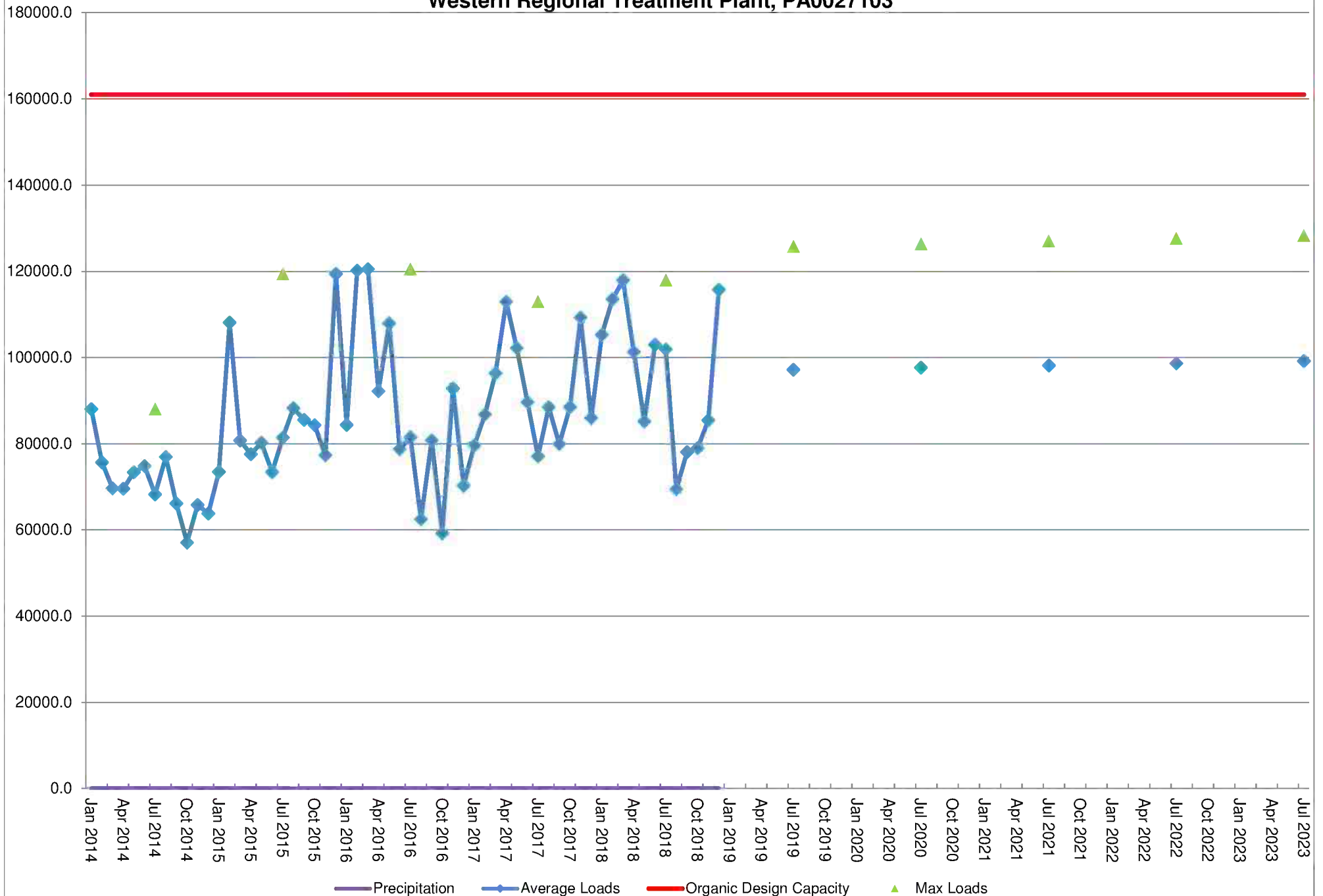
Month	2014	2015	2016	2017	2018
January	1.64	3.17	1.55	2.42	2.23
February	3.89	1.12	3.19	0.95	4.38
March	3.07	3.51	1.24	4.21	3.35
April	5.91	2.75	1.5	3.76	3.24
May	2.94	1.32	4.34	6.75	4.0
June	2.21	8.05	1.8	3.08	3.04
July	3.15	2.2	6.82	7.25	2.87
August	2.65	0.74	1.24	6.16	4.14
September	1.58	5.51	4.2	1.56	4.69
October	2.06	3.95	3.1	3.65	2.96
November	3.01	1.37	1.8	1.41	7.43
December	2.28	1.92	4.34	1.25	5.01

# **Attachment 3**

## **Line Graph of Organic Loads**

# 5-Year Measured and Projected Organic Loads

## Western Regional Treatment Plant, PA0027103





**Attachment 4**

**DELCORA Western Regional  
Treatment Plant  
Chapter 94  
Municipal Wasteload Management  
Report  
2018 Annual Report**

**CHAPTER 94  
MUNICIPAL WASTELOAD MANAGEMENT  
2018 ANNUAL REPORT**

**Delaware County Regional Water Quality Control Authority  
Western Regional Treatment Plant  
Delaware County**

**Prepared by:**

Weston Solutions, Inc.  
1400 Weston Way  
West Chester, PA 19380

**Prepared for:**


DELCORA  
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Telephone: 610-876-5523  
FAX: 610-876-2728

Western Regional Treatment Plant  
NPDES Permit # PA0027103  
3201 West Front Street  
Chester, PA 19013

**Preparer:**

  
Roger W. Lehman, P.E.  
Sr. Project Manager  
Weston Solutions, Inc.

**Permittee:**

  
Robert J. Willert  
Executive Director  
DELCORA

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Map 1 - DELCORA Collection System	
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# **DELCORA ANNUAL REPORT FOR THE WESTERN REGIONAL TREATMENT PLANT**

## **I. INTRODUCTION/BACKGROUND**

The Delaware County Regional Water Quality Control Authority (DELCORA) is responsible for the safe collection, transmission, treatment and disposal of approximately 65 million gallons per day (MGD) of wastewater generated in southeastern Pennsylvania (see Figure 1). DELCORA's facilities serve over 200,000 residential, commercial, institutional, and industrial customers in Delaware and Chester County. DELCORA owns and operates an extensive system of pump stations, force mains, and sewers that provide the core infrastructure for the transmission of wastewater to treatment facilities in Delaware County and the City of Philadelphia. Figure 2 shows a schematic of DELCORA's conveyance system and the connection to the treatment facilities. To support this service area, DELCORA owns and operates over 155 miles of gravity sewers and over 17 miles of large-diameter (>24-inch) force mains.

Historically, DELCORA has characterized its service areas as "Eastern" and "Western." The Western Service Area discharges to the Western Regional Treatment Plant (WRTP). The Eastern Service Area discharges to the Philadelphia Southwest Water Pollution Control Plant (SWWPCP) and the WRTP. A separate wasteload management report was prepared by DELCORA for the Eastern Service Area flowing to the SWWPCP. The Chester/Ridley Creek Service Area was connected to the WRTP via the Chester/Ridley Creek Pump Station (CRCPS) in November 2014. The Rose Valley Service Area was served by the DELCORA-owned Rose Valley Sewage Treatment Plant until its decommissioning on May 3, 2018. A separate wasteload management report has been prepared for Rose Valley Service Area for the portion of the year (January 1, 2019 – May 3, 2019) before the sewage treatment plant decommissioning.

### **A. Western Service Area**

DELCORA owns and operates the WRTP located in Chester, Pennsylvania. The WRTP is a permitted 44 MGD activated sludge treatment plant. The Pennsylvania Department of Environmental Protection (PADEP) and the Delaware River Basin Commission (DRBC) have approved the re-rate of the WRTP to 50 MGD contingent upon extending the WRTP outfall to improve mixing. Treatment Plant components include aerated grit removal, primary clarification, activated sludge treatment employing fine bubble diffusers, secondary clarification, and effluent disinfection utilizing chlorine. Secondary sludge is thickened with gravity belt thickeners and combined with the primary sludge. The combined sludge is dewatered using belt filter presses and incinerated using multiple hearth incinerators. The WRTP is about 45 years old and major components have been upgraded over the years. Figure 3 provides a location map of the treatment plant. Map 1 (attached at the end of this narrative) is a collection system map. Figure 4 provides the existing layout of the WRTP and Figure 5 is a process block flow diagram.

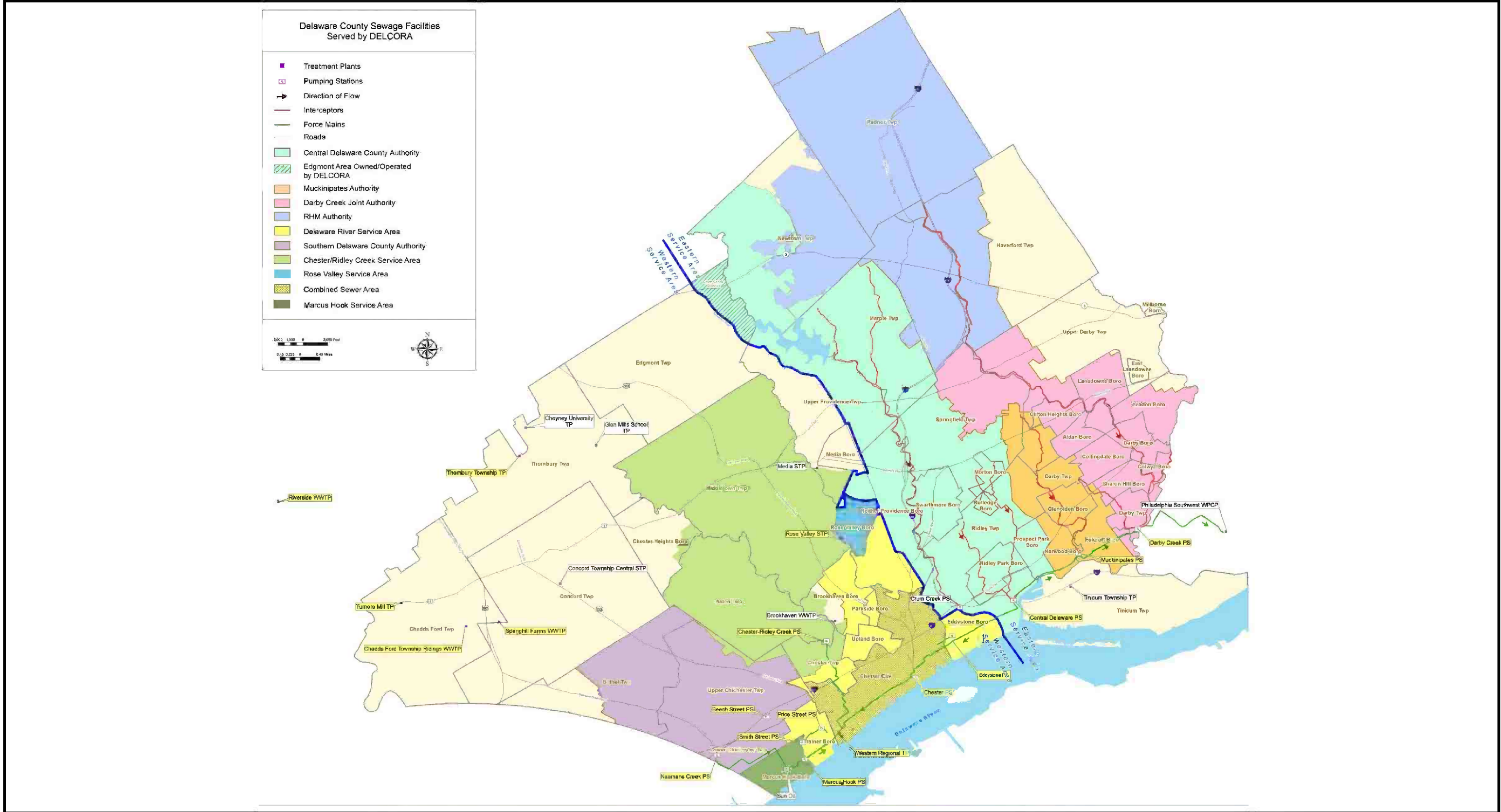
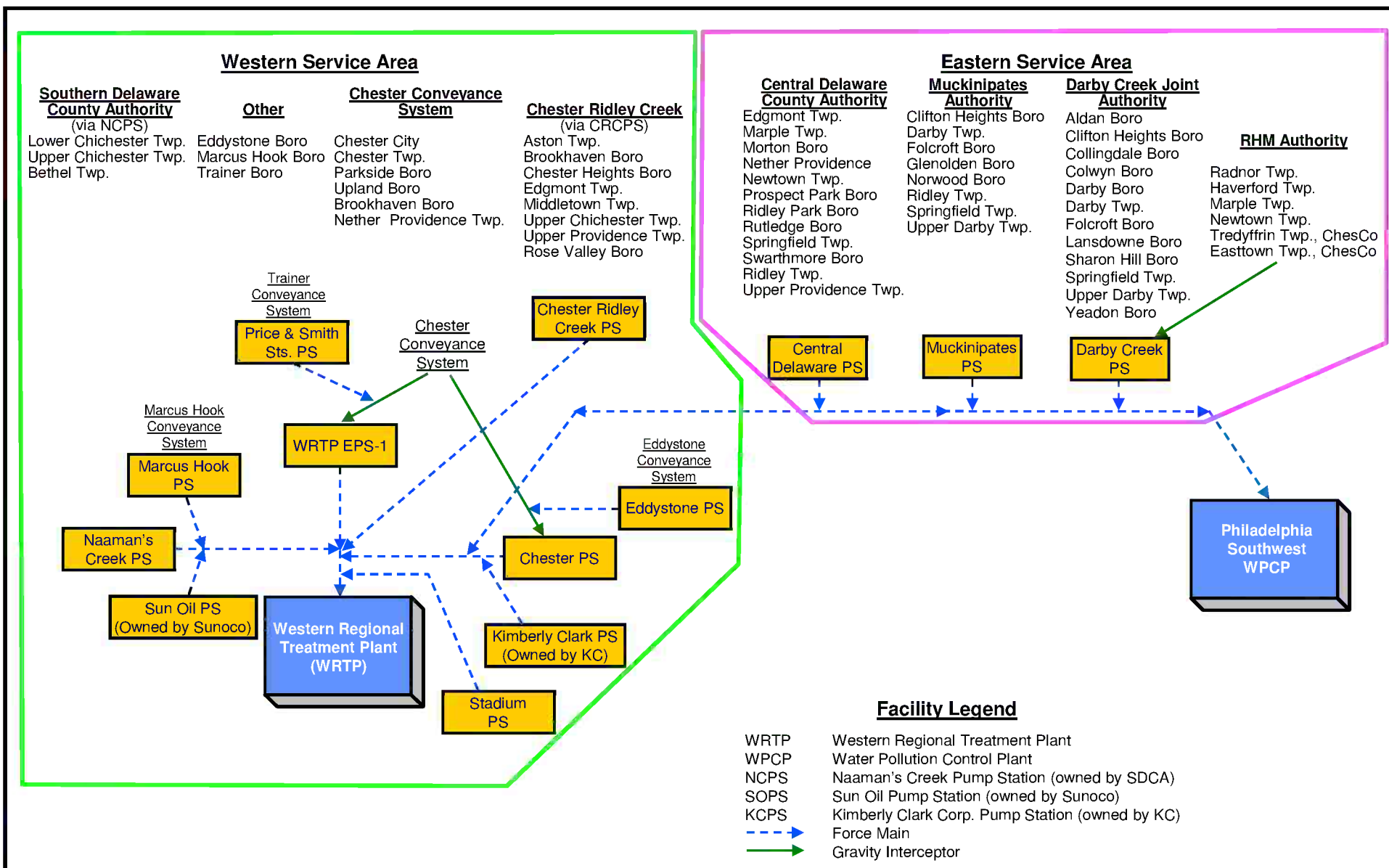
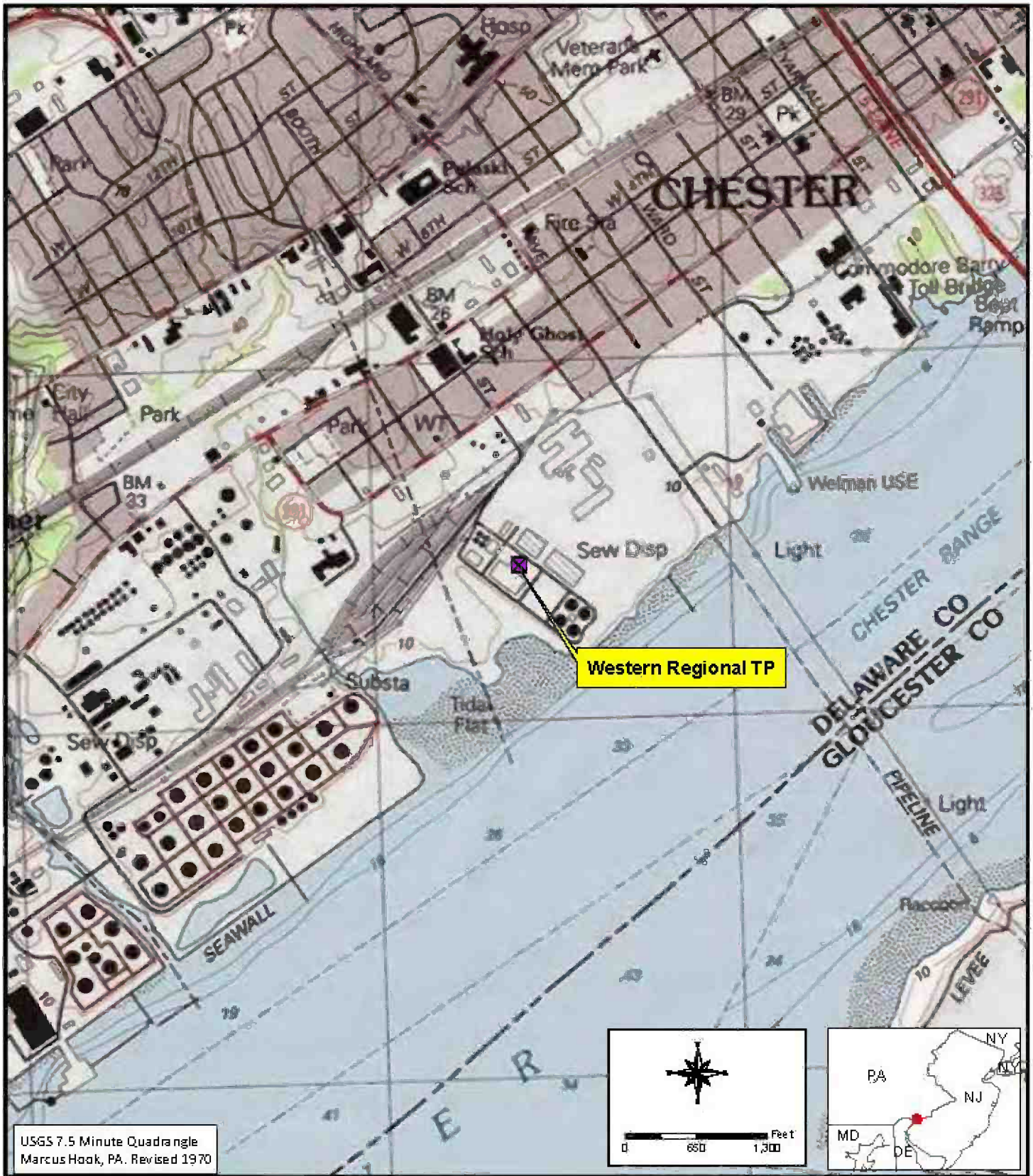


Figure 1.ppt



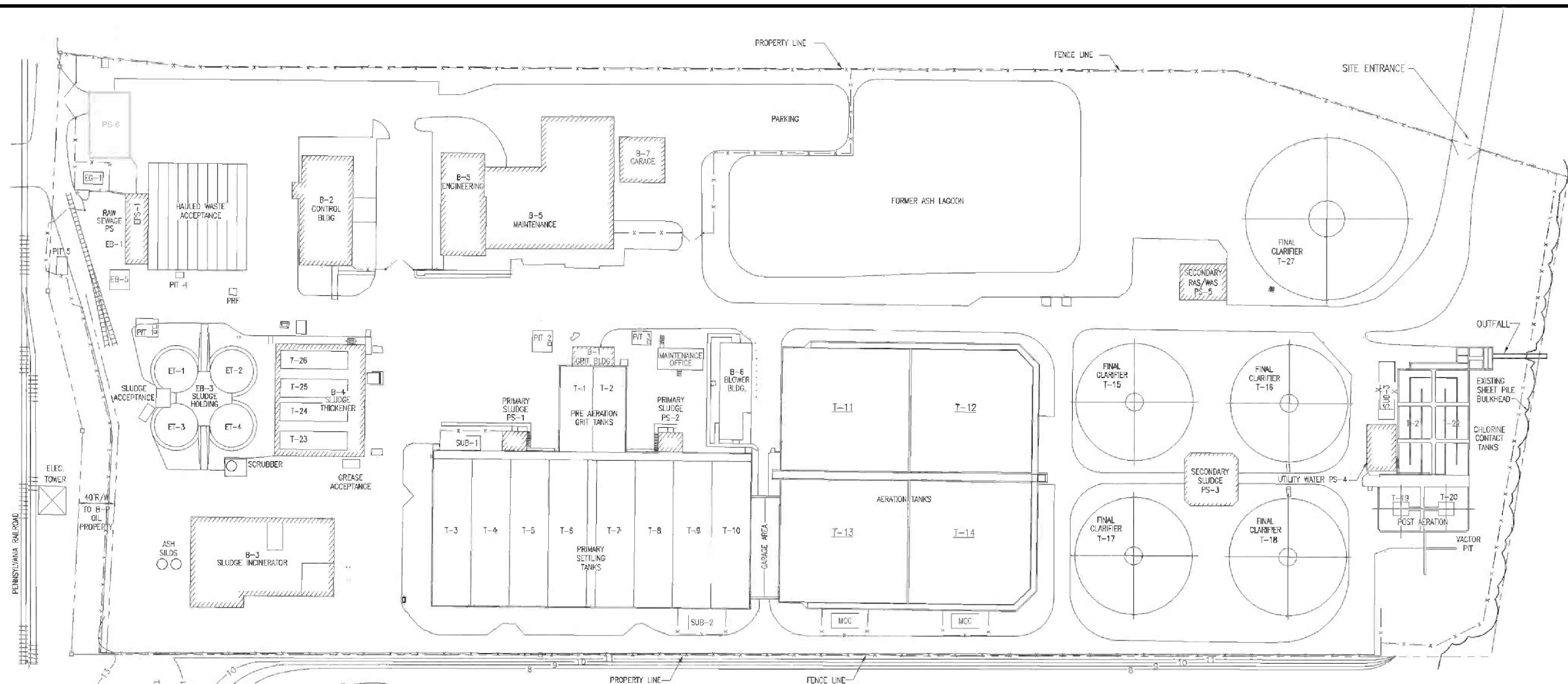




Chapter 94  
Municipal Wasteload Management  
2018 Annual Report  
Delaware County Regional Water  
Quality Control Authority



**FIGURE 3**  
**WRTP LOCATION MAP**



**SLUDGE HOLDING TANKS (ET-1 to ET-4)**  
 Diameter = 55 Feet  
 Depth = 22.79 Feet  
 Side Water Depth = 18.5 Feet (Usable 16.5 Feet)  
 (1) Tank 250,000 Gallons  
 (4) Tanks 1,000,000 Gallons

**GREASE TANKS (T-23 & T-24)**  
 Length = 64.5 Feet - Width 20 Feet  
 Side Water Depth = 10.6 Feet

**PRE-AERATION / GRIT TANKS (T-1 & T-2)**  
 Length = 93 Feet - Width = 30 Feet  
 Depth = 24 Feet (Side Water Depth = 16.26 Feet)  
 Capacity = 133,920 C.F. = 1,004,400 Gallons

**PRIMARY SETTLING TANKS (T-3 to T-10)**  
 Length 155.5 Feet - Width = 40 Feet  
 Depth = 18 Feet  
 (1) Tank = 54,425 C.F. = 408,188 Gallons  
 (8) Tanks = 435,400 C.F. = 3,265,500 Gallons

**AERATION TANKS (T-11 to T-14)**  
 Length = 136 Feet - Width = 136 Feet  
 Depth = 18 Feet  
 (1) Tank = 332,928 C.F. = 2.5 Million Gallons  
 (4) Tanks = 1,331,712 C.F. 10.0 Million Gallons  
 Fine bubble diffused air system

**FINAL CLARIFIERS (T-15 to T-18)**  
 Diameter 130 Feet - Depth = 15 Feet  
 (1) Tank = 159,198 C.F. = 1,193,985 Gallons  
 (4) Tanks = 636,792 C.F. = 4,775,940 Gallons  
 (T-27) Diameter = 175 feet - Depth = 18 Feet  
 (1) Tank = 288 C.F. = 2,159,000

**CHLORINE CONTACT TANKS (T-21 & T-22)**  
 Length = 116 Feet - Width = 36 Feet  
 Depth = 12 Feet  
 (1) Tank 58,752 C.F. = 440,640 Gallons  
 (2) Tanks 117,504 C.F. = 881,280 Gallons

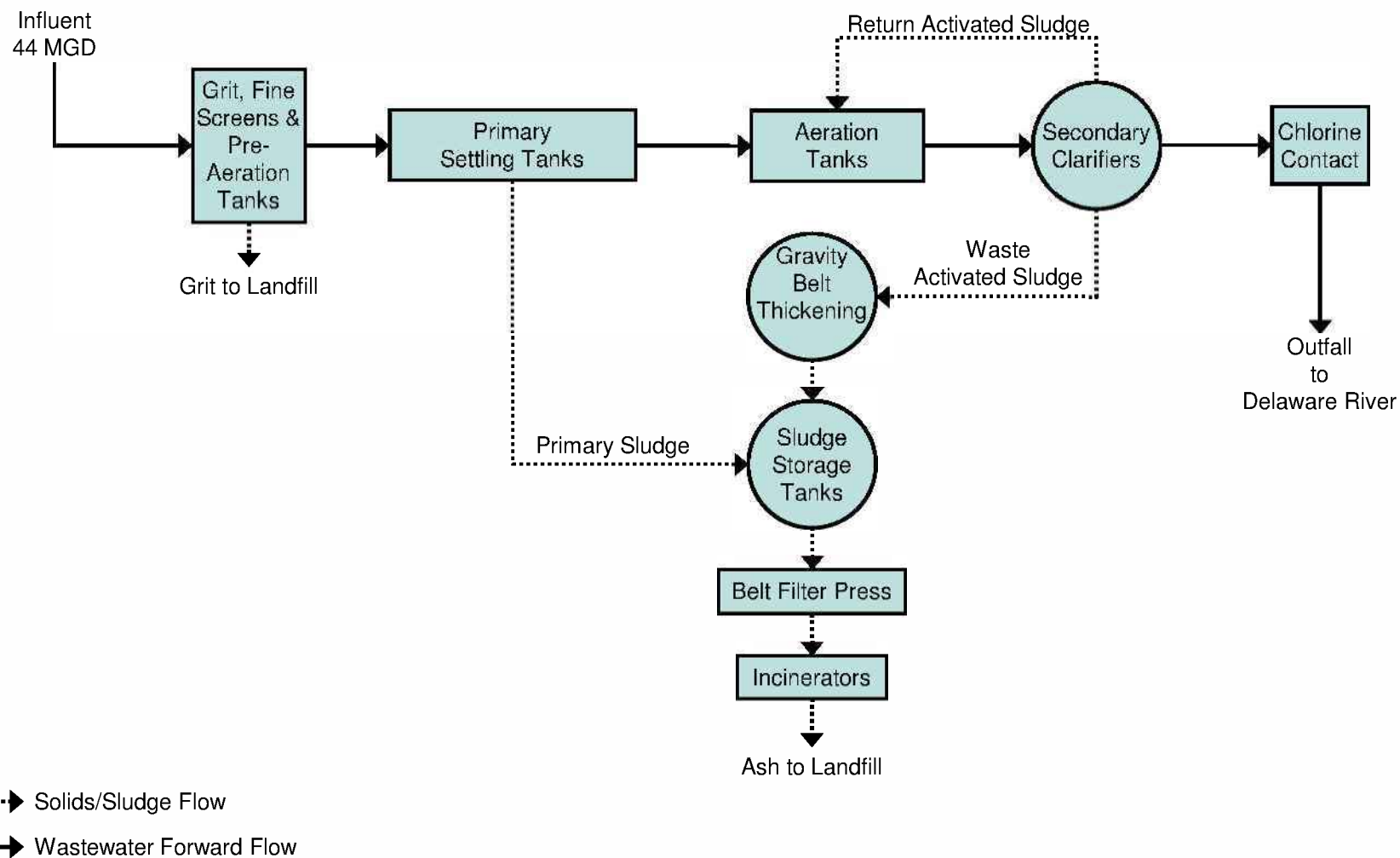
**ADDITIONAL CHLORINE CONTACT**  
 Old Post Aeration Tanks (T-19 & T-20)  
 Length = 48.5 Feet - Width = 48.5 Feet  
 Side Water Depth = 11.5 Feet  
 (1) Tank = 30,579 C.F. = 229,344 Gallons  
 (2) Tanks = 61,158 C.F. = 458,688 Gallons

**PUMP STATION INDEX**  
 EPS-1 Raw Sewage Pump Station (decommissioned)  
 PRF PS Plant Recycle Flow Pump Station  
 PS-1 Primary Sludge Pump Station  
 PS-2 Primary Sludge Pump Station  
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 PS-4 Utility Water Pump Station  
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 PS-6 Raw Sewage Pump Station

**BUILDING INDEX**  
 B-1 Grit Building  
 B-2 Control Building  
 B-3 Incinerator / Sludge Building  
 B-4 Thickener Building  
 B-5 Engineering & Maintenance Building  
 B-6 Blower Building  
 B-7 Garage







Sewage facilities operated by DELCORA in the Western Regional Collection System include the WRTP and the collection and conveyance systems in the City of Chester, the Boroughs of Upland, Parkside, Trainer, Rose Valley, and Marcus Hook and a portion of Chester Township. The system includes eight pumping stations (Chester Pump Station, Marcus Hook Pump Station, Eddystone Pump Station, EPS-1 Pump Station (decommissioned in 2018), PS-6, Smith Street Pump Station, Price Street Pump Station, Chester-Ridley Creek Pump Station, and the Central Delaware Pump Station (which can direct flow to the WRTP or the City of Philadelphia's Southwest Water Pollution Treatment Plant) and force mains, five small lift stations (Broomall Street, Delaware Avenue, 8<sup>th</sup> Street, Feltonville, and Viscose Village), and approximately 129 miles of separate and combined sewers. Included in the 129 miles of sewers are: 11.7 miles of an interceptor system; 3,209 manholes; twenty-five (25) CSO regulators controlling storm overflows; and two (2) outfalls that have no regulators. Chester Pump Station CSO (Outfall #027) and the Jeffrey Street CSO (Outfall #006) have been eliminated and were removed from the NPDES permit effective January 1, 2014.

The WRTP also processes wastewaters from the Boroughs of Eddystone, Rose Valley, and Brookhaven, the Townships of Lower Chichester, Nether Providence, and Upper Providence, and Southern Delaware County Authority, Bethel Township Sewer Authority, Southwest Delaware County Municipal Authority, and Middletown Township Sewer Authority. Additionally, typical dry weather flow (up to 20 MGD of wet weather flow) from the Central Delaware Pump Station is diverted for treatment at the WRTP. This service is provided through service agreements and DELCORA does not own, operate, or maintain collection systems within those areas but does own and operate the pump stations and force mains used to convey the wastewater to the WRTP. Appendix F provides the tributary municipality Chapter 94 responses.

This report addresses hydraulic and organic loading data and projections, industrial waste data, and collection and conveyance system data for the entire service area. The above referenced contract customers have been advised of the report requirements and the need to provide information to DELCORA.

Section III discusses hydraulic and organic loadings. Appendix A contains the graphs and charts which indicate past and future flows and organic loadings. The data is plotted as average daily flow (in MGD) and average daily BOD<sub>5</sub> loadings (in pounds per day) for the time periods indicated. Permitted hydraulic capacity is currently 44 MGD and permitted organic discharge limit is 7,000 pounds per day of BOD<sub>5</sub> per the NPDES permit. The design organic loading for the aeration system is 108,000 pounds BOD<sub>5</sub> per day. (This represents the loading from the primary effluent, not WRTP influent.) The influent design organic loading for the plant is 161,000 pounds BOD<sub>5</sub> per day, based on 33% removal through the primary system.

## **II. TREATMENT PROCESS**

DELCORA provides wastewater services in Delaware County through two wastewater service areas. DELCORA facilities in its Western Service Area include a wastewater treatment plant in Chester, as well as gravity lines, pump stations, and force mains which convey the wastewater to the plant. The WRTP, has a permitted capacity of 44 million gallons per day (MGD). DELCORA facilities in its Eastern Service Area include three pump stations (Central Delaware Pumping Station, Muckinipates Pumping Station, and Darby Creek Pumping Station) and associated force

mains, which pump wastewater to the City of Philadelphia's Southwest Water Pollution Control Plant (SWWPCP). DELCORA has a service contract with the Philadelphia Water Department which provides DELCORA 50 MGD of reserve capacity in the 210 MGD capacity SWWPCP.

In 2018, DELCORA averaged 39.18 MGD of flow through the WRTP. The maximum daily flow was 81.59 MGD on March 2, 2018. The plant employs an aerated activated sludge process and provides secondary treatment. Secondary sludge is removed from the system based on loading and solids concentration. The sludge is thickened with a gravity belt thickener prior to dewatering. The thickened sludge is then pumped at about 4-6% solids to Building B-3.

The thickened sludge is mixed with primary sludge and is directed to any one or more of four belt filter presses. The units are Ashbrook-Simon-Hartley Klampress Type 85, Size 3, 2.0 meters. Prior to dewatering, the sludge is conditioned with a polymer. Addition of polymer varies with flow and solids content. Sludge cake from the belt presses have ranged from 20% to 27% solids. This cake drops from the presses to a conveyor system that transports the sludge to a Nichols Herreshoff Sludge Incinerator or to a container. There are two incinerators with each being 22'-3" O.D. with 8 hearths. Sludge is dropped into the first hearth near the top of the unit. Rotating rabble arms push the sludge around until it drops through an opening to the next hearth. This procedure follows in all the hearths. The ash is collected at the bottom of the incinerator and is transported by air to 2 storage silos. Four burners are positioned on the 2nd Hearth. Two burners are positioned in the 3rd, 4th, 5th, 6th, and 8th hearths, and are operated only as required for temperature and combustion control. A Plan Approval was filed with PADEP to allow the use of natural gas for incinerator firing. The PADEP issued a Plan Approval for natural gas and plant-wide applicability limits for volatile organic compounds, and nitrogen oxide emissions on August 24, 2011. The use of natural gas began on February 27, 2012 for Incinerator #1 and June 1, 2012 for Incinerator #2.

Under a Plan Approval to upgrade the incinerator emission control system, the upgrade of both incinerators was completed within 2016. The project involved the installation of a new Wet Scrubber, Wet Electrostatic Precipitator, and Regenerative Thermal Oxidizer for each incinerator. The upgrades were necessary to be in compliance with the new Quad M standards that were effective in March 2016.

One incinerator is normally operated 24 hours a day, seven days a week. There are periods of time that two incinerators are operated. The Annual 40 CFR Part 503 Discharge Monitoring Report for sewage sludge disposal lists that during 2018, 20,400 dry metric tons were disposed of via incineration and 668 dry metric tons were trucked off-site as dewatered sludge for disposal at a compost facility. The operation is permitted for 48 dry tons per day per incinerator. Volume reduction by incineration is about 75%.

### **III. HYDRAULIC AND ORGANIC LOADINGS**

#### **A. Hydraulic Performance and Projections**

The WRTP has a permitted hydraulic capacity of 44 MGD. The NPDES permit contains a phased increase in the permitted hydraulic capacity to 50 MGD upon completion of construction/modification of the plant in accordance with the Water Quality Management Permit No. 2311402 issued on December 6, 2011. The peak design flow is approximately 105 MGD. The

2018 average daily flow was 39.18 MGD; the highest flow (maximum day) was 81.59 MGD, recorded on March 2, 2018.

Projected maximum flow is plotted. Chart and graphical presentations of the actual and projected flows are included in Appendix A.

The maximum projections were made by taking the three (3) month maximum flow for each of the previous five (5) years, and dividing them by the average flow for each of those years. These five (5) quotients (ratio) were then averaged and multiplied by the average projected flow to produce the maximum projected flow. The Base Flow was based on the average flow for 2014 – 2018.

DELCORA has reviewed both current data, and the projects and projections outlined in the current Act 537 Plan. After reviewing the projected volumes, time frames and likelihood of completion, the projected growth over the next 5 years was developed. The anticipated flow was averaged over the 5-year period. As projects are completed or become more concrete, our subsequent Chapter 94 projections will be revised. Following are some basic comments about past and present projects:

- 1) The Delaware County Planning Department has completed an Act 537 Plan revision, which includes projections for future flow to the WRTP.
- 2) A current maximum of 20 MGD was directed from the Central Delaware County Pump Station (CDPS) to the WRTP. All flows in excess of 20 MGD are sent to SWWPCP. The amount of split flow can be adjusted either up or down.
- 3) The WRTP re-rate has been approved by PADEP at 50.0 MGD. An Act 537 Plan was submitted to PADEP and was approved February 3, 2009. The DRBC approved docket changes on September 21, 2011, to re-rate the WRTP to 50 MGD.

## **B. Organic Load Performance and Projections**

The Base Load was assumed to be the average BOD<sub>5</sub> loading for 2014 through 2018. The average projected BOD<sub>5</sub> loading was obtained by using the average BOD<sub>5</sub> concentration for 2014 through 2018 multiplied by the projected average influent flow. Appendix A contains the organic loads for the past five years and the five year projections. The projected maximum BOD<sub>5</sub> loading was obtained by multiplying the projected averages by the 5-year Ave. Max. Ratio for BOD<sub>5</sub> taken from the data in Appendix A. The projected BOD<sub>5</sub> loadings are presented in the Appendix A. The organic (BOD<sub>5</sub>) design of the WRTP aeration system is 108,000 pounds/day. This applies to the loading after primary treatment. The influent design loading is 161,000 pounds/day.

The average organic loading in 2018 was 96,311 pounds BOD<sub>5</sub> per day. There was no external organic overloading in 2018. See Appendix A, 2018 BOD<sub>5</sub> data tables for influent loading. Effluent is measured daily by 24-hour flow proportioned, composite samples and testing is performed by DELCORA's in-house PADEP accredited laboratory. There are no return lines or recycle streams that affect influent sampling. The influent composite sample is taken from a box before the grit tanks. The influent is measured daily by 24-hour flow proportional composite samples.

There is no organic overload condition. A corrective action plan is not required.

DELCORA accepts hauled-in septage and industrial wastewater at a receiving pipeline at the front of the plant with ten (10) truck connection ports. The septage and wastewater is pumped through the on-site EPS-1 pumping station to the WRTP. Septage and industrial wastewater loadings are sampled by the influent sampler. DELCORA also implements a Form U and Form 43 sludge acceptance program. Sludges are regulated by the PADEP solid waste permit #400246. Sludges are screened (de-grit and rag removal) and pumped into the sludge holding tanks and mixed with WRTP produced sludge. The resulting mixed sludge is dewatered and incinerated.

DELCORA also accepts restaurant/food grade grease at a receiving station adjacent to Building B-4. Grease waste is screened, thickened in one of the grease thickening tanks in Building B-4, and then pumped to the sludge holding tanks.

### **C. Planning and Compliance History**

A comprehensive review of the Act 537 Plan for Delaware County was approved by County Council. PADEP approved the scope of study, and the Delaware County Planning Department began work in 1988. The Act 537 Plans were completed for the Eastern Service Area and the Western Service Area. The Eastern Service Area Plan incorporates an Inflow/Infiltration Study from the Eastern Municipalities, which was completed in the fall of 1997. A new Act 537 Plan for the WRTP re-rate was submitted to PADEP in late 2006. Comments were addressed and the Plan was resubmitted to PADEP in 2007 and was approved by letter of February 3, 2009, after a second round of PADEP comments was addressed.

DELCORA worked with the Delaware County Planning Department and Weston Solutions, Inc. to prepare an Act 537 Plan Update to address the Chester-Ridley Creek Service Area. The recommended alternative calls for the decommissioning of the Southwest Delaware County Municipal Authority's treatment plant, with the construction of a pump station and force main to transport the flow to DELCORA's WRTP. Construction of the Chester-Ridley Creek Pump Station and force main was completed in 2014. Partial flow was initiated on October 21, 2014 and full flow began on November 11, 2014.

The 2014 - 2018 Compliance History is as follows:

- In 2014, operations at the WRTP remained consistent. There were three violations during the year, one for exceeding the instantaneous total residual chlorine limit, one for exceeding the maximum fecal coliform limit, and one for violating the 10% fecal coliform rule. The violation of the 10% rule was due to an extended incident of partial nitrification which negatively affected disinfection. The chlorination and dechlorination systems were automated during the year which helps prevent further violations of TRC and fecal coliform.
- In 2015, TSS and cBOD<sub>5</sub> removal remained consistent and within permit. There were, however, seven violations during the year. There was one violation for exceeding the maximum fecal coliform limit. Three violations for cBOD<sub>20</sub> occurred in 2015 – one for minimum percent removal and two for exceeding the maximum loading. These violations occurred despite cBOD<sub>5</sub> remaining well within compliance. DELCORA is currently

pursuing a surrogate test method to satisfy this permit requirement due to the known issues with cBOD<sub>20</sub> reliability and repeatability. Three violations for failure to monitor required parameters occurred in 2015 and laboratory procedures have been revised to prevent a further recurrence. Substantial focus during the year was on project work including upgrades to the multi-hearth incinerators, the addition of a fourth filter press, and aeration upgrade project work.

- In 2016, there were two violations at WRTP, both for exceeding the instantaneous maximum TRC limit of 1.0 mg/L. All other parameters were in compliance throughout the year. For the year, cBOD<sub>5</sub> and TSS averaged 8 mg/L and 11 mg/L, respectively, with 96% cBOD<sub>20</sub> removal. The main focus throughout the year were the multiple projects occurring at the facility as both incinerators, the aeration system, and the utility water system were all significantly upgraded.
- In 2017, there were six samples over four months in which the maximum fecal coliform limit was exceeded. The exceedances typically occurred on days that flow was higher than normal. Subsequently, we determined there was an issue with mixing in the chlorination addition chamber that we believed to be the cause for the exceedances. Since the mixing issue was addressed, there have been no more exceedances. All other parameters were in compliance throughout the year. For the year, cBOD<sub>5</sub> and TSS averaged 10 mg/L and 13 mg/L, respectively, with 95.24% cBOD<sub>20</sub> removal. The main focus throughout the year continued to be maintaining uninterrupted operation of the facility while multiple major projects were underway.
- In 2018, during February there was a weekly TSS loading exceedance that occurred when the RAS flow from one of the secondary clarifiers clogged during a wet weather event. Due to high flows, in March, there was an exceedance of the monthly average cBOD<sub>20</sub> loading. High flows also contributed to two exceedances in December, one each for the weekly TSS and cBOD<sub>5</sub> loading parameters. All other parameters were in compliance during the year. The single most impactful event on plant operations was the amount of precipitation during the year and its effect on flows. For the year, cBOD<sub>5</sub> and TSS averaged 8 mg/L and 13 mg/L, respectively, with 95.44% cBOD<sub>20</sub> removal. The main focus throughout the year continued to be maintaining uninterrupted operation of the facility while multiple major capital projects at the plant are underway.

#### **D. Major Improvements**

Construction projects for the last five years at the WRTP, pump stations, and the collection system are listed in Table 1.

#### **IV. SEWER SYSTEM EXTENSIONS**

There were no sewer extensions in 2018. There are no known areas to be served that require sewer extension at this time.



**Table 1**  
**Construction Projects**

<b>Start</b>	<b>Project</b>	<b>Completion</b>
2014	New Sludge Screw Conveyor	2014
2014	Edgemont – Gradyville Road Force Main	2014
2014	Edgemont – Crum Creek Sewer Project	2017
2014	Belt Filter Presses Rebuilt	2014
2014	Belt Filter #4 Installation	2016
2014	Primary Influent Aeration Channel Upgrade	2015
2014	Ridley Creek Interceptor Grouting	2017
2014	Incinerator Ash System and Center Drive Repair	2017
2015	Incinerator Emission Control System Upgrade	2017
2015	Baldwin Run Pollution Control Facility Site Demolition and Grading	2016
2015	MCC Replacement Building 5-3	2016
2016	Utility Water Replacement Project	2018
2016	Aeration System Fourth Blower Installation	2017
2016	Aeration Panel Replacement	2017
2016	Clarifier T-18 Equipment Replacement	2017
2016	Edgemont Crum Creek Sanitary Sewer Project – Phase 3	2017
2017	Influent Pump Station (PS-6) Construction	2018
2017	Remote Pumping Stations Bar Screen Replacements	2018
2017	Solids Handling Upgrade	In Progress
2017	Grit Tank Fine Screen	2018
2017	Rose Valley Pump Station and Force Main	2018
2017	Chester Creek East/West Interceptor Grouting	2018
2017	Vernon Run Sanitary Sewer Rehabilitation	2018
2018	Remote Pump Station Generator Replacement	2018
2018	Rehabilitation of Seven Siphons	In Progress
2018	WRTP Upgrades Project	In Progress
2018	I-95 Combined Line Repair	In Progress
2018	Chester Ridley Electrical System Upgrade	2018

## **V. PROGRAM FOR SANITARY SEWER MONITORING, MAINTENANCE, AND REPAIRS**

### **A. Sewer Maintenance and Repairs**

A preventive maintenance program has been set up to clean lines in Chester, Upland, Parkside, Chester Township, Trainer, Marcus Hook, and Rose Valley at least one time each year. This cleaning program is in addition to the monthly cleaning areas noted in Table 2, which were identified in the modified sewer cleaning plan submitted to PADEP August 11, 2000.

**Table 2**  
**Modified Sewer Cleaning Plan**

Location	Footage	Task
Thurlow St. from Front to Delaware Int.	350	Vac and Clean
W. 3 <sup>rd</sup> St. from Harwick St. to Highland St.	700	Vac and Clean
Townsend St. from Seaport Dr. to Delaware Int.	100	Vac and Clean
Line behind William Penn School	1,157	Vac and Clean
900 Block of Clover Lane	474	Vac and Clean
S. Forwood St. to Highland Ave.	680	Vac and Clean
Under I-95 S. Forwood St. to N. Forwood St.	450	Vac and Clean
Carter Lane Driveway to Twp. Line	65	Vac and Clean
Tilghman St. from 13 <sup>th</sup> St. to 12 <sup>th</sup> St.	360	Vac and Clean
W. Front St. from Parker St. to Fulton St.	359	Vac and Clean
Fulton St. from Front St. to 3 <sup>rd</sup> St.	546	Vac and Clean
Franklin St. from 3 <sup>rd</sup> St. to 4 <sup>th</sup> St.	300	Vac and Clean
W. 13 <sup>th</sup> from Parker St. to Chester Int.	500	Vac and Clean
Vauclain & Curry to Int.	200	Vac and Clean
E. 21st St. from Hyatt to Melrose	294	Vac and Clean
787 E. 24 <sup>th</sup> Street	105	Vac and Clean
Concord Rd. Pump Station to Incinerator Rd.	1,020	Vac and Clean
E. 14 <sup>th</sup> to Ridley Creek Int.	600	Vac and Clean
Bethel Rd. to Lehman St.	205	Vac and Clean
12th & Parker to Interceptor	350	Vac and Clean

The air relief valves continue to be a focus for DELCORA. The Sewer Maintenance Department maintains service on 131 valves on the system's force mains. Cleaning and re-setting of the valve is performed on a quarterly basis.

DELCORA has five (5) Vacuum/Water (Vac) trucks which were used to clean 154,240 feet of sewer gravity and interceptor lines in 2018. Two CCTV trucks were used for inspection of 138,450 feet the collection system. The Vac trucks are an important asset in the cleaning and maintenance of DELCORA's W RTP and the many lift and pump stations throughout the operating system. In 2018, DELCORA responded to 404 Sewer Complaints.

DELCORA continued its two-year contract for emergency sewer repairs with A.J. Jurich, Inc. They perform emergency sewer repairs on the sewer system where the scope of the repairs would be too large for DELCORA's work force. In 2018, the repair contractor replaced sections of sewer mains on Parkway and Edgmont, Worrell & Sunnyside, Line under I-95 from 14th to siphon, line under I-95 from Hancock to E.14<sup>th</sup> St. (Allen Meyers), and rehab of all siphons.

## **B. Sewer Equipment and Personnel**

This section list the resources that DELCORA has available to monitor, maintain and repair sewerage facilities. Table 3 list the equipment and use that DELCORA maintains to service the collection system. Table 4 lists the personnel whose function is to maintain the collection system.

**Table 3**  
**Available Equipment**

<b>Equipment Available</b>	<b>Quantity</b>	<b>Performance Rendered</b>
Vactor PD Unit	2	Clean Sewer Mains, Interceptors, Wet Wells
Vactor	2	Clean Sewer Mains, Wet Wells, Assist TV
Vactor Jet Truck	1	Clean Sewer Mains
Easement Jet Machine	1	Clean Sewer Mains in tough to reach areas
T.V. Truck	3	CCTV Inspection of Service Area
Crane Truck	1	Sewer Repairs
Dump Trucks	2	Dig Ups, Bucket Machines
Backhoe	2	Dig Ups, Sewer Repairs
Skid Steer	1	Snow Removal and Small Excavations
Bucket Machines	2	Sewer Cleaning
Pick-up/Utility Truck	8	Sewer Repairs
Air Compressors	1	Sewer Repairs
City Works / GIS	1	Work Order and Asset Management
Cues GraniteNet	3	Latest software for line inspection
Pole Camera	1	Emergency Inspections/Manhole inspection
Lateral Camera (Portable)	5	Customer lateral inspection unit
4" Godwin Pump	1	Bypass and Emergency Pumping
8" Godwin Dry Prime	1	Bypass and Emergency Pumping
Chain Saw	3	
Trench Shoring /Box	2	Emergency excavations and repairs
Various Size Sewer Plugs		
Atmospheric Monitors	10	Confined space entry
Confined Space Entry Equip.	6	Fall protection and retrieval devices
Portable Generator	3	
Portable Light Stand	1	
Walk-behind street cutting saw	1	
Personal Safety Equipment		Gloves, respirators, safety goggles, etc.
Work Site Safety Equipment		Flags, cones, directional arrows, and portable electronic sign

**Table 4**  
**Available Maintenance Personnel**

<b>Personnel</b>	<b>Employees</b>
Supervisor	1
Foreman	1
Crew Chief	5
Helper	10

In addition to maintenance activities, complaint records are kept, customer follow-up is provided, work inspections are done, and maintenance schedules are continuously reviewed and updated. A CSO Maintenance Report is attached to the NPDES DMR and filed monthly with PADEP through the eDMR system.

Complete mapping and documentation of the sewer system is a necessary first step in determining locations where capacity problems may exist now or in the future. DELCORA initiated an in-house mapping program that was completed in 1992. In FY 2001–2002, over 1,400 plant maps were scanned electronically and developed into a GIS system. In 2004, DELCORA implemented a work order management system (City Works) to support Sewer Maintenance, including Chapter 94 reporting, PA One-Call Response, GASB-34 requirements, capital planning, and asset management. DELCORA continues to utilize its GIS Work Order Management System (CityWorks) to help manage its assets. In 2018 the department upgraded the use of iPads to CityWorks Mobile for the purposes of completing work orders. The iPads also give the employee's the ability to view mapping of the collection system in real time. The mapping comes with a GPS system allowing them to find any of our facilities in the area they are working in. Also, in 2018, twelve (12) team members were certified in National Association of Sewer Service Companies (NASSCO) Pipeline Assessment & Certification Program (PACP), Manhole Assessment & Certification Program (MACP), and Lateral Assessment & Certification Program (LACP), and two (2) team members succeeded in attaining their Class E (WWE-4) Collection System with Pump Station PADEP license. The entire department completed Right to Know and Permit Required Confined Space training.

## **VI. CONDITION OF THE SEWER SYSTEM**

The collection system of the WRTP contains both separate and combined sewers. The combined system is only located in the City of Chester's service area. The City is about 75% combined. The DELCORA owned collection system has been mapped through a geographic information system (GIS) and the data base contains information on the sewer system. Age information is not very detailed. DELCORA was formed in 1971 by the Delaware County Council and the sewer systems of the City of Chester, Upland Borough, and Parkside Borough were turned over to DELCORA. Over the years, DELCORA assumed ownership of other municipalities' service areas.

Materials of construction vary. The City of Chester's system is comprised of brick, reinforced concrete, terra-cotta, vitrified clay, and plastic (PVC) pipe. The Sunoco/Marcus Hook force main is constructed of pre-stressed cylindrical concrete pipe (PCCP). The remaining force mains are constructed of ductile iron pipe. DELCORA replaced the PCCP Chester force main with a new 54" ductile iron force main in 2012.

DELCORA owns three trucks with CUES cameras with GraniteNet software and a pole camera that are used to televise sewers. The National Association of Sewer Service Companies (NASCO) rating system is used to classify sewers following closed circuit televising (CCTV) inspection.

Sewer Maintenance crews continued to work on reducing I&I in the collection system. In 2015, crews began grouting the joints of the Ridley Creek and Chester Creek East/West Interceptors to reduce inflow and infiltration. The Ridley Creek Interceptor work was completed in 2017. The Chester Creek East/West work was finished in 2018.

Appendix B provides a list of sanitary sewer overflows (SSOs) and provides information on causes. Hydraulic overload conditions are not occurring, as overflows are primarily due to sewer blockages.

The City of Chester has a combined sewer system. Detail on the combined sewer overflows is contained in Section VII.

An analysis of flow metering was conducted in conjunction with the Act 537 Plan for the WRTF re-rate.

Since 2008, ten (10) flow meters have been utilized in the Western Service Area for billing; five in Brookhaven and five in Nether Providence. In 2014, six (6) flow meters were deployed to the Chester Ridley Creek Service Area in Aston Township and Middletown Township. CSL Services, Inc. maintains these meters for DELCORA. These meters were removed in May 2018 when the new Middletown Township Interceptor to the Chester Ridley Creek Pump Station (CRCPS) was completed. Flows from Aston Township and Middletown Township are now measured by separate Parshall flumes located inside the CRCPS. The CSL flow meter calibration procedure is contained in Appendix E, along with the calibration records.

See Section IX for information on the pumping and lift stations and Appendix A for the flow analysis.

## **VII. CSO LONG-TERM CONTROL PLAN IMPLEMENTATION**

A Long Term Control Plan (LTCP) for the Nine Minimum Controls for Combined Sewer Overflows (CSOs) was submitted to the DEP in July 1997. Meetings were held with DEP and revisions to the plan were incorporated in 1999. The Plan was approved by DEP in May 2000, with issuance of the NPDES Permit. On March 30, 2007, the PADEP re-issued the NPDES permit as Amendment 1. This permit required update of the Long Term Control Plan within 90 days of permit issuance. Since DELCORA updated its LTCP in July 2008, it re-submitted the original plan and its July 2008 Addendum. PADEP and DELCORA met on July 10, 2009, to discuss the LTCP. At this meeting, PADEP requested update of the LTCP and that DELCORA address the USEPA's consultant (SAIC) review of the Plan. By letter of September 24, 2009, the USEPA issued an Administrative Order to DELCORA to update its LTCP. DELCORA's Board commissioned Weston Solutions, Inc. to update the LTCP on February 16, 2010. The update of the LTCP was completed and submitted to the US Environmental Protection Agency on February 1, 2011. A copy was also provided to the PADEP. DELCORA has responded to the USEPA's 308 letter requests and supplied additional information and analyses. A revised LTCP was submitted to the USEPA on April 18, 2012. The USDOJ filed a Consent Decree for the development of a revised LTCP on 17 August 2015. Greeley and Hansen has been contracted to prepare a revised LTCP in accordance with the 1994 National CSO Control Policy. Phase 1 of the LTCP Update is complete and was submitted to the USDOJ in February of 2019.

The required NPDES permit information follows.

### **A. Continued Implementation of the Nine Minimum Controls (Phase I)**

DELCORA's NPDES permit requires submission of an annual report demonstrating continued implementation of and compliance with the nine minimum technology-based controls (NMC's) as follows:

- a. Proper Operation and Maintenance

DELCORA's operation and sewer system maintenance programs are discussed in Section VI.

b. Maximum Use of the Collection System

This topic is addressed in the following section.

c. Maximization of Flow to the POTW for Treatment

Previous modeling efforts illustrated the lack of available storage in the DELCORA CSO system. The regulators are set to direct as much flow as possible to the WRTP within the confines of their design. The SWMM modeling information is contained in Appendix C. In addition, the SWMM model is run monthly to calculate the overflow volume. This information is submitted monthly with the Discharge Monitoring Report via the PADEP e-DMR system.

DELCORA continues implementation of a regulator replacement and monitoring system. Brown and Brown regulators are being installed to replace the McNulty regulators. The monitoring system reports actual level behind the overflow weir with a radar. Real time levels are recorded and signal an alarm to the WRTP on a preconfigured pending and active alarm level specific to each site. This allows staff to respond if the regulator continues overflowing after a storm. Through 2018, twenty-one (21) new Brown & Brown regulators were installed; #2, #3, #4, #5, #7, #8, #9, #10, #11, #12, #13, #14, #15, #16, #20, #21, #22, #23, #24, #25, and #26. All CSO monitoring stations #2 through #26 employ wireless Ethernet radios with General Electric Versamax PLC's to collect and send data using spread spectrum radio to the control room at the WRTP. Outfalls #15 through #26 and #32 are transmitted to WRTP by via a relay radio on the top of the Crozer building at 5th and Avenue of the States. All others connect directly with the control room.

With the SCADA system, CSO regulators are visibly checked three times per week and monitored 24 hours per day. Based on the monitors and actual visual inspection, the new Brown & Brown regulators have dramatically reduced the incidence of dry weather overflows after a rain event. The floats operate correctly and the flow is redirected to the WRTP. Additionally, the new tide gates installed in 2003 accomplished a reduction of flow to the WRTP, most of this flow generated through the Chester Pump Station. The new regulators incorporate a float that can be set to maximize flow to the interceptor. The most recent NPDES permit (effective January 1, 2014) commits DELCORA to replacing a McNulty regulator per year as shown in Table 5. These regulators have been replaced per the permit requirements.

**Table 5**  
**Regulator Replacement Schedule**

Year	Regulator No.	Location	Water Body
2019	None identified in permit		
2020	018	Sun Drive and Hancock	Ridley Creek
2021	017	9 <sup>th</sup> and Campbell	Ridley Creek
2022	015*	4 <sup>th</sup> and Melrose	Ridley Creek
2023	007*	Delaware and Reaney	Delaware River
2024	019	14 <sup>th</sup> and Crozer Hospital	Chester Creek

Note: \* Regulator was replaced ahead of schedule.

DELCORA commissioned Weston Solutions, Inc. to review the WRTTP processes to re-rate the plant and to address hydraulic constrictions. The re-rate study was submitted in February 2003, and approved by the PADEP. In 2004, DELCORA began an Act 537 planning process for the re-rate per the PADEP. The Act 537 Plan was submitted to PADEP for approval in 2006. The Act 537 Plan was approved February 3, 2009. PADEP then directed DELCORA to get on the DRBC docket for approval. DRBC required modeling of the outfall. DELCORA also re-submitted the Water Quality Management Modules and the NPDES permit. Revised modeling information was submitted to DRBC on February 21, 2011; DRBC docket approval was received September 21, 2011. DELCORA will need to extend its outfall approximately 455 feet into the Delaware River to meet DRBC regulatory requirements for a re-rate to 50 MGD. This project was estimated to cost \$3.25 million. However, with the closing of the Sunoco Marcus Hook Refinery and shutdown of the #16 and #19 paper machines at Kimberly Clark, flows have decreased. Limited future flows are anticipated since the Southwest Delaware County Municipal Authority's treatment plant is now shut down and all flows were directed to the WRTTP in November 2014. However, the re-rate to 50 MGD will still not be needed for several years, unless substantial re-development occurs with an improved economic recovery.

#### d. Review/Modification of Pre-Treatment Program

All Industrial Users (IU) are controlled by the sewer use ordinance, Resolution No. 2011-04, "The DELCORA Standards, Rules and Regulations", and the Local Limits, Resolution No. 2013-12. Additionally, all Significant and/or Categorical IU's are further controlled by a Permit, which is issued for not more than four years. Each IU is reviewed to determine how their wastewater is conveyed to the treatment plant. Appendix D provides a listing of the industries connected to the WRTTP and the CSO outfall, if applicable. Two industries permitted through the DELCORA Pretreatment Program are in a CSO drainage basin.

Ace Linen – Laundry  
Delco Linen – Laundry

Each new IU and all permit renewals are reviewed to determine if their discharge is on a line leading to a CSO. DELCORA will continue to do this review and write or modify permits, as necessary, to comply with the Nine Minimum Controls and/or Long Term Control Plan. Please see Appendix D for the annual Pretreatment Program Report that is submitted to the USEPA.

#### e. Elimination of Dry Weather CSOs

Dry weather overflows are caused by the regulator failing to open after a storm. Debris can prevent the regulator from opening, thus causing a dry weather overflow. DELCORA's maintenance crews no longer inspect the regulators after storms as they had in the past. Maintenance staff has found through SCADA monitoring that the new regulators are working exceptionally well, and so if there is no overflow condition noted on the alarm screen, no crew need be dispatched. This scenario has been discussed with the PADEP and they have been in agreement with this philosophy. DELCORA's crews also inspect each regulator three times per week excluding holidays, and when an alarm indicates a blockage, they are also deployed to clear the blockage. Regulator maintenance involves manually cleaning each regulator and working the mechanisms on a weekly basis. They are greased on a monthly basis. Tide gates are checked once a week when the tide allows and

cleaned accordingly. Cleaning involves removing any large debris in the chamber, cleaning debris from the door and using a come-along to raise and hold the door in an open position, and checking the condition of the door, doorframes, and rubber seals. The doors, frames, and tide gate rubber seals are rehabilitated/replaced on an as-needed basis.

DELCORA also implemented a regulator monitoring system on the regulators. The monitoring reports on the position of the regulator (open/closed). This system will allow DELCORA to respond if the regulator does not reset after a storm. Hence, dry weather flows will be identified and addressed. Twenty-five (25) CSO's have been tied into the SCADA control panel located in the Operations Control Room located in Building B-2 at the WRTP. These sites report live data to the SCADA system. They also report in the event there is an overflow alarm or high channel condition. The system records the start and stop of each alarm condition. The system is monitored via radio at our treatment plant, 24 hours per day.

f. Control of Solids and Floatables

DELCORA's tide gate installation program has done much to eliminate the treatment of river water and subsequently allow for better capacity and velocity of the collection system. The regulator replacements and monitoring will also allow for better reliability and quicker response times for overflow alarms. Floatables are addressed with the inlet replacement program and the trunk line cleaning. To date, there has been no inventory of the new inlets in relation to CSO location and their impact. The City of Chester does not keep volume information on its street sweeping program. In review of the DMR's, debris is a major contributor to CSO dry weather overflows (DWO's). Obviously, there is a major increase of floatables after a rain event.

DELCORA has completed the commitment to fund \$75,000 annually to the City of Chester to replace additional open-style inlets in the combined sewer areas under the 1999 CSO LTCP. These open-style inlets have a large opening, which can allow large size debris to enter the sewer and block the regulator. They are being replaced by grated inlets, which prevent the entry of bottles and cans. The Inlet Replacement Agreement was executed with the City on February 21, 2001. There was a total of 428 inlets replaced during the 12-year project.

DELCORA's sewer cleaning efforts are discussed in Section VI.

g. Pollution Prevention Programs

DELCORA's mission statement is "To provide environmentally responsible and cost effective wastewater treatment services to the citizens, businesses, and industries of Delaware County". To carry out this mission, DELCORA continues to implement a public education program, which will address pollution issues. In addition, pollution prevention is addressed through the City of Chester's recycling program.

h. Public Notification of CSO Occurrences/Impacts

The NPDES permit requires that DELCORA implement a public notification plan to inform citizens of when and where CSOs occur. The plan must include:

- i) A mechanism to alert persons using all receiving water bodies affected by CSO; and



- ii) A system to determine the nature and duration of conditions that are potentially harmful to users of these receiving water bodies due to CSOs.

Newsletters are annually sent to ratepayers to educate them on the combined sewers and other issues important to residents. Appendix C provides a copy of the brochure DELCORA distributed through direct mailings. Additionally, DELCORA maintains a website with information available to the public about CSOs at <https://www.delcora.org/combined-sewer-systems/>.

Signs are also placed at each CSO outfall notifying the public that there is a CSO at that location. In 2017 public education brochure evolved in to the DELCORA Community New. The January 2019 Edition of the newsletter provided information on DELCORA Customer Service Department, how to reduce water usage, and other useful information.

- i. Monitoring to Effectively Characterize CSO Impacts

In 1997, DELCORA staff conducted monitoring of selected CSO outfalls. Appendix A of the Long Term Control Plan provides the results of this data. In 2010, DELCORA staff also conducted monitoring of the Ridley and Chester Creeks. This data is summarized in the February 2012 Update of the Long Term Control Plan.

DELCORA was issued a new NPDES permit effective January 1, 2014. This permit outlines several monitoring requirements, which DELCORA has addressed. In addition, DELCORA has implemented an electronic CSO monitoring system to report on the status of the regulators.

Staff continues to carry out the monitoring requirements of the NPDES permit. Annual monitoring of selected outfalls was reinstated in the NPDES permit amendment of March 9, 2009. DELCORA conducted extensive wet and dry weather sampling during March thru June in 2017 of receiving waters, CSO Outfalls and stormwater only outfalls. The sampling was in support of a revised Long-Term CSO Control Plan currently being prepared.

## **B. Completion of Capital Projects (Phase II)**

- 1. Combined Sewer Regulator Replacement and CSO Monitoring System.

The next set of regulator projects commenced in 2018. Other projects are planned as part of the LTCP update currently under review by the USEPA.

- 2. Sewer Improvements.

The grouting the joints of the Ridley Creek Interceptor to reduce inflow and infiltration through joints was completed in 2017. Grouting of the Chester Creek East/West Interceptors was completed in 2018.

The Clayton Street Manhole repair project is complete. The contractor installed a diversion box at the WRTP end of the 54-inch pipe with a tie-in to the existing 36-inch pipe manhole, installed a diversion box at the Clayton Street end of the 54-inch pipe to facilitate the diversion of flow from the Delaware River Interceptor to the 54-inch pipe during replacement of the manhole, and replaced the deteriorated manhole.

DELCORA has commenced a project to replace the EPS-1 Pump Station at the W RTP. Construction began in 2017 and the project was completed in 2018.

### 3. Western Regional Treatment Plant

Capital Projects are listed in Section III, D.

## **C. Public Education**

DELCORA initiated public education and public participation programs related to CSOs in 2000, in accordance with the Long Term Control Plan. DELCORA completed development and distribution of newsletters and information brochures since 2000. Topics covered were included combined sewer overflows, identification of CSOs, inlet/tide gate/regulator replacements, and the following brochures:

- Stop Sewer Backups
- Fat-Free Sewers
- Sanitary Sewer Overflows
- Fat-Free Sewers
- Drug-Free Drains
- Disconnecting & Redirecting Your Sump Pump & Downspouts
- Wastewater Treatment – Clean Water for Today and Tomorrow

Response to these mailings has been extremely limited.

## **D. Inlet Replacement**

DELCORA concluded negotiations with the City of Chester on the inlet replacement program with execution of an agreement on February 21, 2001. DELCORA will contribute \$75,000 per year for a period of twelve years to assist the City in replacing open curb-face storm water inlets with grated inlets.

In 2018, there was no indication that the City of Chester has restarted their Inlet Replacement Program. The \$75,000.00 remains in an escrow account by DELCORA.

## **E. Combined Sewer Overflows**

### 1. Location

Combined sewer overflows during wet weather are inherent in a combined sanitary sewer and storm water system. The City of Chester's system is a combined system. Previously permitted outfalls 006 and 027 were disconnected and were removed from the current NPDES permit effective January 1, 2014. There are 25 overflow points along the Delaware River, Chester Creek, and Ridley Creek as follows:

## 2. Discharges to the Delaware River

**Table 6**  
**Delaware River Outfalls**

Interceptor Outfall	Regulator Location	Latitude	Longitude
002	Front and Booth	39°49'30"	75°23'31"
003	Front and Highland	39°49'34"	75°23'11"
004	Front and Hayes	39°50'36"	75°23'07"
005	Front and Townsend	39°49'46"	75°22'53"
007	Delaware and Reaney	39°49'56"	75°22'39"
008	2 <sup>nd</sup> and Tilghman	39°50'05"	75°22'22"
009	2 <sup>nd</sup> and Lloyd	39°50'14"	75°22'10"
010	5 <sup>th</sup> and Pusey	39°50'26"	75°22'19"
011	2 <sup>nd</sup> and Parker	39°50'26"	75°21'54"
013	2 <sup>nd</sup> and Welsh	39°50'37"	75°21'17"
014	3 <sup>rd</sup> and Upland	39°50'50"	75°21'05"
032	2 <sup>nd</sup> and Avenue of the States (no regulator structure)	39°50'34"	75°21'25"

Outfall 010 flows through Outfall 009 to reach the Delaware River.

## 3. Discharges to Chester Creek

**Table 7**  
**Chester Creek Outfalls**

Interceptor Outfall	Regulator Location	Latitude	Longitude
012	2 <sup>nd</sup> and Edgmont	39°50'42"	75°21'38"
019	14 <sup>th</sup> and Crozer Hospital	39°51'24"	75°21'54"
020	Kerlin and Finland	39°51'24"	75°22'27"
021	9 <sup>th</sup> and Sproul	39°51'08"	75°21'49"
022	6 <sup>th</sup> and Sproul	39°50'56"	75°21'47"
023	3 <sup>rd</sup> and Edgmont	39°50'45"	75°21'42"
024	3 <sup>rd</sup> and Dock	39°50'44"	75°21'43"
025	5 <sup>th</sup> and Penn	39°50'49"	75°21'50"
026	7 <sup>th</sup> and Penn	39°50'58"	75°21'55"
033	Elkington Blvd. & Ridley Creek (Two, 16" outfall pipes in Chester Park)	39°52'22"	75°22'29"

In collaboration with Brookhaven Borough, DELCORA has performed partial sewer separation for the combined sewer area flowing into CSO Outfall 033, reducing its overflow volume and frequency, and therefore the pollutants of concern introduced into Ridley Creek.

## 4. Discharges to Ridley Creek

**Table 8**  
**Ridley Creek Outfalls**

Interceptor Outfall	Regulator Location	Latitude	Longitude
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015	4 <sup>th</sup> and Melrose	39°51'03"	75°20'48"
016	8 <sup>th</sup> and McDowell	39°51'15"	75°20'53"
017	9 <sup>th</sup> and Campbell	39°51'16"	75°20'51"
018	Sun Dr. and Hancock Street	39°51'47"	75°20'57"

## 5. Modeling Efforts/Precipitation Data

Weston Solutions, Inc. prepared the FY 2018 CSO Modeling Report, contained in Appendix C. The report contains precipitation/rain data for the year and summarizes the results of the USEPA Storm Water Management Model (SWMM) for all FY 2018 year storms. The report provides a yearly summary of the frequency, duration, and volume of the CSO wet weather discharges. A monthly report is submitted through the eDMR system.

## 6. Dry Weather Overflows (DWO's)

During 2018, DELCORA aggressively addressed the dry weather discharges at all of the CSOs. Following is a brief description of the current status of each regulator. The monthly NDPES DMR contains the CSO report. DELCORA and the PADEP jointly modified the monthly DMR for better documentation. Data from the DMR's is not repeated here.

The Vac trucks were used to clean the regulator vaults and channels. They also cleaned the crossover lines, which connect the regulator flow to the interceptor, and also used to remove floatable debris from trunk lines leading to the regulator. The regulators were cleaned on an as-needed basis. The rain is a significant factor influencing the frequency of cleaning. Rains can carry debris and grit into the regulator vaults, and cleaning would be needed after heavy rain. Monitor sensors also need to be cleaned after these rain events. The Vac trucks would also flush the trunk lines feeding the regulator every time they cleaned the vaults, to reduce the probability of debris causing a blockage. Trunk line cleaning, electronic monitoring, and the Sewer Inlet Replacement Program do reduce DWO/SSOs.

CSO regulators are visibly inspected five times per week, and monitored 24 hours a day. Outfall points at the river are checked during periods of low tide. The outfall signs are also checked at that time. The program of inspection at high tide and cleaning at low tide has continued, and led to a significant reduction of tidal inflow to the plant. Tide gates and CSO monitoring continues to help in the elimination of tidal inflow into DELCORA's collection system. With the completion of the Phase III CSO Monitoring project, all CSOs are electronically monitored, with the exception of #32.

## 7. CSO Outfall Narratives

### #002 – Front & Booth (Brown and Brown regulator)

There were no DWOs in 2018.

### #003 – Front & Highland (Brown and Brown regulator)

There were no DWOs in 2018.

### #004 – Front & Hayes (McNulty regulator)

There was one DWO in 2018 (1/14) detailed in the SSO/DWO Report in Appendix B.

#005 – Front & Townsend (Brown and Brown regulator)

There was one DWO in 2018 (1/14) detailed in the SSO/DWO Report in Appendix B.

#007 – Delaware & Reaney (Brown and Brown regulator)

There was five DWOs in 2018 (1/14, 3/9, 3/23, 4/17, 8/6) detailed in the SSO/DWO Report in Appendix B.

#008 – 2nd & Tilghman (Brown & Brown regulator)

There were no DWOs in 2018.

#009 – 2nd & Lloyd (Brown & Brown regulator)

There were no DWOs in 2018.

#010 – 5th & Pusey (Brown and Brown regulator)

There were no DWOs in 2018.

#011 – 2nd & Parker (Brown & Brown regulator)

There were no DWOs in 2018.

#012 – 2nd & Edgemont (Brown and Brown regulator)

There were no DWOs in 2018.

#013 – 2nd & Welsh (Brown and Brown regulator)

There were no DWOs in 2018.

#014 – 3rd & Upland (Brown and Brown regulator)

There were no DWOs in 2018.

#015 – 4th & Melrose (Brown and Brown regulator)

There were no DWOs in 2018.

#016 – 8th & McDowell (Brown and Brown regulator)

There were no DWOs in 2018.

#017 – 9th & Campbell (Brown and Brown regulator)

There were no DWOs in 2018.

#018 – Sun Drive & Hancock (Brown and Brown regulator)

There were no DWOs in 2018.

#019 – 14th & Crozer (Brown and Brown regulator)

There were no DWOs in 2018.

#020 – Kerlin & Finland (Brown & Brown regulator)

There was one DWO in 2018 (5/24) detailed in the SSO/DWO Report in Appendix B.

#021 – 9th & Sproul (Brown & Brown regulator)

There were no DWOs in 2018.

#022 – 6th & Sproul (Brown and Brown regulator)

There were no DWOs in 2018.

#023 – 3rd & Edgemont (Brown and Brown regulator)

There were no DWOs in 2018.

#024 – 3rd & Dock (Brown and Brown regulator)

There were no DWOs in 2018.

#025 – 5th and Penn (Brown and Brown regulator)

There were no DWOs in 2018.

#026 – 7th and Penn (Brown and Brown regulator)

There were no DWOs in 2018.

#032 – 2nd and Avenue of the States (No regulator)

There were no DWOs in 2018.

In summary, there were eight (8) DWOs in 2018. There were five (5) DWOs in 2017, two (2) DWOs in 2016, nine (9) DWOs in 2015, and zero (0) DWOs in 2014.

DELCORA continued with its Operation and Maintenance program established for the CSO's/Regulators including the installation and maintenance of the CSO monitoring system for all regulators. All CSO efforts are tracked utilizing our Cityworks/GIS work order management system. All Sewer Maintenance activities are also tracked with the Cityworks system. It is especially helpful to organize and track the systematic sewer line cleaning and video inspections. The collection system cleaning and the City of Chester's inlet replacement program have certainly helped reduce debris, solids and floatables in our system, resulting in fewer DWOs. All video inspections reside in one of DELCORA's servers for instantaneous viewing. Along with everything listed above the Sewer Maintenance department implemented a post rain program that includes, but is not limited to the cleaning of all crossovers and float chambers.

DELCORA is ahead of schedule for the installation of the Brown and Brown regulators documented in the Long Term Control Plan. Certainly, the Brown and Brown regulators, along with the continued maintenance of the Rodney Hunt tide gates, results in maximizing flow to the treatment plant while eliminating unwanted treatment of river or creek water.

## 8. Estuary Benefit

DELCORA has no definitive data that describes how treating flows in excess of the plant's design maximum flow has been a benefit to the estuary. However, basic water quality premises would dictate that the more pollutant loading removed, the better the water quality.

## VIII. SEWAGE PUMPING STATIONS

There were eight pumping stations and five lift stations currently operating in the Western Service Area. The PS-6 pump station is within the plant perimeter. The Central Delaware Pump Station flow can be directed to WRTP or SWWPCP. Pump stations are listed in Table 9 and lift stations are listed in Table 10.

**Table 9  
Pump Stations**

<b>Pumping Station</b>	<b>Design Capacity</b>
Chester Pump Station 113 West 2nd Street, Chester, PA	30 MGD
Marcus Hook Pump Station 4th & Penn Streets, Marcus Hook, PA	4.8 MGD
Eddystone Pump Station 736 Eddystone Avenue, Eddystone, PA (Note: Discharges to the Ridley Creek Interceptor)	2.0 MGD
EPS-1 (decommissioned in 2018) (Located at the WRTP)	8.64 MGD (3 pumps @ 6000 gpm)
PS-6 (Located at the WRTP)	28.5
Chester-Ridley Creek Pump Station 1 Gamble Lane, Aston, PA	16.65 MGD
Central Delaware Pump Station 563 W. Sellers Avenue, Ridley Park, PA	40 MGD
Smith Street Pump Station 498 Smith Street, Trainer, PA (Discharges to common force main joining Price Street PS)	700 gpm at 80' TDH
Price Street Pump Station 3639 Post Road, Trainer, PA (Force main discharges to Chester collection system)	3 pumps @ 300 gpm at 40' TDH

**Table 10**  
**Lift Stations**

<b>Lift Station</b>	<b>Design Capacity</b>
Broomall Street Pump Station Delaware Avenue & Broomall Street, Chester, PA	2.0 MGD (3 pumps @ 700 gpm at 62' TDH)
Delaware Avenue Pump Station Marcus Hook, PA (DELCORA assumed ownership on January 1, 2011)	
8th Street Pump Station 99 West 8th Street, Chester, PA	0.34 <sup>(a)</sup> MGD
Feltonville Pump Station 2432 Concord Road, Chester, PA	0.29 <sup>(a)</sup> MGD
Viscose Village Pump Station 6 Walnut Street, Marcus Hook, PA (DELCORA assumed ownership on January 1, 2011.)	

<sup>(a)</sup> Based on nameplate data

Based on trends, average flows are expected to remain fairly constant. Pump station flows are found in Appendix A. Appendix A also contains an analysis of flows.

The stations listed are maintained in good condition. Flow is not measured at the lift stations. Design data on the lift stations was not provided to DELCORA when the system was acquired; therefore, capacity information is based on nameplate data.

## **IX. PRETREATMENT PROGRAM/INDUSTRIAL WASTES**

Appendix D provides the FY 2018 annual report submitted to the US Environmental Protection Agency, and the plant influent, effluent, and sludge data. DELCORA monitors its industrial users, as noted in Section II-5 of the annual report (Appendix D). A discussion of pretreatment compliance issues is found in Section III of the Appendix D report. A copy of the Rules and Regulations (Resolution No. 2011-04 as amended) that govern industrial waste discharges are also found in Appendix D.

## **X. CORRECTIVE ACTION PLAN**

DELCORA is not subject to a Corrective Action Plan. The treatment plant is not organically or hydraulically overloaded.

## **XI. CALIBRATION REPORTS**

The calibration reports for the WRTP influent and effluent meters and the pump station flow meters are contained in Appendix E. The billing meters in the collection system are calibrated and maintained by CSL, Inc., as discussed in Section VI.

## **XII. TRIBUTARY MUNICIPALITY REPORTS**

The tributary municipality reports of the WRTP service area are contained in Appendix F.



**MAPS**

**DELCORA COLLECTION SYSTEM**

## **APPENDIX A**

**1) HYDRAULIC AND ORGANIC LOADS AND  
PROJECTIONS**

**2) SEWER PLANNING MODULES**

**3) PUMP STATION ANALYSIS**

## **APPENDIX B**

### **SANITARY SEWER OVERFLOW AND CSO – DRY WEATHER OVERFLOW REPORT**

## **APPENDIX C**

**1) PUBLIC EDUCATION BROCHURE**

**2) REPORT OF CSO MODELING FOR FY 2017**

## **APPENDIX D**

**1) ANNUAL PRETREATMENT REPORT  
FOR DELCORA'S  
WESTERN SERVICE AREA**

**2) RESOLUTION 2011-04**

## **APPENDIX E**

- 1) FLOW METER CALIBRATION REPORTS OF THE  
WRTP INFLUENT AND EFFLUENT FLOW METERS (ON  
DISK)**
- 2) TOTALIZER TESTS (ON DISK)**
- 3) COLLECTION SYSTEM PUMP STATION FLOW  
METER CALIBRATION REPORTS (ON DISK)**
- 4) CSL FLOW METER CALIBRATIONS (ON DISK)**

## **APPENDIX F**

### **WESTERN SERVICE AREA CHAPTER 94 REPORTS OF THE TRIBUTARY MUNICIPALITIES**

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### **MUNICIPALITY**

Bethel Township Sewer Authority - Attached.

Brookhaven Borough - Attached.

Eddystone Borough - Attached.

Lower Chichester Township - Attached.

Middletown Township Sewer Authority - Attached.

Nether Providence Township - Attached.

Southern Delaware County Authority - Attached.

Southwest Delaware County Municipal Authority - Attached.

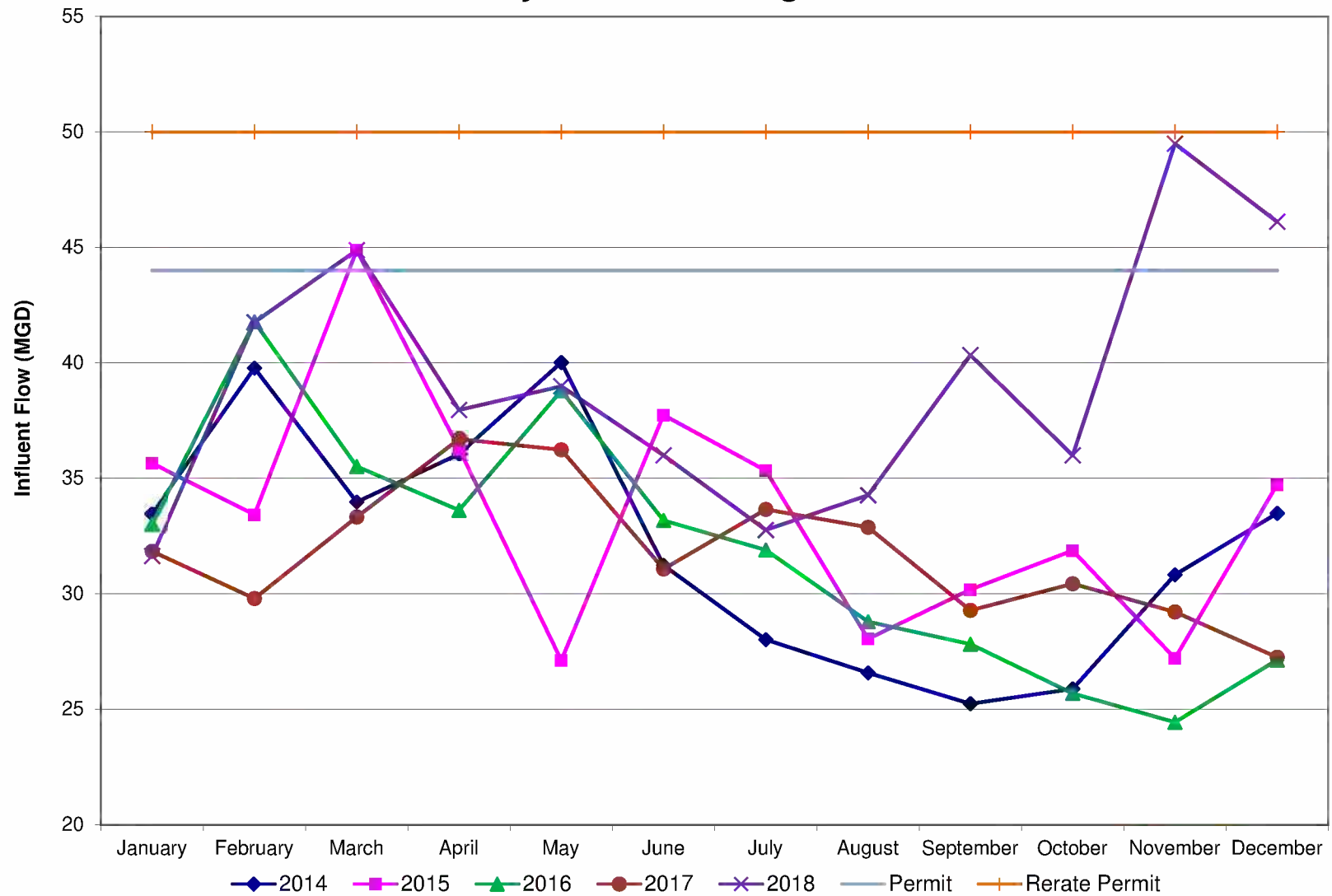
Central Delaware County Authority - Attached.



## Western Regional Treatment Plant Hydraulic Loading - Flow

	<u>Influent Flows (MGD)</u>					<u>Rainfall (in.)</u>
	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2018</b>
<b>January</b>	33.49	35.65	33.04	31.84	31.63	2.23
<b>February</b>	39.78	33.43	41.78	29.80	41.76	4.38
<b>March</b>	33.98	44.88	35.52	33.33	44.88	3.35
<b>April</b>	36.05	36.28	33.62	36.70	37.96	3.24
<b>May</b>	40.02	27.12	38.79	36.24	38.99	4.00
<b>June</b>	31.23	37.74	33.18	31.08	36.00	3.04
<b>July</b>	28.02	35.33	31.90	33.65	32.76	2.87
<b>August</b>	26.58	28.05	28.79	32.88	34.27	4.14
<b>September</b>	25.24	30.19	27.82	29.28	40.33	4.69
<b>October</b>	25.88	31.88	25.69	30.44	36.00	2.96
<b>November</b>	30.83	27.20	24.44	29.21	49.49	7.43
<b>December</b>	33.48	34.73	27.14	27.25	46.11	5.01
<b>Average</b>	32.05	33.54	31.81	31.81	39.18	
<b>5-Year Average</b>					33.68	
<b>Highest</b>						
<b>3-Month</b>	36.68	38.20	36.97	35.42	40.61	
<b>Average</b>						
<b>3-Month</b>						
<b>Max Ratio</b>	1.145	1.139	1.162	1.114	1.036	
<b>5-Year Average Max Ratio</b>					1.119	

# Western Regional Treatment Plant Hydraulic Loading - Flow



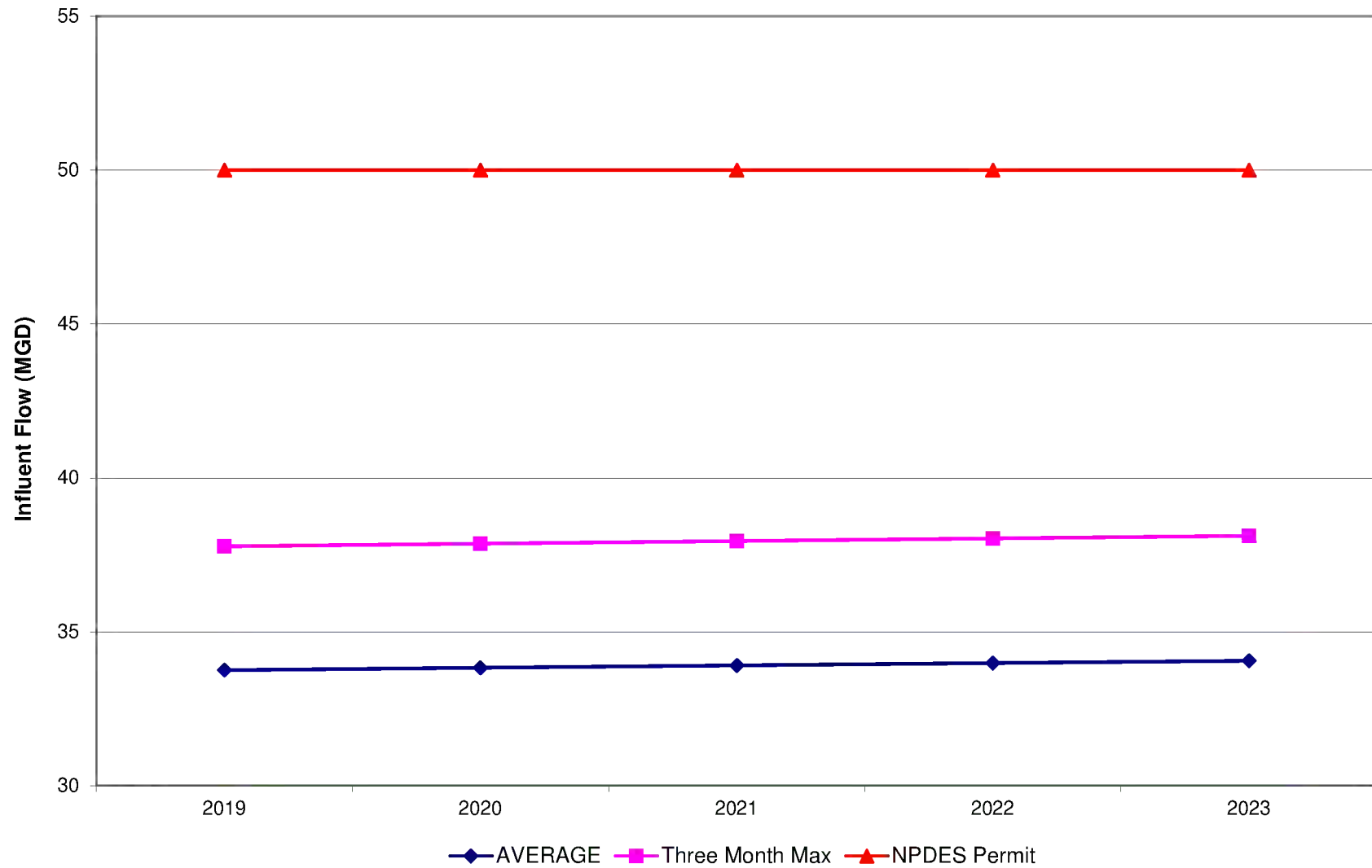
## Western Regional Treatment Plant Projected Hydraulic Loading - Influent Flow

	AVERAGE	3- MONTH MAXIMUM
<b>Base Flow</b>	33.68	*
<b>2019</b>	33.75	37.8
<b>2020</b>	33.83	37.9
<b>2021</b>	33.91	37.9
<b>2022</b>	33.98	38.0
<b>2023</b>	34.06	38.1

★ Base Flow is the average flow for 2014 - 2018 and includes Central Delaware Pump Station Diversion.

**NOTES:** 1) Projections based on average number of EDUs added per year via planning modules for WRTP for 2017 - 2018 at 262.5 GPD/EDU.  
2) Flow from Central Delaware Pump Station can be controlled between WRTP and Philadelphia so as to not exceed our permitted flow of 50.0 MGD.

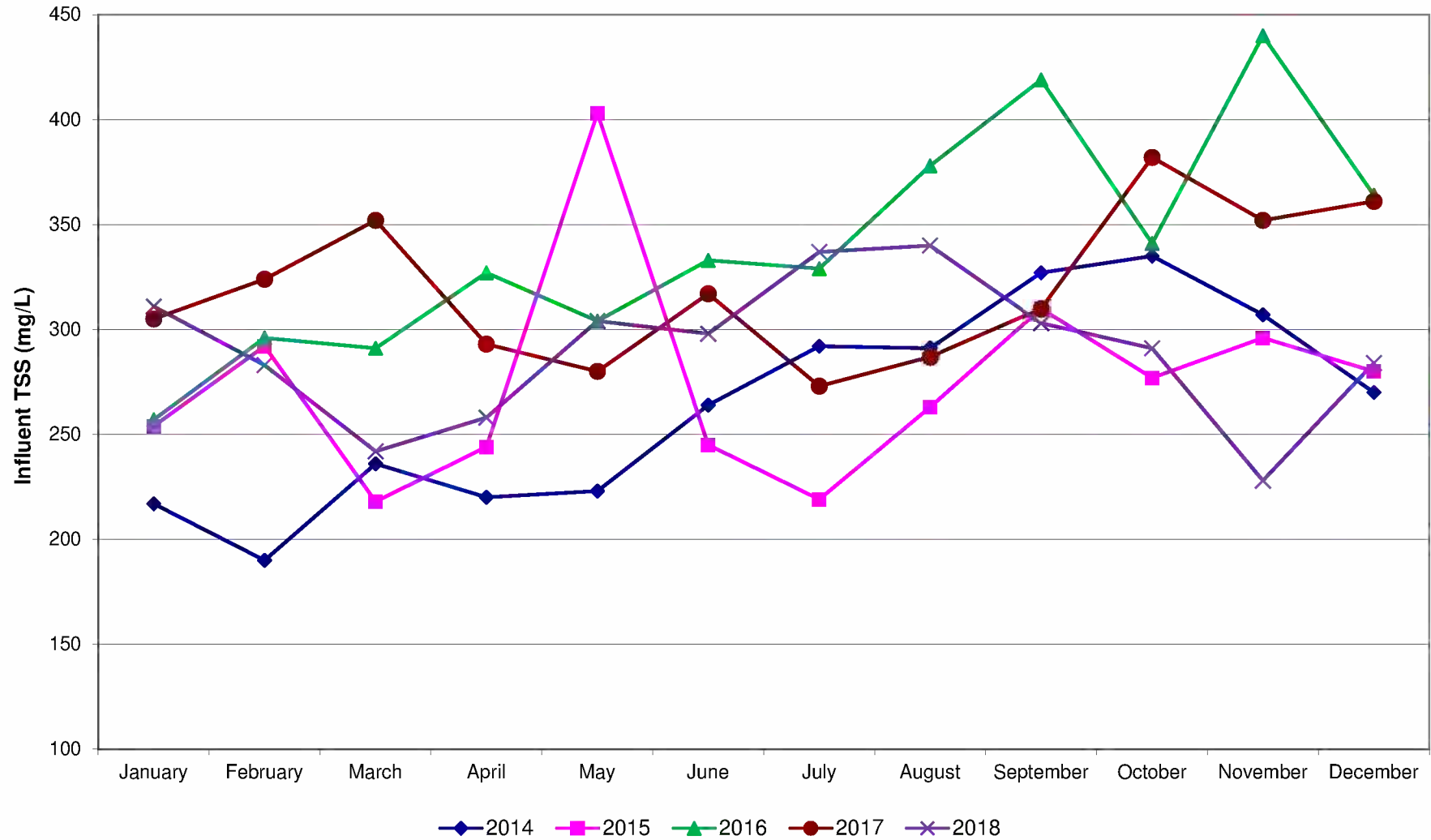
## Western Regional Treatment Plant Projected Hydraulic Loading - Influent Flow



## Western Regional Treatment Plant Influent Total Suspended Solids

	<u>Influent TSS (mg/L)</u>				
	2014	2015	2016	2017	2018
<b>January</b>	217	254	257	305	311
<b>February</b>	190	292	296	324	283
<b>March</b>	236	218	291	352	242
<b>April</b>	220	244	327	293	258
<b>May</b>	223	403	304	280	304
<b>June</b>	264	245	333	317	298
<b>July</b>	292	219	329	273	337
<b>August</b>	291	263	378	287	340
<b>September</b>	327	310	419	310	303
<b>October</b>	335	277	341	382	291
<b>November</b>	307	296	440	352	228
<b>December</b>	270	280	364	361	284
<b>Average</b>	264	275	340	320	290
<b>5-Year Average</b>					298

## Western Regional Treatment Plant Influent TSS

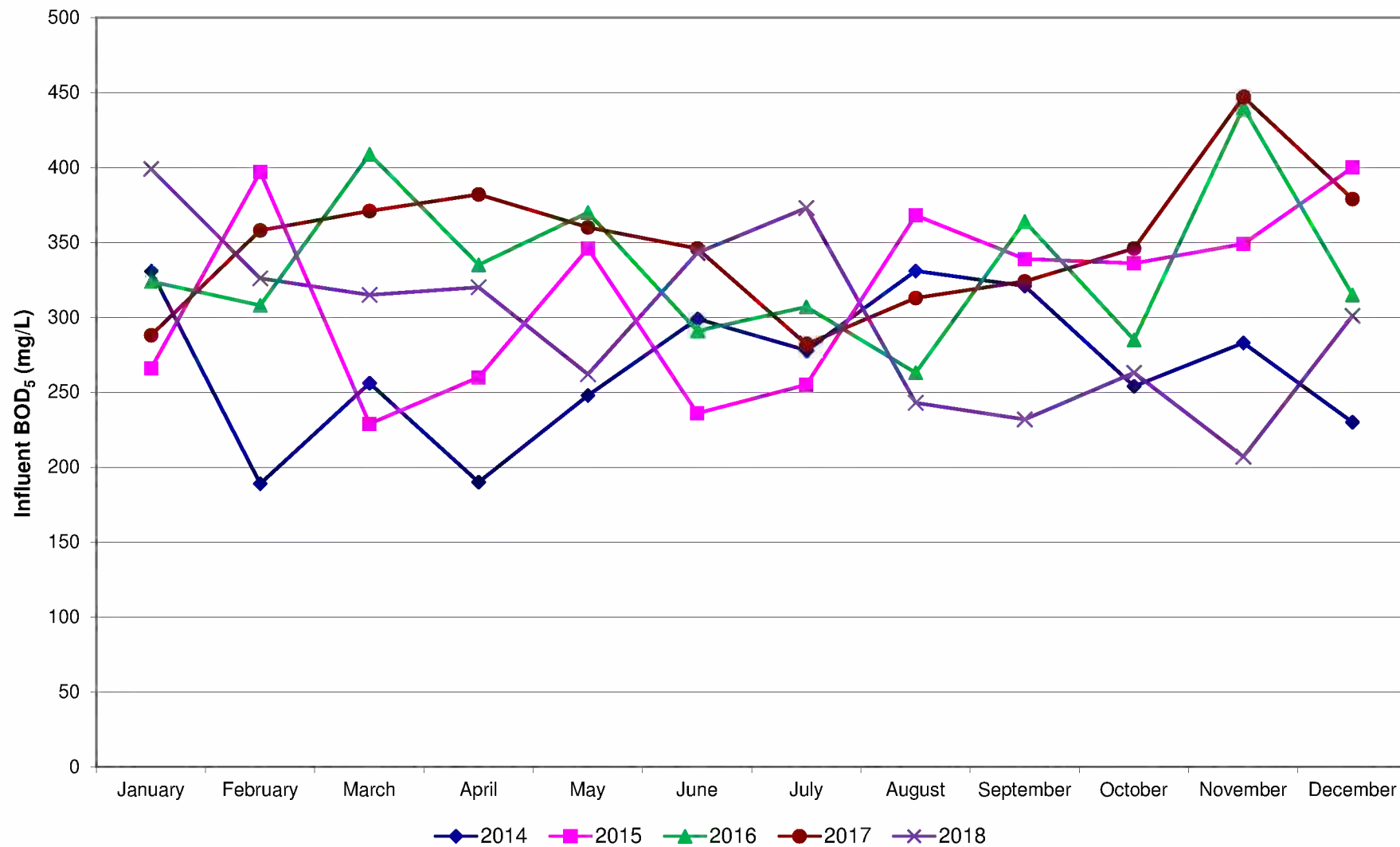


## Western Regional Treatment Plant Influent BOD<sub>5</sub>

	<u>BOD<sub>5</sub> Influent (mg/L)</u>				
	2014	2015	2016	2017	2018
<b>January</b>	331	266	324	288	399
<b>February</b>	189	397	308	358	326
<b>March</b>	256	229	409	371	315
<b>April</b>	190	260	335	382	320
<b>May</b>	248	346	370	360	262
<b>June</b>	299	236	291	346	343
<b>July</b>	278	255	307	282	373
<b>August</b>	331	368	263	313	243
<b>September</b>	321	339	364	324	232
<b>October</b>	254	336	285	346	263
<b>November</b>	283	349	440	447	207
<b>December</b>	230	400	315	379	301
<b>Average</b>	268	315	334	350	299
<b>5-Year Average</b>	313				

Note: Yellow highlighted values were determined to be atypical and not included in the calculation.

## Western Regional Treatment Plant Influent BOD<sub>5</sub>

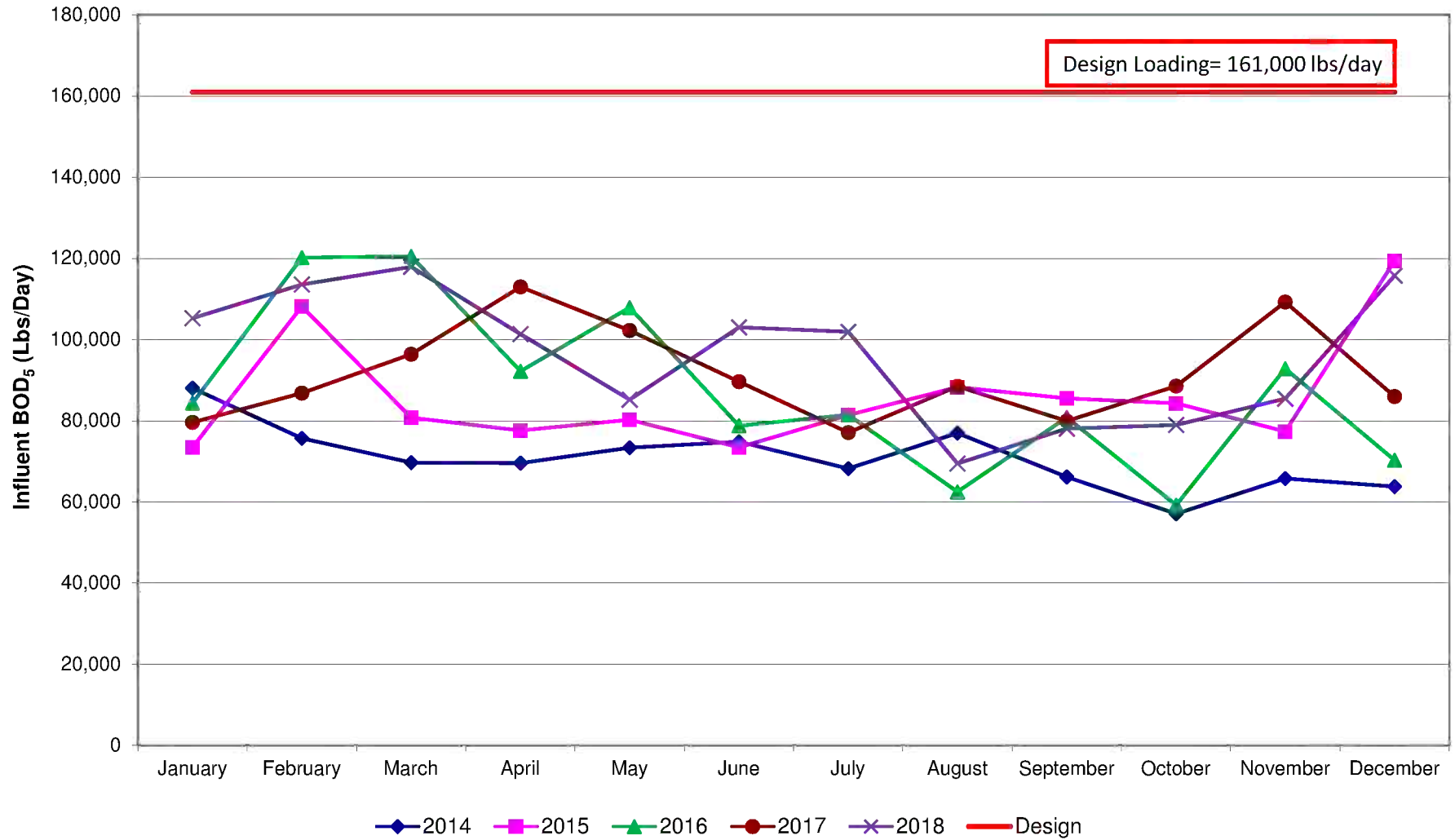




## Western Regional Treatment Plant Influent BOD<sub>5</sub> Loading

	<u>Influent BOD<sub>5</sub> Loading (Lbs/Day)</u>				
	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>January</b>	88,006	73,476	84,353	79,594	105,254
<b>February</b>	75,646	108,127	120,173	86,803	113,539
<b>March</b>	69,660	80,721	120,495	96,346	117,904
<b>April</b>	69,546	77,570	92,192	112,966	101,308
<b>May</b>	73,366	80,252	107,901	102,217	85,196
<b>June</b>	74,832	73,422	78,739	89,636	102,982
<b>July</b>	68,216	81,421	81,458	77,068	101,910
<b>August</b>	76,943	88,285	62,449	88,456	69,452
<b>September</b>	66,144	85,535	80,815	79,926	78,034
<b>October</b>	57,066	84,297	59,207	88,522	78,963
<b>November</b>	65,766	77,322	92,833	109,256	85,439
<b>December</b>	63,770	119,387	70,271	85,973	115,752
<b>Average</b>	70,747	85,818	87,574	91,397	96,311
<b>5-Year Average</b>					86,369
<b>Max Ratio</b>	1.244	1.391	1.376	1.236	1.224
<b>5-Year Average Max Ratio</b>					1.294

## Western Regional Treatment Plant BOD<sub>5</sub> Plant Loading

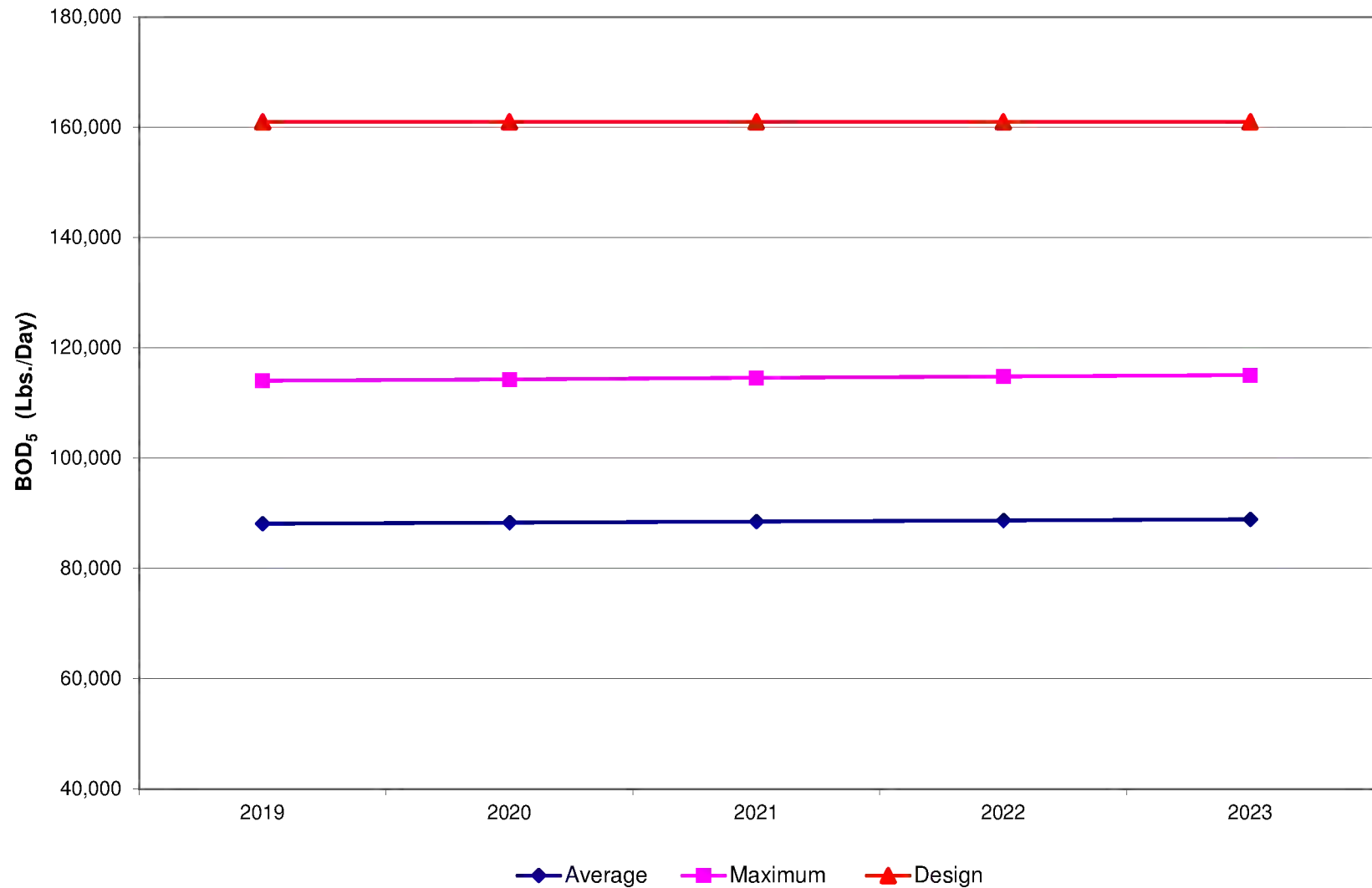


## Western Regional Treatment Plant Projected BOD<sub>5</sub> Loading

	<b>Average (Lbs/Day)</b>	<b>Maximum (Lbs/Day)</b>
<b>Base Load</b>	86,369	*
<b>2019</b>	88,121	114,050
<b>2020</b>	88,320	114,308
<b>2021</b>	88,519	114,566
<b>2022</b>	88,718	114,823
<b>2023</b>	88,917	115,081

\* Base Load is assumed to be the average BOD (lbs) for 2014 - 2018.

## Western Regional Treatment Plant Projected BOD<sub>5</sub> Loading



**FY 2018  
SEWER PLANNING MODULE EXEMPTIONS**

<b>PROJECT NUMBER (MAIL LOG #)</b>	<b>SITE LOCATION/ADDRESS</b>	<b>EDU'S</b>	<b>GPD'S</b>	<b>PUMP STA / TREATMENT FACILITY</b>
2018-0260	502 Vernon Street, Media, PA Delaware County Engr: Rich Kahmer	2	525	CDPS/WRTP
2018-0439	1398 Industrial Highway Eddystone, PA Delaware County Engr: Boundry Stone Associates	4.6	1,200	EDPS/CPS/ WRTP
2018-1653	432 Old Forge Rd Middletown, PA Engr: GD Houtman & Son	7	1,838	CRCPS/WRTP
2018-0813	Kish Associates, LP Fed Ex Road and Ridge Ave Lower Chichester Township Engr: GD Houtman & Son	1	90	MHPS/WRTP
2018-0841	3607 Gradyville Rd, Marple Twp Engr: Herbert E. MacCombie, Jr.	2	525	CDPS/WRTP
2018-0903	29 Mount Pleasant Road Lot 61 Rolling Hills Industrial Park Aston, PA Engr: Catania Engineering	1	262.5	CRCPS/WRTP
2018-1085	Ellis Preserve-Commercial Development-Sector 2 West Chester Pike & Winding Way, Newtown Twp. - BPG Development Company Engr: Ebert Engineering	144	37,800	CDPS/WRTP
2018-1024	Agri-Kind GP 102 Broomall St., Chester Engr: Catania Engineering	11	2,825	CPS/WRTP
2018-1197	Michigan Avenue, Tremont Subdivision Ridley Township Engr: Herbert E. MacCombie	3	787.5	CDPS/WRTP
2018-1243	800 & 818 MacDade Blvd Ridley Township Engr: Catania Engineering	2.2	579	CDPS/WRTP

**FY 2018  
SEWER PLANNING MODULE EXEMPTIONS**

<b>PROJECT NUMBER (MAIL LOG #)</b>	<b>SITE LOCATION/ADDRESS</b>	<b>EDU'S</b>	<b>GPD'S</b>	<b>PUMP STA / TREATMENT FACILITY</b>
2018-1383	1250 Cedar Grove Road Marple Township Engr:Herbert E. MacCombie, Jr.	1	262.5	CDPS/WRTP
CDPS -- Central Delaware Pump Station CPS -- Chester Pump Station CRCPS -- Chester Ridley Creek Pump Station EDPS -- Edystone Pump Station EPS -- Edgmont Pump Station MHPS -- Marcus Hook Pump Station NCPS -- Naaman's Creek Pump Station PS-6 -- Pump Station No. 6 RPS -- Runnymede Pump Station				

## Western Service Area Wastewater Collected\* (MGD)

	2014	2015	2016	2017	2018
January	25.63	27.76	24.90	23.73	23.98
February	29.90	25.94	31.73	21.84	31.77
March	26.75	35.17	27.12	25.49	35.23
April	27.86	28.13	26.02	28.65	29.70
May	30.20	19.82	29.17	27.73	27.50
June	23.49	27.70	24.58	23.14	23.65
July	20.18	26.34	23.02	23.84	20.09
August	19.51	20.72	20.04	23.92	21.35
September	18.22	21.29	19.03	21.70	27.94
October	20.55	23.03	18.14	21.31	26.54
November	23.82	20.05	17.54	21.85	38.35
December	25.41	26.21	19.23	20.32	35.93
<b>Average</b>	24.29	25.18	23.38	23.63	28.50
<b>Max 3 Month Avg.</b>	19.42	29.63	22.55	27.29	30.81
<b>2 Year Average</b>					26.06

\* Represents wastewater collected by the municipal pump stations, but does not include wastewater from 2 major industrial users

## Chester Pump Station Average Daily Flows (MGD)

	2014	2015	2016	2017	2018
January	8.58	8.23	7.02	7.16	7.04
February	10.85	7.58	9.20	6.34	9.62
March	8.90	10.50	7.42	7.51	10.43
April	9.40	7.95	6.99	8.31	8.25
May	9.76	6.41	8.39	8.19	8.50
June	7.42	8.51	6.92	6.36	7.43
July	6.60	7.65	6.75	7.20	6.79
August	6.56	5.95	5.96	7.26	7.32
September	6.32	6.54	6.18	6.26	8.88
October	6.31	7.17	6.04	6.25	7.63
November	7.17	6.17	5.89	6.69	11.31
December	7.50	7.75	6.63	5.56	10.56
<b>Average</b>	7.95	7.53	6.95	6.92	8.65
<b>Max 3 Month Avg.</b>	9.72	8.77	7.88	8.00	9.83
<b>2 Year Average</b>					7.78

**Eddystone Pump Station**  
**Average Daily Flows (MGD)**

	2014	2015	2016	2017	2018
January	0.474	0.370	0.380	0.352	0.329
February	0.558	0.337	0.477	0.307	0.453
March	0.476	0.480	0.403	0.362	0.495
April	0.494	0.391	0.355	0.402	0.396
May	0.485	0.318	0.409	0.388	0.421
June	0.362	0.422	0.348	0.321	0.374
July	0.320	0.420	0.315	0.355	0.343
August	0.319	0.311	0.306	0.399	0.400
September	0.304	0.357	0.304	0.341	0.484
October	0.308	0.419	0.294	0.317	0.404
November	0.329	0.350	0.281	0.304	0.576
December	0.353	0.401	0.321	0.280	0.505
<b>Average</b>	0.399	0.381	0.349	0.344	0.432
<b>Max 3 Month Avg.</b>	0.509	0.403	0.420	0.384	0.495
<b>2 Year Average</b>					0.388

**Marcus Hook Pump Station**  
**Average Daily Flows (MGD)**

	2014	2015	2016	2017	2018
January	0.974	1.021	0.896	0.769	0.758
February	1.336	0.874	1.216	0.659	1.059
March	0.973	1.382	0.914	0.829	1.121
April	1.036	0.982	0.796	0.850	0.857
May	1.046	0.762	1.008	0.852	0.912
June	0.749	1.017	0.772	0.644	0.770
July	0.678	0.844	0.721	0.624	0.665
August	0.713	0.653	0.649	0.725	0.702
September	0.648	0.761	0.676	0.604	0.842
October	0.693	0.907	0.664	0.550	0.727
November	0.813	0.780	0.585	0.570	1.044
December	0.886	1.039	0.671	0.579	1.098
<b>Average</b>	0.879	0.919	0.797	0.688	0.880
<b>Max 3 Month Avg.</b>	1.115	1.092	1.009	0.844	1.012
<b>2 Year Average</b>					0.784



**EPS-1**  
**Average Daily Flows (MGD)**

	2014	2015	2016	2017	2018
January	4.68	3.75	3.55	3.40	3.62
February	5.27	3.64	4.37	2.98	4.64
March	4.47	4.44	3.88	3.52	4.86
April	4.38	3.63	4.37	4.27	4.04
May	5.04	3.11	4.20	4.08	1.18
June	4.45	3.86	3.56	3.54	decom
July	3.95	3.62	3.59	3.73	decom
August	3.77	2.92	2.96	3.66	decom
September	3.30	2.99	2.92	3.19	decom
October	3.48	3.34	2.92	3.12	decom
November	3.83	2.83	2.82	3.30	decom
December	3.48	3.91	3.16	3.01	decom
Average	4.18	3.50	3.53	3.48	3.67
Max 3 Month Avg.	4.81	3.94	4.21	3.96	4.51
2 Year Average					3.58

**Pump Station 6**  
**Average Daily Flows (MGD)**

	2014	2015	2016	2017	2018
January					
February					
March					
April					
May					0.00
June					0.00
July					0.00
August					0.00
September					2.53
October					3.27
November					5.36
December					6.77
Average	N/A	N/A	N/A	N/A	2.24
Max 3 Month Avg.	N/A	N/A	N/A	N/A	5.13
2 Year Average					2.24

**Stadium Pump Station**  
**Average Daily Flows (MGD)**

	2014	2015	2016	2017	2018
January	0.011	0.023	0.094	0.010	0.290
February	0.035	0.012	0.225	0.012	0.685
March	0.052	0.027	0.244	0.066	0.815
April	0.052	0.020	0.128	0.219	0.420
May	0.043	0.022	0.336	0.154	0.464
June	0.046	0.023	0.106	0.072	0.237
July	0.052	0.024	0.080	0.104	0.117
August	0.081	0.019	0.029	0.184	0.173
September	0.029	0.050	0.025	0.075	0.311
October	0.033	0.074	0.023	0.058	0.263
November	0.028	0.178	0.013	0.058	0.925
December	0.022	0.118	0.011	0.057	0.847
<b>Average</b>	0.040	0.049	0.110	0.089	0.462
<b>Max 3 Month Avg.</b>	0.060	0.124	0.236	0.148	0.679
<b>2 Year Average</b>					0.276

**Chester-Ridley Creek Pump Station\***  
**Average Daily Flows (MGD)**

	2014	2015	2016	2017	2018
January		4.37	3.82	3.60	3.50
February		4.06	4.60	3.44	4.37
March		5.08	4.16	3.74	4.94
April		4.43	3.93	4.10	4.71
May		3.88	4.22	4.00	4.76
June		4.04	3.81	3.63	4.47
July		4.17	3.42	3.55	3.82
August		3.38	3.30	3.52	3.98
September		3.32	3.23	3.39	4.50
October	2.21	3.51	3.20	3.38	4.32
November	3.30	3.45	3.10	3.31	5.64
December	3.98	3.85	3.41	3.26	5.92
<b>Average</b>	3.16	3.96	3.68	3.58	4.58
<b>Max 3 Month Avg.</b>	3.16	4.52	4.23	3.95	5.29
<b>2 Year Average</b>					4.08

\* Partial flow commenced on 10/21/14 and full flow on 11/11/14.

**Rose Valley Pump Station\***  
**Average Daily Flows (MGD)**

	2014	2015	2016	2017	2018
January					
February					
March					
April					
May					0.12
June					0.11
July					0.09
August					0.08
September					0.10
October					0.09
November					0.14
December					0.16
<b>Average</b>	N/A	N/A	N/A	N/A	0.11
<b>Max 3 Month Avg.</b>	N/A	N/A	N/A	N/A	0.13
<b>2 Year Average</b>					0.11

\* Partial flow commenced on 5/1/2018 and full flow on 5/3/2018.

**Price Street Pump Station**  
**Average Daily Flows (MGD)**

	2014	2015	2016	2017	2018
January	0.037	0.043	0.031	0.068	0.039
February	0.052	0.034	0.043	0.123	0.055
March	0.042	0.048	0.031	0.114	0.047
April	0.054	0.037	0.026	0.082	0.040
May	0.045	0.029	0.039	0.065	0.044
June	0.041	0.042	0.035	0.033	0.041
July	0.035	0.036	0.039	0.039	0.038
August	0.036	0.028	0.033	0.037	0.048
September	0.030	0.031	0.031	0.033	0.042
October	0.030	0.033	0.029	0.031	0.042
November	0.034	0.030	0.027	0.031	0.059
December	0.039	0.034	0.043	0.030	0.049
<b>Average</b>	0.040	0.035	0.034	0.057	0.045
<b>Max 3 Month Avg.</b>	0.049	0.042	0.038	0.106	0.047
<b>2 Year Average</b>					0.051

**Runnymede Drive Pump Station (Edgmont Twp.)**  
**Average Daily Flow (MGD)**

	2014	2015	2016	2017	2018
January				0.10	0.11
February			0.05	0.10	0.12
March			0.05	0.11	0.11
April			0.07	0.11	0.11
May			0.07	0.11	0.11
June			0.08	0.11	0.11
July			0.08	0.11	0.11
August			0.08	0.10	0.11
September			0.08	0.11	0.12
October			0.09	0.11	0.12
November			0.09	0.12	0.14
December			0.10	0.11	0.14
<b>Average</b>	N/A	N/A	0.08	0.11	0.12
<b>Max 3 Month Avg.</b>	N/A	N/A	0.09	0.11	0.13
<b>2 Year Average</b>					0.11

**Central Delaware Pump Station\***  
**Average Flow Treated at WRTP (MGD)**

	2014	2015	2016	2017	2018
January	10.88	9.96	9.11	8.37	8.41
February	11.79	9.41	11.59	7.98	10.89
March	11.84	13.22	10.08	9.35	12.53
April	12.45	10.69	9.42	10.42	10.99
May	13.78	5.30	10.57	10.00	11.22
June	10.43	9.79	9.03	8.54	10.32
July	8.55	9.57	8.10	8.25	8.31
August	8.03	7.45	6.80	8.15	8.72
September	7.58	7.24	5.67	7.81	10.36
October	7.48	7.58	4.98	7.60	9.89
November	8.32	6.26	4.83	7.58	13.44
December	9.15	9.10	4.98	7.55	10.18
<b>Average</b>	10.02	8.80	7.93	8.47	10.44
<b>Max 3 Month Avg.</b>	12.69	11.11	10.36	9.92	11.58
<b>2 Year Average</b>					9.45

\* This represents all flow that is handled by CDCPS and treated by DELCORA.

**Central Delaware Pump Station**  
**Wastewater Pumped to SWWPCP (MGD)**

	2014	2015	2016	2017	2018
<b>January</b>	0.46	0.26	0.06	0.33	0.17
<b>February</b>	2.74	0.12	0.33	0.05	0.85
<b>March</b>	0.66	0.56	0.09	0.27	0.80
<b>April</b>	0.51	0.29	0.07	0.11	0.24
<b>May</b>	0.88	3.65	0.21	0.26	0.15
<b>June</b>	0.13	0.51	0.30	0.08	0.09
<b>July</b>	0.14	0.12	0.06	0.10	0.02
<b>August</b>	0.09	0.00	0.59	0.10	0.13
<b>September</b>	0.10	0.08	1.63	0.05	0.31
<b>October</b>	0.11	0.67	2.31	0.10	0.05
<b>November</b>	0.15	1.55	2.36	0.06	0.97
<b>December</b>	0.11	0.55	3.21	0.05	4.04
<b>Average</b>	0.51	0.70	0.94	0.13	0.65
<b>Max 3 Month Avg.</b>	1.30	1.50	2.63	0.22	1.69
<b>2 Year Average</b>					0.39

**Central Delaware Pump Station\***  
**Wastewater Collected (MGD)**

	2014	2015	2016	2017	2018
<b>January</b>	11.33	10.15	9.15	8.70	8.58
<b>February</b>	14.53	9.46	11.91	8.08	11.74
<b>March</b>	12.50	13.72	10.14	9.61	13.33
<b>April</b>	12.96	10.92	9.46	10.48	11.23
<b>May</b>	14.67	8.94	10.76	10.23	11.37
<b>June</b>	10.56	10.24	9.04	8.60	10.40
<b>July</b>	8.69	9.62	8.15	8.32	8.33
<b>August</b>	8.12	7.36	7.37	8.23	8.85
<b>September</b>	7.68	7.22	7.30	7.83	10.67
<b>October</b>	7.59	8.17	7.29	7.68	9.93
<b>November</b>	8.47	7.76	7.19	7.61	14.41
<b>December</b>	9.26	9.64	8.19	7.57	14.22
<b>Average</b>	10.53	9.43	8.83	8.58	11.09
<b>Max 3 Month Avg.</b>	13.37	11.37	10.51	10.11	12.86
<b>2 Year Average</b>					9.83

\* This represents all flow that is handled by CDCPS.

Flow can be diverted for treatment to either DELCORA's Western Regional Treatment Plant

## Pump Station Flows (MGD)

### Average Daily Flows (MGD)

	2014	2015	2016	2017	2018
Chester Pump Station	7.95	7.53	6.95	6.92	8.65
Eddystone Pump Station	0.40	0.38	0.35	0.34	0.43
Marcus Hook Pump Station	0.88	0.92	0.80	0.69	0.88
EPS-1	4.18	3.50	3.53	3.48	3.67
Pump Station 6	N/A	N/A	N/A	N/A	5.13
Stadium Pump Station	0.040	0.049	0.110	0.089	0.462
Chester-Ridley Creek Pump Station	3.16	3.96	3.68	3.58	4.58
Rose Vally Pump Station	N/A	N/A	N/A	N/A	0.11
Price Street Pump Station	0.040	0.035	0.034	0.057	0.045
Smith Street Pump Station	N/A	N/A	N/A	N/A	N/A
Central Delaware (to WRTP)	10.02	8.80	7.93	8.47	10.44
Central Delaware (to Philadelphia)	0.51	0.70	0.94	0.13	0.65
Central Delaware (total flow)	10.53	9.43	8.83	8.58	11.09
Runnymede Drive (Edgmont Twp.)	N/A	N/A	0.08	0.11	0.12

Lift Stations	2014	2015	2016	2017	2018
Broomall Street Pump Station	0.06	N/A	0.06	0.07	0.08
Eighth Street Pump Station	N/A	N/A	N/A	N/A	N/A
Feltonville Pump Station	N/A	N/A	N/A	N/A	N/A

### Annual Peak 60-Minute Flows (MGD)

	2014	2015	2016	2017	2018
Chester Pump Station	44.92	36.88	37.62	36.10	37.56
Eddystone Pump Station	1.79	1.81	1.63	1.79	1.89
Marcus Hook Pump Station	5.12	5.30	4.39	4.54	4.66
EPS-1	13.41	13.26	14.11	14.08	20.48
Pump Station 6	N/A	N/A	N/A	N/A	18.48
Stadium Pump Station <sup>1</sup>	0.901	1.288	1.446	1.370	1.945
Chester-Ridley Creek Pump Station	8.15	12.70	10.88	12.56	16.67
Rose Vally Pump Station	N/A	N/A	N/A	N/A	0.49
Price Street Pump Station	0.845	0.503	0.518	1.241	0.506
Smith Street Pump Station	N/A	N/A	N/A	N/A	N/A
Central Delaware (to WRTP)	21.26	21.10	20.64	20.36	25.56
Central Delaware (to Philadelphia)	25.61	22.89	17.98	17.97	23.20
Central Delaware (total flow)	45.72	40.76	37.31	37.92	39.73
Runnymede Drive (Edgmont Twp.)	N/A	N/A	1.04	0.60	0.76

<sup>1</sup> 2018 Stadium peak 60-minute flow includes discharge from the Delaware River Interceptor Temporary Bypass Pump Station.

### Maximum Month Flows (MGD)

	2014	2015	2016	2017	2018
<b>Chester Pump Station</b>	10.85	10.50	9.20	8.31	11.31
<b>Eddystone Pump Station</b>	0.56	0.48	0.48	0.40	0.58
<b>Marcus Hook Pump Station</b>	1.34	1.38	1.22	0.85	1.12
<b>EPS-1</b>	5.27	4.44	4.37	4.27	4.86
<b>Pump Station 6</b>	N/A	N/A	N/A	N/A	6.77
<b>Stadium Pump Station</b>	0.081	0.178	0.336	0.219	0.925
<b>Chester-Ridley Creek Pump Station</b>	3.98	5.08	4.60	4.10	5.92
<b>Rose Vally Pump Station</b>	N/A	N/A	N/A	N/A	0.13
<b>Price Street Pump Station</b>	0.054	0.048	0.043	0.123	0.059
<b>Smith Street Pump Station</b>	N/A	N/A	N/A	N/A	N/A
<b>Central Delaware (to WRTP)</b>	13.78	13.22	11.59	10.42	13.44
<b>Central Delaware (to Philadelphia)</b>	2.74	3.65	3.21	0.33	4.04
<b>Central Delaware (total flow)</b>	14.67	13.72	11.91	10.48	14.41
<b>Runnymede Drive (Edgmont Twp.)</b>	0.00	0.00	0.10	0.12	0.14

### Projected Flows (MGD)

	2-Year Average Flow (MGD)	2018 Ave Flow (MGD)	2018 Max Flow (MGD)	Peak Ratio	Proj. 2-Year EDU Growth	2020 Proj. Max Flow (MGD)
<b>Chester Pump Station</b>	7.78	8.65	37.56	4.34	20	37.58
<b>Eddystone Pump Station</b>	0.39	0.43	1.89	4.37	4	1.89
<b>Marcus Hook Pump Station</b>	0.78	0.88	4.66	5.30	12	4.67
<b>Pump Station 6</b>	5.13	5.13	18.48	3.60	16	18.50
<b>Stadium Pump Station</b>	0.276	0.46	1.94	4.21	4	1.95
<b>Chester-Ridley Creek Pump Station</b>	4.08	4.58	16.67	3.64	279	16.93
<b>Rose Vally Pump Station</b>	0.11	0.11	0.49	4.36	4	0.50
<b>Price Street Pump Station</b>	0.051	0.05	0.06	1.30	4	0.06
<b>Central Delaware Pump Station</b>	9.83	11.09	14.41	1.30	229	14.49
<b>Runnymede Drive (Edgmont Twp.)</b>	0.113	0.118	0.76	6.42	28	0.805

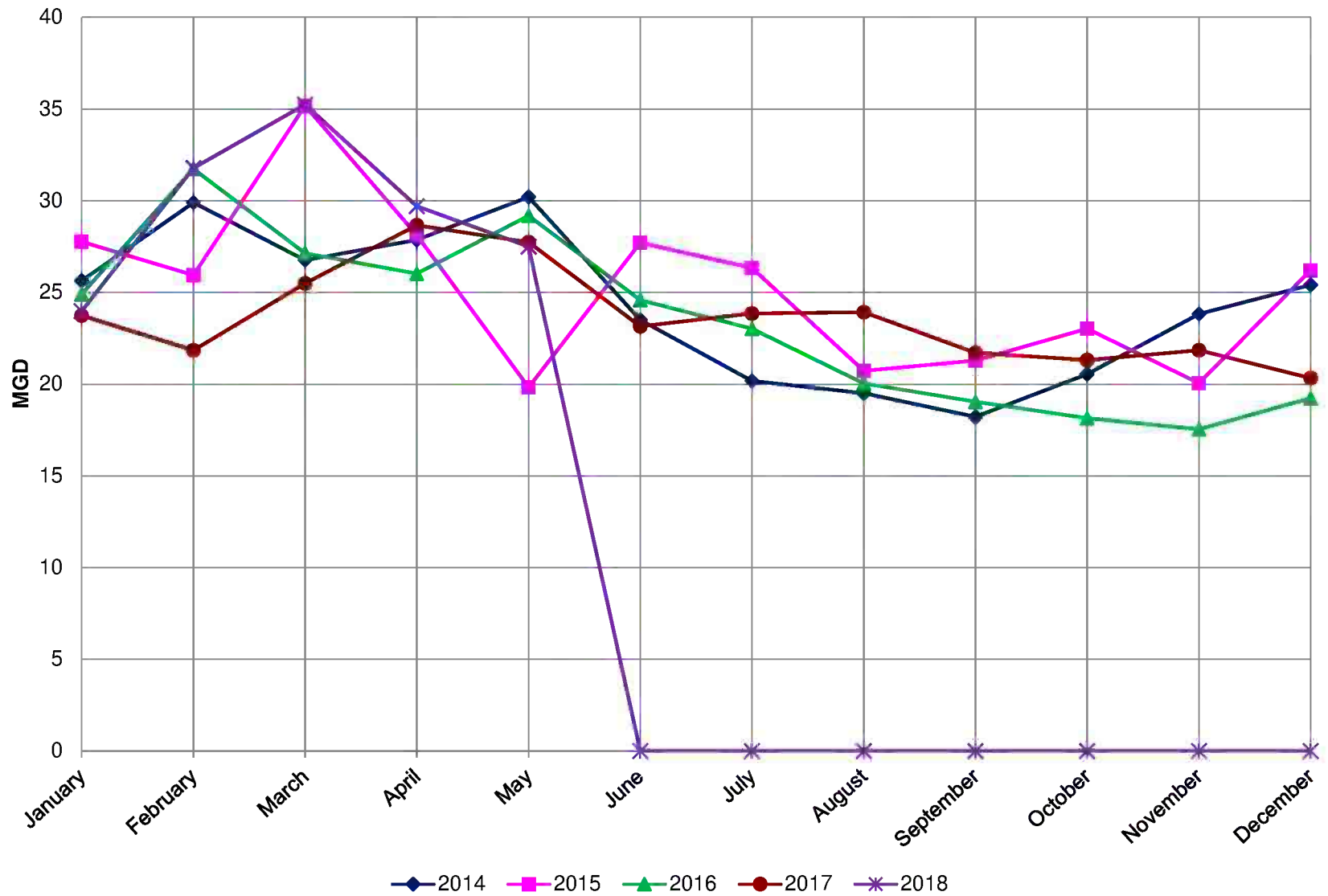
Peak Ratio = 2018 60-Minute Peak / 2018 Average

Projected 2-Year EDU Growth = Sum of 2017 & 2018 EDU Growth

Pump Stations are assigned a minimum growth of 4 EDUs

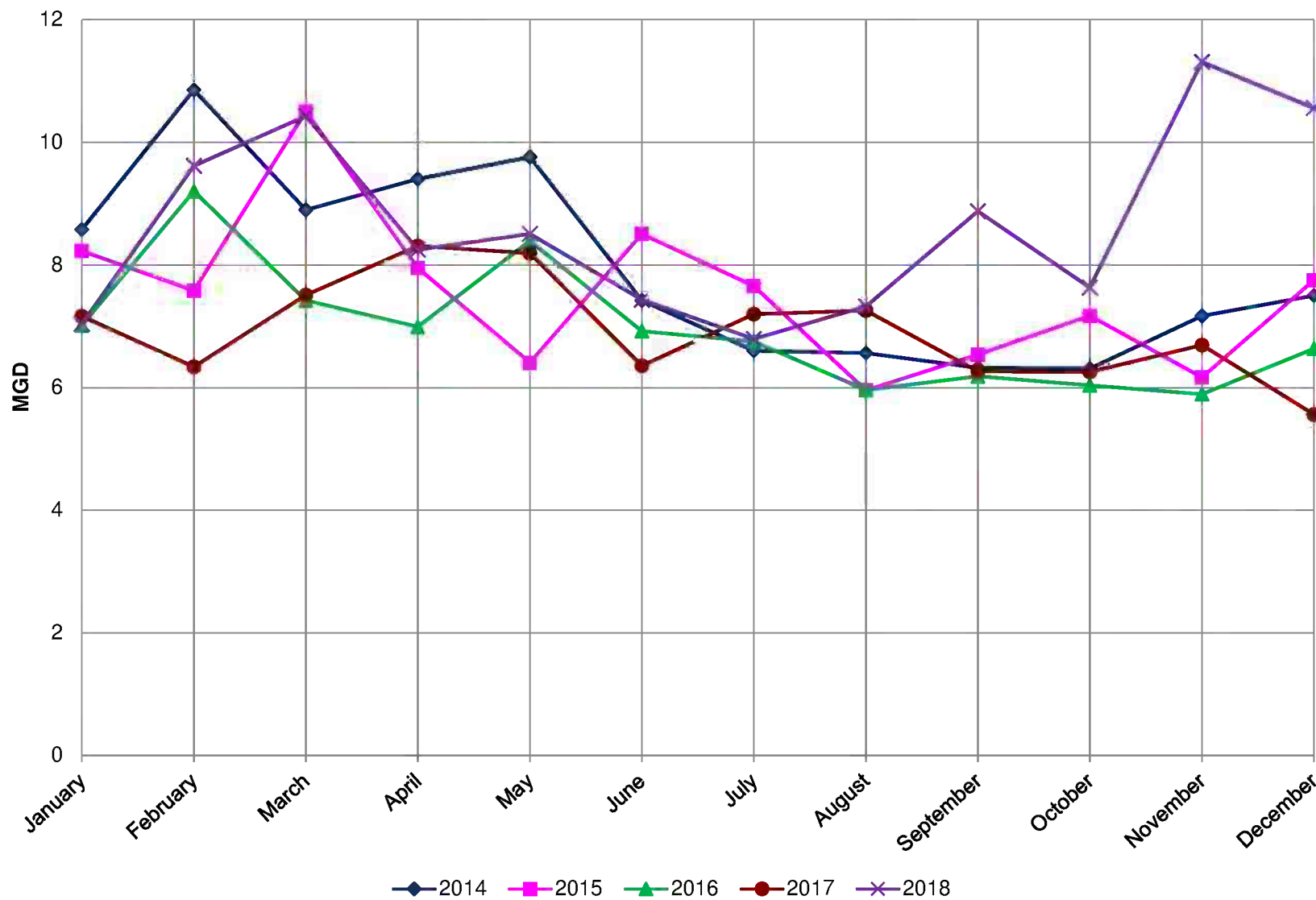
EDUs are assigned a flow of 262.5 gallons/day

## Western Pump Stations

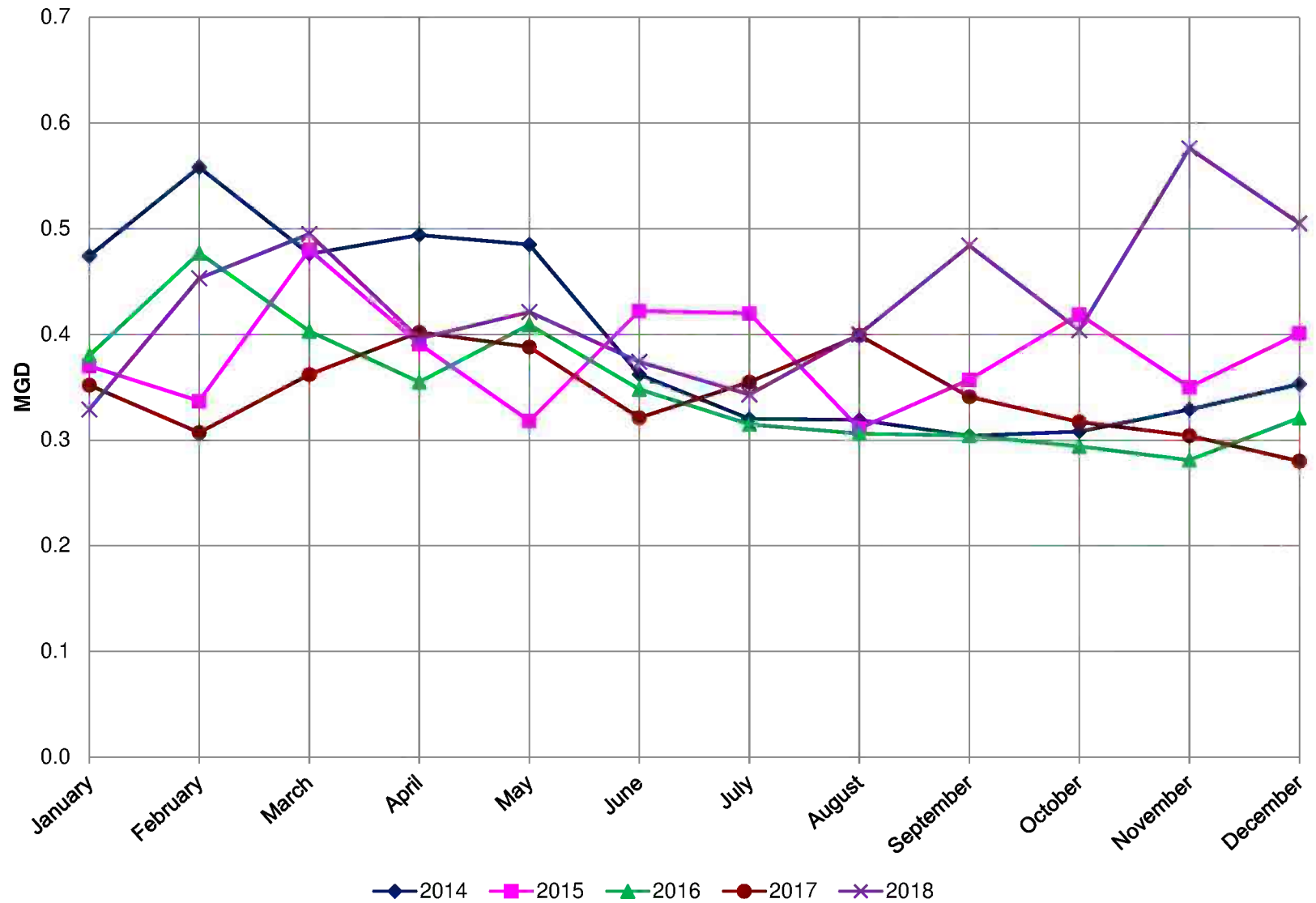




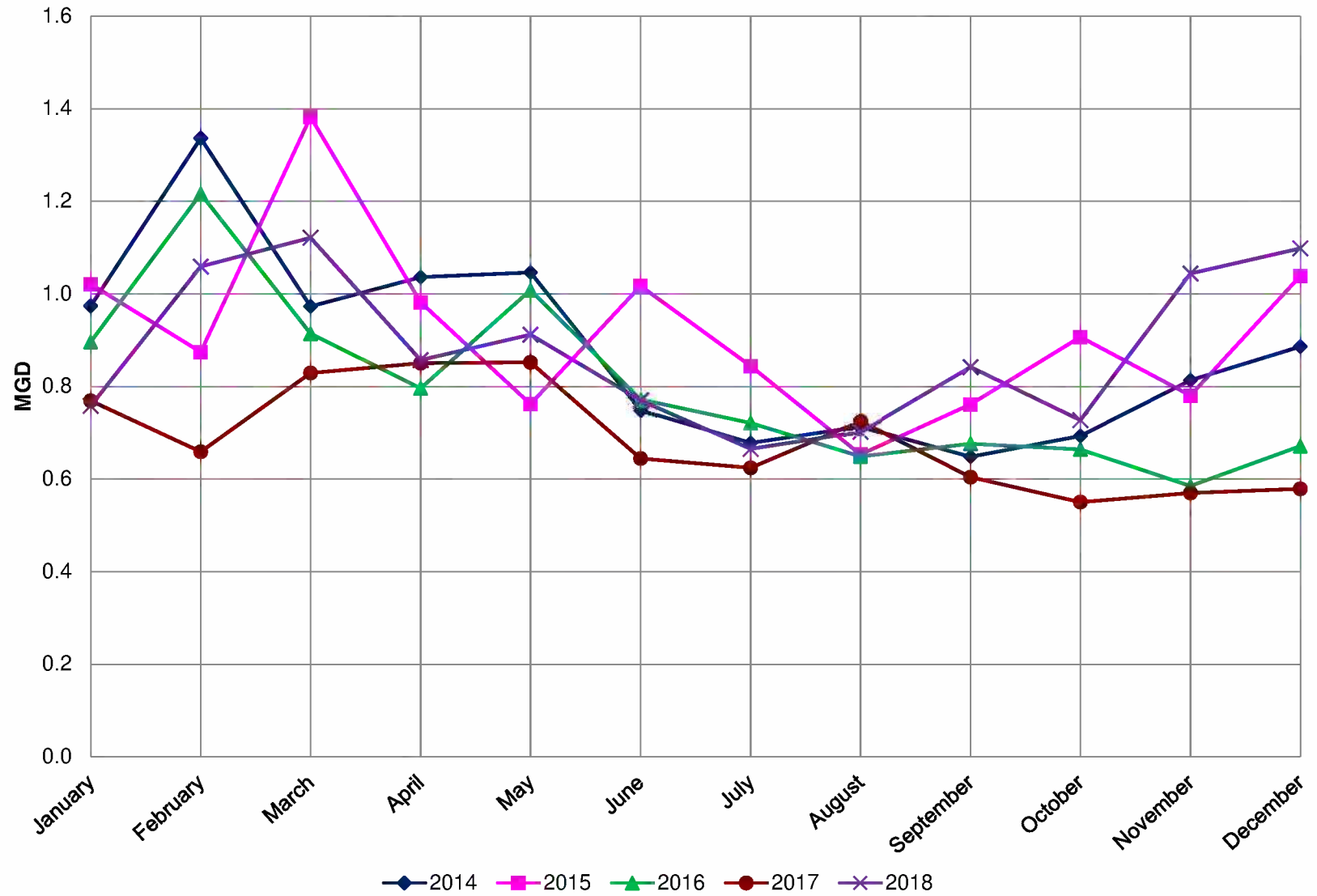
## Chester Pump Station



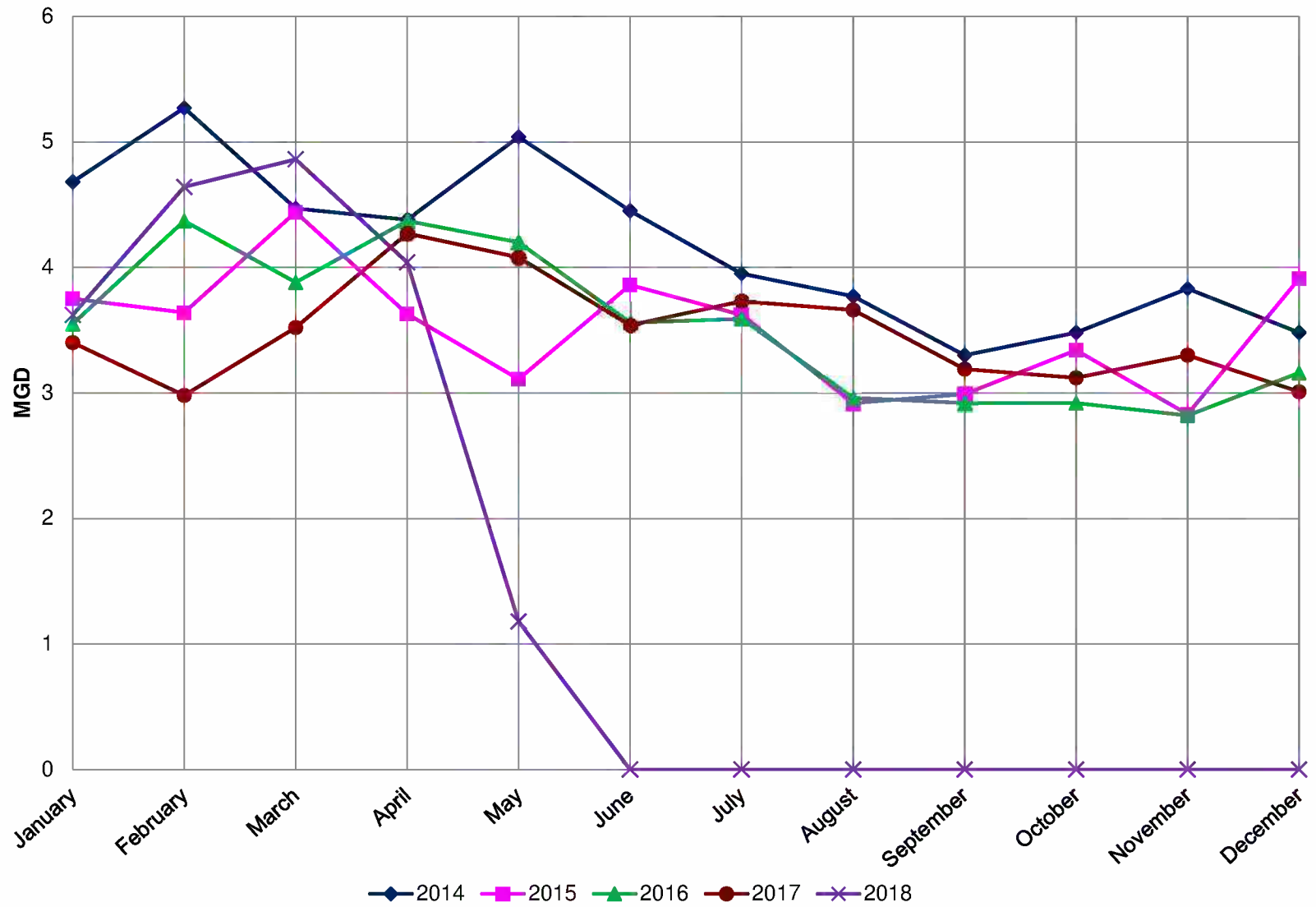
## Eddystone Pump Station



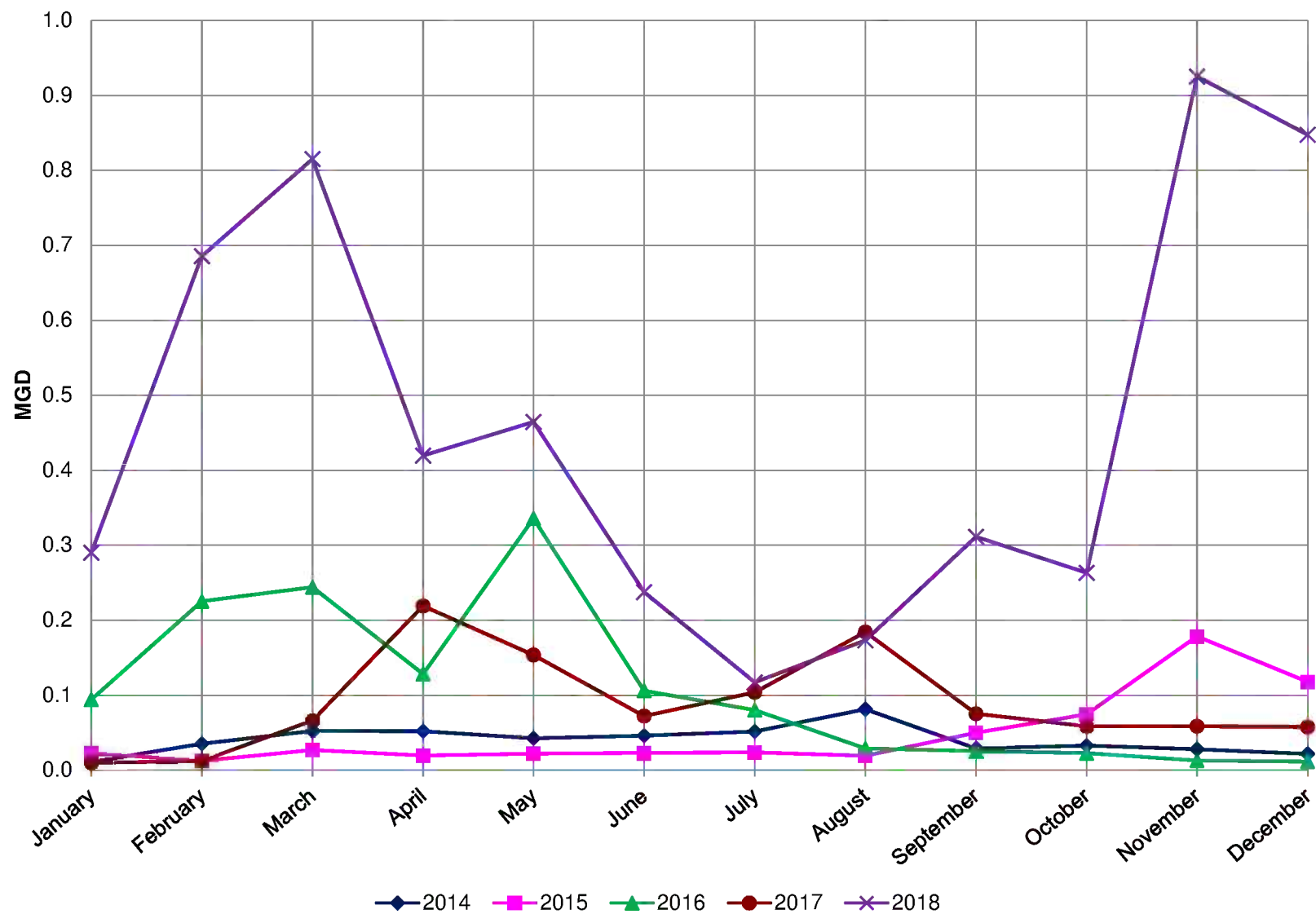
## Marcus Hook Pump Station



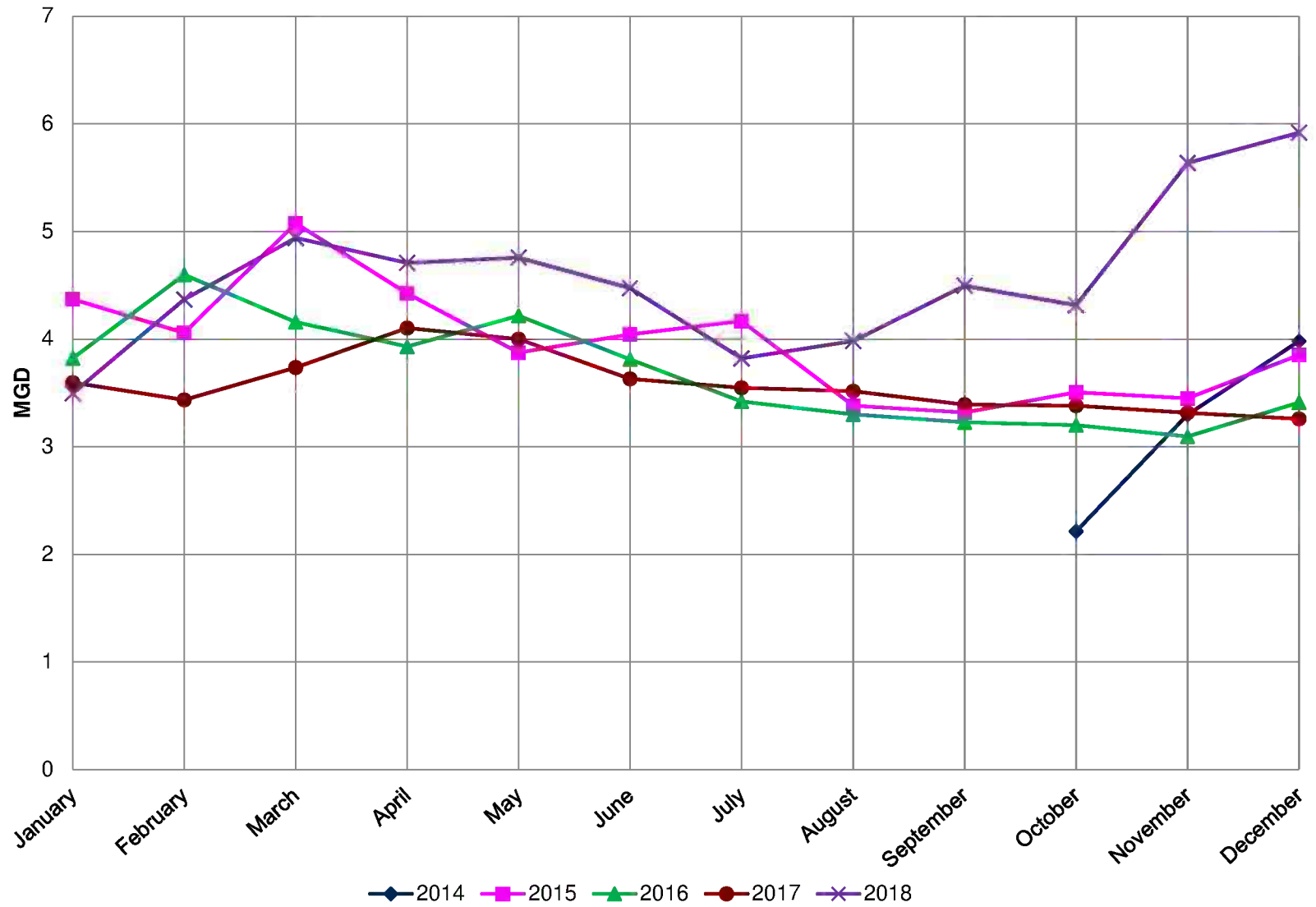
## EPS-1



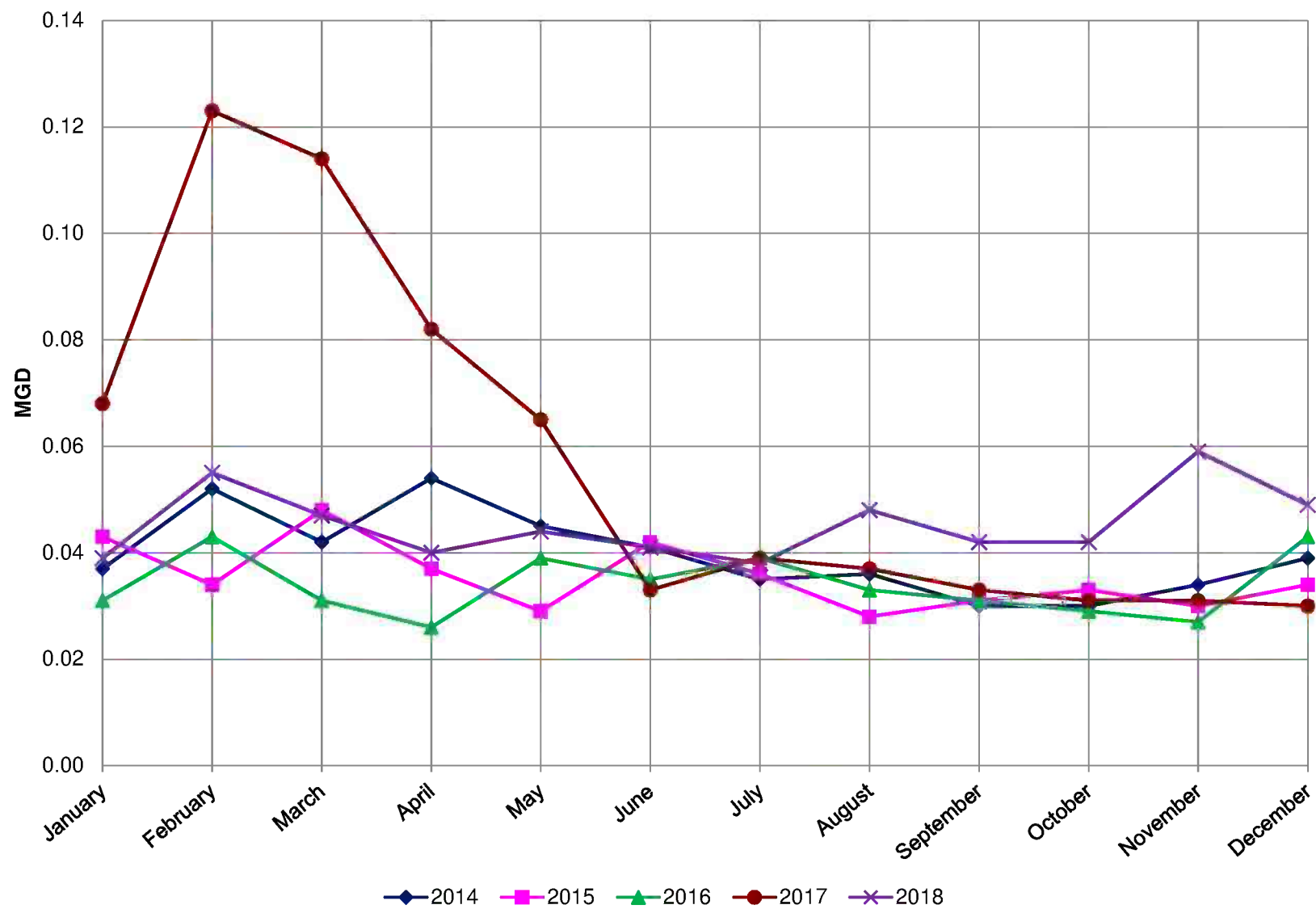
## Stadium Pump Station



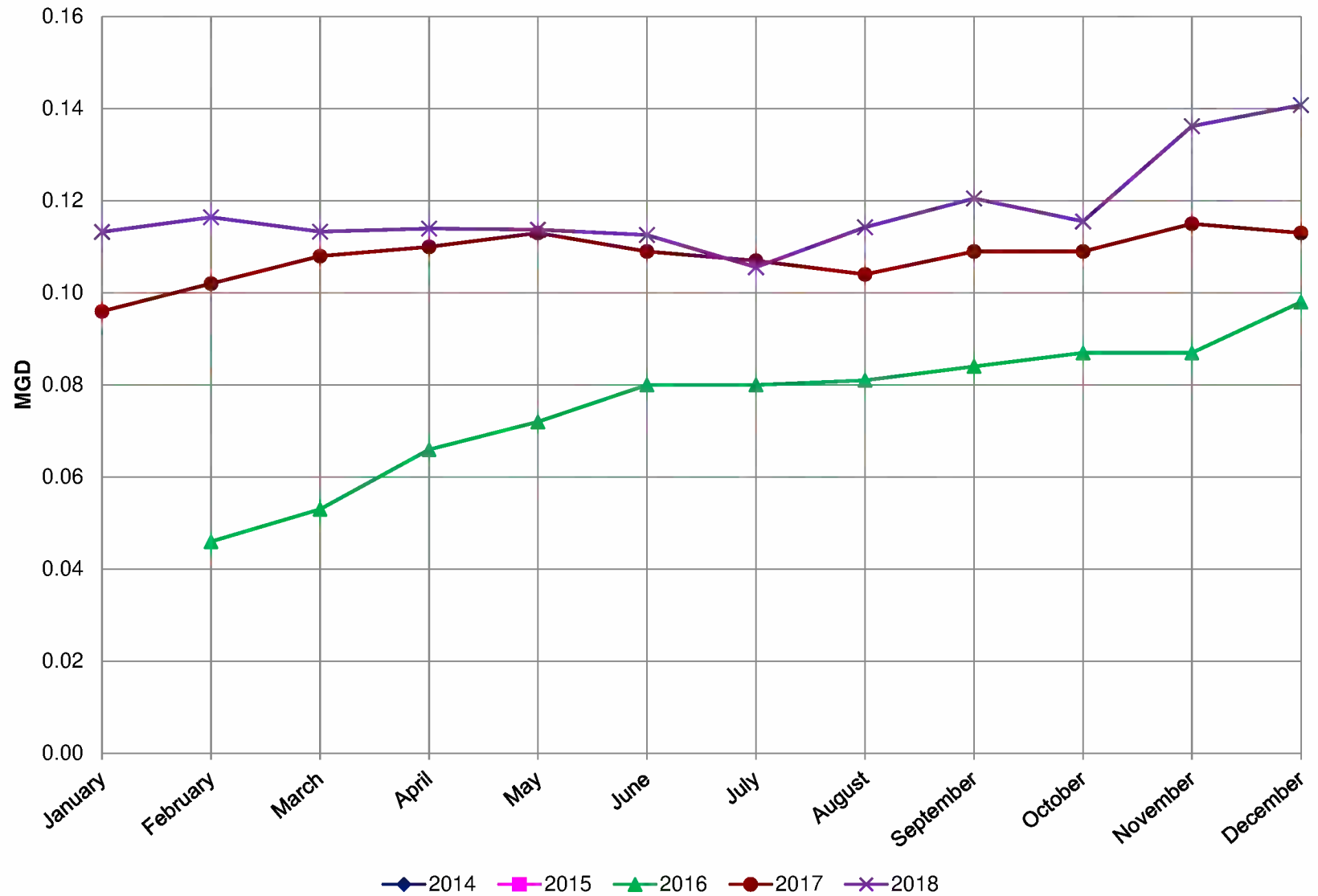
## Chester-Ridley Creek Pump Station



## Price Street Pump Station

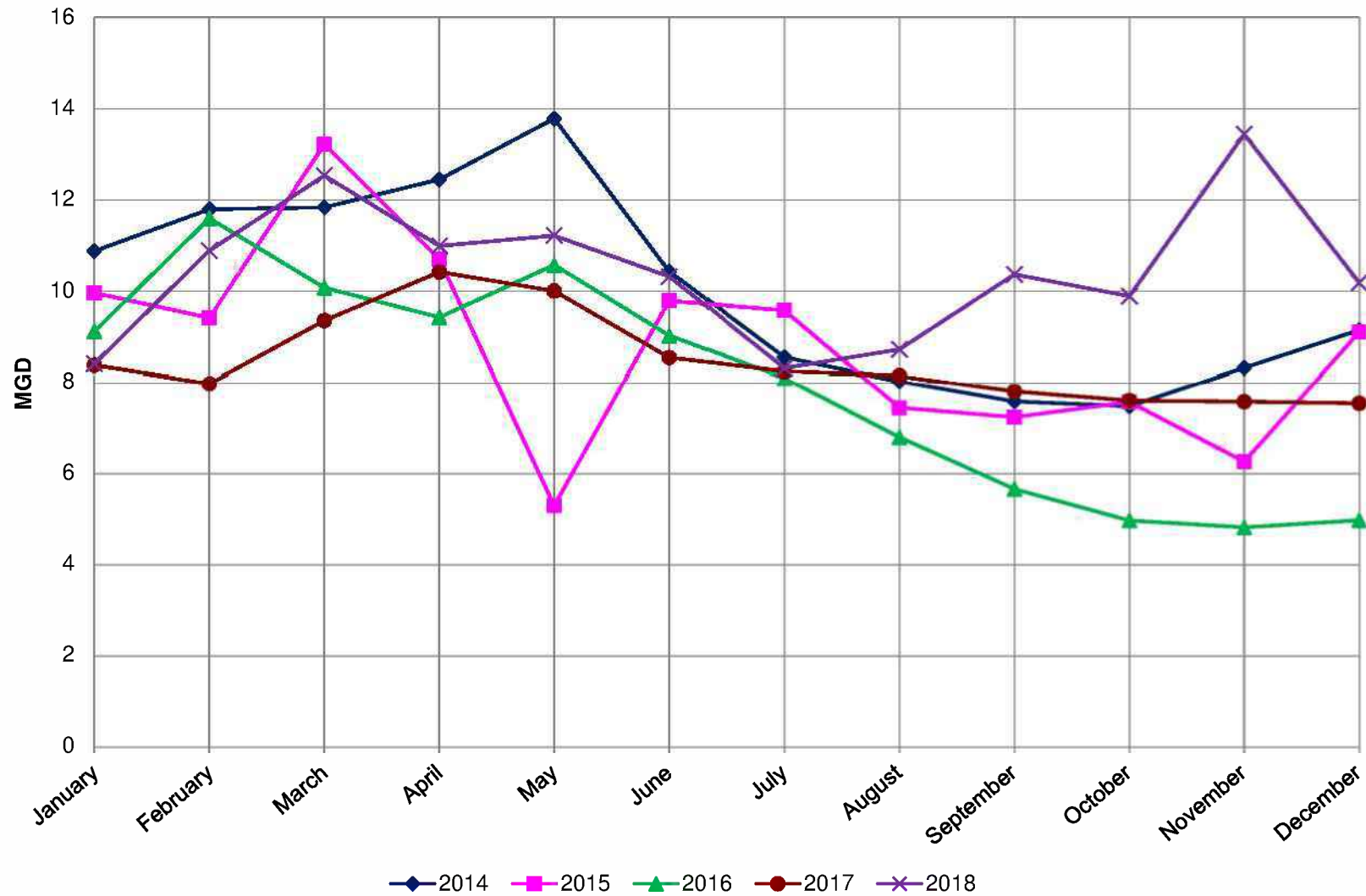


## Runnymede Drive Pump Station (Edgmont Twp.)

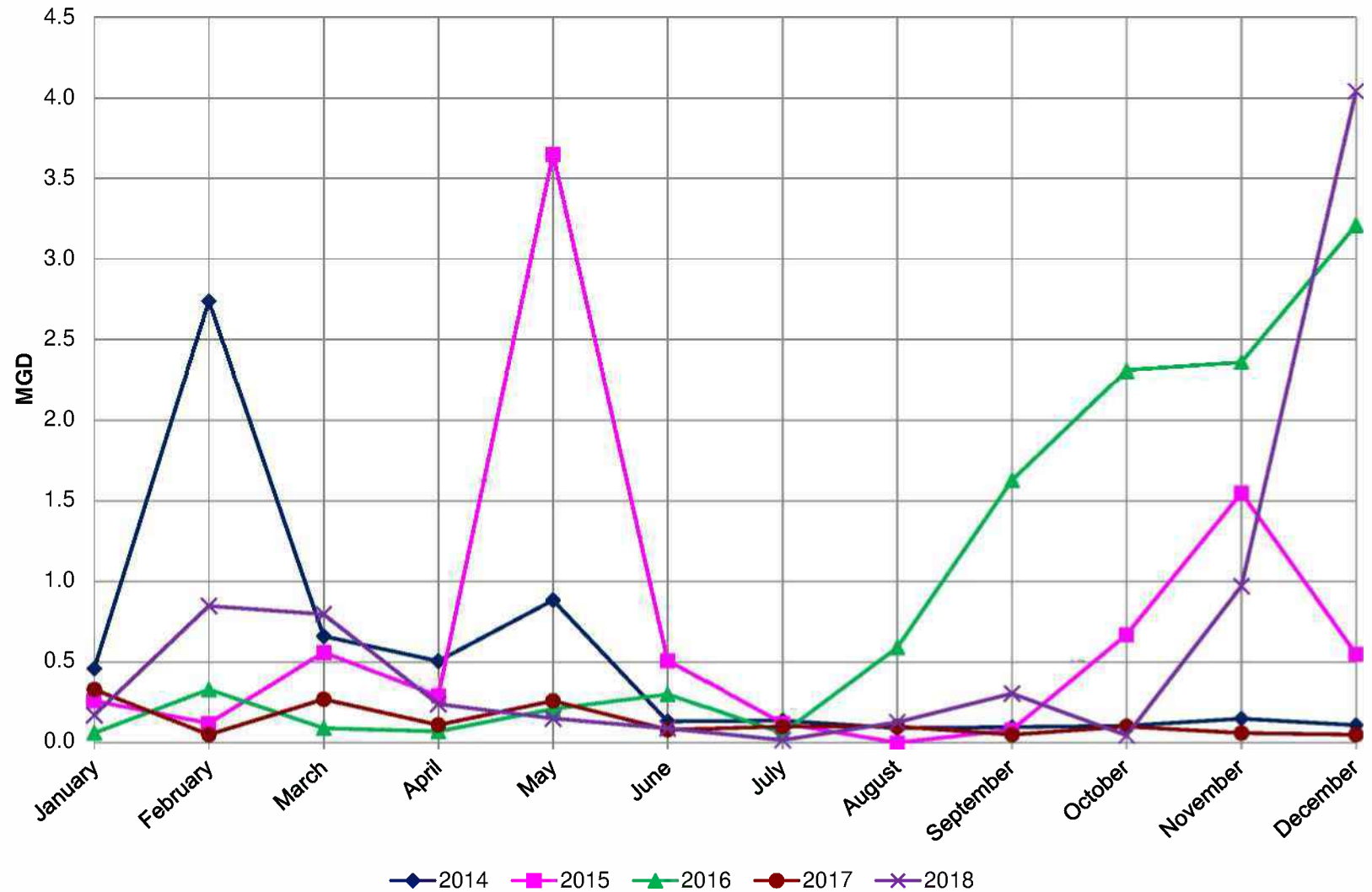




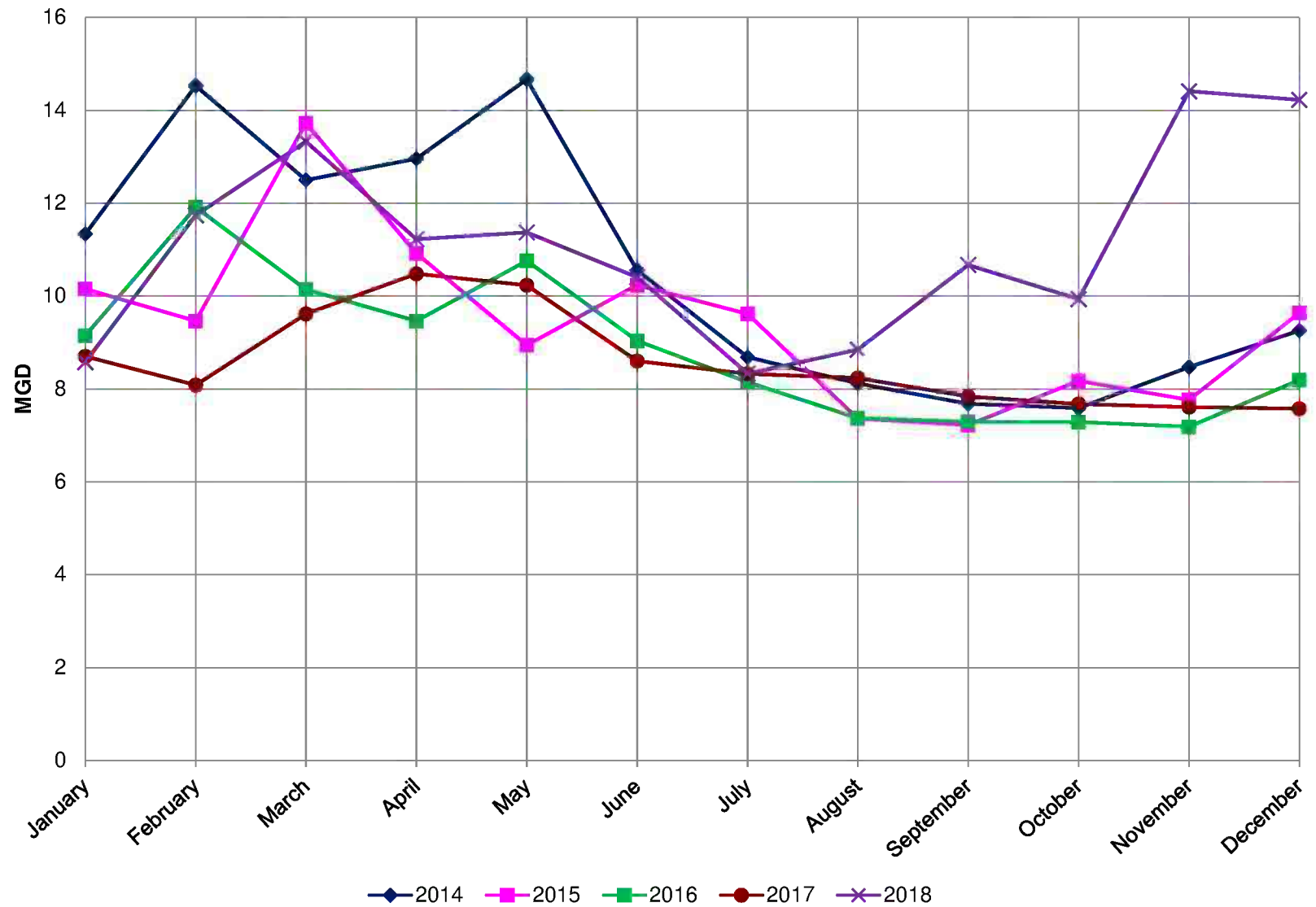
## Central Delaware County Pump Station Wastewater Pumped to W RTP



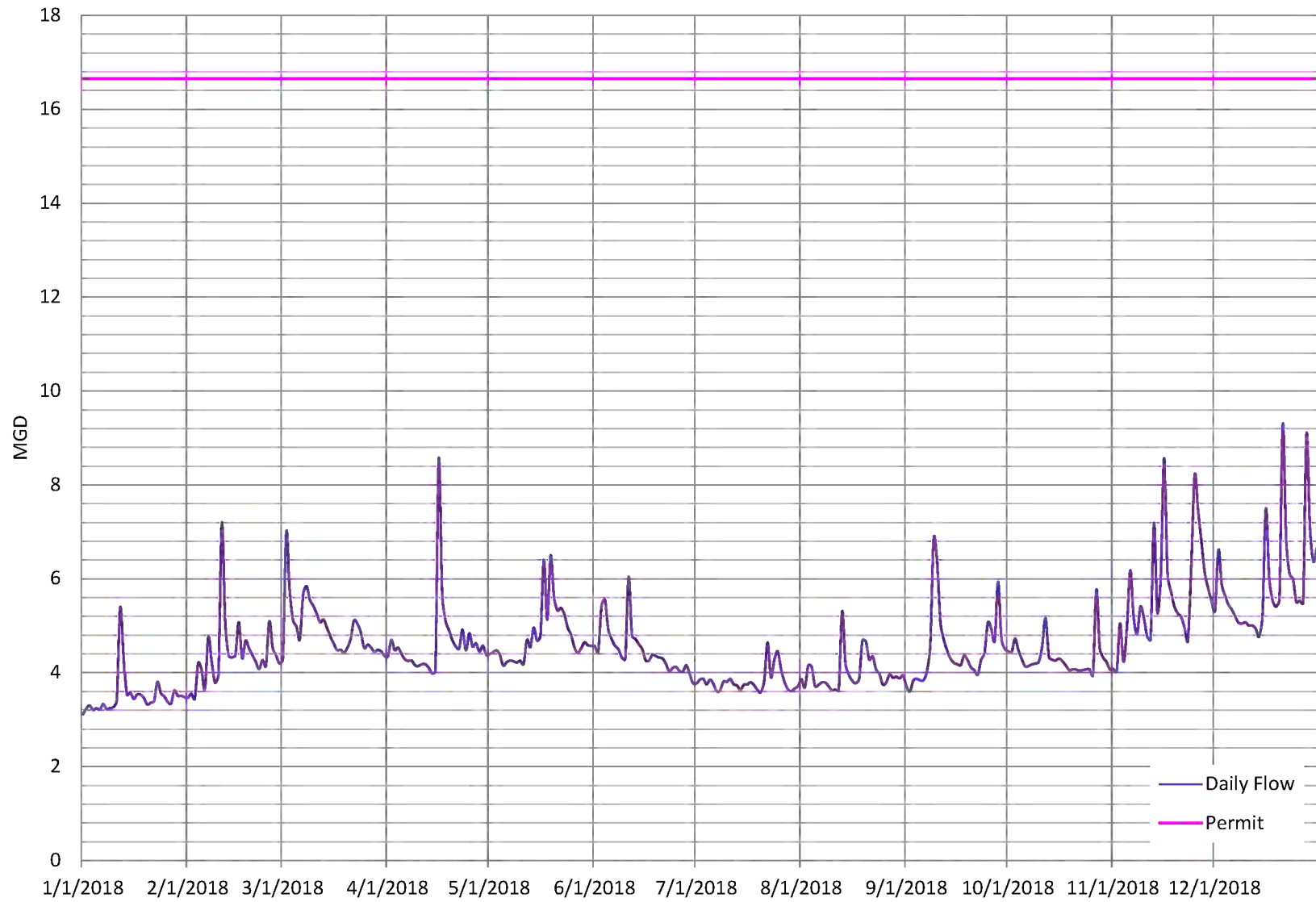
## Central Delaware County Pump Station Wastewater Pumped to Philadelphia SWWPCP



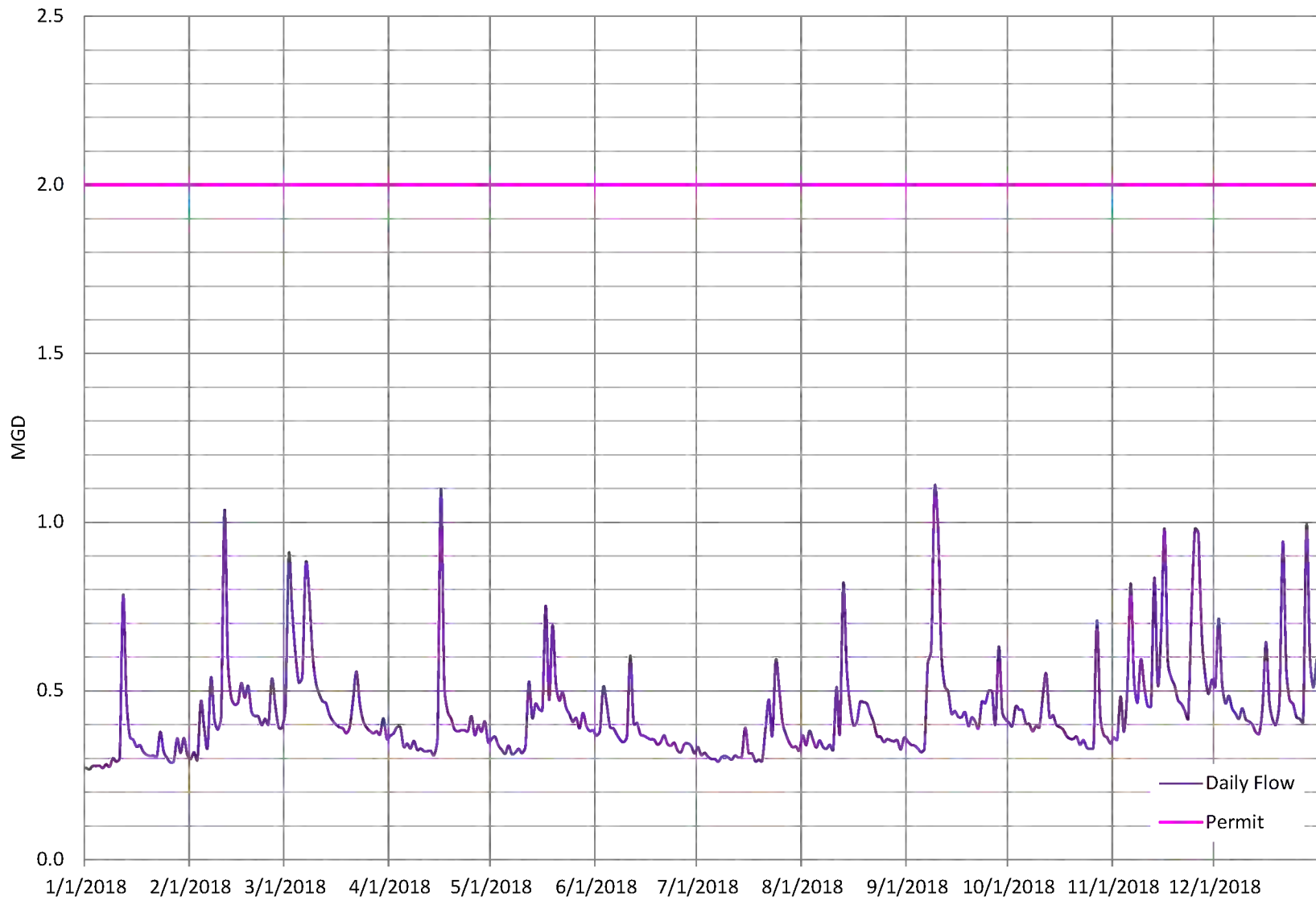
## Central Delaware County Pump Station



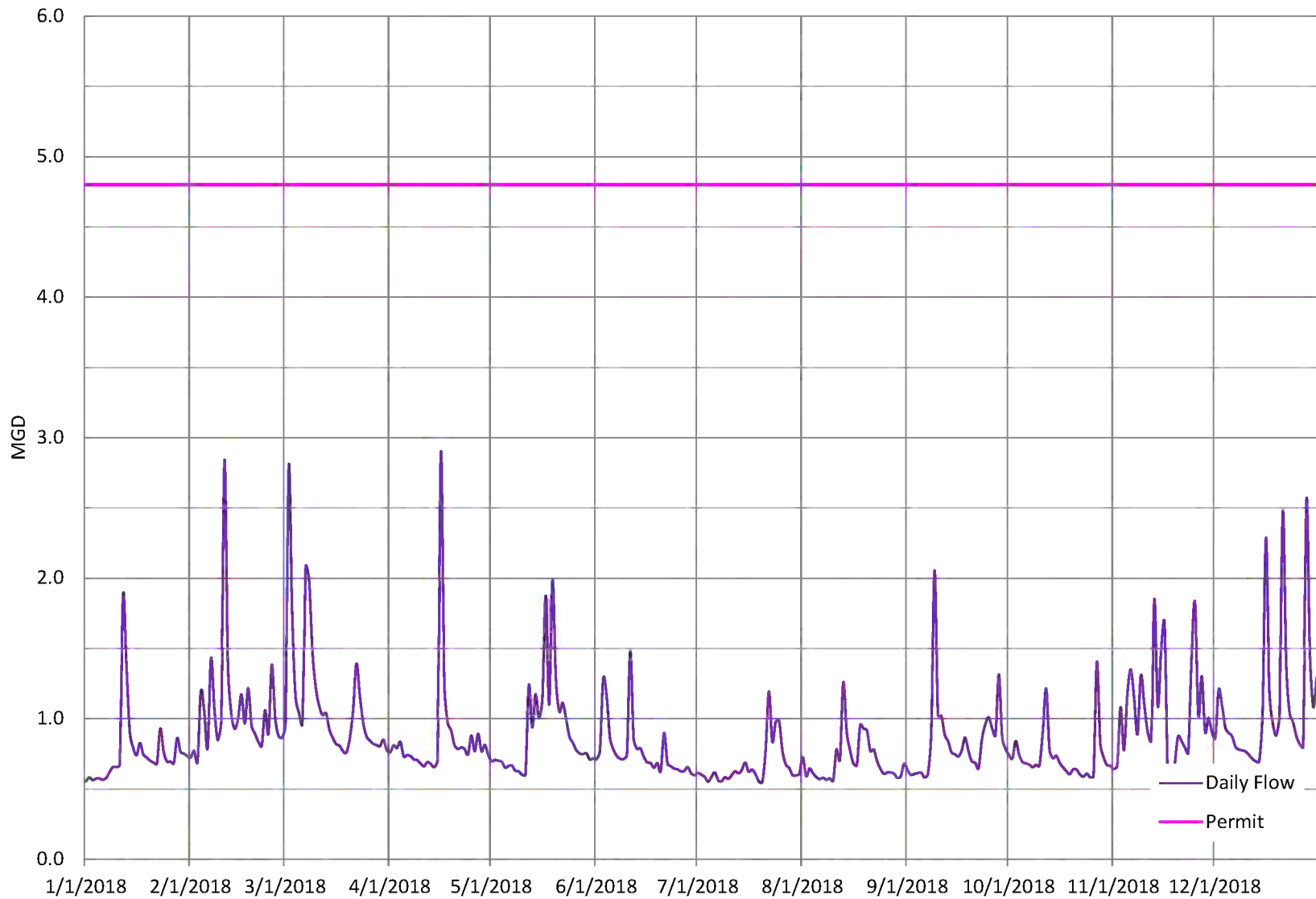
## Chester Ridley Creek Pump Station



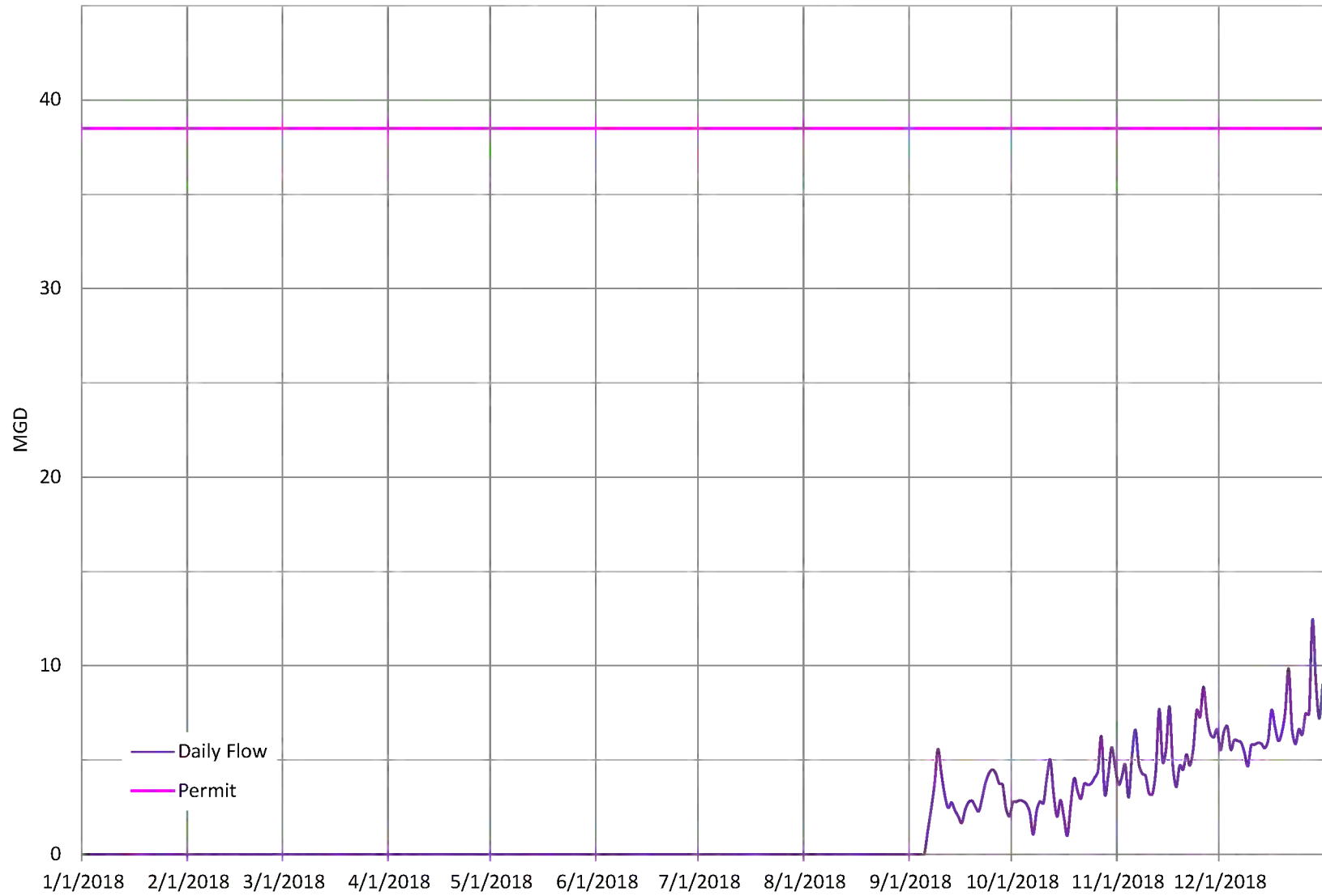
## Eddystone Pump Station



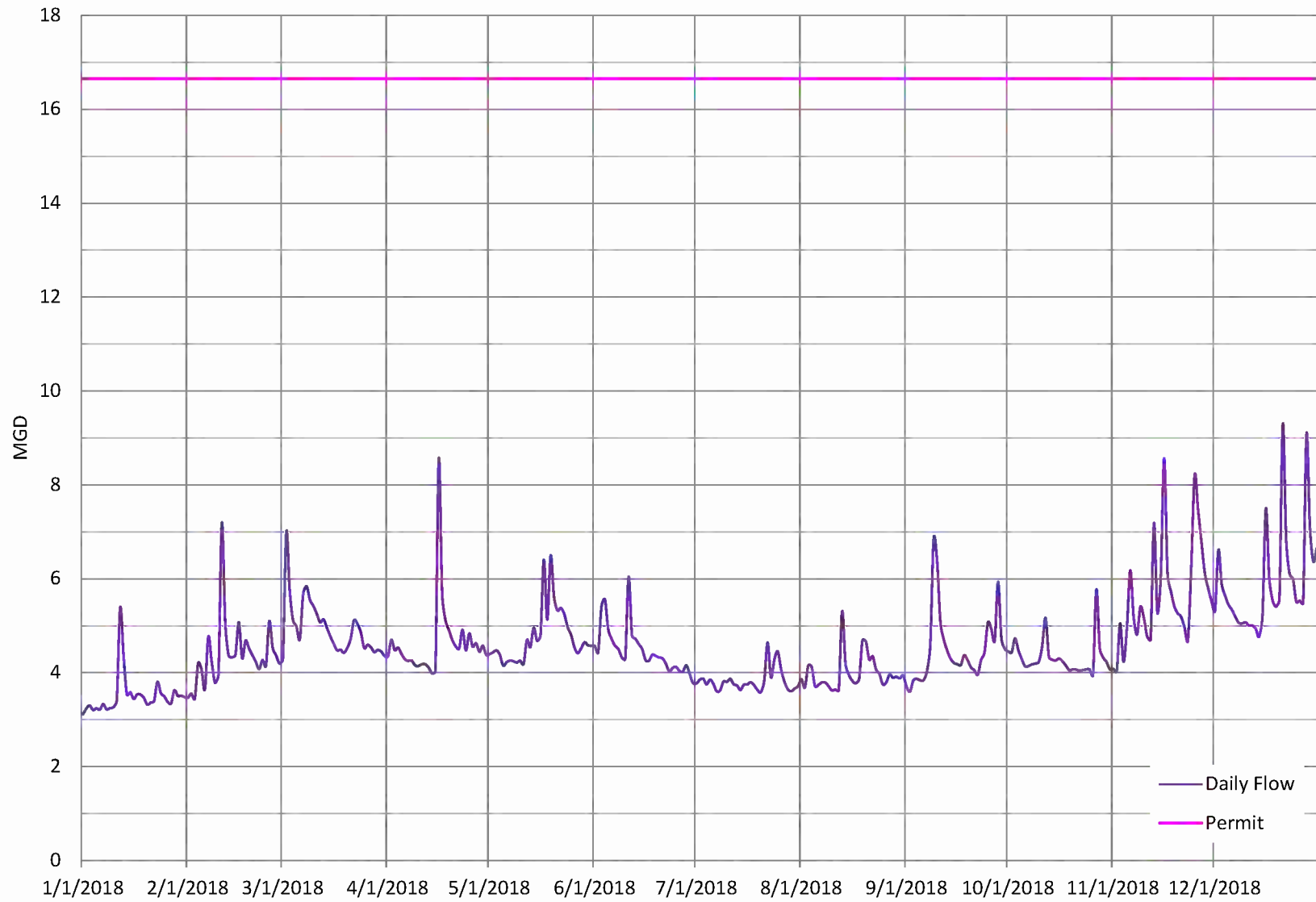
## Marcus Hook Pump Station



## PS-6 Pump Station

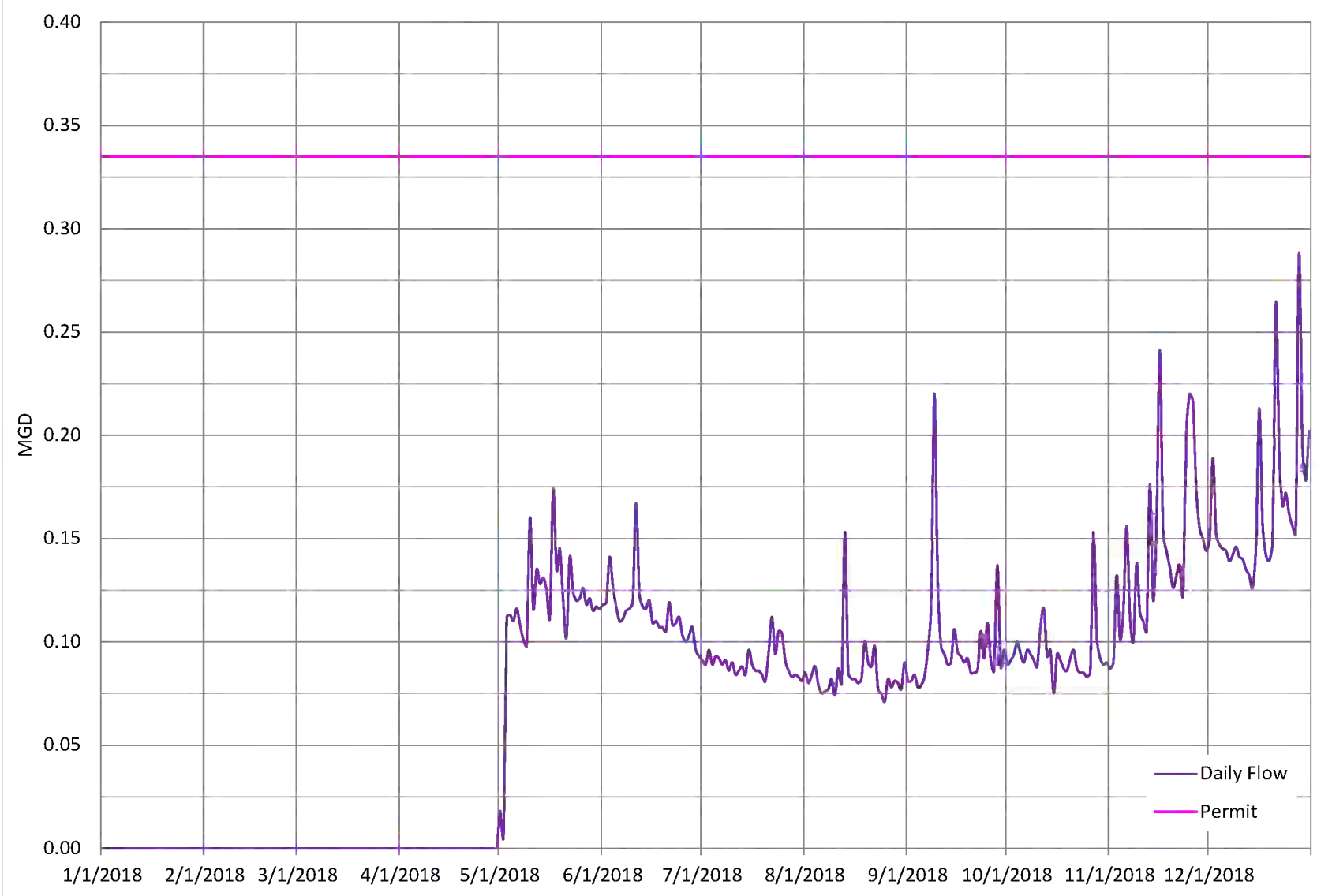


## Chester Ridley Creek Pump Station

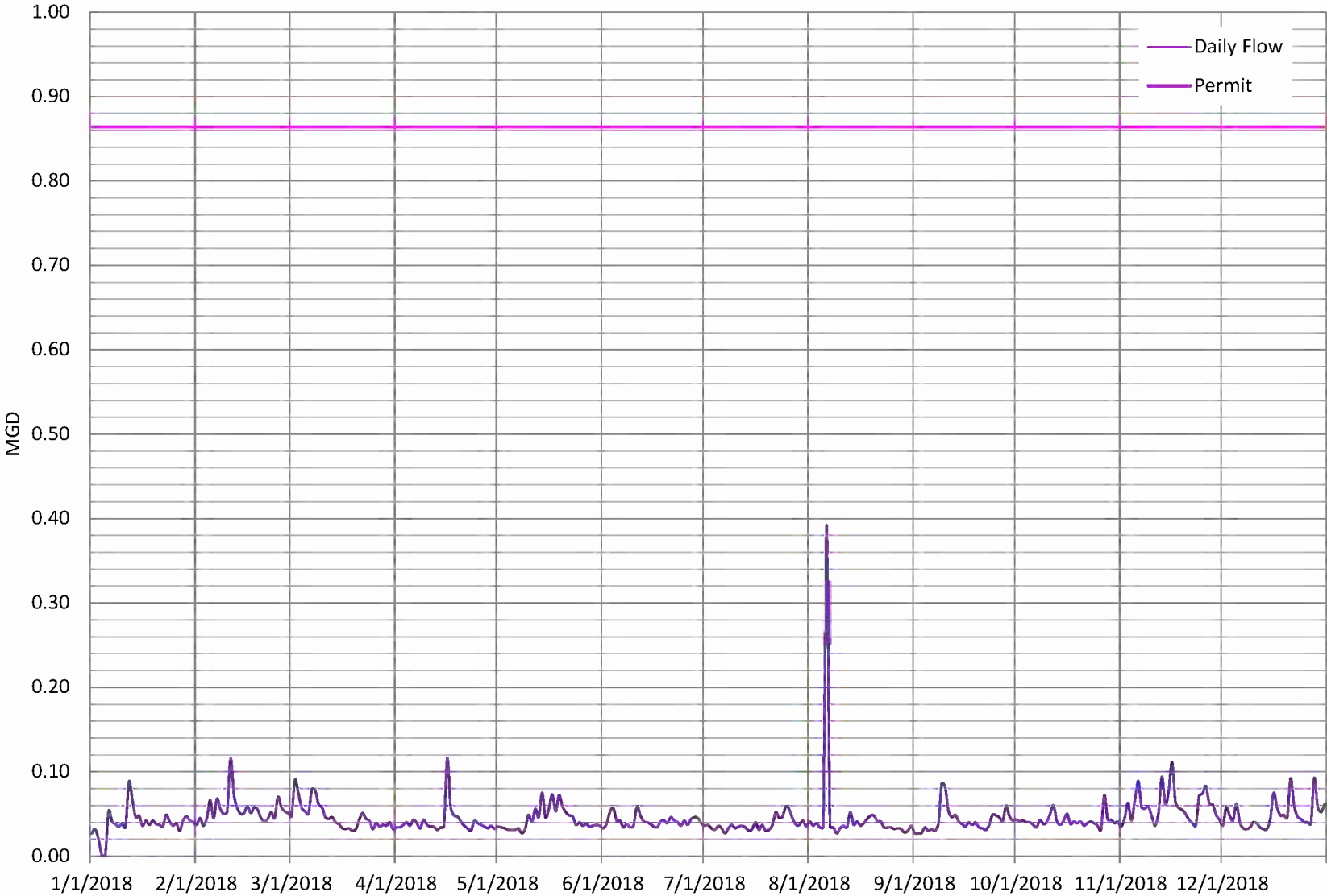




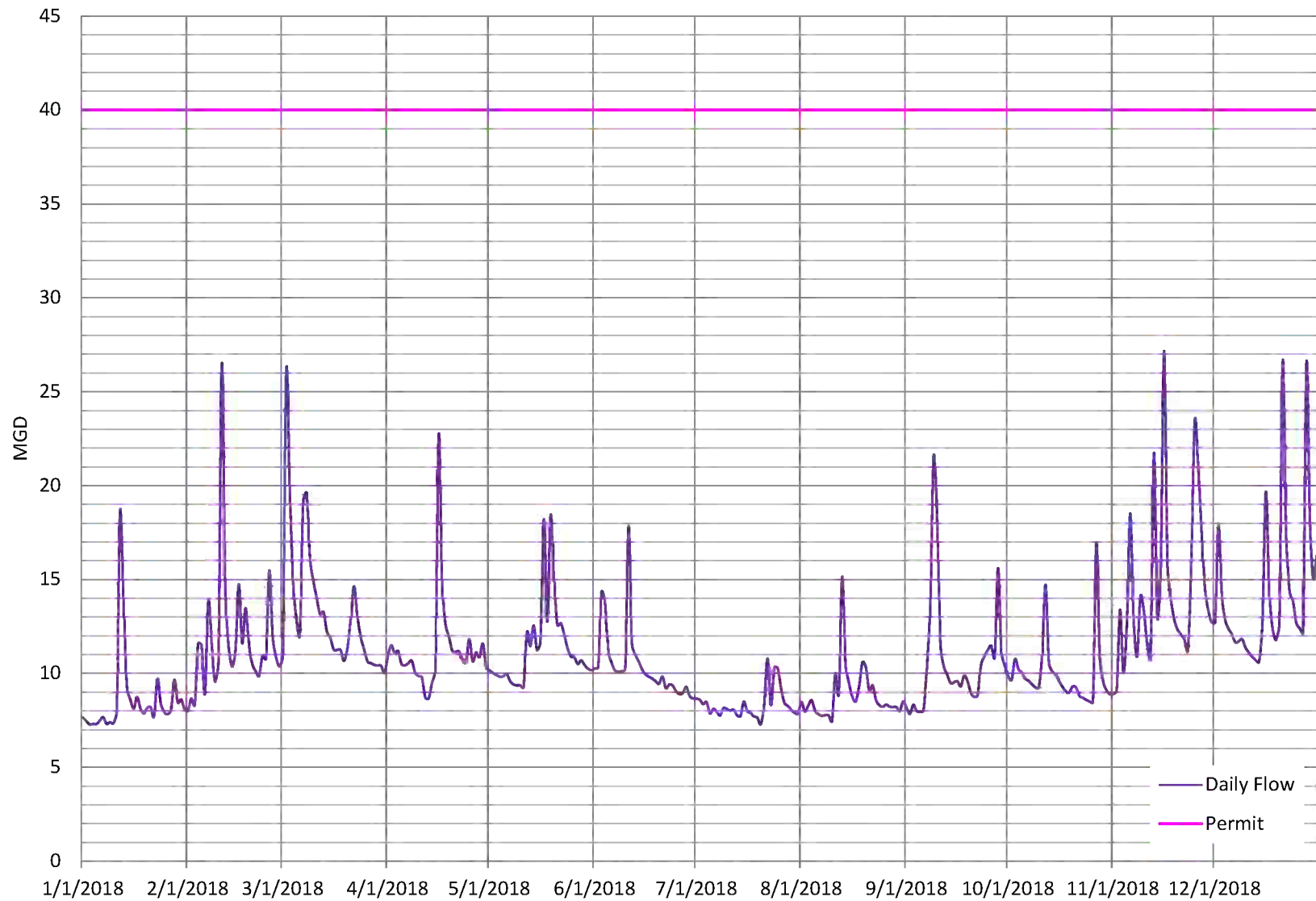
# Rose Valley Pump Station



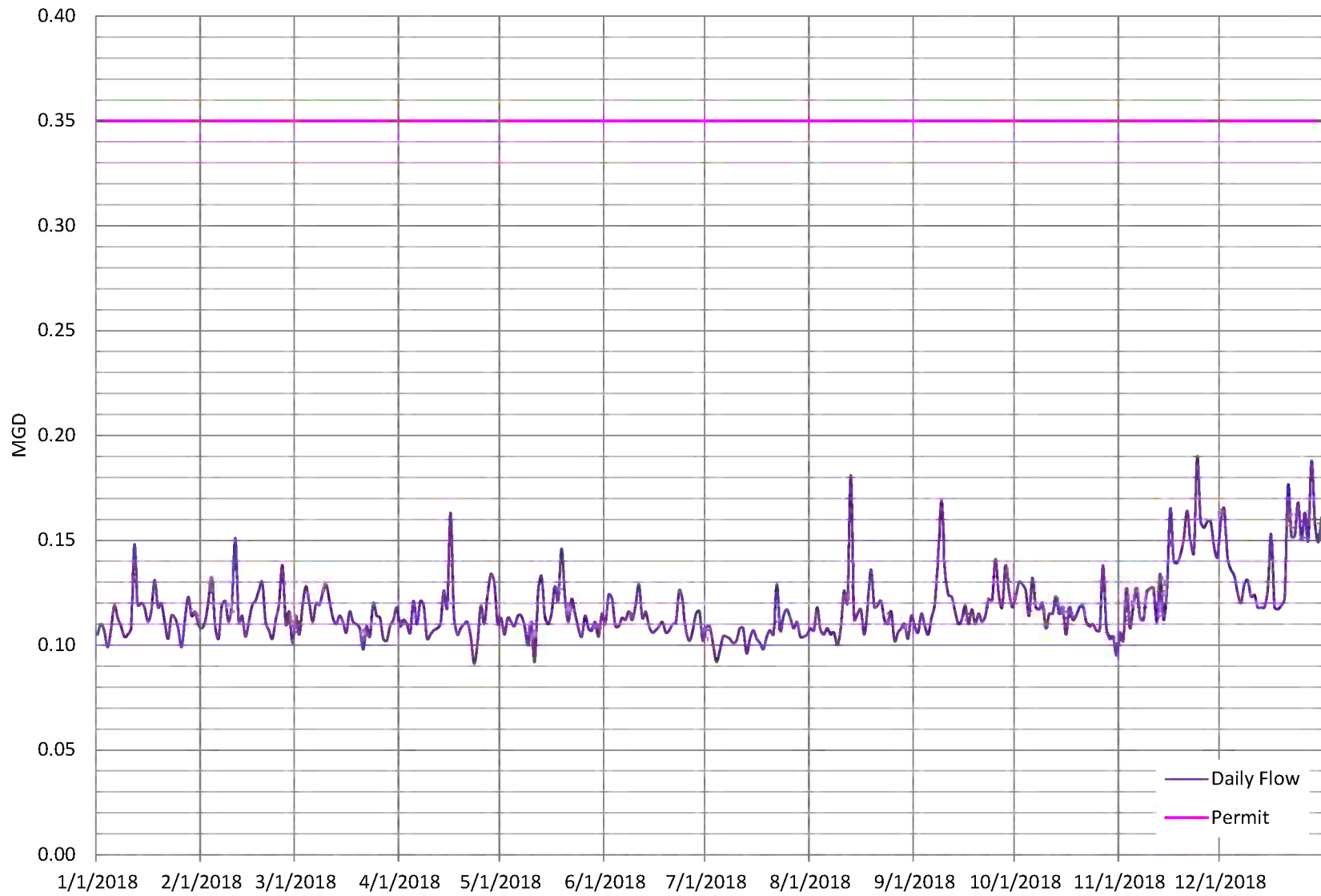
# Price Street Pump Station



## Central Delaware Pump Station



## Runnymede Drive Pump Station





## Western Service Area Sanitary Sewer Overflow Report For 2018

AREA	ADDRESS	DISCHARGE OBSERVED		DISCHARGE STOPPED		REPORTED BY			COMMENTS
		DATE	TIME	DATE	TIME	Name	Date	Time	
West	Edgemont Ave. Parkside	1/8	2:30	1/8	4:00	M. Warholio	1/8	4:15	n undetermined main line blockage which was broken using the vector. Continuation of our maintenance and cleaning program will help prevent further issue.
West	WRTP	1/12	12:00	1/12	15:15	M. DiSantis	1/12	14:00	Heavy rains caused high flows causing tanks T-1 and T-2 to overflow.
West	Taylor Arboretum	1/12	N/A	1/12	N/A	M. Warholio	1/15	10:45	It is believed that the heavy rain event on 1/12 caused the manhole to overflow.
West	Park Valley Ln. Parkside	1/12	13:00	1/12	14:00	J. Cartafalsa	1/12	14:19	Heavy rain in a short span caused a bottleneck backing up flow.
West	CSO's 4,5,7	1/14	8:00	1/14	11:00	J. Cartafalsa	1/14	11:01	A breakdown of the rake on the influent bar screen was the cause of the CSO bypass. The flow was bypassed while repairs were made.
West	WRTP	1/20	19:25	1/20	19:45	P. Bostick	1/20	20:00	A pump failure caused the gravity line to back up, which caused an overflow on three manholes along the line.
West	WRTP	2/11	12:30	2/11	15:30	P. Bostick	2/11	16:30	Heavy rains caused high flows causing T-1 and T-2 to overflow
West	2757 Bethel Rd. Manholes 1771 & 1779	2/25	16:30	2/25	17:30	J. Cartafalsa	2/25	17:55	Grease and rags were removed which ended the overflow.
West	CSO #007	3/9	13:00	3/9	20:00	M. Warholio	3/9	13:55	Post storm/snow melt caused heavy flows to the CSO. Seaport pump running at full capacity
West	WRTP	3/10	11:45	3/10	12:30	P. Bostick	3/10	14:30	Grease blockage in gravity line to PRF PS caused overflow. Line was jetted and cleaned, ending overflow.
West	CSO #007	3/23	8:00	3/23	13:00	M. Warholio	3/23	9:09	Post storm/snow melt caused heavy flows to the CSO. Seaport pump running at full capacity
West	Tyler Arboretum Manholes #2875 and #2897	4/16	N/A	4/16	11:00	M. DiSantis	4/16	8:55	Heavy rain in a short span caused a bottleneck backing up flow.
West	WRTP	4/16	8:15	4/16	15:30	M. DiSantis	4/16	8:55	Heavy rains caused heavy flows in excess of 100 MGD.
West	CSO #007	4/17	12:00	4/18	11:00	M. Warholio	4/17	12:00	The interceptor did not recover from heavy rains that caused an extended drainage time.
West	CSO #20	5/24	9:51	5/24	0:37	M. Warholio	5/24	0:35	A blockage in the crossover line caused a minimal overflow.
West	WRTP	6/11	18:32	6/11	19:15	T. Czwaliina	6/11	19:00	Blockage in gravity line to PRF PS caused overflow. Line was jetted and cleaned, ending overflow.
West	WRTP	6/29	7:30	6/29	7:31	P. Bostick	6/29		A pump failure causing the PRF level to rise led to an overflow from the T-27 manhole and grease lakeside drain.
West	WRTP	7/11	20:15	7/11	22:15	T. Czwaliina	7/11		A blockage in the PRF line caused an overflow from the manhole's outside T-12 and T-27
West	WRTP	7/16	15:10	7/16	15:20	T. Czwaliina	7/16	16:01	A temporary sludge pump discharge line worked its way out of a tank causing a spill.
West	WRTP	8/5	4:20	8/5	4:30	P. Bostick	8/5	5:00	A failure of the back up pump on the PRF caused a minor spill from the manhole located by T-27.
West	CSO #007	8/6	13:45	8/6	14:35	M. Warholio	8/6	13:50	A malfunction of the pump on the Seaport Relief line caused a minor discharge out of the CSO outfall.
West	4th & Melrose ARV	9/14	11:00	9/14	12:15	M. Warholio	9/14	11:24	An error in the operation of servicing an air relief caused the overflow.
West	19,21,23 Cedar St. Marcus Hook	10/22	9:25	10/22	10:30	J. Cartafalsa	10/22	11:05	While breaking a blockage in a surcharged line the pressure from the jetter truck caused sewage to come out of the private lateral vents.
West	Intersection of Price & Post Rd. Pipeline Segment #4115	11/12	8:30	11/12	10:00	M. Warholio	11/12	9:35	Heavy grease caused a blockage in the main. We will continue with O&M plan of cleaning and televising.
West	Beech St. Pump Station	11/13	7:49	11/13	7:53	P. Bostick	11/13	11:33	Heavy rains caused an overflow from the station.
West	Taylor Arboretum	11/26	N/A	11/26	N/A	M. Warholio	11/26	10:33	DELCORA received a call from Arboretum staff of a suspected overflow from manholes during a heavy rain event.
West	WRTP	11/29	8:30	11/29	8:33	P. Bostick	11/29	15:30	A malfunction of the level sensor for the tank during transfer caused an overflow.
West	West 9th St. Trainer Borough	12/20	11:37	12/20	12:00	J. Cartafalsa	12/20	11:48	Heavy grease caused a blockage in the main. We will continue with O&M plan of cleaning and televising.
West	Taylor Arboretum	12/28	N/A	12/28	N/A	J. Cartafalsa	12/28	13:10	Excess rainfall caused water to overflow from the bolt holes on the manhole.

# **DELCORA COMMUNITY NEWS**



## **HAPPY NEW YEAR**

### **Delaware County Regional Water Quality Control Authority**

DELCORA'S Administration Building : 100 E. Fifth Street, Chester, PA 19013 Phone : 610-876-5523

Wastewater Treatment Plant: 3201 West Front Street, Chester, PA 19013

### **DELCORA's Development :**



DELCORA and Covanta Delaware Valley LLP made settlement on the authority's purchase valued at approximately \$4.5 million of about 10 acres of property located on the edge of Covanta's Delaware Valley Resource Recovery Facility adjacent to the Western Regional Treatment Plant ( WRTP ). The property, which represents approximately a 40 percent increase in the size of the WRTP site, is ideally situated for the plant's current and future needs.

The two parties agreed to the purchase at the market price thanks to their long standing working relationship. Since 2011, DELCORA has sold treated effluent to Covanta at a very attractive price for use in its cooking towers. In addition to the sale of land, Covanta granted permanent rights of way to DELCORA for use of its private street along the property border, which DELCORA is using for truck and employee traffic to and from the WRTP. Use of the private street is an important part of DELCORA's commitment to reduce the impact of WRTP traffic on neighboring residential areas.

The property has been designated as a brownfield site, requiring environmental remediation as a condition of the costs of permitting for new construction. Under the agreement, Covanta and the Authority agreed to share the costs of remediation and common fencing based on the percentage of the property that each owns. The remediation was completed prior to the sale in 2017, which facilitated the groundbreaking of a major capital project –Pump Station 6 ( PS-6 ). The main objective of which is to reduce wet weather impact on the Delaware River by allowing more combined sewer flow to be treated at the WRTP.

## RESIDENTS TO PREPARE FOR COLD WEATHER TO AVOID FROZEN PIPES

This is the winter season and freezing temperature coming soon. Homeowners to act now prevent frozen damaged household pipes. Although winters are difficult to predict, we can be sure that cold weather is coming and we need to prepare our homes and protect area susceptible to freezing, preparing now can save the aggravation and cost of dealing with frozen pipes and the damage they might cause. Property owners are responsible for maintenance of the water service line from the curb to the house as well as any in home piping. Homeowners / residents to take the following precautions to reduce the risk of freezing and busting pipes.

### TO PREPARE NOW:

- ◆❑ Familiarize yourself with areas of your home most susceptible to freezing such as basements crawl spaces, unheated rooms and outside wall.
- ◆❑ Eliminate sources of cold air near water lines by repairing broken windows, insulating wall closing off crawl spaces and eliminating drafts near doors.
- ◆❑ Locate your main water shut-off valve. If a pipe freezes or bust, shut the water off immediately.
- ◆❑ Protect your pipes and water meter. Wrap exposed pipes with insulation or use electrical heat tracing wire, newspaper or fabric might also work. For outside meters keep the lid to the meter pit closed tightly and let any snow that falls cover it. snow acts as insulation, so do not disturb it.

### WHEN TEMPERATURES ARE CONSISTENTLY AT OR BELOW FREEZING:

- ◆❑ If you have pipes that are vulnerable to freezing, allow a small trickle of water to run overnight to keep pipes from freezing. The cost of the extra water is low compared to the cost to repair a broken pipe.
- ◆❑ Open cabinet doors expose pipes to warmer room temperatures to help keep them from freezing.

### IF YOUR PIPES FREEZE:

- ◆❑ Shut off the water immediately. Do not attempt to thaw frozen pipes unless the water is shut off. Freezing can often cause unseen cracks in pipes or joints.
- ◆❑ Apply heat to the frozen pipe by warming the air around it, or by applying heat directly to a pipe. You can use hair dryer, space heater or hot water. Be sure not to leave space heaters unattended.
- ◆❑ Do not use kerosene heaters or open flames to thaw pipes inside your home.
- ◆❑ Once the pipes have thawed, turn the water back on slowly and check for cracks and leaks.

Please inform your water company and get help from experienced plumbers as soon as possible in case of emergency.

## DELCORA'S MISSION

Provide environmentally responsible and cost effective waste water management services to the citizens, businesses and industries of Southeastern Pennsylvania.

Website : [www.DELCORA.org](http://www.DELCORA.org)





## Human Resources Department organized yearly Wellness Day for employees



Wellness Day is an opportunity for employees to get wellness checks with different vendors (blood pressure checks, eye and skin checks, sugar checks, etc.) This is a yearly event the Department of Human Resources organizes for DELCORA's employees. DELCORA's management is very keen on safety precautions and about the health of all its employees. Employees are also afforded the opportunity to have massages and to meet with Financial advisors to plan for their future. As in every year, employees pick up their medical benefits packet so that they can make their medical benefits selection during open enrollment. This year, over 60% of our workforce came out to participate. It was a great day!



## DEP Encourages Pennsylvanians to Test Home for Radon

The Department of Environmental Protection ( DEP ) encourages Pennsylvanians to start off the new year by conducting simple test of their homes for radon, a naturally occurring radioactive gas that is the second leading cause of lung cancer. Winter is a good time for the test in the Commonwealth because doors and window are closed, proving more accurate results. Because of our geology, nearly every county in the commonwealth has location of high radon levels putting Pennsylvanian at risk of exposure. Fortunately, testing your home for radon is as simple as opening a can, and inexpensive do-it-yourself. Test are available at hardware and home stores.

Radon is a leading cause of lung cancer in Pennsylvania. Radon is an odorless, colorless, radioactive gas that occurs from the breakdown of uranium in the ground. It enters home through cracks in the foundation or other openings. As a result, high levels of radon tend to be found in basements, but the gas can be found anywhere in the home. The U. S. Environmental Protection Agency ( EPA ) has set 4 picocuries of radon per liter ( pCi/L ) of air as an Action Level. If your radon is higher than this, EPA, DPA, and the U. S. Surgeon General recommend having a radon mitigation system professionally installed to lower it. Typically consisting of a pipe and exhaust fan, the system will vent radon to the outside.



## **DELCORA'S ANNOUNCES NEW BILLING METHOD**

*We at the Delaware County Water Quality Control Authority ( DELCORA ) have heard your request and are pleased to announce quarterly billing of your sewer charges.*

*Effective January 2019, you will receive sewer bills every three months instead of every six months. Bill receiving months will be January, April, July and October. Bills will be based upon the previous 3 month period of water consumption as reported by Chester Water Authority.*

*A minimum fee per billing cycle is charged for properties with very little ( less than 4,000 gallons )*

*to no usage. The change in billing provides you with a simpler way to budget and compare your billed consumption by the Water Authority thus eliminating the shock of large, unexpected bills. There are several methods that customers can use to pay their bills, such as Pay online, by phone, by mail or in person. If you are paying by phone or online, you must keep the confirmation number with you in case you receive a shut off notice. When paying by check please write your account number on the check. If you have any questions regarding your bills, please contact Customer Service at ( 610-876-5526 ) between the hours of 8:30 am to 4:30 pm. We are here to help you and provide professional and courteous customer service.*



Charles N. Hurst, PE, succeeds Edwin G. Bothwell as DELCORA's Director of Engineering as the department continues to make a significant contribution to the Authority's mission. Under Mr. Hurst's leadership, the Engineering Department continues to make a significant contribution to the fulfilment of DELCORA's mission through its roles in



### **ENGINEERING CONTRIBUTIONS TO DELCORA'S MISSION**

three major areas: regulatory compliance including environmental laboratory operations, air and water discharge permitting and reporting to regulatory agencies, strategic planning involving the Authority's long term control plan and wastewater treatment contracts, and execution of DELCORA 's capital plan. Toward that end, the Engineering Department is comprised of professionals at all stages of their careers and with a wide range of experience and expertise who work together with a common commitment to excellence.

Bar screen replacements were completed at two pump stations in central Delaware County—Muckinipates Pump Station and Darby Creek Pump Station. The new bar screen will remove large debris from the influent to prevent pump damage, avoid the risk of an overflow and associated environmental impact, assure operational reliability, and reduce long term maintenance costs. The upgrade will enable remote operational monitoring by the Authority's supervisory control and data acquisition ( SCADA ) system. Due to the significant size and weight of the bar screens, each new unit must be disassembled on site, maneuvered through the door of the station using a crane and lift, and reassembled inside the building before installation. With two bar screens operational in the wet well at each station, the project has been planned and executed to assure continuous operation of each pump station as it undergoes construction.

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**A PROJECT OF COMMUNITY AFFAIRS AND PROGRESS**

**PREPARED BY: SAUD SIDDIQUI**

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19 March 2019

Charles Hurst, P.E.  
Director of Engineering  
Delaware County Water Quality Control Authority  
100 E. 5th Street  
Chester, PA 19013

**Reference:** Report of CSO Modeling for 2018

Dear Mr. Hurst,

Weston Solutions, Inc. (WESTON®) has prepared this letter report that summarizes the results of Storm Water Management Model (SWMM) runs for all storms in 2018. This model is used to predict volume and frequency of overflows from DELCORA's Combined Sewer Overflow (CSO) system in the City of Chester. This report includes an overview of the methodology, as well as the results of the 2018 model runs.

**Precipitation Data**

The modeling effort is based upon recorded precipitation data for the 2018 calendar year. The 2018 simulations were run using data from DELCORA's Western Regional Treatment Plant (WRTP) gage. The rain gage provides a continuous 1-minute rainfall record for the year. Total precipitation for 2018 was 47.34 inches, which is above average for this region. It should be noted that snowfall recorded at these rain gages was simulated in SWMM as rainfall. Peak runoff from snowmelt is typically lower than from rainfall, therefore the SWMM model simulates a conservative estimate of CSO overflows.

Precipitation breaks of at least 12 hours were used to establish separate storm events. Based on this inter-event time interval, the 2018 precipitation record consisted of 127 discrete storm events. Attachment A contains the 2018 precipitation record. Daily total precipitation is reported in the monthly CSO Supplemental Report, Detailed Outfall Reports that are submitted monthly with the Discharge Monitoring Reports (DMRs) required under NPDES Permit PA0027103.

**Base Flow and Evapotranspiration**

The updated SWMM was prepared as part of the Long-Term CSO Control Plan. This model was provided to WESTON and was transitioned into use in October 2017. Attachment B includes excerpts from the 2017 *Sewer System Hydrologic and Hydraulic Model Report, Greeley and Hansen*. Subcatchment areas and land types are listed for the new model. Dry weather flows were modeled as diurnal patterns, with differing patterns for weekdays and weekends. The highest dry weather flows were seen around noon and the lowest dry weather flows were between midnight and early morning. Final model calibrations were performed by first adjusting upstream flows to



be balanced to upstream meters; then flows through the system to the pump stations and to the W RTP were balanced. Figure 4-1 from the Greely and Hanson report is included in Attachment B and shows the arrangement of the meters used for calibration.

The model is run in continuous mode for each month. Evaporation is not included in the simulation as it does not affect the model in a meaningful way, and may cause underreporting of CSO discharges in some cases.

### **CSO Modeling**

A series of monthly simulations were executed to estimate the volume, duration, and frequency of overflows by outfall and to each receiving stream. Monthly runs were selected to manage the size of the output data files and to allow the reporting of CSOs as part of DELCORA's monthly DMRs.

The CSO model needs several hours of simulated dry weather after a precipitation event to achieve re-opening of the regulators and cessation of overflow discharge. During those months where most of a precipitation event occurs on the last day of the reporting month, but the event continues into the following month, the simulation is extended several hours into the following month to allow sufficient dry weather time after the complete event. Conversely if the majority of a precipitation event occurs after the last day of the reporting month, the simulation is shortened and the precipitation event is simulated in the following month. In either case, simulation dates are controlled so that overflows are not double counted. Therefore, the monthly summaries may include discharges that occurred at the beginning or end of another month.

### **Summary of 2018 Overflows**

Daily total flow and event-based total flow data for the conduits connecting the CSO regulators to the outfalls were extracted from statistical reports generated by SWMM 5 and were copied into an Excel spreadsheet. These data were then summarized into the following tables and DMR forms (see Attachments).

- Table 1 presents a monthly summary of simulated CSO discharge volume by outfall
- Table 2 presents a monthly summary of simulated CSO discharge duration by outfall
- Table 3 presents a monthly summary of simulated CSO discharge frequency by outfall
- Table 4 presents a monthly summary of simulated discharge volume by receiving stream
- Table 5 presents a monthly summary of simulated discharge duration by receiving stream
- Table 6 presents a monthly summary of simulated discharge frequency by receiving stream
- DELCORA's monthly e-DMR submissions present the daily total duration and volume of rainfall and CSO discharge



Charles Hurst, P.E.  
Delaware County Water Quality Control Authority

19 March 2019  
Page 3

### **Observations**

The following observations were made based on a review of the modeling results:

1. Chester and Ridley Creeks receive discharges from 13 of 25 outfalls in the system, the modeling indicates that these creeks receive 46% of the total annual overflow volume and have 52% of the discharge events.
2. The response of certain regulators (i.e., 02, 03, 05, 08, 11, 13, 15, 17, 18, and 25) is sensitive to even the smallest amounts of precipitation. These outfalls had the highest frequency of discharges.
3. Snowfall events were simulated as rain events, therefore the model results in a conservative estimate of CSO overflows.

This concludes our modeling effort for year 2018 precipitation events. If you require any further information, please call me at 610-701-3708.

Very truly yours,  
WESTON SOLUTIONS, INC

A handwritten signature in black ink, appearing to read "Roger W. Lehman".

Roger W. Lehman, P.E.  
Project Manager

cc: J. Kochubka, WESTON  
D. Borger, WESTON

Attachments





Table 1  
Volume of Discharge by Regulator Outfall (cf)

Regulator ID Outfall Pipe ID	Reg 02 C10601	Reg 03 C11003	Reg 04 C11102	Reg 05 C11701	Reg 06 C12102	Reg 07 C126	Reg 08 C42201	Reg 09 C41401	Reg 11 C40701	Reg 12 C902	Reg 13 C70702	Reg 14 C71201	Reg 15 C71705	Reg 16 C72201	Reg 17 C72702	Reg 18 C73801	Reg 19 C52012	Reg 20 C53403	Reg 21 C617	Reg 22 C60801	Reg 23 C60302	Reg 24 C40203	Reg 25 C50601	Reg 26 C51001	Reg 32 C70502	Reg 33 Reg_Outfall_33	TOTAL
January	6.91E+04	5.32E+04	2.12E+04	2.56E+05	NA	1.27E+04	1.99E+05	4.28E+04	1.39E+05	0.00E+00	1.34E+05	4.04E+04	1.14E+04	4.08E+04	2.51E+05	1.71E+05	1.87E+05	1.68E+04	0.00E+00	1.43E+04	1.39E+02	7.77E+03	5.14E+04	7.51E+03	0.00E+00	0.00E+00	1.73E+06
February	8.52E+04	5.17E+04	1.31E+04	4.58E+05	NA	9.80E+03	2.65E+05	2.32E+04	2.26E+05	0.00E+00	1.66E+05	9.75E+03	1.43E+04	4.51E+03	5.19E+05	2.95E+05	3.24E+05	6.86E+03	0.00E+00	1.20E+04	6.26E+01	4.08E+03	7.33E+04	9.41E+02	0.00E+00	0.00E+00	2.56E+06
March	6.37E+04	3.38E+04	0.00E+00	3.79E+05	NA	6.18E+03	2.11E+05	1.20E+04	1.81E+05	0.00E+00	1.32E+05	1.35E+03	1.11E+04	0.00E+00	4.15E+05	2.27E+05	4.15E+05	2.80E+03	0.00E+00	7.36E+03	0.00E+00	2.54E+03	6.17E+04	0.00E+00	0.00E+00	0.00E+00	2.16E+06
April	1.34E+05	1.05E+05	4.04E+04	3.71E+05	NA	2.94E+04	3.71E+05	1.13E+05	2.63E+05	3.73E+01	2.73E+05	1.10E+05	2.20E+04	1.96E+05	3.36E+05	5.53E+05	5.99E+05	5.78E+04	1.06E+03	3.02E+04	6.97E+03	2.13E+04	9.67E+04	5.77E+04	0.00E+00	0.00E+00	3.79E+06
May	1.57E+05	1.24E+05	5.90E+04	4.67E+05	NA	3.22E+04	4.43E+05	1.19E+05	3.07E+05	1.78E+02	3.14E+05	1.10E+05	2.59E+04	1.23E+05	4.39E+05	3.30E+05	4.62E+05	4.80E+04	8.05E+02	3.58E+04	6.10E+03	2.19E+04	1.16E+05	4.64E+04	0.00E+00	0.00E+00	3.79E+06
June	1.45E+05	1.15E+05	5.60E+04	3.83E+05	NA	3.02E+04	4.04E+05	1.18E+05	2.71E+05	0.00E+00	2.91E+05	1.11E+05	2.36E+04	1.47E+05	3.38E+05	2.84E+05	4.07E+05	4.82E+04	7.40E+02	3.39E+04	7.22E+03	2.21E+04	1.05E+05	5.68E+04	0.00E+00	0.00E+00	3.40E+06
July	1.00E+05	7.63E+04	2.86E+04	3.68E+05	NA	1.77E+04	2.91E+05	5.66E+04	2.04E+05	0.00E+00	1.80E+05	4.34E+04	1.63E+04	2.83E+04	3.40E+05	2.23E+05	3.00E+05	2.20E+04	0.00E+00	2.09E+04	1.06E+03	9.31E+03	7.49E+04	1.03E+04	0.00E+00	0.00E+00	2.41E+06
August	1.64E+05	1.34E+05	6.63E+04	4.76E+05	NA	3.46E+04	4.70E+05	1.31E+05	3.12E+05	0.00E+00	3.13E+05	1.29E+05	2.73E+04	1.39E+05	4.42E+05	3.68E+05	4.54E+05	5.27E+04	4.66E+02	3.92E+04	7.30E+03	2.38E+04	1.20E+05	5.68E+04	0.00E+00	0.00E+00	3.96E+06
September	1.38E+05	9.15E+04	2.13E+04	6.05E+05	NA	2.07E+04	4.07E+05	5.86E+04	3.19E+05	0.00E+00	2.66E+05	3.77E+04	2.25E+04	2.52E+04	5.77E+05	3.51E+05	4.64E+05	2.13E+04	0.00E+00	2.34E+04	5.13E+02	1.08E+04	1.11E+05	6.47E+03	0.00E+00	0.00E+00	3.58E+06
October	1.01E+05	7.36E+04	4.30E+04	3.91E+05	NA	1.71E+04	3.01E+05	5.63E+04	2.17E+05	0.00E+00	2.05E+05	4.21E+04	1.69E+04	3.71E+04	3.58E+05	2.25E+05	3.49E+05	2.24E+04	1.10E+02	1.96E+04	1.87E+03	1.02E+04	8.14E+04	1.16E+04	0.00E+00	0.00E+00	2.58E+06
November	3.31E+05	2.38E+05	1.29E+05	1.14E+06	NA	5.86E+04	9.21E+05	1.93E+05	6.80E+05	0.00E+00	6.74E+05	1.65E+05	5.27E+04	1.53E+05	9.76E+05	7.01E+05	1.18E+06	7.37E+04	0.00E+00	6.36E+04	2.51E+03	3.47E+04	2.50E+05	3.44E+04	0.00E+00	0.00E+00	8.05E+06
December	1.28E+05	7.66E+04	3.95E+04	6.34E+05	NA	1.63E+04	3.96E+05	4.42E+04	3.24E+05	0.00E+00	2.64E+05	2.40E+04	2.15E+04	1.11E+04	6.40E+05	3.62E+05	4.87E+05	1.47E+04	0.00E+00	1.74E+04	6.40E+01	8.04E+03	1.10E+05	8.90E+02	0.00E+00	0.00E+00	3.62E+06
TOTAL	1.62E+06	1.17E+06	5.18E+05	5.93E+06	NA	2.85E+05	4.68E+06	9.68E+05	3.44E+06	2.15E+02	3.21E+06	8.23E+05	2.66E+05	9.04E+05	5.63E+06	4.09E+06	5.62E+06	3.87E+05	3.18E+03	3.18E+05	3.38E+04	1.76E+05	1.25E+06	2.90E+05	0.00E+00	0.00E+00	4.16E+07

Table 2  
Duration of Discharge by Regulator Outfall (min.)

	Reg 02 C10601	Reg 03 C11003	Reg 04 C11102	Reg 05 C11701	Reg 06 C12102	Reg 07 C126	Reg 08 C42201	Reg 09 C41401	Reg 11 C40701	Reg 12 C902	Reg 13 C70702	Reg 14 C71201	Reg 15 C71705	Reg 16 C72201	Reg 17 C72702	Reg 18 C73801	Reg 19 C52012	Reg 20 C53403	Reg 21 C617	Reg 22 C60801	Reg 23 C60302	Reg 24 C40203	Reg 25 C50601	Reg 26 C51001	Reg 32 C70502	Reg 33 Reg_Outfall_33	TOTAL
January	1,986	1,674	288	2,376	NA	1,116	1,980	1,716	1,992	0	1,938	816	2,226	228	3,006	3,222	1,212	1,068	0	1,398	120	1,104	1,878	138	0	0	31,482
February	3,852	3,192	468	6,690	NA	1,272	3,768	3,030	3,930	0	3,018	840	4,692	330	7,824	11,352	2,526	870	0	2,190	270	1,236	2,916	270	0	0	64,536
March	3,342	2,106	0	3,930	NA	756	2,964	1,500	3,066	0	2,976	396	3,342	0	5,682	6,006	5,682	330	0	702	0	708	2,838	0	0	0	46,326
April	1,620	1,272	324	2,418	NA	1,002	2,052	1,500	1,470	18	1,278	1,290	2,358	276	3,222	4,338	1,302	1,002	60	1,002	90	984	1,098	144	0	0	30,120
May	3,582	2,052	1,848	3,036	NA	858	2,100	2,676	2,286	18	2,424	2,496	3,276	720	5,718	8,634	2,430	786	30	1,344	174	774	1,254	270	0	0	48,786
June	1,902	1,434	948	1,854	NA	1,086	1,470	1,770	1,626	0	1,494	1,698	1,752	474	2,760	3,024	1,542	1,062	54	1,032	354	1,032	1,194	372	0	0	29,934
July	4,350	3,168	678	4,578	NA	1,218	3,006	2,868	3,036	0	2,442	2,400	4,464	414	5,292	5,886	2,436	1,080	0	2,034	126	1,146	2,682	150	0	0	53,454
August	3,954	2,766	1,422	4,338	NA	1,218	2,742	3,564	2,442	0	2,226	2,490	4,224	852	6,612	6,432	1,716	708	54	1,488	192	1,134	1,884	228	0	0	52,686
September	4,962	3,816	1,008	5,484	NA	2,310	4,098	3,480	4,254	0	4,020	2,412	5,586	1,578	7,938	9,888	3,306	2,214	0	2,628	30	2,250	3,564	684	0	0	75,510
October	2,694	2,016	870	2,508	NA	1,290	2,112	1,956	2,190	0	2,142	1,488	2,532	456	3,330	5,340	1,938	1,212	18	1,542	60	1,260	1,908	174	0	0	39,036
November	4,812	3,918	2,238	4,284	NA	2,784	3,906	4,074	3,762	0	3,990	2,760	4,404	1,476	5,268	5,910	3,672	2,550	0	3,030	300	2,640	3,564	708	0	0	70,050
December	5,058	4,392	894	6,750	NA	1,674	4,554	2,106	4,734	0	4,512	1,140	5,718	606	7,176	8,478	3,078	726	0	2,448	24	1,638	4,308	36	0	0	70,050
TOTAL	42,114	31,806	10,986	48,246	NA	16,584	34,752	30,240	34,788	36	32,460	20,226	44,574	7,410	63,828	78,510	30,840	13,608	216	20,838	1,740	15,906	29,088	3,174	0	0	611,970

Table 3  
Frequency of Discharges by Regulator Outfall

	Reg 02 C10601	Reg 03 C11003	Reg 04 C11102	Reg 05 C11701	Reg 06 C12102	Reg 07 C126	Reg 08 C42201	Reg 09 C41401	Reg 11 C40701	Reg 12 C902	Reg 13 C70702	Reg 14 C71201	Reg 15 C71705	Reg 16 C72201	Reg 17 C72702	Reg 18 C73801	Reg 19 C52012	Reg 20 C53403	Reg 21 C617	Reg 22 C60801	Reg 23 C60302	Reg 24 C40203	Reg 25 C50601	Reg 26 C51001	Reg 32 C70502	Reg 33 Reg_Outfall_33	TOTAL
January	3	3	1	4	NA	2	3	2	3	0	3	1	4	1	5	5	2	2	0	2	1	2	3	1	0	0	53
February	6	6	1	9	NA	7	9	6	8	0	6	3	9	1	9	8	5	7	0	6	1	7	8	1	0	0	123
March	4	4	0	5	NA	5	4	5	4	0	4	2	5	0	6	6	6	3	0	5	0	5	4	0	0	0	77
April	3	3	1	6	NA	2	5	3	4	1	3	2	5	1	6	9	2	2	1	3	1	2	3	1	0	0	69
May	6	7	5	8	NA	7	7	6	7	1	6	6	6	7	7	8	6	7	2	7	6	7	7	6	0	0	142
June	4	4	4	5	NA	4	4	4	4	0	4	4	4	4	5	5	4	4	3	4	4	4	4	4	0	0	90
July	5	7	4	6	NA	6	7	5	6	0	5	5	6	4	7	7	5	6	0	6	5	6	7	4	0	0	119
August	8	9	7	12	NA	9	10	8	10	0	9	6	11	7	12	13	9	8	2	9	7	9	9	7	0	0	191
September	9	8	2	9	NA	6	9	7	8	0	8	5	8	3	9	8	8	6	0	7	1	6	8	2	0	0	137
October	5	5	3	7	NA	4	5	4	5	0	5	3	6	3	7	9	3	4	1	4	2	4	5	3	0	0	97
November	8	8	7	8	NA	8	8	8	8	0	8	7	8	7	8	8	8	7	0	8	5	8	8	7	0	0	160
December	6	6	3	5	NA	5	6	5	6	0	6	4	6	4	5	7	5	5	0	5	2	5	6	2	0	0	104
TOTAL	67	70	38	84	NA	65	77	63	73	2	67	48	78	42	86	93	63	61	9	66	35	65	72	38	0	0	1,362



**Table 4**  
**Volume of Discharge by Receiving Water (cf)**

Regulator ID Outfall Pipe ID	Ridley Creek	Chester Creek	Delaware River	TOTAL
January	4.74E+05	2.85E+05	9.68E+05	1.73E+06
February	8.33E+05	4.21E+05	1.31E+06	2.56E+06
March	6.53E+05	4.89E+05	1.02E+06	2.16E+06
April	1.11E+06	8.71E+05	1.81E+06	3.79E+06
May	9.18E+05	7.38E+05	2.13E+06	3.79E+06
June	7.92E+05	6.81E+05	1.93E+06	3.40E+06
July	6.07E+05	4.39E+05	1.37E+06	2.41E+06
August	9.77E+05	7.54E+05	2.23E+06	3.96E+06
September	9.76E+05	6.37E+05	1.97E+06	3.58E+06
October	6.37E+05	4.96E+05	1.45E+06	2.58E+06
November	1.88E+06	1.63E+06	4.53E+06	8.05E+06
December	1.04E+06	6.39E+05	1.95E+06	3.62E+06
<b>TOTAL</b>	<b>1.09E+07</b>	<b>8.08E+06</b>	<b>2.27E+07</b>	<b>4.16E+07</b>

**Table 5**  
**Duration of Discharge by Receiving Water (min.)**

	Ridley Creek	Chester Creek	Delaware River	TOTAL
January	8,682	6,918	15,882	31,482
February	24,198	10,278	30,060	64,536
March	15,030	10,260	21,036	46,326
April	10,194	5,700	14,226	30,120
May	18,348	7,080	23,358	48,786
June	8,010	6,642	15,282	29,934
July	16,056	9,654	27,744	53,454
August	18,120	7,404	27,162	52,686
September	24,990	14,676	35,844	75,510
October	11,658	8,112	19,266	39,036
November	17,058	16,464	36,528	70,050
December	21,978	12,258	35,814	70,050
<b>TOTAL</b>	<b>194,322</b>	<b>115,446</b>	<b>302,202</b>	<b>611,970</b>

**Table 6**  
**Frequency of Discharges by Receiving Water**

	Ridley Creek	Chester Creek	Delaware River	TOTAL
January	15	13	25	53
February	27	35	61	123
March	17	23	37	77
April	21	16	32	69
May	28	49	65	142
June	18	31	41	90
July	24	39	56	119
August	43	60	88	191
September	28	38	71	137
October	31	51	78	160
November	25	26	46	97
December	22	30	52	104
<b>TOTAL</b>	<b>299</b>	<b>411</b>	<b>652</b>	<b>1,362</b>







## **ATTACHMENTS**





## **ATTACHMENT A**

### **1-minute Precipitation Record**





**TABLE A-1**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
1/9/2018 0:00	0.02	1/12/2018 11:18	0.01	1/12/2018 12:54	0.01	1/13/2018 1:31	0.01
1/9/2018 2:12	0.01	1/12/2018 11:21	0.01	1/12/2018 12:55	0.01	1/13/2018 1:37	0.01
1/9/2018 5:08	0.01	1/12/2018 11:22	0.01	1/12/2018 12:56	0.01	1/13/2018 1:44	0.01
1/9/2018 8:34	0.01	1/12/2018 11:25	0.01	1/12/2018 12:57	0.01	1/17/2018 0:29	0.01
1/9/2018 8:56	0.01	1/12/2018 11:27	0.01	1/12/2018 12:58	0.01	1/17/2018 0:49	0.01
1/12/2018 6:23	0.01	1/12/2018 11:29	0.01	1/12/2018 13:00	0.01	1/17/2018 0:54	0.01
1/12/2018 6:29	0.01	1/12/2018 11:30	0.01	1/12/2018 13:03	0.01	1/17/2018 1:02	0.01
1/12/2018 8:49	0.01	1/12/2018 11:32	0.01	1/12/2018 13:05	0.01	1/17/2018 1:39	0.01
1/12/2018 9:01	0.01	1/12/2018 11:35	0.01	1/12/2018 13:07	0.01	1/17/2018 1:50	0.01
1/12/2018 9:04	0.01	1/12/2018 11:40	0.01	1/12/2018 13:08	0.01	1/17/2018 2:16	0.01
1/12/2018 9:14	0.01	1/12/2018 11:42	0.01	1/12/2018 13:11	0.01	1/17/2018 2:45	0.01
1/12/2018 9:19	0.01	1/12/2018 11:45	0.01	1/12/2018 13:15	0.01	1/17/2018 3:26	0.01
1/12/2018 9:22	0.01	1/12/2018 11:47	0.01	1/12/2018 13:21	0.01	1/17/2018 4:24	0.01
1/12/2018 9:26	0.01	1/12/2018 11:51	0.01	1/12/2018 13:25	0.01	1/23/2018 4:23	0.01
1/12/2018 9:33	0.01	1/12/2018 11:53	0.01	1/12/2018 13:34	0.01	1/23/2018 4:27	0.01
1/12/2018 9:41	0.01	1/12/2018 11:54	0.01	1/12/2018 13:39	0.01	1/23/2018 4:56	0.01
1/12/2018 9:47	0.01	1/12/2018 11:55	0.01	1/12/2018 13:40	0.01	1/23/2018 5:00	0.01
1/12/2018 9:53	0.01	1/12/2018 11:57	0.01	1/12/2018 13:43	0.01	1/23/2018 5:01	0.02
1/12/2018 10:03	0.01	1/12/2018 11:58	0.01	1/12/2018 17:09	0.01	1/23/2018 5:02	0.01
1/12/2018 10:07	0.01	1/12/2018 12:00	0.01	1/12/2018 17:17	0.01	1/23/2018 5:06	0.01
1/12/2018 10:15	0.01	1/12/2018 12:03	0.01	1/12/2018 17:28	0.01	1/23/2018 5:17	0.01
1/12/2018 10:18	0.01	1/12/2018 12:04	0.01	1/12/2018 17:48	0.01	1/23/2018 5:19	0.01
1/12/2018 10:25	0.01	1/12/2018 12:06	0.01	1/12/2018 18:16	0.01	1/23/2018 5:20	0.01
1/12/2018 10:28	0.01	1/12/2018 12:08	0.01	1/12/2018 18:27	0.01	1/23/2018 5:22	0.01
1/12/2018 10:29	0.01	1/12/2018 12:10	0.01	1/12/2018 18:36	0.01	1/23/2018 6:54	0.01
1/12/2018 10:30	0.01	1/12/2018 12:13	0.01	1/12/2018 18:45	0.01	1/23/2018 7:03	0.01
1/12/2018 10:33	0.01	1/12/2018 12:15	0.01	1/12/2018 18:48	0.01	1/23/2018 7:48	0.01
1/12/2018 10:36	0.01	1/12/2018 12:17	0.01	1/12/2018 18:53	0.01	1/23/2018 8:16	0.01
1/12/2018 10:42	0.01	1/12/2018 12:18	0.02	1/12/2018 18:59	0.01	1/23/2018 8:19	0.01
1/12/2018 10:44	0.01	1/12/2018 12:19	0.01	1/12/2018 19:04	0.01	1/23/2018 8:22	0.01
1/12/2018 10:49	0.01	1/12/2018 12:21	0.01	1/12/2018 19:32	0.01	1/23/2018 8:23	0.01
1/12/2018 10:51	0.01	1/12/2018 12:24	0.01	1/12/2018 19:47	0.01	1/23/2018 8:25	0.01
1/12/2018 10:54	0.01	1/12/2018 12:26	0.01	1/12/2018 20:17	0.01	1/23/2018 8:26	0.01
1/12/2018 10:55	0.01	1/12/2018 12:27	0.01	1/12/2018 20:24	0.01	1/23/2018 8:31	0.01
1/12/2018 10:56	0.01	1/12/2018 12:30	0.01	1/12/2018 20:37	0.01	1/23/2018 8:34	0.01
1/12/2018 10:58	0.01	1/12/2018 12:33	0.01	1/12/2018 20:44	0.01	1/23/2018 8:47	0.01
1/12/2018 11:01	0.01	1/12/2018 12:36	0.01	1/12/2018 20:48	0.01	1/23/2018 10:02	0.01
1/12/2018 11:03	0.01	1/12/2018 12:38	0.01	1/12/2018 20:49	0.01	1/23/2018 10:03	0.01
1/12/2018 11:06	0.01	1/12/2018 12:40	0.01	1/12/2018 20:50	0.01	1/23/2018 10:07	0.01
1/12/2018 11:08	0.01	1/12/2018 12:42	0.01	1/12/2018 20:51	0.01	1/23/2018 10:20	0.01
1/12/2018 11:09	0.01	1/12/2018 12:44	0.01	1/12/2018 20:52	0.02	1/23/2018 11:07	0.01
1/12/2018 11:10	0.01	1/12/2018 12:45	0.01	1/12/2018 20:55	0.01	1/23/2018 11:27	0.01
1/12/2018 11:11	0.01	1/12/2018 12:47	0.01	1/13/2018 1:25	0.01	1/23/2018 11:28	0.01
1/12/2018 11:13	0.01	1/12/2018 12:49	0.01	1/13/2018 1:26	0.01	1/23/2018 11:29	0.01
1/12/2018 11:14	0.01	1/12/2018 12:52	0.01	1/13/2018 1:27	0.01	1/23/2018 11:30	0.01
1/12/2018 11:17	0.01	1/12/2018 12:53	0.01	1/13/2018 1:28	0.01	1/23/2018 11:32	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
1/23/2018 11:35	0.01	2/2/2018 2:20	0.01	2/4/2018 18:14	0.01	2/7/2018 13:42	0.01
1/28/2018 2:36	0.01	2/2/2018 2:30	0.01	2/4/2018 18:19	0.01	2/7/2018 13:43	0.01
1/28/2018 2:55	0.01	2/2/2018 2:56	0.01	2/4/2018 18:24	0.01	2/7/2018 13:45	0.01
1/28/2018 3:18	0.01	2/2/2018 3:52	0.01	2/4/2018 18:30	0.01	2/7/2018 13:50	0.01
1/28/2018 3:39	0.01	2/2/2018 4:08	0.01	2/4/2018 18:42	0.01	2/7/2018 13:52	0.01
1/28/2018 3:49	0.01	2/4/2018 12:26	0.01	2/4/2018 18:58	0.01	2/7/2018 13:56	0.01
1/28/2018 3:56	0.01	2/4/2018 12:43	0.01	2/4/2018 19:15	0.01	2/7/2018 14:03	0.01
1/28/2018 4:03	0.01	2/4/2018 13:11	0.01	2/4/2018 19:19	0.01	2/7/2018 14:06	0.01
1/28/2018 4:07	0.01	2/4/2018 13:25	0.01	2/4/2018 19:24	0.01	2/7/2018 14:10	0.01
1/28/2018 4:25	0.01	2/4/2018 13:45	0.01	2/4/2018 19:28	0.01	2/7/2018 14:24	0.01
1/28/2018 4:44	0.01	2/4/2018 13:58	0.01	2/4/2018 19:33	0.01	2/7/2018 14:36	0.01
1/28/2018 6:22	0.01	2/4/2018 14:13	0.01	2/4/2018 19:38	0.01	2/7/2018 14:41	0.01
1/28/2018 7:29	0.01	2/4/2018 14:24	0.01	2/4/2018 19:44	0.01	2/7/2018 14:50	0.01
1/28/2018 8:00	0.01	2/4/2018 14:41	0.01	2/4/2018 19:51	0.01	2/7/2018 15:09	0.04
1/28/2018 8:27	0.01	2/4/2018 14:57	0.01	2/4/2018 19:55	0.01	2/7/2018 15:21	0.01
1/28/2018 8:51	0.01	2/4/2018 15:16	0.01	2/4/2018 20:01	0.01	2/7/2018 15:37	0.01
1/28/2018 9:08	0.01	2/4/2018 15:32	0.01	2/4/2018 20:07	0.01	2/7/2018 16:02	0.03
1/28/2018 9:30	0.01	2/4/2018 15:42	0.01	2/4/2018 20:14	0.01	2/7/2018 16:10	0.01
1/28/2018 9:37	0.01	2/4/2018 15:48	0.01	2/4/2018 20:24	0.01	2/7/2018 16:17	0.01
1/28/2018 9:48	0.01	2/4/2018 15:53	0.01	2/4/2018 20:36	0.01	2/7/2018 16:22	0.01
1/28/2018 10:00	0.01	2/4/2018 15:57	0.01	2/4/2018 20:55	0.01	2/7/2018 16:27	0.01
1/28/2018 10:08	0.01	2/4/2018 16:02	0.01	2/4/2018 23:07	0.01	2/7/2018 16:29	0.01
1/28/2018 10:30	0.01	2/4/2018 16:08	0.01	2/7/2018 8:09	0.01	2/7/2018 16:31	0.01
1/28/2018 10:44	0.01	2/4/2018 16:16	0.01	2/7/2018 8:24	0.01	2/7/2018 16:34	0.01
1/28/2018 11:02	0.01	2/4/2018 16:17	0.01	2/7/2018 8:31	0.01	2/7/2018 16:40	0.01
1/28/2018 11:40	0.01	2/4/2018 16:24	0.01	2/7/2018 8:40	0.01	2/7/2018 16:53	0.01
1/28/2018 12:20	0.01	2/4/2018 16:29	0.01	2/7/2018 9:09	0.01	2/7/2018 16:58	0.01
1/28/2018 12:43	0.01	2/4/2018 16:34	0.01	2/7/2018 9:52	0.01	2/7/2018 17:01	0.01
1/28/2018 13:02	0.01	2/4/2018 16:38	0.01	2/7/2018 10:17	0.01	2/7/2018 17:05	0.01
1/30/2018 2:34	0.01	2/4/2018 16:44	0.01	2/7/2018 10:57	0.01	2/7/2018 17:10	0.01
1/30/2018 3:50	0.01	2/4/2018 16:52	0.01	2/7/2018 12:06	0.01	2/7/2018 17:13	0.01
1/30/2018 8:07	0.01	2/4/2018 17:06	0.01	2/7/2018 12:27	0.01	2/7/2018 17:17	0.01
1/30/2018 8:37	0.01	2/4/2018 17:15	0.01	2/7/2018 12:32	0.01	2/7/2018 17:21	0.01
1/30/2018 9:17	0.01	2/4/2018 17:23	0.01	2/7/2018 12:37	0.01	2/7/2018 17:27	0.01
1/30/2018 10:47	0.01	2/4/2018 17:26	0.01	2/7/2018 12:40	0.01	2/7/2018 17:31	0.01
2/2/2018 0:00	0.02	2/4/2018 17:29	0.01	2/7/2018 12:44	0.01	2/7/2018 17:35	0.01
2/2/2018 0:13	0.01	2/4/2018 17:32	0.01	2/7/2018 12:47	0.01	2/7/2018 17:42	0.01
2/2/2018 0:41	0.01	2/4/2018 17:36	0.01	2/7/2018 12:52	0.01	2/7/2018 18:05	0.01
2/2/2018 0:50	0.01	2/4/2018 17:38	0.01	2/7/2018 13:00	0.01	2/8/2018 0:47	0.01
2/2/2018 1:06	0.01	2/4/2018 17:42	0.01	2/7/2018 13:09	0.01	2/10/2018 13:36	0.01
2/2/2018 1:18	0.01	2/4/2018 17:46	0.01	2/7/2018 13:16	0.01	2/10/2018 13:44	0.01
2/2/2018 1:25	0.01	2/4/2018 17:50	0.01	2/7/2018 13:22	0.01	2/10/2018 13:58	0.01
2/2/2018 1:32	0.01	2/4/2018 17:53	0.01	2/7/2018 13:26	0.01	2/10/2018 14:12	0.01
2/2/2018 1:41	0.01	2/4/2018 17:58	0.01	2/7/2018 13:29	0.01	2/10/2018 14:37	0.01
2/2/2018 1:55	0.01	2/4/2018 18:03	0.01	2/7/2018 13:33	0.01	2/10/2018 16:19	0.01
2/2/2018 2:09	0.01	2/4/2018 18:09	0.01	2/7/2018 13:39	0.01	2/10/2018 16:58	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
2/10/2018 17:02	0.01	2/11/2018 6:17	0.01	2/11/2018 11:25	0.01	2/15/2018 22:15	0.01
2/10/2018 17:05	0.01	2/11/2018 6:29	0.01	2/11/2018 11:28	0.01	2/15/2018 22:47	0.01
2/10/2018 17:08	0.01	2/11/2018 6:32	0.01	2/11/2018 11:31	0.01	2/15/2018 23:04	0.01
2/10/2018 17:10	0.01	2/11/2018 6:36	0.01	2/11/2018 11:33	0.01	2/15/2018 23:18	0.01
2/10/2018 17:12	0.01	2/11/2018 6:39	0.01	2/11/2018 11:34	0.01	2/15/2018 23:32	0.01
2/10/2018 17:14	0.01	2/11/2018 6:42	0.01	2/11/2018 11:35	0.01	2/15/2018 23:45	0.01
2/10/2018 17:17	0.01	2/11/2018 6:58	0.01	2/11/2018 11:37	0.02	2/16/2018 0:11	0.01
2/10/2018 17:21	0.01	2/11/2018 7:05	0.01	2/11/2018 11:38	0.02	2/16/2018 0:45	0.01
2/10/2018 17:31	0.01	2/11/2018 7:09	0.01	2/11/2018 11:41	0.01	2/16/2018 1:00	0.01
2/10/2018 17:44	0.01	2/11/2018 7:13	0.01	2/11/2018 11:51	0.01	2/16/2018 1:09	0.01
2/10/2018 17:47	0.01	2/11/2018 7:14	0.01	2/11/2018 12:02	0.01	2/16/2018 2:26	0.01
2/10/2018 18:18	0.01	2/11/2018 7:15	0.01	2/11/2018 12:08	0.01	2/16/2018 3:06	0.01
2/10/2018 18:27	0.01	2/11/2018 7:16	0.01	2/11/2018 12:13	0.01	2/16/2018 4:50	0.01
2/10/2018 18:34	0.01	2/11/2018 7:17	0.02	2/11/2018 12:20	0.01	2/16/2018 5:50	0.01
2/10/2018 18:37	0.01	2/11/2018 7:18	0.01	2/11/2018 12:25	0.01	2/16/2018 6:09	0.01
2/10/2018 18:39	0.01	2/11/2018 7:19	0.01	2/11/2018 12:27	0.01	2/16/2018 6:21	0.01
2/10/2018 19:08	0.01	2/11/2018 7:20	0.01	2/11/2018 12:36	0.01	2/16/2018 6:52	0.01
2/10/2018 20:42	0.01	2/11/2018 7:22	0.01	2/11/2018 12:48	0.01	2/16/2018 8:53	0.01
2/10/2018 22:57	0.01	2/11/2018 7:24	0.01	2/11/2018 12:59	0.01	2/16/2018 14:13	0.01
2/10/2018 23:29	0.01	2/11/2018 7:28	0.01	2/11/2018 13:14	0.01	2/16/2018 14:39	0.01
2/10/2018 23:57	0.01	2/11/2018 7:31	0.01	2/11/2018 13:32	0.01	2/17/2018 16:52	0.01
2/11/2018 0:08	0.01	2/11/2018 7:33	0.01	2/11/2018 13:55	0.01	2/17/2018 17:18	0.01
2/11/2018 0:13	0.01	2/11/2018 7:38	0.01	2/11/2018 14:07	0.01	2/17/2018 17:47	0.01
2/11/2018 0:25	0.01	2/11/2018 7:42	0.01	2/11/2018 14:26	0.01	2/17/2018 18:08	0.01
2/11/2018 0:38	0.01	2/11/2018 7:47	0.01	2/11/2018 14:51	0.01	2/17/2018 18:39	0.01
2/11/2018 0:49	0.01	2/11/2018 7:49	0.01	2/11/2018 15:04	0.01	2/17/2018 18:53	0.01
2/11/2018 1:03	0.01	2/11/2018 7:53	0.01	2/11/2018 16:13	0.01	2/17/2018 19:10	0.01
2/11/2018 1:23	0.01	2/11/2018 7:55	0.01	2/11/2018 16:16	0.02	2/17/2018 22:08	0.01
2/11/2018 1:34	0.01	2/11/2018 8:00	0.01	2/11/2018 16:18	0.01	2/17/2018 22:33	0.01
2/11/2018 1:52	0.01	2/11/2018 8:06	0.01	2/11/2018 19:37	0.01	2/17/2018 23:01	0.01
2/11/2018 2:07	0.01	2/11/2018 8:18	0.01	2/11/2018 19:43	0.01	2/17/2018 23:36	0.01
2/11/2018 2:17	0.01	2/11/2018 8:37	0.01	2/11/2018 20:00	0.01	2/18/2018 0:01	0.01
2/11/2018 2:25	0.01	2/11/2018 9:08	0.01	2/12/2018 4:47	0.01	2/18/2018 0:32	0.01
2/11/2018 2:32	0.01	2/11/2018 9:23	0.01	2/15/2018 0:00	0.06	2/18/2018 0:59	0.01
2/11/2018 2:42	0.01	2/11/2018 9:36	0.01	2/15/2018 0:02	0.01	2/18/2018 1:29	0.01
2/11/2018 2:53	0.01	2/11/2018 9:44	0.01	2/15/2018 0:14	0.01	2/18/2018 1:55	0.01
2/11/2018 3:29	0.01	2/11/2018 10:08	0.01	2/15/2018 0:25	0.01	2/18/2018 2:11	0.01
2/11/2018 4:08	0.01	2/11/2018 10:21	0.01	2/15/2018 0:33	0.01	2/18/2018 2:25	0.01
2/11/2018 4:39	0.01	2/11/2018 10:26	0.01	2/15/2018 1:03	0.01	2/18/2018 2:38	0.01
2/11/2018 4:52	0.01	2/11/2018 10:30	0.01	2/15/2018 1:52	0.01	2/18/2018 2:53	0.01
2/11/2018 5:05	0.01	2/11/2018 10:41	0.01	2/15/2018 2:16	0.01	2/18/2018 3:11	0.01
2/11/2018 5:21	0.01	2/11/2018 10:44	0.01	2/15/2018 9:17	0.01	2/18/2018 3:32	0.01
2/11/2018 5:32	0.01	2/11/2018 10:51	0.01	2/15/2018 20:37	0.01	2/18/2018 3:55	0.01
2/11/2018 5:47	0.01	2/11/2018 11:19	0.01	2/15/2018 20:41	0.01	2/18/2018 4:27	0.01
2/11/2018 5:58	0.01	2/11/2018 11:22	0.01	2/15/2018 21:24	0.01	2/18/2018 4:57	0.01
2/11/2018 6:06	0.01	2/11/2018 11:23	0.01	2/15/2018 21:45	0.01	2/18/2018 5:25	0.01





**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
2/18/2018 7:33	0.01	2/23/2018 16:31	0.01	3/1/2018 20:07	0.01	3/2/2018 0:45	0.01
2/18/2018 7:55	0.01	2/24/2018 13:19	0.01	3/1/2018 20:18	0.01	3/2/2018 0:47	0.01
2/18/2018 8:09	0.01	2/24/2018 13:32	0.01	3/1/2018 20:31	0.01	3/2/2018 0:54	0.01
2/18/2018 8:20	0.01	2/25/2018 1:24	0.01	3/1/2018 20:38	0.01	3/2/2018 1:07	0.01
2/18/2018 8:31	0.01	2/25/2018 1:42	0.01	3/1/2018 20:46	0.01	3/2/2018 1:25	0.01
2/18/2018 8:43	0.01	2/25/2018 1:58	0.01	3/1/2018 20:58	0.01	3/2/2018 1:32	0.01
2/18/2018 8:54	0.01	2/25/2018 2:10	0.01	3/1/2018 21:04	0.01	3/2/2018 1:38	0.01
2/18/2018 9:10	0.01	2/25/2018 2:35	0.01	3/1/2018 21:08	0.01	3/2/2018 1:44	0.01
2/18/2018 9:24	0.01	2/25/2018 2:53	0.01	3/1/2018 21:12	0.01	3/2/2018 1:53	0.01
2/18/2018 9:40	0.01	2/25/2018 2:56	0.01	3/1/2018 21:16	0.01	3/2/2018 2:05	0.01
2/18/2018 10:02	0.01	2/25/2018 3:06	0.01	3/1/2018 21:21	0.01	3/2/2018 2:10	0.01
2/22/2018 9:51	0.01	2/25/2018 3:09	0.02	3/1/2018 21:26	0.01	3/2/2018 2:14	0.01
2/22/2018 16:02	0.01	2/25/2018 3:10	0.02	3/1/2018 21:30	0.01	3/2/2018 2:20	0.01
2/22/2018 16:20	0.01	2/25/2018 3:11	0.01	3/1/2018 21:36	0.01	3/2/2018 2:25	0.01
2/22/2018 16:47	0.01	2/25/2018 3:14	0.01	3/1/2018 21:39	0.01	3/2/2018 2:31	0.01
2/22/2018 16:56	0.01	2/25/2018 3:23	0.01	3/1/2018 21:42	0.01	3/2/2018 2:35	0.01
2/22/2018 17:44	0.01	2/25/2018 4:38	0.01	3/1/2018 21:45	0.01	3/2/2018 2:40	0.01
2/23/2018 4:42	0.01	2/25/2018 5:12	0.01	3/1/2018 21:48	0.01	3/2/2018 2:44	0.01
2/23/2018 4:52	0.01	2/25/2018 5:39	0.01	3/1/2018 21:52	0.01	3/2/2018 2:52	0.01
2/23/2018 5:39	0.01	2/25/2018 5:42	0.01	3/1/2018 21:56	0.01	3/2/2018 3:04	0.01
2/23/2018 5:41	0.01	2/25/2018 5:51	0.01	3/1/2018 22:00	0.01	3/2/2018 3:11	0.01
2/23/2018 5:43	0.01	2/25/2018 5:54	0.01	3/1/2018 22:03	0.01	3/2/2018 3:17	0.01
2/23/2018 5:45	0.01	2/25/2018 5:58	0.01	3/1/2018 22:08	0.01	3/2/2018 3:23	0.01
2/23/2018 5:51	0.01	2/25/2018 6:09	0.01	3/1/2018 22:13	0.01	3/2/2018 3:27	0.01
2/23/2018 6:00	0.01	2/25/2018 6:22	0.01	3/1/2018 22:17	0.01	3/2/2018 3:30	0.01
2/23/2018 6:03	0.01	2/25/2018 6:31	0.01	3/1/2018 22:19	0.01	3/2/2018 3:32	0.01
2/23/2018 6:05	0.01	2/25/2018 6:54	0.01	3/1/2018 22:24	0.01	3/2/2018 3:42	0.01
2/23/2018 6:08	0.01	2/25/2018 8:02	0.01	3/1/2018 22:29	0.01	3/2/2018 6:21	0.01
2/23/2018 6:14	0.01	2/25/2018 8:10	0.01	3/1/2018 22:32	0.01	3/2/2018 6:33	0.01
2/23/2018 6:23	0.01	2/25/2018 8:22	0.01	3/1/2018 22:35	0.01	3/2/2018 6:38	0.01
2/23/2018 6:30	0.01	2/25/2018 8:30	0.01	3/1/2018 22:39	0.01	3/2/2018 7:06	0.01
2/23/2018 6:59	0.01	2/25/2018 9:04	0.01	3/1/2018 22:42	0.01	3/2/2018 7:34	0.01
2/23/2018 7:49	0.01	2/25/2018 9:08	0.01	3/1/2018 22:45	0.01	3/2/2018 7:52	0.01
2/23/2018 7:58	0.01	2/25/2018 9:20	0.01	3/1/2018 22:51	0.01	3/2/2018 8:01	0.01
2/23/2018 8:15	0.01	2/25/2018 9:31	0.01	3/1/2018 22:57	0.01	3/2/2018 8:14	0.01
2/23/2018 8:19	0.01	2/25/2018 9:39	0.01	3/1/2018 23:01	0.01	3/2/2018 8:37	0.01
2/23/2018 8:22	0.01	2/25/2018 9:45	0.01	3/1/2018 23:08	0.01	3/2/2018 8:55	0.01
2/23/2018 8:25	0.01	2/25/2018 9:52	0.01	3/1/2018 23:17	0.01	3/2/2018 9:05	0.01
2/23/2018 8:28	0.01	2/25/2018 9:56	0.01	3/1/2018 23:24	0.01	3/2/2018 9:15	0.01
2/23/2018 8:31	0.01	2/25/2018 10:21	0.01	3/1/2018 23:36	0.01	3/2/2018 9:33	0.01
2/23/2018 8:40	0.01	2/25/2018 13:30	0.01	3/1/2018 23:42	0.01	3/2/2018 10:18	0.01
2/23/2018 9:03	0.01	3/1/2018 18:44	0.01	3/2/2018 0:17	0.01	3/2/2018 12:08	0.01
2/23/2018 9:19	0.02	3/1/2018 19:12	0.01	3/2/2018 0:34	0.01	3/2/2018 12:17	0.01
2/23/2018 9:20	0.01	3/1/2018 19:30	0.01	3/2/2018 0:40	0.01	3/2/2018 12:24	0.01
2/23/2018 9:21	0.01	3/1/2018 19:40	0.01	3/2/2018 0:41	0.01	3/2/2018 12:31	0.01
2/23/2018 9:27	0.01	3/1/2018 19:51	0.01	3/2/2018 0:42	0.01	3/2/2018 12:41	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
3/2/2018 12:49	0.01	3/7/2018 2:30	0.01	3/7/2018 11:00	0.01	3/7/2018 18:48	0.01
3/2/2018 12:59	0.01	3/7/2018 2:45	0.01	3/7/2018 11:07	0.01	3/7/2018 19:03	0.01
3/2/2018 13:13	0.01	3/7/2018 2:57	0.01	3/7/2018 11:15	0.01	3/7/2018 19:44	0.01
3/2/2018 13:24	0.01	3/7/2018 3:17	0.01	3/7/2018 11:23	0.01	3/7/2018 20:08	0.01
3/2/2018 13:35	0.01	3/7/2018 3:38	0.01	3/7/2018 11:34	0.01	3/7/2018 20:37	0.01
3/2/2018 13:48	0.01	3/7/2018 3:53	0.01	3/7/2018 11:45	0.01	3/7/2018 21:26	0.01
3/2/2018 14:05	0.01	3/7/2018 4:05	0.01	3/7/2018 11:58	0.01	3/7/2018 23:59	0.01
3/2/2018 14:22	0.01	3/7/2018 4:23	0.01	3/7/2018 12:14	0.01	3/12/2018 17:30	0.01
3/2/2018 14:32	0.01	3/7/2018 4:37	0.01	3/7/2018 13:20	0.01	3/12/2018 17:49	0.01
3/2/2018 14:49	0.01	3/7/2018 4:53	0.01	3/7/2018 13:40	0.01	3/12/2018 18:17	0.01
3/2/2018 15:02	0.01	3/7/2018 5:08	0.01	3/7/2018 13:54	0.01	3/12/2018 18:31	0.01
3/2/2018 15:18	0.01	3/7/2018 5:22	0.01	3/7/2018 14:03	0.01	3/12/2018 18:47	0.01
3/2/2018 15:31	0.01	3/7/2018 5:32	0.01	3/7/2018 14:23	0.01	3/12/2018 19:00	0.01
3/2/2018 15:44	0.01	3/7/2018 5:39	0.01	3/7/2018 14:37	0.01	3/12/2018 19:31	0.01
3/2/2018 15:59	0.01	3/7/2018 5:47	0.01	3/7/2018 14:45	0.01	3/12/2018 22:24	0.01
3/2/2018 16:10	0.01	3/7/2018 5:55	0.01	3/7/2018 14:54	0.01	3/12/2018 23:11	0.01
3/2/2018 16:20	0.01	3/7/2018 6:05	0.01	3/7/2018 15:01	0.01	3/13/2018 1:23	0.01
3/2/2018 16:31	0.01	3/7/2018 6:13	0.01	3/7/2018 15:11	0.01	3/13/2018 2:48	0.01
3/2/2018 16:44	0.01	3/7/2018 6:23	0.01	3/7/2018 15:18	0.01	3/13/2018 2:56	0.01
3/2/2018 16:55	0.01	3/7/2018 6:34	0.01	3/7/2018 15:24	0.01	3/21/2018 14:42	0.02
3/2/2018 17:09	0.01	3/7/2018 6:44	0.01	3/7/2018 15:32	0.01	3/21/2018 15:39	0.01
3/2/2018 17:25	0.01	3/7/2018 6:53	0.01	3/7/2018 15:39	0.01	3/21/2018 16:20	0.01
3/2/2018 17:43	0.01	3/7/2018 7:02	0.01	3/7/2018 15:46	0.01	3/21/2018 17:06	0.01
3/2/2018 18:01	0.01	3/7/2018 7:09	0.01	3/7/2018 15:53	0.01	3/21/2018 19:25	0.01
3/2/2018 18:18	0.01	3/7/2018 7:22	0.01	3/7/2018 16:01	0.01	3/21/2018 21:59	0.01
3/2/2018 18:42	0.01	3/7/2018 7:37	0.01	3/7/2018 16:07	0.01	3/21/2018 22:50	0.01
3/2/2018 19:09	0.01	3/7/2018 7:48	0.01	3/7/2018 16:14	0.01	3/21/2018 23:32	0.01
3/2/2018 19:53	0.01	3/7/2018 8:01	0.01	3/7/2018 16:20	0.01	3/22/2018 0:12	0.01
3/2/2018 21:57	0.01	3/7/2018 8:17	0.01	3/7/2018 16:26	0.01	3/22/2018 0:42	0.01
3/6/2018 21:51	0.01	3/7/2018 8:39	0.01	3/7/2018 16:32	0.01	3/22/2018 1:14	0.01
3/6/2018 22:11	0.01	3/7/2018 8:48	0.01	3/7/2018 16:38	0.01	3/22/2018 1:54	0.01
3/6/2018 22:20	0.01	3/7/2018 8:57	0.01	3/7/2018 16:44	0.01	3/22/2018 3:10	0.01
3/6/2018 22:29	0.01	3/7/2018 9:05	0.01	3/7/2018 16:50	0.01	3/22/2018 6:20	0.01
3/6/2018 22:40	0.01	3/7/2018 9:15	0.01	3/7/2018 16:56	0.01	3/22/2018 9:45	0.01
3/6/2018 22:50	0.01	3/7/2018 9:23	0.01	3/7/2018 17:02	0.01	3/22/2018 10:16	0.01
3/6/2018 22:55	0.01	3/7/2018 9:31	0.01	3/7/2018 17:07	0.01	3/22/2018 10:28	0.01
3/6/2018 22:59	0.01	3/7/2018 9:41	0.01	3/7/2018 17:12	0.01	3/22/2018 10:37	0.01
3/6/2018 23:06	0.01	3/7/2018 9:49	0.01	3/7/2018 17:17	0.01	3/22/2018 10:46	0.01
3/6/2018 23:10	0.01	3/7/2018 10:00	0.01	3/7/2018 17:23	0.01	3/22/2018 10:57	0.01
3/6/2018 23:15	0.01	3/7/2018 10:08	0.01	3/7/2018 17:29	0.01	3/22/2018 11:06	0.01
3/6/2018 23:19	0.01	3/7/2018 10:15	0.01	3/7/2018 17:35	0.01	3/22/2018 11:13	0.01
3/6/2018 23:34	0.01	3/7/2018 10:22	0.01	3/7/2018 17:43	0.01	3/22/2018 11:19	0.01
3/7/2018 0:11	0.01	3/7/2018 10:30	0.01	3/7/2018 17:52	0.01	3/22/2018 11:25	0.01
3/7/2018 1:47	0.01	3/7/2018 10:37	0.01	3/7/2018 18:01	0.01	3/22/2018 11:30	0.01
3/7/2018 2:03	0.01	3/7/2018 10:45	0.01	3/7/2018 18:13	0.01	3/22/2018 11:34	0.01
3/7/2018 2:18	0.01	3/7/2018 10:52	0.01	3/7/2018 18:30	0.01	3/22/2018 11:39	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
3/22/2018 11:43	0.01	3/30/2018 14:25	0.01	4/15/2018 17:29	0.01	4/16/2018 4:49	0.01
3/22/2018 11:47	0.01	3/30/2018 14:27	0.01	4/15/2018 17:32	0.01	4/16/2018 4:50	0.01
3/22/2018 11:51	0.01	3/30/2018 14:29	0.01	4/15/2018 17:35	0.01	4/16/2018 4:51	0.01
3/22/2018 11:55	0.01	3/30/2018 14:31	0.01	4/15/2018 17:37	0.01	4/16/2018 4:52	0.02
3/22/2018 11:59	0.01	3/30/2018 14:37	0.01	4/15/2018 17:40	0.01	4/16/2018 5:06	0.01
3/22/2018 12:03	0.01	3/30/2018 14:43	0.01	4/15/2018 17:44	0.01	4/16/2018 5:08	0.01
3/22/2018 12:07	0.01	3/30/2018 15:11	0.01	4/15/2018 17:49	0.01	4/16/2018 5:13	0.01
3/22/2018 12:12	0.01	4/2/2018 4:19	0.01	4/15/2018 17:56	0.01	4/16/2018 5:16	0.01
3/22/2018 12:16	0.01	4/2/2018 5:16	0.01	4/15/2018 18:01	0.01	4/16/2018 5:17	0.01
3/22/2018 12:20	0.01	4/2/2018 5:31	0.01	4/15/2018 18:07	0.01	4/16/2018 5:18	0.01
3/22/2018 12:24	0.01	4/2/2018 5:39	0.01	4/15/2018 18:32	0.01	4/16/2018 5:19	0.02
3/22/2018 12:29	0.01	4/2/2018 5:47	0.01	4/15/2018 21:28	0.01	4/16/2018 5:20	0.01
3/22/2018 12:33	0.01	4/2/2018 5:56	0.01	4/15/2018 21:31	0.01	4/16/2018 5:23	0.01
3/22/2018 12:38	0.01	4/2/2018 6:04	0.01	4/15/2018 21:34	0.01	4/16/2018 5:25	0.01
3/22/2018 12:42	0.01	4/2/2018 6:12	0.01	4/15/2018 21:42	0.01	4/16/2018 5:26	0.01
3/22/2018 12:47	0.01	4/2/2018 6:19	0.01	4/15/2018 22:22	0.01	4/16/2018 5:31	0.01
3/22/2018 12:53	0.01	4/2/2018 6:31	0.01	4/15/2018 22:28	0.01	4/16/2018 5:34	0.01
3/22/2018 13:00	0.01	4/2/2018 6:46	0.01	4/15/2018 22:54	0.01	4/16/2018 5:39	0.01
3/22/2018 13:06	0.01	4/2/2018 7:22	0.01	4/15/2018 23:06	0.01	4/16/2018 5:46	0.01
3/22/2018 13:12	0.01	4/2/2018 7:35	0.01	4/15/2018 23:47	0.01	4/16/2018 5:51	0.01
3/22/2018 13:17	0.01	4/2/2018 8:18	0.01	4/16/2018 0:05	0.01	4/16/2018 5:54	0.01
3/22/2018 13:23	0.01	4/2/2018 8:45	0.01	4/16/2018 0:24	0.01	4/16/2018 5:57	0.01
3/22/2018 13:28	0.01	4/2/2018 9:25	0.01	4/16/2018 0:33	0.01	4/16/2018 5:59	0.01
3/22/2018 13:35	0.01	4/3/2018 8:48	0.01	4/16/2018 0:47	0.01	4/16/2018 6:01	0.02
3/22/2018 13:41	0.01	4/3/2018 16:30	0.01	4/16/2018 1:19	0.01	4/16/2018 6:02	0.01
3/22/2018 13:48	0.01	4/3/2018 16:38	0.01	4/16/2018 1:26	0.01	4/16/2018 6:03	0.01
3/22/2018 13:55	0.01	4/3/2018 17:01	0.01	4/16/2018 1:49	0.01	4/16/2018 6:04	0.01
3/22/2018 14:06	0.01	4/3/2018 18:26	0.01	4/16/2018 2:01	0.01	4/16/2018 6:05	0.02
3/22/2018 14:16	0.01	4/3/2018 19:03	0.01	4/16/2018 2:04	0.06	4/16/2018 6:06	0.02
3/22/2018 14:29	0.01	4/3/2018 19:14	0.01	4/16/2018 2:12	0.01	4/16/2018 6:07	0.02
3/22/2018 14:46	0.01	4/3/2018 19:24	0.01	4/16/2018 2:40	0.01	4/16/2018 6:08	0.04
3/22/2018 15:15	0.01	4/4/2018 12:50	0.01	4/16/2018 2:47	0.01	4/16/2018 6:09	0.03
3/29/2018 0:00	0.01	4/4/2018 15:51	0.01	4/16/2018 2:54	0.01	4/16/2018 6:10	0.04
3/29/2018 1:10	0.01	4/6/2018 5:52	0.01	4/16/2018 3:24	0.01	4/16/2018 6:11	0.03
3/29/2018 1:43	0.01	4/15/2018 16:32	0.01	4/16/2018 3:28	0.01	4/16/2018 6:13	0.02
3/29/2018 4:16	0.01	4/15/2018 16:37	0.01	4/16/2018 3:36	0.01	4/16/2018 6:14	0.05
3/29/2018 4:46	0.01	4/15/2018 16:48	0.01	4/16/2018 3:49	0.01	4/16/2018 6:15	0.03
3/29/2018 5:29	0.01	4/15/2018 17:06	0.01	4/16/2018 3:53	0.01	4/16/2018 6:16	0.03
3/30/2018 14:11	0.01	4/15/2018 17:08	0.01	4/16/2018 4:01	0.01	4/16/2018 6:17	0.03
3/30/2018 14:14	0.01	4/15/2018 17:09	0.01	4/16/2018 4:04	0.01	4/16/2018 6:18	0.01
3/30/2018 14:18	0.01	4/15/2018 17:10	0.01	4/16/2018 4:07	0.01	4/16/2018 6:19	0.02
3/30/2018 14:19	0.01	4/15/2018 17:11	0.01	4/16/2018 4:13	0.01	4/16/2018 6:20	0.01
3/30/2018 14:21	0.01	4/15/2018 17:13	0.01	4/16/2018 4:21	0.01	4/16/2018 6:21	0.03
3/30/2018 14:22	0.01	4/15/2018 17:17	0.01	4/16/2018 4:30	0.01	4/16/2018 6:22	0.03
3/30/2018 14:23	0.01	4/15/2018 17:22	0.01	4/16/2018 4:46	0.01	4/16/2018 6:23	0.01
3/30/2018 14:24	0.01	4/15/2018 17:25	0.01	4/16/2018 4:47	0.02	4/16/2018 6:24	0.02



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
4/16/2018 6:25	0.02	4/16/2018 7:13	0.01	4/27/2018 5:55	0.01	5/12/2018 0:51	0.01
4/16/2018 6:26	0.02	4/16/2018 7:14	0.01	4/27/2018 5:57	0.01	5/12/2018 0:54	0.01
4/16/2018 6:27	0.01	4/16/2018 7:17	0.01	4/27/2018 5:58	0.01	5/12/2018 3:41	0.01
4/16/2018 6:28	0.01	4/16/2018 7:20	0.01	4/27/2018 5:59	0.01	5/12/2018 3:44	0.01
4/16/2018 6:29	0.01	4/16/2018 7:22	0.01	4/27/2018 6:01	0.01	5/12/2018 3:45	0.01
4/16/2018 6:30	0.01	4/16/2018 7:25	0.01	4/27/2018 6:04	0.01	5/12/2018 3:46	0.01
4/16/2018 6:31	0.03	4/16/2018 7:29	0.01	4/27/2018 6:08	0.01	5/12/2018 3:47	0.01
4/16/2018 6:32	0.02	4/16/2018 7:31	0.01	4/27/2018 6:11	0.01	5/12/2018 3:48	0.01
4/16/2018 6:33	0.02	4/16/2018 7:35	0.01	4/27/2018 6:13	0.01	5/12/2018 3:50	0.01
4/16/2018 6:34	0.01	4/16/2018 7:37	0.01	4/27/2018 6:15	0.01	5/12/2018 3:52	0.03
4/16/2018 6:35	0.02	4/16/2018 7:41	0.01	4/27/2018 6:16	0.01	5/12/2018 3:55	0.01
4/16/2018 6:36	0.01	4/16/2018 7:45	0.01	4/27/2018 6:18	0.01	5/12/2018 3:56	0.02
4/16/2018 6:37	0.02	4/16/2018 7:49	0.01	4/27/2018 6:19	0.01	5/12/2018 3:58	0.01
4/16/2018 6:38	0.01	4/16/2018 7:52	0.01	4/27/2018 6:22	0.01	5/12/2018 3:59	0.01
4/16/2018 6:39	0.01	4/16/2018 7:57	0.01	4/27/2018 6:28	0.01	5/12/2018 4:00	0.01
4/16/2018 6:40	0.01	4/16/2018 8:01	0.01	4/27/2018 6:43	0.01	5/12/2018 4:02	0.01
4/16/2018 6:41	0.03	4/16/2018 8:04	0.01	4/27/2018 6:55	0.01	5/12/2018 4:03	0.02
4/16/2018 6:42	0.01	4/16/2018 8:08	0.01	4/27/2018 7:14	0.01	5/12/2018 4:04	0.01
4/16/2018 6:43	0.01	4/16/2018 8:13	0.01	4/27/2018 8:08	0.01	5/12/2018 4:06	0.01
4/16/2018 6:44	0.01	4/16/2018 8:16	0.01	4/27/2018 8:39	0.01	5/12/2018 4:08	0.01
4/16/2018 6:45	0.02	4/16/2018 8:19	0.01	4/27/2018 8:48	0.01	5/12/2018 4:10	0.01
4/16/2018 6:46	0.02	4/16/2018 8:22	0.01	4/27/2018 8:53	0.01	5/12/2018 4:12	0.01
4/16/2018 6:47	0.02	4/16/2018 8:26	0.01	4/27/2018 9:01	0.01	5/12/2018 4:13	0.01
4/16/2018 6:48	0.01	4/16/2018 8:30	0.01	4/27/2018 9:25	0.01	5/12/2018 4:14	0.01
4/16/2018 6:49	0.02	4/16/2018 8:34	0.01	4/28/2018 19:05	0.01	5/12/2018 4:16	0.01
4/16/2018 6:50	0.03	4/16/2018 8:41	0.01	4/28/2018 19:06	0.01	5/12/2018 4:17	0.01
4/16/2018 6:51	0.02	4/19/2018 14:00	0.01	4/28/2018 21:17	0.01	5/12/2018 4:18	0.01
4/16/2018 6:52	0.01	4/19/2018 16:22	0.01	4/28/2018 21:22	0.01	5/12/2018 4:20	0.01
4/16/2018 6:53	0.01	4/24/2018 20:54	0.01	4/28/2018 21:29	0.01	5/12/2018 4:22	0.01
4/16/2018 6:54	0.01	4/24/2018 22:29	0.01	4/28/2018 21:34	0.01	5/12/2018 4:24	0.01
4/16/2018 6:55	0.01	4/24/2018 22:43	0.01	4/28/2018 22:10	0.01	5/12/2018 4:25	0.04
4/16/2018 6:56	0.02	4/24/2018 22:52	0.01	4/28/2018 22:15	0.01	5/12/2018 4:26	0.05
4/16/2018 6:57	0.02	4/24/2018 23:01	0.01	4/28/2018 23:38	0.01	5/12/2018 4:27	0.01
4/16/2018 6:58	0.02	4/25/2018 1:39	0.01	4/29/2018 0:00	0.01	5/12/2018 4:28	0.01
4/16/2018 6:59	0.01	4/25/2018 2:04	0.01	4/29/2018 1:05	0.01	5/12/2018 4:32	0.01
4/16/2018 7:00	0.01	4/25/2018 2:27	0.01	4/29/2018 1:14	0.01	5/12/2018 4:34	0.01
4/16/2018 7:01	0.01	4/25/2018 2:34	0.01	4/29/2018 1:19	0.01	5/12/2018 4:35	0.02
4/16/2018 7:02	0.01	4/25/2018 2:43	0.01	4/29/2018 1:23	0.01	5/12/2018 4:36	0.03
4/16/2018 7:03	0.02	4/25/2018 2:48	0.01	4/29/2018 1:27	0.01	5/12/2018 4:37	0.04
4/16/2018 7:04	0.01	4/25/2018 3:07	0.01	4/29/2018 1:33	0.01	5/12/2018 4:38	0.01
4/16/2018 7:05	0.01	4/25/2018 4:51	0.01	4/29/2018 1:37	0.01	5/12/2018 4:47	0.01
4/16/2018 7:06	0.01	4/25/2018 5:06	0.01	5/6/2018 18:01	0.01	5/12/2018 5:01	0.01
4/16/2018 7:07	0.01	4/25/2018 5:10	0.01	5/6/2018 18:07	0.01	5/12/2018 5:05	0.01
4/16/2018 7:08	0.01	4/25/2018 5:17	0.01	5/6/2018 18:27	0.01	5/12/2018 5:13	0.01
4/16/2018 7:10	0.01	4/25/2018 10:51	0.01	5/10/2018 13:39	0.01	5/12/2018 5:16	0.01
4/16/2018 7:12	0.01	4/27/2018 5:49	0.01	5/10/2018 21:12	0.01	5/12/2018 5:31	0.01





**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
5/12/2018 5:32	0.01	5/13/2018 22:47	0.01	5/15/2018 20:06	0.01	5/17/2018 2:20	0.01
5/12/2018 5:34	0.01	5/13/2018 22:50	0.01	5/15/2018 20:24	0.01	5/17/2018 2:21	0.02
5/12/2018 5:37	0.01	5/13/2018 22:52	0.01	5/15/2018 20:30	0.01	5/17/2018 2:22	0.02
5/12/2018 5:39	0.01	5/13/2018 22:56	0.01	5/15/2018 20:40	0.01	5/17/2018 2:23	0.02
5/12/2018 5:40	0.01	5/13/2018 23:01	0.01	5/15/2018 20:53	0.01	5/17/2018 2:24	0.01
5/12/2018 5:41	0.01	5/13/2018 23:08	0.01	5/15/2018 21:14	0.01	5/17/2018 2:25	0.01
5/12/2018 5:42	0.01	5/13/2018 23:11	0.01	5/15/2018 21:37	0.01	5/17/2018 2:26	0.02
5/12/2018 5:43	0.01	5/13/2018 23:12	0.01	5/15/2018 22:12	0.01	5/17/2018 2:28	0.01
5/12/2018 5:44	0.01	5/13/2018 23:13	0.01	5/16/2018 5:26	0.01	5/17/2018 2:30	0.01
5/12/2018 5:46	0.01	5/13/2018 23:14	0.03	5/16/2018 6:32	0.01	5/17/2018 2:33	0.01
5/12/2018 5:50	0.01	5/13/2018 23:15	0.03	5/16/2018 8:07	0.01	5/17/2018 2:37	0.01
5/12/2018 19:48	0.01	5/13/2018 23:19	0.01	5/16/2018 11:34	0.01	5/17/2018 2:58	0.01
5/12/2018 19:50	0.01	5/13/2018 23:31	0.01	5/16/2018 16:53	0.01	5/17/2018 3:21	0.01
5/12/2018 19:51	0.02	5/13/2018 23:39	0.01	5/16/2018 17:54	0.01	5/17/2018 3:24	0.01
5/12/2018 19:53	0.04	5/13/2018 23:45	0.01	5/16/2018 18:10	0.01	5/17/2018 3:27	0.01
5/12/2018 19:54	0.08	5/13/2018 23:46	0.01	5/16/2018 18:30	0.01	5/17/2018 3:39	0.01
5/12/2018 19:55	0.04	5/13/2018 23:48	0.01	5/16/2018 18:52	0.01	5/17/2018 4:04	0.01
5/12/2018 19:57	0.06	5/14/2018 11:28	0.01	5/16/2018 19:18	0.01	5/17/2018 4:25	0.01
5/12/2018 19:58	0.07	5/15/2018 18:42	0.01	5/16/2018 19:33	0.01	5/17/2018 8:56	0.01
5/12/2018 19:59	0.06	5/15/2018 18:43	0.01	5/16/2018 20:05	0.01	5/17/2018 10:27	0.01
5/12/2018 20:01	0.03	5/15/2018 18:44	0.01	5/16/2018 20:17	0.01	5/17/2018 10:46	0.01
5/12/2018 20:02	0.04	5/15/2018 18:45	0.02	5/16/2018 20:38	0.01	5/17/2018 13:02	0.01
5/12/2018 20:03	0.02	5/15/2018 18:46	0.01	5/16/2018 20:58	0.01	5/17/2018 13:21	0.01
5/12/2018 20:04	0.01	5/15/2018 18:47	0.02	5/16/2018 22:02	0.01	5/17/2018 13:47	0.01
5/12/2018 20:06	0.01	5/15/2018 18:48	0.04	5/16/2018 22:19	0.01	5/17/2018 17:49	0.01
5/12/2018 20:49	0.01	5/15/2018 18:49	0.04	5/16/2018 23:01	0.01	5/18/2018 7:52	0.01
5/12/2018 20:54	0.01	5/15/2018 18:50	0.03	5/17/2018 1:09	0.01	5/18/2018 23:01	0.01
5/12/2018 21:06	0.01	5/15/2018 18:51	0.03	5/17/2018 1:25	0.01	5/19/2018 0:35	0.01
5/12/2018 21:14	0.01	5/15/2018 18:52	0.02	5/17/2018 1:28	0.01	5/19/2018 1:09	0.01
5/12/2018 21:22	0.01	5/15/2018 18:53	0.01	5/17/2018 1:31	0.01	5/19/2018 1:12	0.01
5/13/2018 6:31	0.01	5/15/2018 18:54	0.02	5/17/2018 1:34	0.01	5/19/2018 1:52	0.01
5/13/2018 7:03	0.01	5/15/2018 18:55	0.02	5/17/2018 1:39	0.01	5/19/2018 2:08	0.01
5/13/2018 12:42	0.01	5/15/2018 18:57	0.02	5/17/2018 1:42	0.01	5/19/2018 2:20	0.01
5/13/2018 12:55	0.01	5/15/2018 18:59	0.01	5/17/2018 1:45	0.01	5/19/2018 2:36	0.01
5/13/2018 12:59	0.01	5/15/2018 19:00	0.01	5/17/2018 1:47	0.01	5/19/2018 2:50	0.01
5/13/2018 13:03	0.01	5/15/2018 19:01	0.01	5/17/2018 1:52	0.01	5/19/2018 2:58	0.01
5/13/2018 13:07	0.01	5/15/2018 19:02	0.01	5/17/2018 1:54	0.01	5/19/2018 3:08	0.01
5/13/2018 15:21	0.01	5/15/2018 19:03	0.01	5/17/2018 2:01	0.01	5/19/2018 3:19	0.01
5/13/2018 21:33	0.01	5/15/2018 19:05	0.01	5/17/2018 2:05	0.01	5/19/2018 3:26	0.01
5/13/2018 21:44	0.01	5/15/2018 19:06	0.01	5/17/2018 2:12	0.01	5/19/2018 3:36	0.01
5/13/2018 22:05	0.01	5/15/2018 19:08	0.01	5/17/2018 2:14	0.01	5/19/2018 3:44	0.01
5/13/2018 22:17	0.01	5/15/2018 19:10	0.01	5/17/2018 2:15	0.01	5/19/2018 3:50	0.01
5/13/2018 22:27	0.01	5/15/2018 19:11	0.01	5/17/2018 2:16	0.01	5/19/2018 3:58	0.01
5/13/2018 22:34	0.01	5/15/2018 19:18	0.01	5/17/2018 2:17	0.01	5/19/2018 4:07	0.01
5/13/2018 22:39	0.01	5/15/2018 19:25	0.01	5/17/2018 2:18	0.01	5/19/2018 4:11	0.01
5/13/2018 22:45	0.01	5/15/2018 19:33	0.01	5/17/2018 2:19	0.01	5/19/2018 4:13	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
5/19/2018 4:14	0.01	5/20/2018 0:20	0.01	6/2/2018 22:04	0.02	6/3/2018 19:00	0.01
5/19/2018 4:22	0.01	5/20/2018 7:16	0.01	6/2/2018 22:05	0.06	6/3/2018 19:03	0.01
5/19/2018 4:26	0.01	5/22/2018 11:39	0.01	6/2/2018 22:06	0.04	6/3/2018 19:04	0.01
5/19/2018 4:30	0.01	5/22/2018 11:46	0.01	6/2/2018 22:07	0.06	6/3/2018 19:06	0.03
5/19/2018 4:34	0.01	5/22/2018 12:18	0.01	6/2/2018 22:08	0.07	6/3/2018 19:07	0.03
5/19/2018 4:37	0.01	5/22/2018 12:27	0.01	6/2/2018 22:09	0.03	6/3/2018 19:08	0.04
5/19/2018 4:39	0.01	5/22/2018 12:36	0.01	6/2/2018 22:10	0.01	6/3/2018 19:09	0.06
5/19/2018 4:41	0.01	5/22/2018 12:52	0.01	6/2/2018 22:11	0.01	6/3/2018 19:10	0.04
5/19/2018 4:42	0.01	5/22/2018 13:03	0.01	6/2/2018 22:12	0.02	6/3/2018 19:11	0.02
5/19/2018 4:44	0.01	5/22/2018 13:20	0.01	6/2/2018 22:14	0.01	6/3/2018 19:12	0.01
5/19/2018 4:46	0.01	5/22/2018 13:24	0.01	6/2/2018 22:17	0.01	6/3/2018 19:13	0.02
5/19/2018 4:48	0.01	5/22/2018 13:27	0.01	6/2/2018 22:20	0.01	6/3/2018 19:14	0.01
5/19/2018 4:55	0.01	5/22/2018 13:29	0.01	6/2/2018 22:21	0.02	6/3/2018 19:15	0.01
5/19/2018 5:45	0.01	5/22/2018 13:31	0.01	6/2/2018 22:29	0.01	6/3/2018 19:16	0.01
5/19/2018 6:07	0.01	5/22/2018 13:33	0.01	6/2/2018 22:32	0.01	6/3/2018 19:17	0.01
5/19/2018 6:24	0.01	5/22/2018 13:35	0.01	6/2/2018 22:39	0.01	6/3/2018 19:18	0.01
5/19/2018 6:57	0.01	5/22/2018 13:39	0.01	6/2/2018 22:52	0.01	6/3/2018 19:21	0.01
5/19/2018 7:15	0.01	5/22/2018 13:42	0.01	6/2/2018 22:57	0.01	6/3/2018 19:23	0.01
5/19/2018 7:32	0.01	5/22/2018 13:44	0.01	6/3/2018 15:38	0.01	6/3/2018 19:24	0.01
5/19/2018 7:48	0.01	5/22/2018 13:45	0.01	6/3/2018 15:53	0.01	6/3/2018 19:25	0.02
5/19/2018 7:59	0.01	5/22/2018 13:46	0.02	6/3/2018 16:02	0.01	6/3/2018 19:27	0.01
5/19/2018 8:04	0.01	5/22/2018 13:47	0.02	6/3/2018 16:40	0.01	6/3/2018 19:28	0.01
5/19/2018 8:07	0.01	5/22/2018 13:48	0.02	6/3/2018 17:13	0.01	6/3/2018 19:31	0.01
5/19/2018 8:08	0.01	5/22/2018 13:51	0.01	6/3/2018 17:19	0.01	6/3/2018 19:33	0.01
5/19/2018 8:09	0.01	5/22/2018 13:56	0.01	6/3/2018 17:23	0.01	6/3/2018 19:34	0.01
5/19/2018 8:10	0.01	5/22/2018 14:00	0.01	6/3/2018 17:26	0.01	6/3/2018 19:36	0.02
5/19/2018 8:11	0.01	5/22/2018 14:02	0.01	6/3/2018 17:29	0.01	6/3/2018 19:38	0.01
5/19/2018 8:12	0.01	5/22/2018 14:07	0.01	6/3/2018 17:32	0.01	6/3/2018 19:41	0.01
5/19/2018 8:14	0.01	5/22/2018 14:15	0.01	6/3/2018 17:35	0.01	6/3/2018 19:52	0.01
5/19/2018 8:21	0.01	5/22/2018 14:25	0.01	6/3/2018 17:38	0.01	6/3/2018 19:56	0.01
5/19/2018 8:26	0.01	5/27/2018 9:21	0.01	6/3/2018 17:40	0.01	6/3/2018 19:59	0.01
5/19/2018 8:30	0.01	5/27/2018 9:22	0.01	6/3/2018 17:43	0.01	6/3/2018 20:03	0.01
5/19/2018 8:32	0.01	5/27/2018 9:40	0.01	6/3/2018 17:47	0.01	6/3/2018 20:06	0.01
5/19/2018 8:36	0.01	5/27/2018 18:04	0.01	6/3/2018 17:50	0.01	6/3/2018 20:10	0.01
5/19/2018 8:42	0.01	5/27/2018 18:13	0.01	6/3/2018 17:54	0.01	6/3/2018 20:16	0.01
5/19/2018 8:48	0.01	5/27/2018 18:40	0.01	6/3/2018 17:58	0.01	6/3/2018 20:33	0.01
5/19/2018 8:52	0.01	5/27/2018 19:43	0.01	6/3/2018 18:03	0.01	6/4/2018 1:52	0.01
5/19/2018 9:05	0.01	5/31/2018 3:24	0.01	6/3/2018 18:08	0.01	6/4/2018 1:57	0.01
5/19/2018 9:17	0.01	5/31/2018 23:42	0.01	6/3/2018 18:19	0.01	6/4/2018 3:19	0.01
5/19/2018 9:23	0.01	6/1/2018 0:17	0.01	6/3/2018 18:26	0.01	6/4/2018 3:43	0.01
5/19/2018 9:24	0.01	6/1/2018 0:21	0.01	6/3/2018 18:31	0.01	6/10/2018 15:08	0.01
5/19/2018 9:28	0.01	6/1/2018 0:23	0.01	6/3/2018 18:36	0.01	6/10/2018 15:16	0.01
5/19/2018 9:41	0.01	6/1/2018 1:01	0.01	6/3/2018 18:40	0.01	6/10/2018 15:19	0.01
5/19/2018 10:20	0.01	6/2/2018 2:20	0.01	6/3/2018 18:46	0.01	6/10/2018 15:23	0.01
5/19/2018 11:44	0.01	6/2/2018 21:18	0.01	6/3/2018 18:51	0.01	6/10/2018 15:32	0.01
5/19/2018 12:45	0.01	6/2/2018 22:03	0.02	6/3/2018 18:55	0.01	6/10/2018 15:34	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
6/10/2018 15:35	0.02	6/11/2018 2:49	0.01	6/20/2018 23:31	0.02	7/15/2018 11:57	0.01
6/10/2018 15:36	0.01	6/11/2018 2:50	0.01	6/20/2018 23:32	0.02	7/15/2018 11:58	0.01
6/10/2018 15:38	0.01	6/11/2018 2:52	0.01	6/20/2018 23:33	0.01	7/15/2018 12:00	0.01
6/10/2018 15:39	0.01	6/11/2018 2:55	0.01	6/20/2018 23:34	0.01	7/15/2018 12:04	0.01
6/10/2018 15:42	0.01	6/11/2018 2:57	0.01	6/20/2018 23:35	0.02	7/15/2018 12:05	0.01
6/10/2018 15:51	0.01	6/11/2018 2:58	0.01	6/20/2018 23:36	0.02	7/15/2018 12:06	0.01
6/10/2018 20:37	0.01	6/11/2018 3:00	0.02	6/20/2018 23:37	0.05	7/15/2018 12:07	0.02
6/10/2018 20:39	0.01	6/11/2018 3:02	0.01	6/20/2018 23:38	0.02	7/15/2018 12:08	0.03
6/10/2018 20:42	0.01	6/11/2018 3:03	0.01	6/20/2018 23:39	0.03	7/15/2018 12:09	0.02
6/10/2018 23:18	0.01	6/11/2018 3:04	0.01	6/20/2018 23:40	0.02	7/15/2018 12:10	0.03
6/10/2018 23:20	0.04	6/11/2018 3:06	0.01	6/20/2018 23:41	0.03	7/15/2018 12:11	0.03
6/10/2018 23:21	0.02	6/11/2018 3:11	0.01	6/20/2018 23:42	0.02	7/15/2018 12:12	0.02
6/10/2018 23:22	0.01	6/11/2018 3:14	0.01	6/20/2018 23:43	0.02	7/15/2018 12:14	0.01
6/10/2018 23:23	0.01	6/11/2018 3:20	0.01	6/20/2018 23:44	0.01	7/15/2018 12:16	0.01
6/10/2018 23:24	0.01	6/11/2018 3:25	0.01	6/20/2018 23:45	0.01	7/15/2018 12:19	0.01
6/10/2018 23:25	0.01	6/11/2018 3:30	0.01	6/20/2018 23:46	0.01	7/15/2018 12:32	0.01
6/10/2018 23:27	0.01	6/11/2018 3:35	0.01	6/20/2018 23:47	0.02	7/15/2018 12:34	0.01
6/10/2018 23:29	0.01	6/11/2018 3:45	0.01	6/20/2018 23:48	0.01	7/15/2018 12:39	0.01
6/10/2018 23:37	0.01	6/11/2018 3:54	0.01	6/20/2018 23:49	0.01	7/15/2018 12:47	0.01
6/10/2018 23:53	0.01	6/11/2018 4:06	0.01	6/20/2018 23:51	0.01	7/17/2018 16:14	0.01
6/10/2018 23:57	0.01	6/11/2018 4:10	0.01	6/20/2018 23:54	0.01	7/17/2018 16:33	0.01
6/11/2018 0:04	0.01	6/11/2018 4:15	0.01	6/21/2018 11:13	0.01	7/17/2018 17:08	0.01
6/11/2018 0:11	0.01	6/11/2018 4:24	0.01	6/22/2018 19:31	0.01	7/21/2018 13:06	0.01
6/11/2018 0:18	0.01	6/11/2018 5:06	0.01	6/22/2018 19:46	0.01	7/21/2018 14:54	0.01
6/11/2018 0:20	0.01	6/11/2018 5:46	0.01	6/22/2018 20:12	0.01	7/21/2018 15:31	0.01
6/11/2018 0:42	0.01	6/11/2018 6:16	0.01	6/22/2018 20:21	0.01	7/21/2018 15:36	0.01
6/11/2018 0:44	0.01	6/11/2018 6:27	0.01	6/22/2018 21:24	0.01	7/21/2018 15:38	0.01
6/11/2018 0:46	0.01	6/11/2018 7:07	0.01	7/6/2018 4:50	0.01	7/21/2018 15:40	0.01
6/11/2018 0:49	0.01	6/11/2018 7:18	0.01	7/6/2018 4:56	0.01	7/21/2018 15:47	0.01
6/11/2018 1:34	0.01	6/11/2018 7:26	0.01	7/6/2018 4:57	0.01	7/21/2018 16:19	0.01
6/11/2018 1:46	0.01	6/11/2018 7:49	0.01	7/6/2018 4:58	0.01	7/21/2018 16:27	0.01
6/11/2018 1:49	0.01	6/20/2018 23:15	0.01	7/6/2018 5:02	0.01	7/21/2018 16:36	0.01
6/11/2018 1:52	0.01	6/20/2018 23:16	0.02	7/6/2018 5:03	0.01	7/21/2018 16:42	0.01
6/11/2018 1:55	0.01	6/20/2018 23:17	0.03	7/6/2018 5:04	0.01	7/21/2018 16:48	0.01
6/11/2018 2:07	0.01	6/20/2018 23:18	0.03	7/6/2018 5:05	0.01	7/21/2018 16:53	0.01
6/11/2018 2:23	0.01	6/20/2018 23:19	0.04	7/6/2018 5:08	0.01	7/21/2018 16:58	0.01
6/11/2018 2:39	0.02	6/20/2018 23:20	0.03	7/6/2018 5:24	0.01	7/21/2018 17:03	0.01
6/11/2018 2:40	0.01	6/20/2018 23:21	0.01	7/6/2018 5:31	0.01	7/21/2018 17:10	0.01
6/11/2018 2:41	0.02	6/20/2018 23:23	0.01	7/6/2018 12:31	0.01	7/21/2018 17:14	0.01
6/11/2018 2:42	0.02	6/20/2018 23:24	0.01	7/6/2018 12:45	0.01	7/21/2018 17:19	0.01
6/11/2018 2:43	0.03	6/20/2018 23:25	0.01	7/6/2018 12:53	0.01	7/21/2018 17:24	0.01
6/11/2018 2:44	0.02	6/20/2018 23:26	0.01	7/6/2018 13:08	0.01	7/21/2018 17:28	0.01
6/11/2018 2:45	0.02	6/20/2018 23:27	0.01	7/15/2018 11:50	0.01	7/21/2018 17:32	0.01
6/11/2018 2:46	0.01	6/20/2018 23:28	0.02	7/15/2018 11:51	0.01	7/21/2018 17:42	0.01
6/11/2018 2:47	0.01	6/20/2018 23:29	0.02	7/15/2018 11:52	0.01	7/21/2018 17:54	0.01
6/11/2018 2:48	0.01	6/20/2018 23:30	0.01	7/15/2018 11:53	0.01	7/21/2018 18:02	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
7/21/2018 18:06	0.01	7/21/2018 23:29	0.01	7/23/2018 6:16	0.01	7/25/2018 2:30	0.01
7/21/2018 18:11	0.01	7/21/2018 23:32	0.01	7/23/2018 6:18	0.01	7/25/2018 2:32	0.02
7/21/2018 18:14	0.01	7/21/2018 23:33	0.01	7/23/2018 6:19	0.01	7/25/2018 2:33	0.02
7/21/2018 18:20	0.01	7/21/2018 23:35	0.01	7/23/2018 6:20	0.01	7/25/2018 2:34	0.02
7/21/2018 18:33	0.01	7/21/2018 23:36	0.01	7/23/2018 6:25	0.03	7/25/2018 2:36	0.01
7/21/2018 18:40	0.01	7/21/2018 23:38	0.02	7/23/2018 6:26	0.03	7/25/2018 2:37	0.01
7/21/2018 18:43	0.01	7/21/2018 23:39	0.01	7/23/2018 6:27	0.01	7/25/2018 2:38	0.01
7/21/2018 18:46	0.01	7/21/2018 23:40	0.01	7/23/2018 6:28	0.01	7/25/2018 2:40	0.01
7/21/2018 18:49	0.01	7/21/2018 23:41	0.01	7/23/2018 6:36	0.01	7/25/2018 2:43	0.01
7/21/2018 18:53	0.01	7/21/2018 23:42	0.01	7/23/2018 10:00	0.01	7/25/2018 2:46	0.01
7/21/2018 18:56	0.01	7/21/2018 23:43	0.01	7/24/2018 0:35	0.01	7/25/2018 2:50	0.01
7/21/2018 18:59	0.01	7/21/2018 23:44	0.01	7/24/2018 1:08	0.01	7/25/2018 2:53	0.01
7/21/2018 19:01	0.01	7/21/2018 23:45	0.01	7/24/2018 1:22	0.01	7/25/2018 2:56	0.01
7/21/2018 19:04	0.01	7/21/2018 23:47	0.01	7/24/2018 1:23	0.01	7/25/2018 2:58	0.01
7/21/2018 19:09	0.01	7/21/2018 23:48	0.01	7/24/2018 1:24	0.01	7/25/2018 3:01	0.01
7/21/2018 19:13	0.01	7/21/2018 23:52	0.01	7/24/2018 1:26	0.01	7/25/2018 3:04	0.01
7/21/2018 19:15	0.01	7/21/2018 23:56	0.01	7/24/2018 1:28	0.01	7/25/2018 3:06	0.01
7/21/2018 19:26	0.01	7/22/2018 0:02	0.01	7/24/2018 1:29	0.01	7/25/2018 3:09	0.01
7/21/2018 19:38	0.01	7/22/2018 0:19	0.01	7/24/2018 1:30	0.01	7/25/2018 3:13	0.01
7/21/2018 19:57	0.01	7/22/2018 0:24	0.01	7/24/2018 1:31	0.01	7/25/2018 3:19	0.01
7/21/2018 20:23	0.01	7/22/2018 0:25	0.01	7/24/2018 1:33	0.01	7/25/2018 3:30	0.01
7/21/2018 20:26	0.01	7/22/2018 0:26	0.02	7/24/2018 1:37	0.01	7/25/2018 8:05	0.01
7/21/2018 20:27	0.01	7/22/2018 0:28	0.01	7/24/2018 1:40	0.01	7/25/2018 8:29	0.01
7/21/2018 20:28	0.01	7/22/2018 0:29	0.01	7/24/2018 1:42	0.01	7/25/2018 8:32	0.01
7/21/2018 20:29	0.01	7/22/2018 0:30	0.01	7/24/2018 1:43	0.01	7/25/2018 8:33	0.01
7/21/2018 20:32	0.01	7/22/2018 0:31	0.01	7/24/2018 3:22	0.01	7/25/2018 8:35	0.01
7/21/2018 20:34	0.01	7/22/2018 0:33	0.01	7/24/2018 3:24	0.01	7/25/2018 8:45	0.01
7/21/2018 20:35	0.01	7/22/2018 0:34	0.01	7/24/2018 3:29	0.01	7/25/2018 10:13	0.01
7/21/2018 20:36	0.01	7/22/2018 0:36	0.01	7/24/2018 3:34	0.01	7/25/2018 16:30	0.01
7/21/2018 20:41	0.01	7/22/2018 0:37	0.01	7/24/2018 3:46	0.01	7/25/2018 16:50	0.01
7/21/2018 20:46	0.01	7/22/2018 0:39	0.01	7/24/2018 3:48	0.01	7/25/2018 16:58	0.01
7/21/2018 20:54	0.01	7/22/2018 0:42	0.01	7/24/2018 3:49	0.01	7/25/2018 17:03	0.01
7/21/2018 21:10	0.01	7/22/2018 0:43	0.01	7/24/2018 4:14	0.01	7/25/2018 17:04	0.02
7/21/2018 21:28	0.01	7/22/2018 0:46	0.01	7/24/2018 4:15	0.03	7/25/2018 17:05	0.01
7/21/2018 21:52	0.01	7/22/2018 0:47	0.01	7/24/2018 4:16	0.03	7/25/2018 17:06	0.01
7/21/2018 22:46	0.01	7/22/2018 0:49	0.01	7/24/2018 4:17	0.01	7/25/2018 17:08	0.01
7/21/2018 22:49	0.01	7/22/2018 0:50	0.01	7/24/2018 4:18	0.01	7/25/2018 17:11	0.01
7/21/2018 22:52	0.01	7/22/2018 0:52	0.01	7/24/2018 17:36	0.01	7/25/2018 17:17	0.01
7/21/2018 22:54	0.01	7/22/2018 1:02	0.01	7/24/2018 17:58	0.01	7/25/2018 17:30	0.01
7/21/2018 22:56	0.01	7/22/2018 1:46	0.01	7/24/2018 17:59	0.02	7/25/2018 17:42	0.01
7/21/2018 23:00	0.01	7/22/2018 3:15	0.01	7/24/2018 18:07	0.01	7/25/2018 18:12	0.01
7/21/2018 23:04	0.01	7/22/2018 3:51	0.01	7/24/2018 18:21	0.01	7/25/2018 21:24	0.01
7/21/2018 23:09	0.01	7/22/2018 4:14	0.01	7/25/2018 2:23	0.01	7/25/2018 21:33	0.01
7/21/2018 23:12	0.01	7/22/2018 4:37	0.01	7/25/2018 2:26	0.01	7/25/2018 21:37	0.01
7/21/2018 23:18	0.01	7/23/2018 6:14	0.02	7/25/2018 2:28	0.01	7/25/2018 21:38	0.01
7/21/2018 23:26	0.01	7/23/2018 6:15	0.02	7/25/2018 2:29	0.02	7/25/2018 21:39	0.02





**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
7/25/2018 21:40	0.01	8/3/2018 15:34	0.01	8/11/2018 13:38	0.01	8/13/2018 7:41	0.01
7/25/2018 21:48	0.01	8/3/2018 15:36	0.03	8/11/2018 16:23	0.01	8/13/2018 7:44	0.01
7/25/2018 21:51	0.01	8/3/2018 15:37	0.01	8/11/2018 16:25	0.01	8/13/2018 7:49	0.01
7/27/2018 19:36	0.01	8/3/2018 15:39	0.01	8/11/2018 16:28	0.01	8/13/2018 7:52	0.01
7/27/2018 19:46	0.01	8/3/2018 15:40	0.02	8/11/2018 16:35	0.01	8/13/2018 7:53	0.04
7/27/2018 19:50	0.01	8/3/2018 15:41	0.02	8/11/2018 16:46	0.01	8/13/2018 7:54	0.06
7/27/2018 19:54	0.01	8/3/2018 15:42	0.02	8/11/2018 16:47	0.01	8/13/2018 7:55	0.04
7/27/2018 20:01	0.01	8/3/2018 15:43	0.01	8/11/2018 16:48	0.01	8/13/2018 7:56	0.01
7/27/2018 20:08	0.01	8/3/2018 16:24	0.01	8/11/2018 16:49	0.01	8/13/2018 7:57	0.01
7/28/2018 8:45	0.01	8/3/2018 18:09	0.01	8/11/2018 16:50	0.01	8/13/2018 7:58	0.01
8/1/2018 3:19	0.01	8/3/2018 18:33	0.01	8/11/2018 16:51	0.01	8/13/2018 7:59	0.02
8/1/2018 3:28	0.01	8/4/2018 8:54	0.01	8/11/2018 16:52	0.01	8/13/2018 8:00	0.02
8/1/2018 3:34	0.01	8/4/2018 9:00	0.01	8/11/2018 16:54	0.01	8/13/2018 8:01	0.02
8/1/2018 3:39	0.01	8/4/2018 9:38	0.01	8/11/2018 16:57	0.01	8/13/2018 8:02	0.02
8/1/2018 3:43	0.01	8/7/2018 21:08	0.01	8/11/2018 16:59	0.01	8/13/2018 8:04	0.01
8/1/2018 3:46	0.01	8/7/2018 21:16	0.01	8/11/2018 17:01	0.01	8/13/2018 8:08	0.01
8/1/2018 3:50	0.01	8/7/2018 21:27	0.01	8/11/2018 17:04	0.01	8/13/2018 8:09	0.01
8/1/2018 3:52	0.01	8/7/2018 21:40	0.01	8/11/2018 17:14	0.01	8/13/2018 8:10	0.01
8/1/2018 3:54	0.01	8/7/2018 21:56	0.01	8/11/2018 17:45	0.01	8/13/2018 8:11	0.01
8/1/2018 3:59	0.01	8/9/2018 0:10	0.01	8/11/2018 17:58	0.01	8/13/2018 8:13	0.01
8/1/2018 4:06	0.01	8/9/2018 0:38	0.01	8/11/2018 19:38	0.01	8/13/2018 8:14	0.01
8/1/2018 4:11	0.01	8/9/2018 0:44	0.01	8/11/2018 19:47	0.01	8/13/2018 8:16	0.01
8/1/2018 4:18	0.01	8/9/2018 0:51	0.01	8/11/2018 19:50	0.01	8/13/2018 8:17	0.01
8/1/2018 4:23	0.01	8/9/2018 1:01	0.01	8/11/2018 19:52	0.01	8/13/2018 8:19	0.01
8/1/2018 4:27	0.01	8/9/2018 1:08	0.01	8/11/2018 19:56	0.01	8/13/2018 8:21	0.01
8/1/2018 4:29	0.01	8/11/2018 5:35	0.02	8/11/2018 20:14	0.01	8/13/2018 8:24	0.01
8/1/2018 4:32	0.01	8/11/2018 5:36	0.01	8/11/2018 20:40	0.01	8/13/2018 8:25	0.01
8/1/2018 4:33	0.01	8/11/2018 5:37	0.01	8/11/2018 20:49	0.01	8/13/2018 8:27	0.01
8/1/2018 4:38	0.01	8/11/2018 6:00	0.01	8/11/2018 21:06	0.01	8/13/2018 8:30	0.01
8/1/2018 4:46	0.01	8/11/2018 13:19	0.02	8/13/2018 6:48	0.01	8/13/2018 8:55	0.01
8/1/2018 4:51	0.01	8/11/2018 13:21	0.02	8/13/2018 6:56	0.01	8/14/2018 12:51	0.01
8/1/2018 4:55	0.01	8/11/2018 13:22	0.01	8/13/2018 7:06	0.01	8/14/2018 12:52	0.02
8/1/2018 4:58	0.01	8/11/2018 13:23	0.01	8/13/2018 7:14	0.01	8/14/2018 13:59	0.01
8/1/2018 5:08	0.01	8/11/2018 13:24	0.01	8/13/2018 7:15	0.01	8/14/2018 14:41	0.01
8/3/2018 2:28	0.01	8/11/2018 13:25	0.02	8/13/2018 7:18	0.01	8/14/2018 14:42	0.01
8/3/2018 12:28	0.02	8/11/2018 13:26	0.02	8/13/2018 7:22	0.01	8/14/2018 14:43	0.02
8/3/2018 12:29	0.01	8/11/2018 13:27	0.03	8/13/2018 7:28	0.01	8/14/2018 14:44	0.01
8/3/2018 12:30	0.02	8/11/2018 13:28	0.02	8/13/2018 7:30	0.01	8/14/2018 14:45	0.02
8/3/2018 12:31	0.01	8/11/2018 13:29	0.02	8/13/2018 7:32	0.03	8/14/2018 14:46	0.03
8/3/2018 15:27	0.01	8/11/2018 13:30	0.01	8/13/2018 7:33	0.04	8/14/2018 14:47	0.03
8/3/2018 15:28	0.02	8/11/2018 13:31	0.02	8/13/2018 7:34	0.08	8/14/2018 14:48	0.02
8/3/2018 15:29	0.05	8/11/2018 13:32	0.03	8/13/2018 7:35	0.08	8/14/2018 14:49	0.01
8/3/2018 15:30	0.03	8/11/2018 13:33	0.02	8/13/2018 7:36	0.04	8/14/2018 14:50	0.01
8/3/2018 15:31	0.03	8/11/2018 13:34	0.06	8/13/2018 7:37	0.01	8/14/2018 14:52	0.01
8/3/2018 15:32	0.04	8/11/2018 13:35	0.03	8/13/2018 7:38	0.01	8/14/2018 14:59	0.01
8/3/2018 15:33	0.02	8/11/2018 13:36	0.01	8/13/2018 7:40	0.01	8/14/2018 16:04	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
8/14/2018 23:45	0.01	8/18/2018 17:07	0.01	8/19/2018 18:35	0.01	8/31/2018 21:11	0.01
8/18/2018 0:59	0.01	8/18/2018 17:08	0.01	8/19/2018 18:51	0.01	8/31/2018 21:19	0.01
8/18/2018 1:00	0.01	8/18/2018 17:09	0.02	8/19/2018 19:02	0.01	9/1/2018 3:41	0.01
8/18/2018 1:01	0.01	8/18/2018 17:10	0.02	8/19/2018 19:10	0.01	9/1/2018 3:45	0.01
8/18/2018 1:05	0.01	8/18/2018 17:11	0.01	8/19/2018 19:28	0.01	9/2/2018 6:18	0.01
8/18/2018 1:08	0.01	8/18/2018 17:12	0.01	8/19/2018 20:34	0.01	9/2/2018 6:23	0.01
8/18/2018 1:15	0.01	8/19/2018 9:17	0.01	8/19/2018 20:54	0.01	9/2/2018 6:25	0.01
8/18/2018 1:19	0.01	8/19/2018 9:27	0.01	8/19/2018 22:40	0.01	9/2/2018 6:27	0.01
8/18/2018 1:24	0.01	8/19/2018 9:35	0.01	8/21/2018 14:07	0.01	9/2/2018 6:44	0.01
8/18/2018 1:25	0.01	8/19/2018 10:35	0.01	8/21/2018 14:10	0.01	9/7/2018 19:35	0.01
8/18/2018 1:26	0.02	8/19/2018 10:40	0.01	8/21/2018 14:12	0.01	9/7/2018 19:40	0.01
8/18/2018 1:27	0.03	8/19/2018 10:45	0.01	8/21/2018 17:49	0.01	9/7/2018 20:03	0.01
8/18/2018 1:29	0.01	8/19/2018 10:49	0.01	8/21/2018 19:58	0.01	9/7/2018 20:26	0.01
8/18/2018 1:30	0.02	8/19/2018 10:52	0.01	8/21/2018 22:13	0.01	9/7/2018 20:27	0.01
8/18/2018 1:31	0.02	8/19/2018 10:54	0.01	8/21/2018 22:35	0.01	9/7/2018 20:28	0.01
8/18/2018 1:33	0.01	8/19/2018 10:58	0.01	8/21/2018 22:44	0.01	9/7/2018 20:29	0.01
8/18/2018 1:39	0.01	8/19/2018 11:32	0.01	8/21/2018 22:54	0.01	9/7/2018 20:32	0.01
8/18/2018 1:42	0.01	8/19/2018 16:56	0.01	8/21/2018 23:41	0.01	9/7/2018 20:35	0.01
8/18/2018 1:44	0.01	8/19/2018 17:00	0.01	8/22/2018 1:16	0.01	9/7/2018 20:38	0.01
8/18/2018 1:45	0.01	8/19/2018 17:02	0.01	8/22/2018 2:40	0.01	9/7/2018 20:42	0.01
8/18/2018 1:46	0.01	8/19/2018 17:03	0.01	8/22/2018 2:46	0.01	9/7/2018 20:44	0.01
8/18/2018 1:47	0.03	8/19/2018 17:04	0.01	8/22/2018 5:03	0.01	9/7/2018 20:45	0.01
8/18/2018 1:48	0.03	8/19/2018 17:05	0.01	8/31/2018 10:17	0.01	9/7/2018 20:46	0.01
8/18/2018 1:49	0.01	8/19/2018 17:07	0.01	8/31/2018 10:31	0.01	9/7/2018 20:47	0.01
8/18/2018 1:50	0.01	8/19/2018 17:09	0.01	8/31/2018 15:00	0.01	9/7/2018 20:49	0.01
8/18/2018 1:51	0.01	8/19/2018 17:10	0.01	8/31/2018 15:03	0.01	9/7/2018 20:56	0.01
8/18/2018 1:52	0.01	8/19/2018 17:11	0.01	8/31/2018 15:10	0.01	9/7/2018 20:59	0.01
8/18/2018 1:53	0.01	8/19/2018 17:13	0.01	8/31/2018 16:47	0.01	9/7/2018 21:00	0.02
8/18/2018 2:01	0.02	8/19/2018 17:15	0.01	8/31/2018 19:01	0.01	9/7/2018 21:01	0.01
8/18/2018 2:02	0.01	8/19/2018 17:17	0.01	8/31/2018 19:11	0.01	9/7/2018 21:02	0.01
8/18/2018 2:05	0.01	8/19/2018 17:18	0.01	8/31/2018 19:21	0.01	9/7/2018 21:04	0.01
8/18/2018 2:12	0.01	8/19/2018 17:19	0.01	8/31/2018 19:26	0.01	9/7/2018 21:14	0.01
8/18/2018 2:16	0.01	8/19/2018 17:20	0.01	8/31/2018 19:30	0.01	9/7/2018 21:30	0.01
8/18/2018 2:20	0.01	8/19/2018 17:21	0.01	8/31/2018 19:34	0.01	9/7/2018 22:00	0.01
8/18/2018 2:23	0.01	8/19/2018 17:22	0.01	8/31/2018 19:39	0.01	9/7/2018 22:23	0.01
8/18/2018 2:28	0.01	8/19/2018 17:25	0.01	8/31/2018 19:44	0.01	9/7/2018 22:30	0.01
8/18/2018 2:36	0.01	8/19/2018 17:30	0.01	8/31/2018 19:49	0.01	9/7/2018 22:48	0.01
8/18/2018 3:00	0.01	8/19/2018 17:37	0.01	8/31/2018 19:56	0.01	9/8/2018 1:50	0.01
8/18/2018 16:41	0.02	8/19/2018 17:47	0.01	8/31/2018 20:02	0.01	9/8/2018 2:00	0.01
8/18/2018 16:42	0.01	8/19/2018 17:51	0.01	8/31/2018 20:07	0.01	9/8/2018 5:34	0.01
8/18/2018 16:43	0.01	8/19/2018 17:54	0.01	8/31/2018 20:14	0.01	9/8/2018 5:49	0.01
8/18/2018 16:45	0.01	8/19/2018 18:00	0.01	8/31/2018 20:23	0.01	9/8/2018 6:05	0.01
8/18/2018 16:47	0.01	8/19/2018 18:07	0.01	8/31/2018 20:30	0.01	9/8/2018 6:13	0.01
8/18/2018 16:50	0.01	8/19/2018 18:09	0.01	8/31/2018 20:35	0.01	9/8/2018 6:17	0.01
8/18/2018 17:05	0.02	8/19/2018 18:14	0.01	8/31/2018 20:42	0.01	9/8/2018 6:32	0.01
8/18/2018 17:06	0.02	8/19/2018 18:21	0.01	8/31/2018 20:58	0.01	9/8/2018 6:43	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
9/8/2018 6:49	0.01	9/9/2018 3:08	0.01	9/9/2018 6:33	0.01	9/9/2018 14:41	0.01
9/8/2018 6:57	0.01	9/9/2018 3:14	0.01	9/9/2018 6:37	0.01	9/9/2018 14:50	0.01
9/8/2018 7:02	0.01	9/9/2018 3:17	0.01	9/9/2018 6:43	0.01	9/9/2018 14:55	0.01
9/8/2018 7:04	0.01	9/9/2018 3:25	0.01	9/9/2018 6:48	0.01	9/9/2018 14:59	0.01
9/8/2018 7:05	0.01	9/9/2018 3:29	0.01	9/9/2018 6:53	0.01	9/9/2018 15:02	0.01
9/8/2018 7:07	0.01	9/9/2018 3:35	0.01	9/9/2018 6:59	0.01	9/9/2018 15:06	0.01
9/8/2018 7:09	0.01	9/9/2018 3:44	0.01	9/9/2018 7:09	0.01	9/9/2018 15:12	0.01
9/8/2018 7:11	0.01	9/9/2018 3:51	0.01	9/9/2018 7:20	0.01	9/9/2018 15:21	0.01
9/8/2018 7:13	0.01	9/9/2018 3:57	0.01	9/9/2018 7:29	0.01	9/9/2018 15:23	0.01
9/8/2018 7:15	0.01	9/9/2018 4:04	0.01	9/9/2018 7:37	0.01	9/9/2018 15:26	0.01
9/8/2018 7:17	0.01	9/9/2018 4:09	0.01	9/9/2018 7:48	0.01	9/9/2018 15:28	0.01
9/8/2018 7:20	0.01	9/9/2018 4:13	0.01	9/9/2018 8:01	0.01	9/9/2018 15:30	0.01
9/8/2018 7:22	0.01	9/9/2018 4:17	0.01	9/9/2018 8:18	0.01	9/9/2018 15:33	0.01
9/8/2018 7:25	0.01	9/9/2018 4:22	0.01	9/9/2018 8:39	0.01	9/9/2018 15:38	0.01
9/8/2018 7:26	0.01	9/9/2018 4:27	0.01	9/9/2018 8:54	0.01	9/9/2018 15:41	0.01
9/8/2018 7:28	0.01	9/9/2018 4:32	0.01	9/9/2018 9:00	0.01	9/9/2018 15:45	0.01
9/8/2018 7:29	0.01	9/9/2018 4:34	0.01	9/9/2018 9:07	0.01	9/9/2018 15:47	0.01
9/8/2018 7:31	0.01	9/9/2018 4:37	0.01	9/9/2018 9:25	0.01	9/9/2018 15:52	0.01
9/8/2018 7:33	0.01	9/9/2018 4:39	0.01	9/9/2018 9:45	0.01	9/9/2018 15:55	0.01
9/8/2018 7:35	0.01	9/9/2018 4:41	0.01	9/9/2018 10:08	0.01	9/9/2018 15:59	0.01
9/8/2018 7:38	0.01	9/9/2018 4:43	0.01	9/9/2018 10:18	0.01	9/9/2018 16:02	0.01
9/8/2018 7:40	0.01	9/9/2018 4:45	0.01	9/9/2018 10:36	0.01	9/9/2018 16:05	0.01
9/8/2018 7:45	0.01	9/9/2018 4:48	0.01	9/9/2018 11:08	0.01	9/9/2018 16:06	0.01
9/8/2018 7:48	0.01	9/9/2018 4:54	0.01	9/9/2018 11:18	0.01	9/9/2018 16:11	0.01
9/8/2018 7:51	0.01	9/9/2018 5:01	0.01	9/9/2018 11:31	0.01	9/9/2018 16:14	0.01
9/8/2018 7:54	0.01	9/9/2018 5:10	0.01	9/9/2018 11:48	0.01	9/9/2018 16:18	0.01
9/8/2018 7:56	0.01	9/9/2018 5:14	0.01	9/9/2018 11:55	0.01	9/9/2018 16:21	0.01
9/8/2018 7:58	0.01	9/9/2018 5:15	0.01	9/9/2018 12:05	0.01	9/9/2018 16:24	0.01
9/8/2018 8:00	0.01	9/9/2018 5:17	0.01	9/9/2018 12:14	0.01	9/9/2018 16:28	0.01
9/8/2018 8:03	0.01	9/9/2018 5:19	0.01	9/9/2018 12:21	0.01	9/9/2018 16:32	0.01
9/8/2018 8:06	0.01	9/9/2018 5:21	0.01	9/9/2018 12:27	0.01	9/9/2018 16:35	0.01
9/8/2018 8:10	0.01	9/9/2018 5:23	0.01	9/9/2018 12:42	0.01	9/9/2018 16:38	0.01
9/8/2018 8:18	0.01	9/9/2018 5:25	0.01	9/9/2018 12:50	0.01	9/9/2018 16:42	0.01
9/8/2018 8:23	0.01	9/9/2018 5:28	0.01	9/9/2018 12:56	0.01	9/9/2018 16:49	0.01
9/8/2018 8:29	0.01	9/9/2018 5:30	0.01	9/9/2018 13:08	0.01	9/9/2018 17:00	0.01
9/8/2018 8:37	0.01	9/9/2018 5:35	0.01	9/9/2018 13:18	0.01	9/9/2018 17:02	0.01
9/8/2018 8:46	0.01	9/9/2018 5:38	0.01	9/9/2018 13:23	0.01	9/9/2018 17:05	0.01
9/8/2018 8:57	0.01	9/9/2018 5:41	0.01	9/9/2018 13:28	0.01	9/9/2018 17:08	0.01
9/8/2018 9:14	0.01	9/9/2018 5:43	0.01	9/9/2018 13:34	0.01	9/9/2018 17:14	0.01
9/8/2018 9:52	0.01	9/9/2018 5:46	0.01	9/9/2018 13:46	0.01	9/9/2018 17:22	0.01
9/9/2018 0:15	0.01	9/9/2018 5:52	0.01	9/9/2018 13:50	0.01	9/9/2018 17:26	0.01
9/9/2018 0:29	0.01	9/9/2018 6:01	0.01	9/9/2018 13:56	0.01	9/9/2018 17:33	0.01
9/9/2018 2:07	0.01	9/9/2018 6:09	0.01	9/9/2018 14:04	0.01	9/9/2018 17:37	0.01
9/9/2018 2:20	0.01	9/9/2018 6:20	0.01	9/9/2018 14:12	0.01	9/9/2018 17:40	0.01
9/9/2018 2:35	0.01	9/9/2018 6:25	0.01	9/9/2018 14:21	0.01	9/9/2018 17:43	0.01
9/9/2018 2:57	0.01	9/9/2018 6:29	0.01	9/9/2018 14:35	0.01	9/9/2018 17:47	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
9/9/2018 17:53	0.01	9/10/2018 1:55	0.01	9/18/2018 13:52	0.01	9/23/2018 22:51	0.01
9/9/2018 17:57	0.01	9/10/2018 2:23	0.01	9/18/2018 14:00	0.01	9/23/2018 23:00	0.01
9/9/2018 18:04	0.01	9/10/2018 2:54	0.01	9/18/2018 14:07	0.01	9/23/2018 23:07	0.01
9/9/2018 18:09	0.01	9/10/2018 2:56	0.01	9/18/2018 14:21	0.01	9/23/2018 23:16	0.01
9/9/2018 18:17	0.01	9/10/2018 3:00	0.01	9/23/2018 8:04	0.01	9/24/2018 0:10	0.01
9/9/2018 18:22	0.01	9/10/2018 3:03	0.01	9/23/2018 9:13	0.01	9/24/2018 0:41	0.01
9/9/2018 18:28	0.01	9/10/2018 3:18	0.01	9/23/2018 9:40	0.01	9/24/2018 0:55	0.01
9/9/2018 18:32	0.01	9/10/2018 3:31	0.01	9/23/2018 9:59	0.01	9/24/2018 1:23	0.01
9/9/2018 18:36	0.01	9/10/2018 3:45	0.01	9/23/2018 10:08	0.01	9/24/2018 7:43	0.01
9/9/2018 18:39	0.01	9/10/2018 4:47	0.01	9/23/2018 10:22	0.01	9/24/2018 9:00	0.01
9/9/2018 18:43	0.01	9/10/2018 5:50	0.01	9/23/2018 10:38	0.01	9/24/2018 9:29	0.01
9/9/2018 18:47	0.01	9/10/2018 6:38	0.01	9/23/2018 11:04	0.01	9/25/2018 0:01	0.01
9/9/2018 18:55	0.01	9/10/2018 13:00	0.01	9/23/2018 11:36	0.01	9/25/2018 4:57	0.01
9/9/2018 19:01	0.01	9/17/2018 13:16	0.01	9/23/2018 12:16	0.01	9/25/2018 5:01	0.01
9/9/2018 19:06	0.01	9/17/2018 13:18	0.01	9/23/2018 12:47	0.01	9/25/2018 6:33	0.01
9/9/2018 19:11	0.01	9/17/2018 15:21	0.01	9/23/2018 13:02	0.01	9/25/2018 6:37	0.01
9/9/2018 19:20	0.01	9/17/2018 15:23	0.01	9/23/2018 13:23	0.01	9/25/2018 9:30	0.01
9/9/2018 19:25	0.01	9/17/2018 15:39	0.01	9/23/2018 13:32	0.01	9/25/2018 9:50	0.01
9/9/2018 19:34	0.01	9/17/2018 15:40	0.03	9/23/2018 13:48	0.01	9/25/2018 10:06	0.01
9/9/2018 19:41	0.01	9/17/2018 15:41	0.02	9/23/2018 13:58	0.01	9/25/2018 15:41	0.01
9/9/2018 19:47	0.01	9/17/2018 15:42	0.01	9/23/2018 14:07	0.01	9/25/2018 15:42	0.02
9/9/2018 19:50	0.01	9/17/2018 16:56	0.01	9/23/2018 14:16	0.01	9/25/2018 15:43	0.03
9/9/2018 19:58	0.01	9/17/2018 20:48	0.01	9/23/2018 14:30	0.01	9/25/2018 15:44	0.02
9/9/2018 20:08	0.01	9/17/2018 20:53	0.02	9/23/2018 14:40	0.01	9/25/2018 15:46	0.01
9/9/2018 20:10	0.01	9/17/2018 20:54	0.01	9/23/2018 17:26	0.01	9/25/2018 15:48	0.01
9/9/2018 20:12	0.01	9/17/2018 20:55	0.01	9/23/2018 18:23	0.01	9/25/2018 15:54	0.01
9/9/2018 20:14	0.01	9/17/2018 20:58	0.01	9/23/2018 18:56	0.01	9/25/2018 16:05	0.01
9/9/2018 20:17	0.01	9/17/2018 20:59	0.01	9/23/2018 19:09	0.01	9/25/2018 16:13	0.01
9/9/2018 20:21	0.01	9/17/2018 21:02	0.01	9/23/2018 19:17	0.01	9/25/2018 16:17	0.01
9/9/2018 20:25	0.01	9/17/2018 21:06	0.01	9/23/2018 19:22	0.01	9/25/2018 16:22	0.01
9/9/2018 20:29	0.01	9/17/2018 22:03	0.01	9/23/2018 19:30	0.01	9/25/2018 16:27	0.01
9/9/2018 20:36	0.01	9/18/2018 4:55	0.01	9/23/2018 19:42	0.01	9/26/2018 1:46	0.01
9/9/2018 20:49	0.01	9/18/2018 10:57	0.01	9/23/2018 19:56	0.01	9/26/2018 10:13	0.01
9/9/2018 21:03	0.01	9/18/2018 10:59	0.01	9/23/2018 20:12	0.01	9/26/2018 11:44	0.01
9/9/2018 23:52	0.01	9/18/2018 11:04	0.01	9/23/2018 20:27	0.01	9/26/2018 20:32	0.01
9/10/2018 0:28	0.01	9/18/2018 11:06	0.01	9/23/2018 20:37	0.01	9/26/2018 20:38	0.01
9/10/2018 0:37	0.01	9/18/2018 12:27	0.01	9/23/2018 20:54	0.01	9/26/2018 20:41	0.01
9/10/2018 0:42	0.01	9/18/2018 13:31	0.01	9/23/2018 21:03	0.01	9/26/2018 20:47	0.01
9/10/2018 0:47	0.01	9/18/2018 13:37	0.01	9/23/2018 21:14	0.01	9/26/2018 20:51	0.01
9/10/2018 0:50	0.01	9/18/2018 13:38	0.01	9/23/2018 21:22	0.01	9/26/2018 20:55	0.01
9/10/2018 0:57	0.01	9/18/2018 13:40	0.01	9/23/2018 21:30	0.01	9/26/2018 21:02	0.01
9/10/2018 1:04	0.01	9/18/2018 13:41	0.01	9/23/2018 21:42	0.01	9/26/2018 21:18	0.01
9/10/2018 1:16	0.01	9/18/2018 13:43	0.01	9/23/2018 21:58	0.01	9/26/2018 21:28	0.01
9/10/2018 1:21	0.01	9/18/2018 13:45	0.01	9/23/2018 22:15	0.01	9/26/2018 21:40	0.01
9/10/2018 1:29	0.01	9/18/2018 13:48	0.01	9/23/2018 22:32	0.01	9/26/2018 21:43	0.01
9/10/2018 1:35	0.01	9/18/2018 13:49	0.01	9/23/2018 22:43	0.01	9/26/2018 21:45	0.01





**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
9/26/2018 21:48	0.01	10/2/2018 23:36	0.01	10/11/2018 20:14	0.01	10/12/2018 2:42	0.01
9/26/2018 22:14	0.01	10/2/2018 23:37	0.02	10/11/2018 20:17	0.01	10/12/2018 2:51	0.01
9/28/2018 0:00	0.01	10/2/2018 23:38	0.02	10/11/2018 20:21	0.01	10/12/2018 3:01	0.01
9/28/2018 0:58	0.01	10/2/2018 23:39	0.02	10/11/2018 20:23	0.01	10/13/2018 6:36	0.01
9/28/2018 0:59	0.01	10/2/2018 23:40	0.01	10/11/2018 20:24	0.01	10/13/2018 6:53	0.01
9/28/2018 2:37	0.01	10/2/2018 23:42	0.01	10/11/2018 20:25	0.01	10/13/2018 7:08	0.01
9/28/2018 2:42	0.01	10/2/2018 23:46	0.01	10/11/2018 20:26	0.01	10/13/2018 7:42	0.01
9/28/2018 2:50	0.01	10/3/2018 9:47	0.01	10/11/2018 20:28	0.01	10/13/2018 8:23	0.01
9/28/2018 2:57	0.01	10/3/2018 12:07	0.01	10/11/2018 20:30	0.01	10/13/2018 8:44	0.01
9/28/2018 3:00	0.01	10/4/2018 18:11	0.01	10/11/2018 20:33	0.01	10/13/2018 9:11	0.01
9/28/2018 3:06	0.01	10/4/2018 18:12	0.01	10/11/2018 20:36	0.01	10/15/2018 8:56	0.01
9/28/2018 3:08	0.01	10/4/2018 18:18	0.01	10/11/2018 20:40	0.01	10/15/2018 9:15	0.01
9/28/2018 3:10	0.01	10/4/2018 18:19	0.01	10/11/2018 20:50	0.01	10/15/2018 9:20	0.01
9/28/2018 3:11	0.03	10/4/2018 18:20	0.01	10/11/2018 20:58	0.01	10/15/2018 9:28	0.01
9/28/2018 3:12	0.01	10/4/2018 18:21	0.01	10/11/2018 21:00	0.01	10/15/2018 9:42	0.01
9/28/2018 3:14	0.01	10/4/2018 18:25	0.01	10/11/2018 21:01	0.01	10/15/2018 9:45	0.01
9/28/2018 3:19	0.01	10/4/2018 18:30	0.01	10/11/2018 21:07	0.01	10/15/2018 9:57	0.01
9/28/2018 3:22	0.01	10/9/2018 0:54	0.01	10/11/2018 21:28	0.01	10/15/2018 10:10	0.01
9/28/2018 3:24	0.01	10/11/2018 8:15	0.01	10/11/2018 21:34	0.01	10/15/2018 10:13	0.01
9/28/2018 3:27	0.02	10/11/2018 9:11	0.01	10/11/2018 21:38	0.01	10/15/2018 10:31	0.01
9/28/2018 3:29	0.03	10/11/2018 9:15	0.01	10/11/2018 21:45	0.01	10/15/2018 23:45	0.01
9/28/2018 3:30	0.02	10/11/2018 9:16	0.02	10/11/2018 22:04	0.01	10/16/2018 5:16	0.01
9/28/2018 3:31	0.01	10/11/2018 9:17	0.02	10/11/2018 22:18	0.01	10/20/2018 2:51	0.01
9/28/2018 3:33	0.01	10/11/2018 9:18	0.01	10/11/2018 22:24	0.01	10/20/2018 4:25	0.01
9/28/2018 3:34	0.01	10/11/2018 9:19	0.02	10/11/2018 22:29	0.01	10/20/2018 4:51	0.01
9/28/2018 3:35	0.01	10/11/2018 9:20	0.01	10/11/2018 22:38	0.01	10/20/2018 5:03	0.01
9/28/2018 3:36	0.01	10/11/2018 9:21	0.02	10/11/2018 22:47	0.01	10/20/2018 5:15	0.01
9/28/2018 3:39	0.01	10/11/2018 9:22	0.05	10/11/2018 23:05	0.01	10/20/2018 5:32	0.01
9/28/2018 3:41	0.02	10/11/2018 9:23	0.03	10/11/2018 23:20	0.01	10/26/2018 20:56	0.01
9/28/2018 3:42	0.02	10/11/2018 9:24	0.04	10/11/2018 23:35	0.01	10/26/2018 21:23	0.01
9/28/2018 3:43	0.03	10/11/2018 9:25	0.04	10/12/2018 0:05	0.01	10/26/2018 21:37	0.01
9/28/2018 3:45	0.01	10/11/2018 9:26	0.02	10/12/2018 0:22	0.01	10/26/2018 21:46	0.01
9/28/2018 3:50	0.01	10/11/2018 9:27	0.01	10/12/2018 0:31	0.01	10/26/2018 21:59	0.01
9/28/2018 3:53	0.01	10/11/2018 9:28	0.01	10/12/2018 1:06	0.01	10/26/2018 22:11	0.01
9/28/2018 4:06	0.01	10/11/2018 9:29	0.01	10/12/2018 1:11	0.01	10/26/2018 22:20	0.01
9/28/2018 4:28	0.01	10/11/2018 9:43	0.01	10/12/2018 1:17	0.01	10/26/2018 22:28	0.01
9/28/2018 5:11	0.01	10/11/2018 9:44	0.03	10/12/2018 1:21	0.01	10/26/2018 22:40	0.01
9/28/2018 6:21	0.01	10/11/2018 9:45	0.02	10/12/2018 1:31	0.01	10/26/2018 22:47	0.01
10/2/2018 23:28	0.01	10/11/2018 9:46	0.01	10/12/2018 1:37	0.01	10/26/2018 22:55	0.01
10/2/2018 23:29	0.01	10/11/2018 17:59	0.01	10/12/2018 1:43	0.01	10/26/2018 23:00	0.01
10/2/2018 23:30	0.01	10/11/2018 19:27	0.01	10/12/2018 1:50	0.01	10/26/2018 23:10	0.01
10/2/2018 23:31	0.03	10/11/2018 19:29	0.01	10/12/2018 1:58	0.01	10/26/2018 23:18	0.01
10/2/2018 23:32	0.02	10/11/2018 19:31	0.01	10/12/2018 2:04	0.01	10/26/2018 23:23	0.01
10/2/2018 23:33	0.01	10/11/2018 19:34	0.01	10/12/2018 2:15	0.01	10/26/2018 23:27	0.01
10/2/2018 23:34	0.03	10/11/2018 19:40	0.01	10/12/2018 2:21	0.01	10/26/2018 23:31	0.01
10/2/2018 23:35	0.03	10/11/2018 20:10	0.01	10/12/2018 2:32	0.01	10/26/2018 23:36	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
10/26/2018 23:41	0.01	10/27/2018 2:19	0.01	10/27/2018 6:05	0.01	11/2/2018 21:01	0.01
10/26/2018 23:47	0.01	10/27/2018 2:21	0.01	10/27/2018 6:10	0.01	11/2/2018 21:15	0.01
10/26/2018 23:57	0.01	10/27/2018 2:23	0.01	10/27/2018 6:16	0.01	11/2/2018 22:20	0.01
10/27/2018 0:07	0.01	10/27/2018 2:24	0.01	10/27/2018 6:20	0.01	11/3/2018 0:04	0.01
10/27/2018 0:14	0.01	10/27/2018 2:26	0.01	10/27/2018 6:23	0.01	11/3/2018 0:06	0.01
10/27/2018 0:17	0.01	10/27/2018 2:28	0.01	10/27/2018 6:26	0.01	11/3/2018 0:12	0.01
10/27/2018 0:22	0.01	10/27/2018 2:30	0.01	10/27/2018 6:31	0.01	11/3/2018 0:16	0.01
10/27/2018 0:25	0.01	10/27/2018 2:32	0.01	10/27/2018 6:35	0.01	11/3/2018 0:17	0.01
10/27/2018 0:29	0.01	10/27/2018 2:35	0.01	10/27/2018 6:40	0.01	11/3/2018 0:18	0.03
10/27/2018 0:31	0.01	10/27/2018 2:39	0.01	10/27/2018 6:44	0.01	11/3/2018 0:19	0.02
10/27/2018 0:33	0.01	10/27/2018 2:44	0.01	10/27/2018 6:48	0.01	11/3/2018 0:20	0.02
10/27/2018 0:35	0.01	10/27/2018 2:47	0.01	10/27/2018 6:52	0.01	11/3/2018 0:21	0.02
10/27/2018 0:37	0.01	10/27/2018 2:50	0.01	10/27/2018 6:56	0.01	11/3/2018 0:22	0.01
10/27/2018 0:39	0.01	10/27/2018 2:53	0.01	10/27/2018 7:03	0.01	11/3/2018 0:23	0.01
10/27/2018 0:40	0.01	10/27/2018 2:57	0.01	10/27/2018 7:15	0.01	11/3/2018 0:24	0.01
10/27/2018 0:42	0.01	10/27/2018 3:05	0.01	10/27/2018 7:27	0.01	11/3/2018 0:25	0.01
10/27/2018 0:45	0.01	10/27/2018 3:14	0.01	10/27/2018 7:38	0.01	11/3/2018 0:26	0.01
10/27/2018 0:47	0.01	10/27/2018 3:22	0.01	10/27/2018 7:49	0.01	11/3/2018 0:28	0.01
10/27/2018 0:49	0.01	10/27/2018 3:29	0.01	10/27/2018 8:07	0.01	11/3/2018 0:29	0.01
10/27/2018 0:52	0.01	10/27/2018 3:38	0.01	10/27/2018 8:15	0.01	11/3/2018 0:30	0.02
10/27/2018 0:56	0.01	10/27/2018 3:47	0.01	10/27/2018 8:30	0.01	11/3/2018 0:31	0.01
10/27/2018 0:59	0.01	10/27/2018 3:49	0.01	10/27/2018 8:47	0.01	11/3/2018 0:32	0.02
10/27/2018 1:02	0.01	10/27/2018 3:52	0.01	10/27/2018 9:07	0.01	11/3/2018 0:35	0.01
10/27/2018 1:04	0.01	10/27/2018 3:53	0.01	10/27/2018 9:36	0.01	11/3/2018 0:39	0.01
10/27/2018 1:06	0.01	10/27/2018 3:54	0.01	10/27/2018 17:17	0.01	11/3/2018 1:13	0.01
10/27/2018 1:08	0.01	10/27/2018 3:56	0.01	10/27/2018 17:43	0.01	11/3/2018 1:19	0.01
10/27/2018 1:10	0.01	10/27/2018 3:57	0.01	10/29/2018 2:01	0.01	11/3/2018 1:30	0.01
10/27/2018 1:12	0.01	10/27/2018 4:00	0.01	10/29/2018 3:05	0.01	11/3/2018 1:40	0.01
10/27/2018 1:13	0.01	10/27/2018 4:02	0.01	11/2/2018 18:43	0.01	11/3/2018 1:48	0.01
10/27/2018 1:15	0.01	10/27/2018 4:04	0.01	11/2/2018 18:59	0.01	11/3/2018 1:55	0.01
10/27/2018 1:17	0.01	10/27/2018 4:08	0.01	11/2/2018 19:04	0.01	11/3/2018 2:02	0.01
10/27/2018 1:19	0.01	10/27/2018 4:16	0.01	11/2/2018 19:07	0.01	11/3/2018 2:15	0.01
10/27/2018 1:22	0.01	10/27/2018 4:32	0.01	11/2/2018 19:12	0.01	11/3/2018 2:29	0.01
10/27/2018 1:25	0.01	10/27/2018 4:47	0.01	11/2/2018 19:14	0.01	11/3/2018 2:35	0.01
10/27/2018 1:30	0.01	10/27/2018 5:01	0.01	11/2/2018 19:16	0.01	11/3/2018 2:57	0.01
10/27/2018 1:36	0.01	10/27/2018 5:08	0.01	11/2/2018 19:19	0.01	11/3/2018 3:07	0.01
10/27/2018 1:42	0.01	10/27/2018 5:18	0.01	11/2/2018 19:21	0.01	11/3/2018 3:22	0.01
10/27/2018 1:48	0.01	10/27/2018 5:29	0.01	11/2/2018 19:23	0.01	11/3/2018 3:24	0.01
10/27/2018 1:53	0.01	10/27/2018 5:36	0.01	11/2/2018 19:24	0.01	11/3/2018 3:26	0.01
10/27/2018 1:56	0.01	10/27/2018 5:38	0.01	11/2/2018 19:25	0.01	11/3/2018 3:29	0.01
10/27/2018 1:59	0.01	10/27/2018 5:42	0.01	11/2/2018 19:29	0.01	11/3/2018 3:32	0.01
10/27/2018 2:02	0.01	10/27/2018 5:47	0.01	11/2/2018 19:59	0.01	11/3/2018 3:34	0.01
10/27/2018 2:08	0.01	10/27/2018 5:51	0.01	11/2/2018 20:40	0.01	11/3/2018 3:37	0.01
10/27/2018 2:12	0.01	10/27/2018 5:55	0.01	11/2/2018 20:42	0.01	11/3/2018 3:55	0.01
10/27/2018 2:15	0.01	10/27/2018 5:57	0.01	11/2/2018 20:44	0.01	11/3/2018 4:51	0.01
10/27/2018 2:17	0.01	10/27/2018 5:59	0.01	11/2/2018 20:51	0.01	11/5/2018 6:58	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
11/5/2018 7:09	0.01	11/5/2018 14:59	0.01	11/6/2018 10:13	0.01	11/9/2018 14:41	0.01
11/5/2018 7:18	0.01	11/5/2018 15:02	0.01	11/6/2018 10:15	0.01	11/9/2018 14:43	0.01
11/5/2018 7:26	0.01	11/5/2018 15:06	0.01	11/6/2018 10:19	0.01	11/9/2018 14:48	0.01
11/5/2018 7:33	0.01	11/5/2018 15:12	0.01	11/6/2018 10:30	0.01	11/9/2018 14:54	0.01
11/5/2018 7:39	0.01	11/5/2018 15:25	0.01	11/6/2018 10:44	0.01	11/9/2018 15:06	0.01
11/5/2018 7:44	0.01	11/5/2018 15:42	0.01	11/6/2018 10:46	0.01	11/9/2018 15:10	0.01
11/5/2018 7:49	0.01	11/5/2018 15:49	0.01	11/6/2018 10:51	0.01	11/9/2018 15:14	0.01
11/5/2018 7:56	0.01	11/5/2018 15:56	0.01	11/6/2018 10:55	0.01	11/9/2018 15:28	0.01
11/5/2018 8:03	0.01	11/5/2018 16:05	0.01	11/6/2018 11:07	0.01	11/9/2018 15:32	0.01
11/5/2018 8:11	0.01	11/5/2018 17:14	0.01	11/6/2018 11:10	0.01	11/9/2018 15:36	0.01
11/5/2018 8:24	0.01	11/6/2018 3:08	0.01	11/6/2018 11:11	0.01	11/9/2018 15:41	0.01
11/5/2018 8:37	0.01	11/6/2018 8:33	0.01	11/6/2018 11:12	0.03	11/9/2018 15:45	0.01
11/5/2018 8:51	0.01	11/6/2018 8:54	0.01	11/6/2018 11:13	0.02	11/9/2018 15:49	0.01
11/5/2018 8:58	0.01	11/6/2018 8:56	0.01	11/6/2018 11:14	0.03	11/9/2018 15:54	0.01
11/5/2018 9:02	0.01	11/6/2018 9:01	0.01	11/6/2018 11:15	0.01	11/9/2018 15:56	0.01
11/5/2018 9:12	0.01	11/6/2018 9:05	0.01	11/6/2018 11:16	0.02	11/9/2018 15:59	0.01
11/5/2018 9:19	0.01	11/6/2018 9:09	0.01	11/6/2018 11:21	0.02	11/9/2018 16:00	0.01
11/5/2018 9:29	0.01	11/6/2018 9:12	0.01	11/6/2018 11:24	0.02	11/9/2018 16:02	0.01
11/5/2018 9:42	0.01	11/6/2018 9:16	0.01	11/6/2018 11:28	0.02	11/9/2018 16:06	0.01
11/5/2018 9:46	0.01	11/6/2018 9:20	0.01	11/6/2018 11:29	0.01	11/9/2018 16:11	0.01
11/5/2018 10:00	0.01	11/6/2018 9:31	0.01	11/6/2018 11:30	0.02	11/9/2018 16:13	0.01
11/5/2018 10:11	0.01	11/6/2018 9:33	0.01	11/6/2018 11:33	0.01	11/9/2018 16:14	0.01
11/5/2018 10:24	0.01	11/6/2018 9:34	0.01	11/6/2018 11:35	0.01	11/9/2018 16:17	0.02
11/5/2018 10:45	0.01	11/6/2018 9:36	0.01	11/6/2018 11:40	0.01	11/9/2018 16:18	0.01
11/5/2018 11:07	0.01	11/6/2018 9:38	0.01	11/6/2018 11:42	0.01	11/9/2018 16:19	0.01
11/5/2018 12:40	0.01	11/6/2018 9:39	0.01	11/6/2018 11:43	0.01	11/9/2018 16:20	0.01
11/5/2018 12:42	0.01	11/6/2018 9:40	0.01	11/6/2018 11:44	0.01	11/9/2018 16:21	0.01
11/5/2018 12:46	0.01	11/6/2018 9:41	0.01	11/6/2018 11:46	0.01	11/9/2018 16:22	0.01
11/5/2018 12:49	0.01	11/6/2018 9:42	0.01	11/6/2018 11:48	0.01	11/9/2018 16:23	0.01
11/5/2018 12:53	0.01	11/6/2018 9:43	0.03	11/6/2018 11:50	0.01	11/9/2018 16:24	0.01
11/5/2018 13:00	0.01	11/6/2018 9:44	0.01	11/6/2018 11:52	0.01	11/9/2018 16:25	0.01
11/5/2018 13:05	0.01	11/6/2018 9:45	0.01	11/6/2018 12:07	0.01	11/9/2018 16:26	0.01
11/5/2018 13:11	0.01	11/6/2018 9:47	0.01	11/6/2018 14:17	0.01	11/9/2018 16:28	0.01
11/5/2018 13:16	0.01	11/6/2018 9:48	0.01	11/6/2018 16:58	0.01	11/9/2018 16:30	0.01
11/5/2018 13:25	0.01	11/6/2018 9:49	0.02	11/9/2018 13:38	0.01	11/9/2018 16:32	0.01
11/5/2018 13:35	0.01	11/6/2018 9:50	0.03	11/9/2018 13:42	0.01	11/9/2018 16:36	0.01
11/5/2018 13:42	0.01	11/6/2018 9:51	0.03	11/9/2018 13:45	0.01	11/9/2018 16:38	0.01
11/5/2018 13:50	0.01	11/6/2018 9:52	0.01	11/9/2018 13:48	0.01	11/9/2018 16:39	0.01
11/5/2018 13:57	0.01	11/6/2018 9:53	0.01	11/9/2018 13:51	0.01	11/9/2018 16:41	0.01
11/5/2018 14:04	0.01	11/6/2018 9:54	0.01	11/9/2018 13:57	0.01	11/9/2018 16:44	0.01
11/5/2018 14:08	0.01	11/6/2018 9:56	0.01	11/9/2018 14:31	0.01	11/9/2018 16:45	0.01
11/5/2018 14:14	0.01	11/6/2018 9:59	0.01	11/9/2018 14:34	0.01	11/9/2018 16:49	0.01
11/5/2018 14:26	0.01	11/6/2018 10:03	0.01	11/9/2018 14:36	0.01	11/9/2018 16:52	0.01
11/5/2018 14:44	0.01	11/6/2018 10:07	0.01	11/9/2018 14:38	0.03	11/9/2018 16:57	0.01
11/5/2018 14:50	0.01	11/6/2018 10:10	0.01	11/9/2018 14:39	0.01	11/9/2018 17:03	0.01
11/5/2018 14:54	0.01	11/6/2018 10:12	0.01	11/9/2018 14:40	0.01	11/9/2018 17:07	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
11/9/2018 17:17	0.01	11/13/2018 3:25	0.02	11/15/2018 17:40	0.01	11/15/2018 20:17	0.01
11/9/2018 17:21	0.01	11/13/2018 3:30	0.02	11/15/2018 17:43	0.01	11/15/2018 20:23	0.01
11/9/2018 17:39	0.01	11/13/2018 3:35	0.01	11/15/2018 17:45	0.01	11/15/2018 20:29	0.01
11/9/2018 18:00	0.01	11/13/2018 3:40	0.01	11/15/2018 17:48	0.01	11/15/2018 20:36	0.01
11/9/2018 21:15	0.01	11/13/2018 3:45	0.01	11/15/2018 17:50	0.01	11/15/2018 20:43	0.01
11/12/2018 20:15	0.01	11/13/2018 3:50	0.03	11/15/2018 17:53	0.01	11/15/2018 20:51	0.01
11/12/2018 20:45	0.01	11/13/2018 3:55	0.03	11/15/2018 17:55	0.01	11/15/2018 20:57	0.01
11/12/2018 21:00	0.01	11/13/2018 4:00	0.02	11/15/2018 17:57	0.01	11/15/2018 21:05	0.01
11/12/2018 21:15	0.02	11/13/2018 4:05	0.02	11/15/2018 17:59	0.01	11/15/2018 21:12	0.01
11/12/2018 21:30	0.01	11/13/2018 4:10	0.02	11/15/2018 18:00	0.01	11/15/2018 21:20	0.01
11/12/2018 21:45	0.02	11/13/2018 4:15	0.02	11/15/2018 18:02	0.01	11/15/2018 21:26	0.01
11/12/2018 22:00	0.01	11/13/2018 4:20	0.01	11/15/2018 18:05	0.01	11/15/2018 21:32	0.01
11/12/2018 22:15	0.01	11/13/2018 4:25	0.01	11/15/2018 18:07	0.01	11/15/2018 21:38	0.01
11/12/2018 22:30	0.01	11/13/2018 4:30	0.01	11/15/2018 18:10	0.01	11/15/2018 21:43	0.01
11/12/2018 22:45	0.01	11/13/2018 4:35	0.02	11/15/2018 18:13	0.01	11/15/2018 21:47	0.01
11/12/2018 23:00	0.02	11/13/2018 4:40	0.02	11/15/2018 18:16	0.01	11/15/2018 21:51	0.01
11/12/2018 23:05	0.02	11/13/2018 4:45	0.02	11/15/2018 18:20	0.01	11/15/2018 21:55	0.01
11/12/2018 23:10	0.02	11/13/2018 4:50	0.02	11/15/2018 18:25	0.01	11/15/2018 21:59	0.01
11/12/2018 23:15	0.01	11/13/2018 4:55	0.02	11/15/2018 18:29	0.01	11/15/2018 22:03	0.01
11/12/2018 23:30	0.02	11/13/2018 5:00	0.01	11/15/2018 18:34	0.01	11/15/2018 22:06	0.01
11/12/2018 23:35	0.02	11/13/2018 5:05	0.02	11/15/2018 18:38	0.01	11/15/2018 22:10	0.01
11/12/2018 23:40	0.01	11/13/2018 5:10	0.02	11/15/2018 18:44	0.01	11/15/2018 22:13	0.01
11/12/2018 23:45	0.01	11/13/2018 5:15	0.01	11/15/2018 18:49	0.01	11/15/2018 22:16	0.01
11/12/2018 23:50	0.02	11/13/2018 5:20	0.02	11/15/2018 18:53	0.01	11/15/2018 22:19	0.01
11/12/2018 23:55	0.02	11/13/2018 5:25	0.02	11/15/2018 18:58	0.01	11/15/2018 22:21	0.01
11/13/2018 0:00	0.01	11/13/2018 5:30	0.01	11/15/2018 19:03	0.01	11/15/2018 22:23	0.01
11/13/2018 0:05	0.01	11/13/2018 5:35	0.02	11/15/2018 19:07	0.01	11/15/2018 22:24	0.01
11/13/2018 0:10	0.01	11/13/2018 5:40	0.02	11/15/2018 19:10	0.01	11/15/2018 22:26	0.01
11/13/2018 0:15	0.01	11/13/2018 5:45	0.02	11/15/2018 19:12	0.01	11/15/2018 22:28	0.01
11/13/2018 0:20	0.01	11/13/2018 6:00	0.02	11/15/2018 19:14	0.01	11/15/2018 22:30	0.01
11/13/2018 0:25	0.01	11/13/2018 6:15	0.02	11/15/2018 19:16	0.01	11/15/2018 22:31	0.01
11/13/2018 0:30	0.01	11/13/2018 6:30	0.02	11/15/2018 19:20	0.01	11/15/2018 22:34	0.01
11/13/2018 0:40	0.01	11/13/2018 6:45	0.02	11/15/2018 19:23	0.01	11/15/2018 22:36	0.01
11/13/2018 0:45	0.01	11/13/2018 7:00	0.01	11/15/2018 19:28	0.01	11/15/2018 22:39	0.01
11/13/2018 1:00	0.01	11/13/2018 7:15	0.01	11/15/2018 19:33	0.01	11/15/2018 22:40	0.01
11/13/2018 1:15	0.01	11/13/2018 8:15	0.01	11/15/2018 19:39	0.01	11/15/2018 22:43	0.01
11/13/2018 1:30	0.01	11/15/2018 16:55	0.01	11/15/2018 19:41	0.01	11/15/2018 22:45	0.01
11/13/2018 1:45	0.02	11/15/2018 17:04	0.01	11/15/2018 19:42	0.01	11/15/2018 22:48	0.01
11/13/2018 2:00	0.02	11/15/2018 17:12	0.01	11/15/2018 19:44	0.01	11/15/2018 22:50	0.01
11/13/2018 2:05	0.01	11/15/2018 17:20	0.01	11/15/2018 19:46	0.01	11/15/2018 22:52	0.01
11/13/2018 2:10	0.01	11/15/2018 17:26	0.01	11/15/2018 19:49	0.01	11/15/2018 22:56	0.01
11/13/2018 2:15	0.01	11/15/2018 17:29	0.01	11/15/2018 19:53	0.01	11/15/2018 22:59	0.01
11/13/2018 2:30	0.02	11/15/2018 17:32	0.01	11/15/2018 19:57	0.01	11/15/2018 23:02	0.01
11/13/2018 3:00	0.01	11/15/2018 17:34	0.01	11/15/2018 20:01	0.01	11/15/2018 23:08	0.01
11/13/2018 3:15	0.02	11/15/2018 17:36	0.01	11/15/2018 20:06	0.01	11/15/2018 23:14	0.01
11/13/2018 3:20	0.02	11/15/2018 17:38	0.01	11/15/2018 20:11	0.01	11/15/2018 23:20	0.01





**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
11/15/2018 23:27	0.01	11/24/2018 17:27	0.01	11/24/2018 19:28	0.01	11/24/2018 21:07	0.01
11/15/2018 23:41	0.01	11/24/2018 17:32	0.01	11/24/2018 19:30	0.01	11/24/2018 21:11	0.01
11/16/2018 0:12	0.01	11/24/2018 17:40	0.01	11/24/2018 19:33	0.01	11/24/2018 21:16	0.01
11/16/2018 0:48	0.01	11/24/2018 17:48	0.01	11/24/2018 19:35	0.01	11/24/2018 21:21	0.01
11/16/2018 1:44	0.01	11/24/2018 17:54	0.01	11/24/2018 19:37	0.01	11/24/2018 21:27	0.01
11/16/2018 3:02	0.01	11/24/2018 17:59	0.01	11/24/2018 19:39	0.01	11/24/2018 21:31	0.01
11/16/2018 3:32	0.01	11/24/2018 18:02	0.01	11/24/2018 19:41	0.01	11/24/2018 21:36	0.01
11/16/2018 3:40	0.01	11/24/2018 18:04	0.01	11/24/2018 19:42	0.01	11/24/2018 21:40	0.01
11/16/2018 3:44	0.01	11/24/2018 18:06	0.01	11/24/2018 19:44	0.01	11/24/2018 21:44	0.01
11/16/2018 3:47	0.01	11/24/2018 18:08	0.01	11/24/2018 19:45	0.01	11/24/2018 21:49	0.01
11/16/2018 3:50	0.01	11/24/2018 18:09	0.01	11/24/2018 19:46	0.01	11/24/2018 21:52	0.01
11/16/2018 3:53	0.01	11/24/2018 18:10	0.01	11/24/2018 19:48	0.01	11/24/2018 21:56	0.01
11/16/2018 3:57	0.01	11/24/2018 18:12	0.01	11/24/2018 19:50	0.01	11/24/2018 21:59	0.01
11/16/2018 4:00	0.01	11/24/2018 18:14	0.01	11/24/2018 19:52	0.01	11/24/2018 22:02	0.01
11/16/2018 4:05	0.01	11/24/2018 18:18	0.01	11/24/2018 19:55	0.01	11/24/2018 22:06	0.01
11/16/2018 4:21	0.01	11/24/2018 18:19	0.01	11/24/2018 19:57	0.01	11/24/2018 22:08	0.01
11/16/2018 4:42	0.01	11/24/2018 18:22	0.01	11/24/2018 19:59	0.01	11/24/2018 22:12	0.01
11/16/2018 4:51	0.01	11/24/2018 18:24	0.01	11/24/2018 20:00	0.01	11/24/2018 22:15	0.01
11/16/2018 4:59	0.01	11/24/2018 18:27	0.01	11/24/2018 20:01	0.01	11/24/2018 22:17	0.01
11/16/2018 5:13	0.01	11/24/2018 18:30	0.01	11/24/2018 20:03	0.01	11/24/2018 22:19	0.01
11/24/2018 15:01	0.01	11/24/2018 18:33	0.01	11/24/2018 20:04	0.01	11/24/2018 22:22	0.01
11/24/2018 15:18	0.01	11/24/2018 18:38	0.01	11/24/2018 20:06	0.01	11/24/2018 22:24	0.01
11/24/2018 15:30	0.01	11/24/2018 18:41	0.01	11/24/2018 20:08	0.01	11/24/2018 22:27	0.01
11/24/2018 15:44	0.01	11/24/2018 18:44	0.01	11/24/2018 20:10	0.01	11/24/2018 22:30	0.01
11/24/2018 15:53	0.01	11/24/2018 18:47	0.01	11/24/2018 20:11	0.01	11/24/2018 22:32	0.01
11/24/2018 15:58	0.01	11/24/2018 18:49	0.01	11/24/2018 20:12	0.01	11/24/2018 22:34	0.01
11/24/2018 16:04	0.01	11/24/2018 18:52	0.01	11/24/2018 20:14	0.01	11/24/2018 22:37	0.01
11/24/2018 16:09	0.01	11/24/2018 18:55	0.01	11/24/2018 20:16	0.01	11/24/2018 22:40	0.01
11/24/2018 16:11	0.01	11/24/2018 18:58	0.01	11/24/2018 20:17	0.01	11/24/2018 22:43	0.01
11/24/2018 16:14	0.01	11/24/2018 19:00	0.01	11/24/2018 20:19	0.01	11/24/2018 22:45	0.01
11/24/2018 16:18	0.01	11/24/2018 19:02	0.01	11/24/2018 20:21	0.01	11/24/2018 22:48	0.01
11/24/2018 16:24	0.01	11/24/2018 19:04	0.01	11/24/2018 20:23	0.01	11/24/2018 22:52	0.01
11/24/2018 16:29	0.01	11/24/2018 19:05	0.01	11/24/2018 20:25	0.01	11/24/2018 22:57	0.01
11/24/2018 16:34	0.01	11/24/2018 19:07	0.01	11/24/2018 20:27	0.01	11/24/2018 23:04	0.01
11/24/2018 16:37	0.01	11/24/2018 19:09	0.01	11/24/2018 20:28	0.01	11/26/2018 11:40	0.01
11/24/2018 16:41	0.01	11/24/2018 19:11	0.01	11/24/2018 20:29	0.01	11/26/2018 11:54	0.01
11/24/2018 16:44	0.01	11/24/2018 19:13	0.01	11/24/2018 20:31	0.01	11/26/2018 12:06	0.01
11/24/2018 16:47	0.01	11/24/2018 19:14	0.01	11/24/2018 20:33	0.01	11/26/2018 12:16	0.01
11/24/2018 16:51	0.01	11/24/2018 19:16	0.01	11/24/2018 20:38	0.01	11/26/2018 12:21	0.01
11/24/2018 16:56	0.01	11/24/2018 19:18	0.02	11/24/2018 20:42	0.01	11/26/2018 12:24	0.01
11/24/2018 17:00	0.01	11/24/2018 19:19	0.01	11/24/2018 20:45	0.01	11/26/2018 12:36	0.01
11/24/2018 17:06	0.01	11/24/2018 19:21	0.01	11/24/2018 20:49	0.01	11/26/2018 12:38	0.01
11/24/2018 17:11	0.01	11/24/2018 19:22	0.01	11/24/2018 20:54	0.01	11/26/2018 12:42	0.01
11/24/2018 17:16	0.01	11/24/2018 19:23	0.01	11/24/2018 20:57	0.01	11/26/2018 12:44	0.01
11/24/2018 17:20	0.01	11/24/2018 19:25	0.01	11/24/2018 21:00	0.01	11/26/2018 12:45	0.01
11/24/2018 17:24	0.01	11/24/2018 19:26	0.01	11/24/2018 21:03	0.01	11/26/2018 12:46	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
11/26/2018 12:48	0.01	11/26/2018 14:42	0.01	12/2/2018 4:05	0.01	12/15/2018 11:27	0.01
11/26/2018 12:51	0.01	11/26/2018 14:45	0.01	12/2/2018 4:14	0.01	12/15/2018 11:35	0.01
11/26/2018 12:53	0.01	11/26/2018 14:47	0.01	12/2/2018 4:20	0.01	12/15/2018 11:53	0.01
11/26/2018 12:56	0.01	11/26/2018 14:50	0.01	12/2/2018 4:31	0.01	12/15/2018 12:08	0.01
11/26/2018 13:00	0.01	11/26/2018 14:53	0.01	12/2/2018 4:45	0.01	12/15/2018 12:21	0.01
11/26/2018 13:05	0.01	11/26/2018 14:57	0.01	12/2/2018 5:05	0.01	12/15/2018 12:30	0.01
11/26/2018 13:08	0.01	11/26/2018 15:02	0.01	12/2/2018 5:13	0.01	12/15/2018 12:38	0.01
11/26/2018 13:10	0.01	11/26/2018 15:28	0.01	12/2/2018 5:26	0.01	12/15/2018 12:44	0.01
11/26/2018 13:12	0.01	11/26/2018 15:44	0.01	12/2/2018 5:33	0.01	12/15/2018 12:55	0.01
11/26/2018 13:13	0.01	11/26/2018 15:49	0.01	12/2/2018 5:38	0.01	12/15/2018 13:13	0.01
11/26/2018 13:15	0.01	11/26/2018 16:03	0.01	12/2/2018 5:44	0.01	12/15/2018 13:31	0.01
11/26/2018 13:18	0.01	11/26/2018 16:45	0.01	12/2/2018 5:58	0.01	12/15/2018 20:33	0.01
11/26/2018 13:20	0.01	11/27/2018 9:31	0.01	12/2/2018 6:17	0.01	12/15/2018 20:55	0.01
11/26/2018 13:24	0.01	12/1/2018 15:26	0.01	12/2/2018 6:45	0.01	12/15/2018 21:17	0.01
11/26/2018 13:29	0.01	12/1/2018 15:32	0.01	12/2/2018 7:03	0.01	12/15/2018 21:22	0.01
11/26/2018 13:32	0.01	12/1/2018 15:39	0.01	12/2/2018 9:32	0.01	12/15/2018 21:33	0.01
11/26/2018 13:38	0.01	12/1/2018 16:19	0.01	12/2/2018 12:02	0.01	12/15/2018 21:58	0.01
11/26/2018 13:42	0.01	12/1/2018 22:15	0.01	12/14/2018 21:10	0.01	12/15/2018 22:14	0.01
11/26/2018 13:47	0.01	12/1/2018 23:23	0.01	12/14/2018 21:23	0.01	12/15/2018 22:24	0.01
11/26/2018 13:48	0.01	12/1/2018 23:45	0.01	12/14/2018 21:33	0.01	12/15/2018 22:26	0.01
11/26/2018 13:50	0.01	12/1/2018 23:54	0.01	12/14/2018 21:45	0.01	12/15/2018 22:36	0.01
11/26/2018 13:51	0.01	12/2/2018 0:04	0.01	12/14/2018 22:01	0.01	12/15/2018 22:55	0.01
11/26/2018 13:52	0.01	12/2/2018 0:13	0.01	12/14/2018 22:19	0.01	12/15/2018 23:29	0.01
11/26/2018 13:53	0.01	12/2/2018 0:25	0.01	12/14/2018 23:05	0.01	12/15/2018 23:52	0.01
11/26/2018 13:54	0.01	12/2/2018 0:33	0.01	12/15/2018 0:14	0.01	12/16/2018 0:03	0.01
11/26/2018 13:55	0.01	12/2/2018 0:46	0.01	12/15/2018 0:30	0.01	12/16/2018 0:12	0.01
11/26/2018 13:56	0.01	12/2/2018 0:55	0.01	12/15/2018 0:50	0.01	12/16/2018 0:20	0.01
11/26/2018 13:57	0.01	12/2/2018 1:13	0.01	12/15/2018 2:08	0.01	12/16/2018 0:25	0.01
11/26/2018 13:59	0.01	12/2/2018 1:21	0.01	12/15/2018 3:04	0.01	12/16/2018 0:43	0.01
11/26/2018 14:01	0.01	12/2/2018 1:30	0.01	12/15/2018 3:47	0.01	12/16/2018 0:44	0.01
11/26/2018 14:02	0.01	12/2/2018 1:37	0.01	12/15/2018 4:02	0.01	12/16/2018 0:49	0.01
11/26/2018 14:03	0.01	12/2/2018 1:46	0.01	12/15/2018 4:37	0.01	12/16/2018 0:59	0.01
11/26/2018 14:04	0.01	12/2/2018 1:55	0.01	12/15/2018 4:46	0.01	12/16/2018 1:05	0.01
11/26/2018 14:06	0.01	12/2/2018 2:03	0.01	12/15/2018 5:06	0.01	12/16/2018 1:16	0.01
11/26/2018 14:07	0.01	12/2/2018 2:16	0.01	12/15/2018 5:34	0.01	12/16/2018 1:18	0.01
11/26/2018 14:08	0.01	12/2/2018 2:29	0.01	12/15/2018 7:30	0.01	12/16/2018 1:20	0.01
11/26/2018 14:10	0.01	12/2/2018 2:36	0.01	12/15/2018 8:20	0.01	12/16/2018 1:21	0.01
11/26/2018 14:11	0.01	12/2/2018 2:48	0.01	12/15/2018 8:47	0.01	12/16/2018 1:22	0.01
11/26/2018 14:13	0.01	12/2/2018 2:56	0.01	12/15/2018 9:03	0.01	12/16/2018 1:25	0.01
11/26/2018 14:14	0.01	12/2/2018 3:09	0.01	12/15/2018 9:35	0.01	12/16/2018 1:33	0.01
11/26/2018 14:16	0.01	12/2/2018 3:13	0.01	12/15/2018 9:58	0.01	12/16/2018 1:41	0.01
11/26/2018 14:19	0.01	12/2/2018 3:17	0.01	12/15/2018 10:14	0.01	12/16/2018 1:43	0.02
11/26/2018 14:24	0.01	12/2/2018 3:30	0.01	12/15/2018 10:27	0.01	12/16/2018 1:44	0.01
11/26/2018 14:28	0.01	12/2/2018 3:39	0.01	12/15/2018 10:45	0.01	12/16/2018 1:45	0.02
11/26/2018 14:32	0.01	12/2/2018 3:46	0.01	12/15/2018 11:10	0.01	12/16/2018 1:46	0.01
11/26/2018 14:40	0.01	12/2/2018 3:56	0.01	12/15/2018 11:20	0.01	12/16/2018 1:47	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
12/16/2018 1:49	0.01	12/16/2018 13:24	0.01	12/20/2018 22:40	0.01	12/21/2018 4:21	0.01
12/16/2018 1:52	0.01	12/16/2018 13:31	0.01	12/20/2018 22:51	0.01	12/21/2018 4:22	0.02
12/16/2018 1:56	0.01	12/16/2018 13:36	0.01	12/20/2018 22:56	0.01	12/21/2018 4:23	0.01
12/16/2018 2:03	0.01	12/16/2018 13:42	0.01	12/20/2018 23:12	0.01	12/21/2018 4:24	0.01
12/16/2018 2:10	0.01	12/16/2018 13:51	0.01	12/20/2018 23:16	0.01	12/21/2018 4:25	0.01
12/16/2018 2:12	0.01	12/16/2018 14:07	0.01	12/20/2018 23:22	0.01	12/21/2018 4:26	0.01
12/16/2018 2:15	0.01	12/16/2018 14:50	0.01	12/20/2018 23:30	0.01	12/21/2018 4:39	0.01
12/16/2018 2:17	0.01	12/16/2018 15:01	0.01	12/20/2018 23:44	0.01	12/21/2018 4:47	0.01
12/16/2018 2:19	0.01	12/16/2018 16:42	0.01	12/20/2018 23:49	0.01	12/21/2018 4:50	0.01
12/16/2018 2:22	0.01	12/16/2018 17:38	0.01	12/20/2018 23:57	0.01	12/21/2018 4:53	0.01
12/16/2018 2:29	0.01	12/16/2018 17:47	0.01	12/21/2018 0:16	0.01	12/21/2018 5:04	0.01
12/16/2018 2:37	0.01	12/16/2018 17:55	0.01	12/21/2018 0:24	0.01	12/21/2018 5:14	0.01
12/16/2018 2:43	0.01	12/20/2018 14:08	0.01	12/21/2018 0:33	0.01	12/21/2018 5:18	0.01
12/16/2018 2:46	0.01	12/20/2018 14:16	0.01	12/21/2018 0:39	0.01	12/21/2018 7:02	0.01
12/16/2018 2:49	0.01	12/20/2018 14:30	0.01	12/21/2018 0:45	0.01	12/21/2018 7:56	0.01
12/16/2018 2:52	0.01	12/20/2018 14:36	0.01	12/21/2018 0:47	0.01	12/21/2018 8:01	0.01
12/16/2018 2:53	0.01	12/20/2018 14:41	0.01	12/21/2018 0:58	0.01	12/21/2018 8:03	0.01
12/16/2018 2:54	0.01	12/20/2018 14:53	0.01	12/21/2018 1:15	0.01	12/21/2018 8:09	0.01
12/16/2018 2:58	0.01	12/20/2018 14:58	0.01	12/21/2018 1:35	0.01	12/21/2018 8:27	0.01
12/16/2018 3:04	0.01	12/20/2018 15:05	0.01	12/21/2018 1:40	0.01	12/21/2018 8:31	0.01
12/16/2018 3:13	0.01	12/20/2018 15:19	0.01	12/21/2018 1:57	0.01	12/21/2018 8:38	0.01
12/16/2018 3:20	0.01	12/20/2018 15:58	0.01	12/21/2018 2:22	0.01	12/21/2018 8:55	0.01
12/16/2018 3:27	0.01	12/20/2018 16:15	0.01	12/21/2018 2:55	0.01	12/21/2018 9:33	0.01
12/16/2018 3:39	0.01	12/20/2018 16:31	0.01	12/21/2018 2:58	0.01	12/21/2018 10:02	0.01
12/16/2018 3:49	0.01	12/20/2018 16:44	0.01	12/21/2018 2:59	0.01	12/21/2018 10:20	0.01
12/16/2018 4:03	0.01	12/20/2018 16:58	0.01	12/21/2018 3:01	0.01	12/21/2018 10:32	0.01
12/16/2018 4:31	0.01	12/20/2018 17:14	0.01	12/21/2018 3:03	0.01	12/21/2018 10:53	0.01
12/16/2018 4:34	0.01	12/20/2018 17:19	0.01	12/21/2018 3:04	0.01	12/21/2018 14:51	0.01
12/16/2018 4:36	0.01	12/20/2018 17:25	0.01	12/21/2018 3:06	0.01	12/22/2018 0:04	0.01
12/16/2018 4:38	0.01	12/20/2018 17:29	0.01	12/21/2018 3:08	0.01	12/22/2018 0:08	0.01
12/16/2018 4:42	0.01	12/20/2018 17:37	0.01	12/21/2018 3:11	0.01	12/22/2018 0:13	0.01
12/16/2018 4:46	0.01	12/20/2018 17:49	0.01	12/21/2018 3:13	0.01	12/22/2018 0:17	0.01
12/16/2018 4:52	0.01	12/20/2018 18:04	0.01	12/21/2018 3:15	0.01	12/22/2018 0:20	0.01
12/16/2018 5:01	0.01	12/20/2018 19:10	0.01	12/21/2018 3:19	0.01	12/22/2018 0:22	0.01
12/16/2018 5:39	0.01	12/20/2018 20:41	0.01	12/21/2018 3:22	0.01	12/22/2018 0:25	0.01
12/16/2018 5:50	0.01	12/20/2018 20:58	0.01	12/21/2018 3:37	0.01	12/22/2018 0:28	0.01
12/16/2018 12:08	0.01	12/20/2018 21:08	0.01	12/21/2018 3:41	0.01	12/22/2018 1:03	0.01
12/16/2018 12:10	0.01	12/20/2018 21:18	0.01	12/21/2018 3:52	0.01	12/24/2018 2:07	0.01
12/16/2018 12:12	0.01	12/20/2018 21:33	0.01	12/21/2018 4:01	0.01	12/24/2018 3:05	0.01
12/16/2018 12:15	0.01	12/20/2018 21:52	0.01	12/21/2018 4:05	0.01	12/28/2018 0:23	0.01
12/16/2018 12:26	0.01	12/20/2018 22:01	0.01	12/21/2018 4:06	0.01	12/28/2018 1:19	0.01
12/16/2018 12:35	0.01	12/20/2018 22:12	0.01	12/21/2018 4:08	0.01	12/28/2018 2:23	0.01
12/16/2018 12:44	0.01	12/20/2018 22:15	0.01	12/21/2018 4:12	0.01	12/28/2018 3:35	0.01
12/16/2018 12:49	0.01	12/20/2018 22:20	0.01	12/21/2018 4:15	0.01	12/28/2018 4:12	0.01
12/16/2018 13:04	0.01	12/20/2018 22:26	0.01	12/21/2018 4:17	0.01	12/28/2018 4:22	0.01
12/16/2018 13:11	0.01	12/20/2018 22:32	0.01	12/21/2018 4:19	0.01	12/28/2018 4:33	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)	Time Stamp	Rainfall (in)
12/28/2018 4:40	0.01	12/28/2018 7:15	0.01	12/28/2018 10:43	0.01	12/31/2018 15:15	0.01
12/28/2018 4:45	0.01	12/28/2018 7:18	0.01	12/28/2018 10:49	0.01	12/31/2018 15:24	0.01
12/28/2018 4:51	0.01	12/28/2018 7:24	0.01	12/28/2018 11:07	0.01	12/31/2018 15:38	0.01
12/28/2018 4:58	0.01	12/28/2018 7:29	0.01	12/28/2018 11:12	0.01	12/31/2018 15:47	0.01
12/28/2018 5:01	0.01	12/28/2018 7:36	0.01	12/28/2018 11:15	0.01	12/31/2018 15:54	0.01
12/28/2018 5:05	0.01	12/28/2018 7:42	0.01	12/28/2018 11:22	0.01	12/31/2018 16:02	0.01
12/28/2018 5:08	0.01	12/28/2018 7:50	0.01	12/28/2018 11:29	0.01	12/31/2018 16:08	0.01
12/28/2018 5:11	0.01	12/28/2018 7:54	0.01	12/28/2018 11:34	0.01	12/31/2018 16:14	0.01
12/28/2018 5:14	0.01	12/28/2018 7:57	0.01	12/28/2018 11:41	0.01	12/31/2018 16:19	0.01
12/28/2018 5:17	0.01	12/28/2018 8:01	0.01	12/28/2018 11:53	0.01	12/31/2018 16:24	0.01
12/28/2018 5:19	0.01	12/28/2018 8:07	0.01	12/28/2018 11:57	0.01	12/31/2018 16:29	0.01
12/28/2018 5:22	0.01	12/28/2018 8:12	0.01	12/28/2018 12:08	0.01	12/31/2018 16:39	0.01
12/28/2018 5:24	0.01	12/28/2018 8:18	0.01	12/28/2018 12:54	0.01	12/31/2018 16:52	0.01
12/28/2018 5:26	0.01	12/28/2018 8:23	0.01	12/28/2018 13:04	0.01	12/31/2018 17:15	0.01
12/28/2018 5:28	0.01	12/28/2018 8:27	0.01	12/28/2018 13:12	0.01	12/31/2018 19:06	0.01
12/28/2018 5:30	0.01	12/28/2018 8:31	0.01	12/28/2018 13:18	0.01	12/31/2018 19:34	0.01
12/28/2018 5:33	0.01	12/28/2018 8:35	0.01	12/28/2018 13:23	0.01	12/31/2018 19:52	0.01
12/28/2018 5:35	0.01	12/28/2018 8:38	0.01	12/28/2018 13:32	0.01	12/31/2018 20:26	0.01
12/28/2018 5:39	0.01	12/28/2018 8:44	0.01	12/28/2018 13:36	0.01	12/31/2018 20:35	0.01
12/28/2018 5:43	0.01	12/28/2018 8:49	0.01	12/28/2018 13:38	0.01	12/31/2018 20:39	0.01
12/28/2018 5:45	0.01	12/28/2018 8:55	0.01	12/28/2018 13:44	0.01	12/31/2018 20:41	0.01
12/28/2018 5:47	0.01	12/28/2018 9:03	0.01	12/28/2018 13:49	0.01	12/31/2018 20:43	0.01
12/28/2018 5:50	0.01	12/28/2018 9:08	0.01	12/28/2018 13:58	0.01	12/31/2018 20:47	0.01
12/28/2018 5:52	0.01	12/28/2018 9:12	0.01	12/28/2018 14:05	0.01	12/31/2018 20:51	0.01
12/28/2018 5:54	0.01	12/28/2018 9:16	0.01	12/28/2018 14:20	0.01	12/31/2018 20:54	0.01
12/28/2018 5:57	0.01	12/28/2018 9:19	0.01	12/28/2018 14:31	0.01	12/31/2018 20:55	0.01
12/28/2018 6:00	0.01	12/28/2018 9:22	0.01	12/28/2018 14:34	0.01	12/31/2018 21:00	0.01
12/28/2018 6:02	0.01	12/28/2018 9:23	0.01	12/28/2018 14:38	0.01	12/31/2018 21:24	0.01
12/28/2018 6:05	0.01	12/28/2018 9:25	0.01	12/28/2018 14:41	0.01	12/31/2018 21:33	0.01
12/28/2018 6:07	0.01	12/28/2018 9:27	0.01	12/28/2018 14:48	0.01	12/31/2018 21:35	0.01
12/28/2018 6:09	0.01	12/28/2018 9:29	0.01	12/28/2018 14:53	0.01	12/31/2018 21:38	0.01
12/28/2018 6:12	0.01	12/28/2018 9:31	0.01	12/28/2018 15:00	0.01	12/31/2018 21:40	0.01
12/28/2018 6:16	0.01	12/28/2018 9:35	0.01	12/28/2018 15:07	0.01	12/31/2018 21:42	0.01
12/28/2018 6:19	0.01	12/28/2018 9:40	0.01	12/28/2018 15:17	0.01	12/31/2018 21:45	0.01
12/28/2018 6:25	0.01	12/28/2018 9:45	0.01	12/28/2018 15:32	0.01	12/31/2018 21:48	0.01
12/28/2018 6:32	0.01	12/28/2018 9:47	0.01	12/28/2018 16:23	0.01	12/31/2018 21:50	0.01
12/28/2018 6:40	0.01	12/28/2018 9:50	0.01	12/29/2018 6:00	0.01	12/31/2018 21:52	0.01
12/28/2018 6:47	0.01	12/28/2018 9:53	0.01	12/29/2018 12:21	0.01	12/31/2018 21:55	0.01
12/28/2018 6:51	0.01	12/28/2018 9:55	0.01	12/31/2018 13:04	0.01	12/31/2018 21:59	0.01
12/28/2018 6:54	0.01	12/28/2018 9:56	0.01	12/31/2018 13:25	0.01	12/31/2018 22:01	0.01
12/28/2018 6:58	0.01	12/28/2018 10:01	0.01	12/31/2018 13:42	0.01	12/31/2018 22:02	0.01
12/28/2018 7:00	0.01	12/28/2018 10:04	0.01	12/31/2018 13:56	0.01	12/31/2018 22:05	0.01
12/28/2018 7:02	0.01	12/28/2018 10:10	0.01	12/31/2018 14:33	0.01	12/31/2018 22:08	0.01
12/28/2018 7:05	0.01	12/28/2018 10:14	0.01	12/31/2018 14:44	0.01	12/31/2018 22:19	0.01
12/28/2018 7:10	0.01	12/28/2018 10:24	0.01	12/31/2018 14:53	0.01	12/31/2018 22:31	0.01
12/28/2018 7:13	0.01	12/28/2018 10:35	0.01	12/31/2018 15:03	0.01	12/31/2018 22:44	0.01



**TABLE A-1 (cont.)**  
**2018 DELCORA RAINGAGE DATA**  
**(WRTP Gage 1/09 – 12/31)**

<b>Time Stamp</b>	<b>Rainfall (in)</b>
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<b>Time Stamp</b>	<b>Rainfall (in)</b>
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<b>Time Stamp</b>	<b>Rainfall (in)</b>
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<b>Time Stamp</b>	<b>Rainfall (in)</b>
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12/31/2018 22:57	0.01
12/31/2018 23:01	0.01
12/31/2018 23:03	0.01
12/31/2018 23:37	0.01
12/31/2018 23:50	0.01



## **ATTACHMENT B**

# **SEWER SYSTEM HYDROLOGIC AND HYDRAULIC MODEL REPORT EXCERPTS**





**Existing Service Area Characterization Report****Section 3****Table 3-1: Subcatchments in the Model Area Sewer System**

CSO Regulator/Interceptor/ Pump Station	Subarea	Collection System Type	Area/Subarea (ac)	Total Area (ac)	Municipality
Regulator 2	02A	CSS	29	58	Chester City
	02B	CSS	29		Chester City
Regulator 3	03B	CSS	19	87	Chester City
	03C	CSS	43		Chester City
	03D	CSS	20		Chester City
Regulator 4	04A	CSS	12	31	Chester City
	04B	CSS	19		Chester City
Regulator 5	05C	CSS	49	233	Chester City
	05D	CSS	53		Chester City
	05E	Separate	27		Chester City
	CH_TWP_2	Separate	59		Chester Twp
	CH_CTY_9	Separate	7		Chester City
	CH_TWP_1	Separate	38		Chester Twp
Regulator 7	07A	CSS	21	26	Chester City
	07B	CSS	5		Chester City
Regulator 8	08A	CSS	89	237	Chester City
	08B	CSS	96		Chester City
	08C	CSS	52		Chester City
Regulator 9	09A	CSS	27	27	Chester City
Regulator 10	10A	CSS	60	60	Chester City
Regulator 11	11A	CSS	44	44	Chester City
Regulator 12	12A	CSS	5	5	Chester City
	13A	CSS	41	50	Chester City
Regulator 13	13C	CSS	9		Chester City
	14A	CSS	35	53	Chester City
Regulator 14	14B	CSS	13		Chester City
	14C	CSS	5		Chester City
Regulator 15	15A	CSS	10	10	Chester City
Regulator 16/17	16/17A	CSS	46	77	Chester City
	16/17B	CSS	31		Chester City
Regulator 16	16A	CSS	2	2	Chester City
Regulator 17	17A	CSS	12	12	Chester City
Regulator 18	18A	CSS	28	130	Chester City
	18B	CSS	2		Chester City
	18C	CSS	100		Chester City
Regulator 19	18C	Separate	100	421	Chester City
	19B	CSS	88		Chester City
	19D	CSS	94		Chester City
	19E	CSS	76		Chester City
	19G	CSS	18		Chester City
	PA_BORO_1	Separate	28		Parkside Boro
Regulator 20	CH_CTY_08	Separate	17		Chester City
	20A	CSS	18	18	Chester City
Regulator 21	21A	CSS	11	11	Chester City
Regulator 22	22A	CSS	27	27	Chester City
Regulator 23	23A	CSS	10	10	Chester City
Regulator 24	24A	CSS	6	6	Chester City



## Existing Service Area Characterization Report

## Section 3

CSO Regulator/Interceptor/ Pump Station	Subarea	Collection System Type	Area/Subarea (ac)	Total Area (ac)	Municipality
Regulator 25	25A	CSS	12	12	Chester City
Regulator 26	26A	CSS	33	37	Chester City
	26B	Separate	4		Chester City
Regulator 32	31A	CSS	3	3	Chester City
Chester Creek Interceptor East	CCE1	CSS	3	3	Chester City
Chester Creek Interceptor West	CCW1	CSS	7	552	Chester City
	CCW2	CSS	6		Chester City
	CCW3	Separate	5		
	CH_CTY_11	Separate	5		Chester City
	PA_BORO_3	Separate	27		Parkside Boro
	BR_TWP_1	Separate	27		Brookhaven Boro
	BR_TWP_2	Separate	49		Brookhaven Boro
	CH_CTY_13	Separate	2		Parkside Boro
	UPL_BORO_1	Separate	424		Upland Boro
2nd Street Interceptor	CH_CTY_02	Separate	238	238	Chester City
Penn Street Interceptor	PS1	CSS	3	13	Chester City
	PS3	CSS	10		Chester City
Ridley Creek Interceptor	RC1	CSS	3	2,327	Chester City
	CH_CTY_03	Separate	276		Chester City
	33A	Separate	9		Chester City
	CH_CTY_04	Separate	137		Chester City
	CH_CTY_05	Separate	124		Chester City
	CH_CTY_06	Separate	44		Chester City
	CH_CTY_07	Separate	44		Chester City
	BR_TWP_6	Separate	327		Brookhaven Boro
	NP_TWP_2	Separate	991		Nether Providence Twp
	PA_BORO_2	Separate	71		Parkside Boro
	BR_TWP_3	Separate	236		Brookhaven Boro
	BR_TWP_4	Separate	21		Brookhaven Boro
	BR_TWP_5	Separate	44		Brookhaven Boro
Stony Creek Interceptor	SC1	CSS	54	54	Chester City
West End Interceptor	DR1A	CSS	8	1,023	Chester City
	DR1C	CSS	7		Chester City
	CH_CTY_10	CSS	11		Chester City
	TR_BORO_1	Separate	669		Trainer Boro
	CH_TWP_3	Separate	245		Chester Twp
	UC_TWP_2	Separate	51		Upper Chichester Twp
	BS2	CSS	22		Chester City
	BS3	CSS	10		Chester City
Delaware River Interceptor	DR1B	CSS	3	332	Chester City
	CH_CTY_01	Separate	329		Chester City
Eddystone Pump Station	EDD_BORO_1	Separate	664	664	Eddystone Boro
Central Delaware Pump Station	RI_TWP_1	Separate	2,806	18,806	Ridley Twp
	RP_BORO_1	Separate	679		Ridley Park Boro
	RU_BORO_1	Separate	90		Rutledge Boro
	SP_TWP_1	Separate	2,208		Springfield Twp

**Existing Service Area Characterization Report****Section 3**

<b>CSO Regulator/Interceptor/ Pump Station</b>	<b>Subarea</b>	<b>Collection System Type</b>	<b>Area/Subarea (ac)</b>	<b>Total Area (ac)</b>	<b>Municipality</b>
	SW_BORO_1	Separate	898		Swarthmore Boro
	UPR_TWP_1	Separate	1,722		Upper Providence Twp
	PR_BORO_1	Separate	477		Prospect Park Boro
	MO_BORO_1	Separate	238		Morton Boro
	NE_TWP_1	Separate	3,422		Newtown Twp
	NP_TWP_1	Separate	1,927		Nether Providence Twp
	EDG_TWP_1	Separate	735		Edgmont Twp
	MA_TWP_1	Separate	3,604		Marple Twp
Chester Ridley Creek Pump Station	UC_TWP_3	Separate	192	14,513	Upper Chichester Twp
	UPR_TWP_2	Separate	248		Upper Providence Twp
	RV_BORO_1	Separate	471		Rose Valley Boro
	NP_TWP_3	Separate	110		Nether Providence Twp
	AS_TWP_1	Separate	3,732		Aston Twp
	CH_TWP_4	Separate	593		Chester Twp
	EDG_TWP_2	Separate	258		Edgmont Twp
	MI_TWP_1	Separate	8,612		Middletown Twp
	BR_TWP_7	Separate	156		Brookhaven Boro
	CH_BORO_1	Separate	141		Chester Heights Boro
	LC_TWP_1	Separate	700	1,401	Lower Chichester Twp
	MH_BORO_1	Separate	701		Marcus Hook Boro
Naamans Creek Pump Station	BE_TWP_1	Separate	2,500	6,528	Bethel Twp
	UC_TWP_1	Separate	4,028		Upper Chichester Twp



**Sewer System H&H Model Report****Section 3****Table 3-3: Percent Imperviousness Applied to Subcatchments**

Subcatchment ID	Percent Imperviousness
02A	74%
02B	60%
03B	69%
03C	55%
03D	72%
04A	80%
04B	66%
05C	72%
05D	44%
07A	70%
07B	72%
08A	52%
08B	60%
09A	65%
10A	60%
11A	70%
12A	91%
13A	89%
13C	88%
14A	61%
14B	52%
14C	79%
15A	63%
16/17A	55%
16/17B	65%
16A	76%
17A	79%
18A	58%
18B	70%
18C	64%
19B	57%
19D	49%
19E	58%
19G	34%
20A	64%
21A	85%
22A	85%
23A	93%
24A	60%
25A	76%
26A	77%
31A	91%
BS2	51%
BS3	50%
CCW1	69%
CCW2	58%



**Sewer System H&H Model Report****Section 3**

Subcatchment ID	Percent Imperviousness
DR1A	69%
DR1B	51%
DR1C	68%
PS1	52%
PS3	64%
RC1	64%
SC1	44%
CCE1	1%

***Manning's roughness coefficient (n)***

Manning's roughness coefficient (n) was estimated for both pervious and impervious overland flow. The initial values were set to 0.013 for impervious surfaces and 0.15 for pervious surfaces. A typical range of Manning's n suggested by the SWMM is 0.011-0.024 for impervious area and 0.06-0.80 for pervious area. Roughness is an empirical value and may be treated as a calibration parameter if necessary.

***Depression Storage***

Depression storage is the rainfall abstraction volume that must be filled prior to the occurrence of runoff. It represents the loss (initial abstraction) caused by surface ponding, surface wetting, etc. The initial values of depression storage were set to 0.05 for impervious surfaces and 0.15 for pervious surfaces. Typical depression storage values are 0.05-0.10 for impervious surfaces and 0.10-0.30 for pervious surfaces. Depression storage is an empirical value and may be treated as a calibration parameter, especially to adjust runoff volumes.

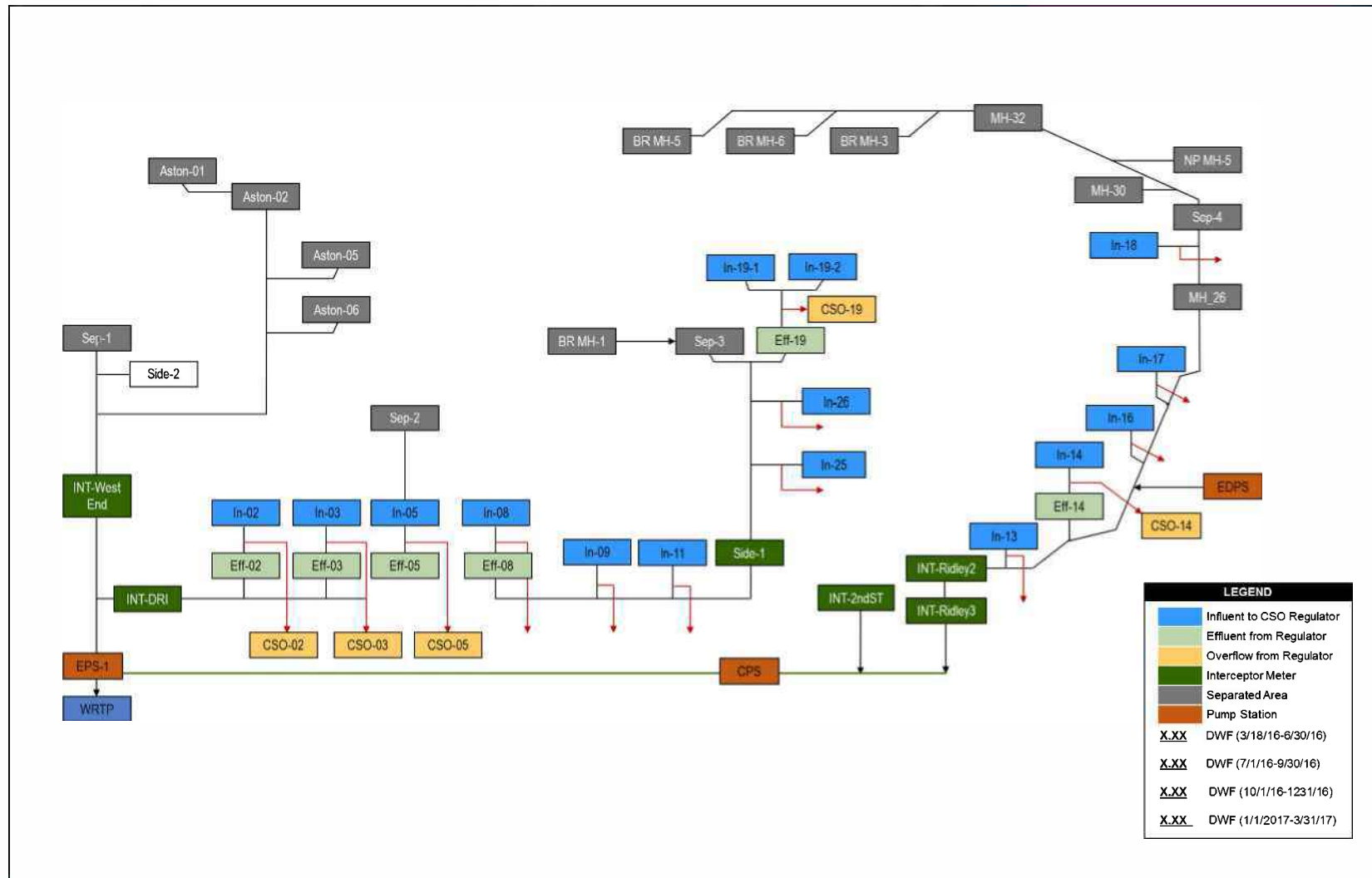
In the model, the subcatchment was divided into three subareas: pervious area with depression storage, impervious area with depression storage, and impervious area without depression storage. The initial percent of the impervious area without depression storage was set to 0.10.

***Soil and Soil Infiltration Parameters***

Soil information was obtained to estimate infiltration in the pervious areas of the CSS. The rate of infiltration is a function of soil properties and antecedent soil conditions. Three infiltration methods are available in the software: Horton method, Green-Ampt method, or National Resources Conservation Service (NRCS) Curve Number method. The Horton method has been extensively used for similar type of modeling work and it was used in this modeling effort to estimate infiltration. The required soil parameters for Horton method include:

- Maximum Infiltration rate (in/hr)
- Minimum Infiltration Rate (in/hr)
- Decay Constant (/hr)
- Drying time (d)
- Maximum Infiltration Volume Possible (inch)

**Figure 4-1: Flow Meter Schematic**





## REFERENCES

Greeley and Hansen (2017) Sewer System Hydrologic and Hydraulic Model Report.



DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY  
P.O. Box 999 • Chester, PA 19016-0999

March 19, 2018

FED EX – NEXT DAY

Ms. Lisa Trakis (3WP41)  
Pretreatment Coordinator  
Water Protection Division  
US EPA - Region III  
Mailcode: 3WP41  
1650 Arch Street  
Philadelphia, PA 19103-2029

RE: 2018 Pretreatment Report for DELCORA's Western Service Area

Dear Ms. Trakis:

NPDES Permit # PA0027103, Part C, Section III, B requires DELCORA to submit an annual report to US EPA and PA DEP describing our Industrial Pretreatment Program.

Please find enclosed a summary of pretreatment program activities during FY 2018, utilizing the report forms and formats requested by US EPA.

If you have any questions about the report, please contact me at 610-876-5523, extension 213.

Sincerely,

Irene Fitzgerald  
Laboratory & Pretreatment Manager

IF:mc  
enclosure

cc: IPP File w/enclosure  
Permit File w/enclosure  
I. Fitzgerald w/enclosure  
M. Krause  
R. Rios

# THE DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY



## 2018 ANNUAL PRETREATMENT REPORT



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## **DELCORA WESTERN REGIONAL TREATMENT PLANT (WRTP)**

*"Provide Environmentally Responsible and Cost Effective Waste Water Management Services to the Citizens, Businesses and Industries of Southeastern Pennsylvania"*



DELCORA was established by the Delaware County Commissioners on October 20th, 1971 under the Municipality Authorities Act of 1945. Under this act, (TITLE 53, CHAPTER 56) DELCORA was authorized to exercise all powers granted with the goal of implementing a county-wide wastewater management plan. A key component of this plan was the construction and operation of the Western Regional Treatment Plant (WRTP). DELCORA is governed by a 9-member Board of Directors appointed by the Delaware County Council. DELCORA is managed by a full-time executive director and operated by professional engineering, operational, and financial staff and a workforce of approximately 140 people. DELCORA is financially self-sufficient; capital funds are raised through bond issues, grants, loans, and user charges while operation and maintenance expenses and debt service are covered by user charges.

DELCORA's WRTP is currently rated for 44 million gallons per day (MGD). The WRTP is a conventional activated sludge facility and consists of aerated grit chambers, primary clarifiers, aeration tanks, secondary clarifiers, and disinfection via chlorine with final discharge into Delaware River. Solids handling is accomplished via gravity belt thickeners, belt filter presses, and final destruction via multiple hearth incineration. The WRTP also serves as a regional trucked waste receiving facility for septic, sludge, industrial wastewaters, and grease.

Since its inception, DELCORA has been committed to continuous improvement and process optimization with the goal of providing the very best in wastewater management services. These efforts continued in 2018 and consisted of several key process improvements. The installation of an upgraded influent pump station at the Western Regional Treatment Plant was completed. The replacement of the bar screens at several pump stations throughout DELCORA's collection system was completed. Work to repair sections of the Rose Valley sewer system and install a pump station and force main to close the Rose Valley Treatment Plant and redirect the flow to the Western Regional Treatment Plant was completed and the pump station was placed into service. The upgrade of the emissions control equipment of the two multiple hearth incinerators was completed. Two fine screens were installed in the plant influent. A project to upgrade the existing sludge holding tanks and their associated pumping and mixing equipment was initiated. A plantwide upgrade project to address numerous items throughout the plant, including gates, actuators, utility water pumps, activated sludge pumps, primary scum skimmers and utility water

supply, three secondary clarifiers, plant recycle flow pump station, and the electrical service and substations among other items, was initiated.

### **PRETREATMENT PROGRAM INTRODUCTION**

EPA granted final approval of DELCORA's Industrial Pretreatment Program (IPP) on March 31, 1986. EPA has conducted audits of the Pretreatment Program, most recently in September 1995, December 2000, December 2002, June 2010, September 2013, and September 2016.

DELCORA had been working with the USEPA to revise its Standards, Rules and Regulations of 1991. A new version was approved by the USEPA and the DELCORA Board of Directors adopted these Standards, Rules and Regulations of 2011 on April 19, 2011 through Resolution No. 2011-04. These regulations will apply to both the Eastern and Western Service Areas of DELCORA. DELCORA had recently been working with the USEPA on new local limits and the local limits were submitted to and approved by the USEPA. The local limits of the respective areas were adopted through Resolution No. 2013-12 and the new local limits were implemented on October 1, 2013. In addition, DELCORA received Delaware River Basin Commission (DRBC) approval to rerate the Western Regional Treatment Plant to 50 MGD, pending completion of an outfall extension into the Delaware River. A complete understanding of the future flow needs of the W RTP is paramount before starting a capital project of this significance. Additional work remains to complete the preliminary modeling for the proposed dual-pipe outfall with multiport diffusers. Upon completion of the modeling phase, DELCORA will proceed with the design and construction of the proposed outfall.

DELCORA is currently implementing the Pretreatment Program and recommendations from subsequent program inspections and audits as follows:

1. All significant industrial users are controlled under a permit control document and each permit is not issued for more than five years. These permits are renewable, provided a timely application is filed with and approved by DELCORA. All new and renewal permits will be issued for a period of four years. Extensions of current permits are allowed, provided that the term does not exceed five years.
2. All industrial users are under a self-monitoring and reporting program. All significant industrial users are required to sample and analyze discharges and report all results on at least a semi-annual basis. Many are required to sample and report monthly.
3. An annual inspection and evaluation of permitted industries is conducted to assess whether changes in production procedures and Pretreatment facilities have resulted in significant modification of their wastewater characteristics. Any changes noted are documented and the conditions of the industrial discharge permits modified, if appropriate.
4. A sampling program of all permitted industrial users continues. This program is used for routine monitoring, surveillance and confirmation of industry supplied data. This Verification Monitoring program was also instrumental in the development of new technically based local limits.
5. A revised Enforcement Response Plan (ERP) was approved by the USEPA in 2011. Additional revisions are planned.
6. A Linko Systems database is used to track pretreatment monitoring data.
7. DELCORA continued the sampling and testing efforts to expand the database for correlation of influent pollutant parameters with Western Regional Treatment Plant operational conditions, to spot trends related to industrial discharge permits and/or local limitations. Spreadsheets highlighting plant-sampling data are contained in Attachment 7.

8. In accordance with the NPDES permit, DELCORA has continued quarterly biomonitoring of our effluent with fathead minnows, *Pimephales promelas* and cladoceran, *Ceriodaphnia dubia* to assess the toxicity of discharge to the Delaware River.
9. As required by the DRBC, DELCORA has satisfied the biennial monitoring requirements related the TMDL for PCBs.
10. DELCORA made changes in its Industrial Permitting to screen for local limits in accordance with the recommendations of the USEPA sampling inspection on June 22, 2010.

DELCORA has a continuing commitment to its Pretreatment Program. This includes upgrading and replacing equipment as necessary, providing continuing education and training for personnel, and having legal counsel available for consultation and any required legal activity. DELCORA personnel continue to attend the EPWPCOA Pretreatment Forum and Technical Conference annually.

The USEPA's annual report form for reporting IPP activities follows.

## PART A – PRETREATMENT PERFORMANCE SUMMARY

### I. GENERAL INFORMATION

Control Authority Name: **Delaware County Regional Water Quality Control Authority (DELCORA)**

Address: **100 East 5<sup>th</sup> Street, Post Office Box 999**

City: **Chester**

State: **Pennsylvania**

Zip+4: **19016-0999**

Contact Person: **Irene Fitzgerald**

Contact Title: **Laboratory & Pretreatment Manager**

Contact Telephone Number: **610-876-5523 Extension 213**

E-mail Address: [fitzgeraldi@delcora.org](mailto:fitzgeraldi@delcora.org)

NPDES Nos: **PA 0027103**

Permit Issuance Date: **01/01/2014**

Expiration Date: **04/30/2018**

Reporting Period: **01/01/2018 – 12/31/2018**

Total Categorical IUs (CIUs): **17**

Total "Middle Tier" CIUs (MTCIUs): **0 (N/A)**

Total Nonsignificant CIUs (NSCIUs): **0 (N/A)**

Total Significant Noncategorical IUs (SNIUs): **22**

### II. COMPLIANCE MONITORING PROGRAM

1.	No. of SIUs with current Control Documents.....	<u>39</u>
2.	No. of SIU Facilities Inspected.....	<u>39</u>
3.	No. of SIU Facilities Sampled.....	<u>34</u>
4.	No. of SIUs Submitting Self-Monitoring Reports.....	<u>39</u>

### III. SIGNIFICANT INDUSTRIAL USER COMPLIANCE

1.	No. of SIUs Violating a Compliance Schedule/No. On a Schedule.....	<u>0/0</u>
2.	No. of SIUs in SNC for the July to December Period.....	<u>1</u>
3.	No. of SIUs in SNC At Any Time During Calendar Year.....	<u>4</u>
4.	No. of SIUs in SNC That Were Also in SNC During the Previous Calendar Year.....	<u>2</u>
5.	No. of NSCIUs that Violated any Standards or Requirements.....	<u>0</u>

### IV. ENFORCEMENT ACTIONS

1.	Notices/Letters of Violation Issued to SIUs.....	<u>46</u>
2.	Enforceable Compliance Schedules Issued to SIUs.....	<u>0</u>
3.	Civil/Criminal Suits Filed.....	<u>0</u>
4.	No. of SIUs from which Penalties have been Collected.....	<u>8</u>
5.	Other Actions (sewer bans, etc.).....	<u>0</u>

I certify that the information contained in this report and attachments is complete and accurate to the best of my knowledge. (See Part B.V of the instructions)

Robert J. Willert

Executive Director

Name of Authorized Representative (Print)

Title (Print)



3/19/19

Signature

Date

**PART A, SECTION I ATTACHMENT**  
**GENERAL INFORMATION**

1. CATEGORICAL INDUSTRIAL USERS (CIUS)

	INDUSTRY NAME AND ADDRESS	APPLICABLE CATEGORY	AVERAGE PERMITTED FLOW
1	Alloy Surfaces Company Inc Plant 1 121 N. Commerce Dr. Chester Township, PA 19014	Metal Finishing (40 CFR 433)	50,000 GPD
2	Braskem America, Inc. 750 W. 10 <sup>th</sup> Street Marcus Hook, PA 19061	OCPSF (40 CFR 414, Subpart D)	325,000 GPD
3	Container Research Corporation Hollow Hill Road Glen Riddle, PA 19037	Metal Finishing (40 CFR 433)	5,000 GPD
4	Eldredge, Inc. 898 Fern Hill Road West Chester, PA 19380	Residual Waste Oil Processing (40 CFR 437.20)	20,000 GPD
5	Esschem, Inc. 4000 Columbia Avenue Linwood, PA 19061	OCPSF (40 CFR 414, Subpart D)	15,000 GPD
6	First Time US Generics 505 Park Way, #6 Broomall, PA 19008	Pharmaceutical Manufacturing (40 CFR 439, Subpart D)	6,500 GPD
7	Kimberly Clark of PA, LLC Front and Avenue of the States Chester, PA 19013	Pulp, Paper, and Paperboard (40 CFR 430, Subpart L)	5.955 MGD 4.194 MGD (2018 actual)
8	Liberty Electric Power, LLC 1000 Industrial Highway Eddystone, PA 19022	Steam Electric Power Generating (40 CFR 423)	600,000 GPD
9	Marcus Hook Energy L.P. Sunoco Partners – M.H. Complex 10 <sup>th</sup> and Green Streets Marcus Hook, PA 19061	Steam Electric Power Generating (40 CFR 423)	700,000 GPD

10	Monroe Energy, LLC 4101 Post Road Trainer, PA 19061	Petroleum Refining, SOx Scrubber (40 CFR 419, Subpart E)	160,000 GPD
11	Norquay, LLC. Riverbridge Industrial Park 800 West Front Street Chester, PA 19013	OCPSF (40 CFR 414, Subpart F)	Zero Discharge
12	Olympic Tool and Machine Corporation 2100 Bridgewater Road Aston, PA 19014	Metal Finishing (40 CFR 433)	65 GPD
13	Pennsylvania Machine Works Inc. 201 Bethel Road Aston, PA 19014	Metal Finishing (40 CFR 433)	Zero Discharge
14	Polyurethane Specialties Co. 624 Schuyler Avenue Lyndhurst, NJ 07071	OCPSF (40 CFR 414, Subpart D)	6,500 GPD
15	Pyromet 5 Commerce Dr. Aston, PA 19014	Nonferrous Metals Manufacturing Secondary Silver (40 CFR 421, Subpart L)	3,550 GPD
16	Pyromet Recycling LLC 12 Crozerville Rd. Aston, PA 19014	Nonferrous Metals Manufacturing Secondary Silver (40 CFR 421, Subpart L)	3,000 GPD
17	Qualawash Holdings LLC 8 Route 130 Pedricktown, NJ 08067	Transportation Equipment Cleaning (40 CFR 442.10)	13,000 GPD

2. SIGNIFICANT NONCATEGORICAL INDUSTRIAL USERS (SNIUs)

	INDUSTRY NAME AND ADDRESS	AVERAGE PERMITTED FLOW
1	Barry Callebaut 903 Industrial Highway Eddystone, PA 19022	60,000 GPD

2	Burlington County Board of Chosen Freeholders 2098 Burlington-Columbus Road Florence, NJ 08518	120,000 GPD
3	C & R Laundry 3120 West 6 <sup>th</sup> Street Chester, PA 19013	70,000 GPD
4	Chelton House Products 607 Heron Drive Bridgeport, NJ 08014	35,000 GPD
5	Chester County Solid Waste Authority 7224 Division Highway Narvon, PA 17555	58,000 GPD
6	Choice Party Linens, Inc. 1200 Pennsylvania Avenue Prospect Park, PA 19076	30,000 GPD
7	Cintas – Aston 95 Milton Dr. Aston, PA 19014	60,000 GPD
8	Cumberland County Improvement Authority 169 Jessie Bridge Road Deerfield Township, NJ 08332	80,000 GPD
9	Delaware County Linen 2626 W. 4 <sup>th</sup> Street Chester, PA 19013	55,000 GPD
10	Delaware County Solid Waste Authority 583 Longview Road Boyertown, PA 19512	110,000 GPD
11	FC Pennsylvania Stadium, LLC Flower Street and Seaport Drive Chester, PA 19013	60,000 GPD



12	Marcus Hook 50 L.P. West Delaware Avenue & Green Street Marcus Hook, PA 19061	50,000 GPD
13	Nalco Res-Kem, LLC 2 New Road Aston, PA 19014	25,000 GPD
14	PQ Corporation 1201 West Front Street Chester, PA 19013	75,000 GPD
15	PSE&G Audubon Gas District 535 W. Nicholson Road Audubon, NJ 08105	350,000 GPD
16	Refresco Beverages US, Inc. 20 Aldan Avenue Concordville, PA 19331	49,000 GPD
17	Salem County Improvement Authority 52 McKillip Road Alloway, NJ 08001	40,000 GPD
18	Southeastern Chester County Refuse Authority (SECCRA) 219 Street Road West Grove, PA 19390	50,000 GPD
19	Sunoco Partners Marketing and Terminals, L.P. Marcus Hook Complex 100 Green Street Marcus Hook, PA 19061	5.0 MGD 3.383 MGD (2018 actual)
20	Sustainable Decarbonization Services 267 Jefferson Street Camden, NJ 08012	30,000 GPD
21	Waste Management of PA 1000 New Ford Mill Road Morrisville, PA 19067	120,000 GPD

22	Wawa Beverage Co. 1393 W. Baltimore Pike Media, PA 19063	128,000 GPD
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*Note: There are no Middle Tier CIUs.*

### 3. CHANGES TO INDUSTRIAL LISTING

ADDITIONS	
INDUSTRY NAME	REASON FOR CHANGE (DATE)
C & R Laundry	Significant Industrial User (08/01/2018)
Chester County Solid Waste Authority	Significant Industrial User (08/01/2018)
PSE&G Audubon Gas District	Significant Industrial User (09/01/2018)
Qualawash Holdings LLC	Categorical Industrial User (11/02/2018)
DELETIONS	
INDUSTRY NAME	REASON FOR CHANGE (DATE)
Ace Linen Services Inc.	Permit Expired (07/31/2018)
Atlantic Waste Disposal Inc.	Permit Terminated (01/31/2018)
Charles City County Landfill	Permit Terminated (01/31/2018)
King George Landfill Inc.	Permit Terminated (01/31/2018)
New Morgan Landfill Co. Inc.	Permit Terminated (01/31/2018)
MODIFICATIONS	
INDUSTRY NAME	REASON FOR CHANGE (DATE)
Cumberland County Improvement Authority	Arsenic Variance (05/01/2018)
Eldredge, Inc.	Limits Modification (05/01/2018)
Nalco Res-Kem	Permit Extension (01/23/2019)
Olympic Tool & Machine Corp.	Permit Extension (01/29/2019)
Refresco Beverages US, Inc.	Name Change (07/01/2018)
Sunoco Partners Marketing & Terminals	Increased Sampling Requirements (08/01/2018)
Waste Management of PA	Permit Extension (12/21/2018)

**PART A, SECTION II ATTACHMENT**  
**COMPLIANCE MONITORING PROGRAM**

1. ISSUANCE AND EXPIRATION DATES OF SIGNIFICANT USER CONTROL DOCUMENTS

INDUSTRY NAME	TYPE	ISSUANCE DATE	EXPIRATION DATE
Alloy Surfaces Company Plant 1	Permit	05/01/2015	04/30/2019
Barry Callebaut	Permit	09/01/2018	08/31/2022
Braskem America, Inc.	Permit	03/01/2017	02/28/2021
Burlington County Board	Permit	02/01/2017	01/31/2021
C & R Laundry	Permit	08/01/2018	07/31/2022
Chelton House Products	Permit	01/01/2019	12/31/2022
Chester County Solid Waste Authority	Permit	08/01/2018	07/31/2022
Choice Party Linen, Inc.	Permit	05/01/2017	04/30/2021
Cintas – Aston	Permit	04/01/2015	03/31/2019
Container Research Corp.	Permit	04/01/2015	03/31/2019
Cumberland County Improvement Authority	Permit	05/01/2018	07/31/2019
Delaware County Linen	Permit	06/01/2016	05/31/2020
Delaware County Solid Waste Authority	Permit	06/01/2016	05/31/2020
Eldredge, Inc.	Permit	05/01/2018	05/31/2020
Esschem, Inc.	Permit	09/01/2016	07/31/2020
FC Pa Stadium, LLC	Permit	07/01/2018	06/30/2022
First Time US Generics	Permit	04/06/2017	08/31/2020
Kimberly-Clark of PA, LLC.	Permit	09/01/2015	08/31/2019
Liberty Electric Power, LLC.	Permit	05/01/2017	04/30/2021
Marcus Hook 50 L.P.	Permit	12/27/2016	06/30/2020
Marcus Hook Energy L.P.	Permit	10/22/2017	08/31/2021
Monroe Energy LLC	Permit	10/01/2018	09/30/2022
Nalco Res-Kem	Permit	04/01/2015	06/30/2019
Norquay, LLC	Permit	10/01/2018	04/30/2019
Olympic Tool & Machine Corp	Permit	04/01/2016	08/31/2019
Pennsylvania Machine Works	Permit	03/01/2017	02/28/2021
Polyurethane Specialties Co.	Permit	09/01/2018	08/31/2022
P.Q. Corporation	Permit	12/01/2018	11/30/2022
PSE&G Audubon Gas District	Permit	09/01/2018	02/28/2019
Pyromet	Permit	12/01/2016	04/30/2019
Pyromet Recycling LLC	Permit	05/01/2015	04/30/2019
Qualawash Holdings LLC	Permit	11/02/2018	10/31/2022
Refresco Beverages US, Inc.	Permit	07/01/2017	06/30/2021

INDUSTRY NAME	TYPE	ISSUANCE DATE	EXPIRATION DATE
Salem County Improvement Authority	Permit	05/01/2017	04/30/2021
SECCRA	Permit	08/01/2016	07/31/2020
Sunoco Partners Marketing & Terminals	Permit	08/01/2018	02/28/2021
Sustainable Decarbonization Services	Permit	09/01/2015	08/31/2019
Waste Management of PA	Permit	01/01/2017	03/31/2019
Wawa Beverage Co.	Permit	08/01/2015	07/31/2019

2. USERS UNDER GENERAL CONTROL MECHANISM

None

3. CIUS UNDER MASSED BASED LIMITS IN PLACE OF CONCENTRATION BASED CATEGORICAL LIMITS

None

4. CIUS UNDER CONCENTRATION BASED LIMITS IN PLACE OF MASS BASED CATEGORICAL LIMITS

None

5. CIUS GRANTED POLLUTANTS NOT PRESENT MONITORING WAIVERS

None

6. SAMPLING VISITS, FORMAL INSPECTIONS, AND SELF-MONITORING EVENTS IN 2018

INDUSTRY NAME	SAMPLING VISITS	FORMAL INSPECTIONS	EVENTS PERFORMED/ REQUIRED
Alloy Surfaces Company Plant 1	2	1	12 / 12
Barry Callebaut	2	1	11 / 12
Braskem America, Inc.	2	1	6 / 6
Burlington County Board	2	1	55 / 55
C & R Laundry	1	1	5 / 5
Chelton House Products	2	1	4 / 4
Chester County Solid Waste Authority	1	1	7 / 7
Choice Party Linen, Inc.	2	1	14 / 14
Cintas -- Aston	2	1	14 / 14
Container Research Corp.	1	1	1 / 1
Cumberland County Improvement Authority	2	1	12 / 12
Delaware County Linen	2	1	14 / 14
Delaware County Solid Waste Authority	2	1	6 / 6
Eldredge, Inc.	2	1	17 / 17
Esschem, Inc.	2	1	13 / 13
FC Pa Stadium, LLC	1	1	4 / 4
First Time US Generics	0	1	0 / 0
Kimberly-Clark of PA, LLC.	2	1	356 / 356
Liberty Electric Power, LLC.	2	1	13 / 13
Marcus Hook 50 L.P.	0	1	0 / 0
Marcus Hook Energy L.P.	1	1	65 / 65
Monroe Energy LLC	2	1	40 / 40
Nalco Res-Kem	1	1	12 / 12
Norquay, LLC	0	1	0 / 0
Olympic Tool & Machine Corp	2	1	12 / 12
Penn Machine Works	0	1	0 / 0
Polyurethane Specialties Co.	2	1	12 / 12
P.Q. Corporation	2	1	52 / 52
PSE&G Audubon Gas District	1	1	1 / 1
Pyromet	1	1	16 / 16
Pyromet Recycling LLC	1	1	12 / 12
Qualawash Holdings LLC	1	1	2 / 2
Refresco Beverages US, Inc.	2	1	13 / 13

INDUSTRY NAME	SAMPLING VISITS	FORMAL INSPECTIONS	EVENTS PERFORMED/ REQUIRED
Salem County Improvement Authority	2	1	12 / 12
SECCRA	0	1	0 / 0
Sunoco Partners Marketing & Terminals	2	1	363 / 363
Sustainable Decarbonization Services	2	1	4 / 4
Waste Management of PA	5	1	58 / 58
Wawa Beverage Co.	2	1	12 / 12

See Attachment 1 and 2 for the 2018 Sampling Schedule and 2018 Inspection Schedule.

7. SIUS NOT INSPECTED DURING THE REPORTING PERIOD

None

8. SIUS NOT SAMPLED DURING THE REPORTING PERIOD

First Time US Generics was not sampled during the reporting period as they did not discharge industrial wastewater to DELCORA in 2018. The industrial user obtained a discharge permit as a backup option for disposal, and it was not needed in 2018. DELCORA will continue to monitor flow from this industrial user and will make every effort to sample should future wastewater discharges occur.

Marcus Hook 50 L.P. was not sampled during the reporting period as they utilize an approved chemical additive program (which excludes priority pollutants and metal bearing products) to demonstrate compliance. The user is only required to demonstrate compliance with the chemical additive program and not required to conduct monitoring. DELCORA verifies Marcus Hook 50 L.P. compliance with the chemical additive program through annual inspections the submittal of annual certifications sent by chemical supplier for the industrial user.

Norquay, LLC. was not sampled during the reporting period as they do not discharge industrial wastewater to DELCORA. Norquay submits semi-annual statements certifying that all industrial wastewaters are disposed of off-site. DELCORA reviews the disposal manifests during annual inspections and has found no evidence of industrial discharge at the nearest pump station.

Pennsylvania Machine Works, Inc. was not sampled during the reporting period as they do not discharge industrial wastewater to DELCORA. Penn Machine Works Inc. submits semi-annual statements certifying that all industrial wastewaters are disposed of off-site. DELCORA reviews the disposal manifests during annual inspections and has found no evidence of industrial discharge.

SECCRA was not sampled during the reporting period as they did not discharge industrial wastewater to DELCORA in 2018. The industrial user obtained a discharge permit as a backup option for disposal and it was not needed in 2018. DELCORA will continue to monitor flow from this industrial user and will make every effort to sample should future wastewater discharges occur.

9. SIUS SUBMITTING LESS THAN THE REQUIRED NUMBER OF SELF-MONITORING REPORTS AND THE REASON FOR LESS THAN MINIMUM REPORTING

None

**PART III, SECTION III ATTACHMENT**  
**SIGNIFICANT INDUSTRIAL USER COMPLIANCE**

1. SIUS IN SIGNIFICANT NONCOMPLIANCE (SNC) DURING THE 2018 REPORTING PERIOD

INDUSTRY NAME	VIOLATION	SNC PERIOD	ACTION TAKEN
Barry Callebaut	Failure to Monitor for BOD5, TSS, FOG, and pH	May 2018	Issued Penalty
Delaware County Linen	TRC Violations of the Fats, Oils, and Grease Instantaneous Limit	October 2017 – March 2018	Issued Penalty
	TRC Violations of the Fats, Oils, and Grease Instantaneous Limit	January 2018 – June 2018	
	TRC and Chronic Violations of the Fats, Oils, and Grease Instantaneous Limit	April 2018 – September 2018	
Eldredge, Inc.	TRC Violations of the Octodecane Monthly Average Limit	July 2018 – December 2018	Issued Penalty
Esschem, Inc.	TRC Violations of the Diethyl phthalate Monthly Average Limit	October 2017 – March 2018	Issued Penalty

2. SIUS IN SNC DURING THE 2018 REPORTING PERIOD THAT WERE ALSO IN SNC DURING THE 2017 REPORTING PERIOD

Barry Callebaut & Delaware County Linen

Esschem, Inc. is not reported as a “repeat” significant noncompliance the 2018 reporting year even though they were in significant noncompliance during the 2017 reporting year. The violations that resulted in the 2018 SNC were based solely on violations which occurred during October, November, or December 2017 and there were no violations during January, February, or March 2018. Per the annual report instructions, they need not be included in this “repeat” significant noncompliance count and DELCORA will not republish the industrial users noncompliance in the newspaper.

3. PREVIOUSLY DESIGNATED NSCIUS THAT VIOLATED ANY PRETREATMENT STANDARD DURING THE 2018 REPORTING PERIOD

None (Not applicable)

4. NEWSPAPER PUBLICATION OF SNC LISTINGS

Proof of publication shall be submitted to EPA when obtained by DELCORA.

**PART A, SECTION IV ATTACHMENT**  
**ENFORCEMENT ACTIONS**

1. NOTICES OF VIOLATIONS ISSUED TO SIGNIFICANT USERS DURING THE 2018 REPORTING PERIOD

INDUSTRY NAME	NUMBER OF NOVs
Alloy Surfaces Company Plant 1	1
Barry Callebaut	3
Braskem America, Inc.	0
Burlington County Board	2
C & R Laundry	0
Chelton House Products	0
Chester County Solid Waste Authority	1
Choice Party Linen, Inc.	1
Cintas – Aston	3
Container Research Corp.	0
Cumberland County Improvement Authority	1
Delaware County Linen	8
Delaware County Solid Waste Authority	1
Eldredge, Inc	3
Esschem, Inc.	2
FC Pa Stadium, LLC	1
First Time US Generics	0
Kimberly-Clark of PA, LLC.	1
Liberty Electric Power, LLC.	0
Marcus Hook 50 L.P.	0
Marcus Hook Energy L.P.	0
Monroe Energy LLC	2
Nalco Res-Kem	2
Norquay, LLC	0
Olympic Tool & Machine Corp	0
Penn Machine Works	0
Polyurethane Specialties Co.	1
P.Q. Corporation	0
PSE&G Audubon Gas District	0
Pyromet	2
Pyromet Recycling LLC	2
Qualawash Holdings LLC	1



INDUSTRY NAME	NUMBER OF NOV'S
Refresco Beverages US, Inc.	3
Salem County Improvement Authority	0
SECCRA	0
Sunoco Partners Marketing & Terminals	0
Sustainable Decarbonization Services	0
Waste Management of PA	2
Wawa Beverage Co.	3

2. SIGNIFICANT USERS RECEIVING ADMINISTRATIVE ORDERS

None.

3. SIGNIFICANT USERS ON COMPLIANCE SCHEDULES IN WRITING BUT NOT CONSIDERED "FORMAL" SCHEDULES

None.

4. USERS THAT HAVE BEEN SUED (CIVIL OR CRIMINAL) FOR PRETREATMENT VIOLATIONS

None.

5. SIGNIFICANT USERS ASSESSED PENALTIES

INDUSTRY NAME	FINE	VIOLATIONS	AMOUNT COLLECTED
Barry Callebaut	\$400.00	SNC – Failure to Monitor	\$0
Delaware County Linen	\$1,500.00	SNC – TRC & Chronic Violations of Fats, Oils, and Grease Instantaneous Limits	\$0
Eldredge, Inc.	\$100.00	SNC – TRC Violations of the Octadecane Monthly Average Limit	\$0
Esschem, Inc.	\$500.00	SNC – TRC Violations of Diethyl phthalate Monthly Average and Daily Limits	\$0
Wawa Beverage Co.	\$300.00	NOV – multiple late report violations in 2018	\$0

PENALTIES COLLECTED FROM FINES ASSESSED IN PREVIOUS REPORTING YEARS:

INDUSTRY NAME	REPORTING YEAR	FINE	AMOUNT COLLECTED
Barry Callebaut	2017	\$100.00	\$100.00
Cumberland County Improvement Authority	2017	\$100.00	\$100.00
Delaware County Linen	2017	\$100.00	\$100.00
Esschem, Inc	2017	\$500.00	\$500.00

FC PA Stadium	2017	\$200.00	\$200.00
Monarch Environmental	2017	\$3,000.00	\$3,000.00
Nalco Reskem	2017	\$300.00	\$300.00
Quala Systems, Inc.	2017	\$1,000.00	\$1,000.00

Barry Callebaut, Cumberland County, Delaware County Linen, Esschem Inc., FC PA Stadium, and Monarch Environmental were all issued civil penalties for 2017 SNC violations (previously reported in 2017 annual report)

Nalco Reskem was issued civil penalty for late reports in 2017 (previously reported in 2017 annual report).

Quala System, Inc. was issued civil penalty for 2017 parameter violations per previously issued Administrative Order (previously reported in 2017 annual report).

6. DESCRIPTION OF ALL ACTIONS WHICH HAVE BEEN INCLUDED AS ADMINISTRATIVE ORDERS

None.

7. DESCRIPTION OF ANY "OTHER ACTIONS"

Delaware County Linen is scheduled to attend a meeting to discuss Significant Noncompliance.

8. SIGNIFICANT USERS IN VIOLATION BUT NOT SUBJECT TO ENFORCEMENT

None.

## PART B – PRETREATMENT DEVELOPMENTS

### I. SUMMARY OF POTW OPERATIONS

#### 1. NPDES PERMIT VIOLATIONS

The Western Regional Treatment Plant (WRTP) is currently permitted at 44 MGD; the maximum design flow is approximately 105 MGD. The 2018 average influent daily flow was 39.14 MGD; the highest flow (maximum day) was 81.59 MGD, recorded on March 02, 2018.

Operations at the WRTP were consistent throughout 2018 with a total of four (4) violations.

- February 2018 – Weekly average TSS loading result of 20,144 lbs/day exceeded the weekly average TSS loading limit of 16,500 lbs/day. This resulted from a TSS result of 179 mg/L on February 11, 2018 and occurred when the RAS flow from one of the secondary clarifiers clogged during a wet weather event.
- March 2018 – Monthly average CBOD<sub>20</sub> loading of 12,626 lbs/day exceeded the monthly average CBOD<sub>20</sub> loading limit of 10,500 lbs/day.
- December 21, 2018 – Weekly average TSS and CBOD<sub>5</sub> loading results of 22,239 lbs/day and 10,576 lbs/day respectively exceeded the weekly average TSS and CBOD<sub>5</sub> loading limits of 16,500 lbs/day and 10,500 lbs/day respectively. This resulted from a high TSS result of 187 mg/L and a high CBOD<sub>5</sub> result of 73 mg/L on December 21, 2018 and occurred during a wet weather event.

#### 2. POTW INFLUENT, EFFLUENT, AND SLUDGE ANALYSIS

There were seven high influent BOD<sub>5</sub> monthly averages. Although there were two CBOD<sub>5</sub> loading violations in 2018, these were a direct result of wet weather events and not related to industrial loading. The 2018 average BOD<sub>5</sub> percent removal rate at the WRTP was 92.48% indicating there are currently no BOD<sub>5</sub> treatment issues. The average monthly BOD<sub>5</sub> percent removal rate is provided in the table below.

MONTH	BOD <sub>5</sub> % REMOVAL	MONTH	BOD <sub>5</sub> % REMOVAL
January 2018	94.52 %	July 2018	97.61 %
February 2018	93.85 %	August 2018	96.85 %
March 2018	94.69 %	September 2018	95.34 %
April 2018	93.21 %	October 2018	95.73 %
May 2018	95.33 %	November 2018	92.48 %
June 2018	96.41 %	December 2018	95.02 %

There were two high sludge arsenic results in September 2018 and October 2018 that exceeded the goal of 41 mg/kg. DELCORA contacted the laboratory to verify the results and to review the quality control data. Upon further examination, it was determined that the September and October results were obtained by SW846 6010C, ICP-AES and the same samples were also analyzed by SW846 6020A, ICP-MS. The results from these methods produced differing results and neither could be invalidated. Please note that to maintain consistency with past results, DELCORA did not average the two results and left the SW846 6010C results in the EPA spreadsheet.

MONTH	SW846 6010C (ICP-AES)	SW846 6020A (ICP-MS)	AVERAGE
September 2018	47.5 mg/kg	< 6.1 mg/kg	< 26.8 mg/kg
October 2018	45.8 mg/kg	< 7.6 mg/kg	< 26.7 mg/kg

There are several exceedances of the PCB goals in 2018; however, DELCORA has been utilizing a Pollutant Minimization Plan for Polychlorinated Biphenyls (PCBs) at The DELCORA WRTF, the activities of which are summarized in the Annual Report submitted to the Delaware River Basin Commission (DRBC). Measures taken to minimize PCBs in the past year include:

- Inspecting equipment containing PCBs (ECPs) at permitted industrial users
- Reviewing DELCORA's database to track and report the disposition of ECPs
- Reviewing public records to update the list of current or former PCB contaminated sites in WRTF service area
- Encouraging regulatory authorities to promote proper PCB management at scrap metal facilities
- Developing a new long-term control plan (LTCP) to enhance the combined sewer overflow (CSO) infrastructure. When implemented, the frequency and duration of CSOs will be minimized, which will provide the ancillary benefit of a reduction in potential PCB discharge.
- Cleaning sewer lines to remove sediments that may contain PCBs and inspecting sewers to evaluate their condition and, if necessary conducting rehabilitation.

Many of these measures are ongoing and results will be reported in upcoming years. DELCORA also maintains that the influent and effluent goals for PCBs are unattainable. While EPA method 1668A is used to analyze for PCBs on a semi-annual basis, the "rinsate" field blanks have been historically higher than the 0.0000002 mg/L goal assigned by EPA.

All other monthly analyses were below "headworks" goals. Attachment 7 contains all required laboratory analysis used in evaluating DELCORA's attainment of influent, effluent, and sludge goals.

### 3. HAULED WASTEWATERS

DELCORA's Western Regional Treatment plant provides environmentally responsible treatment of trucked in wastewaters and sludges for a variety of industrial and domestic customers. All new industrial wastewater/sludge is profiled and evaluated for compliance with DELCORA's local limits prior to approval. If an industrial waste generator is identified as categorical or significant ( $\geq 25,000$  gallons per discharge day), designated by 40 CFR 403, an Industrial Discharge Permit is issued prior to discharge. Over the past six years, DELCORA has made great strides in identifying these users and issuing permits accordingly. These efforts include increased communication with the trucked waste receiving operators, continued optimization of our sludge receiving accounting system (SAS), and maintaining a trained and dedicated staff to manage the acceptance area. In 2018, DELCORA implemented a paperless kiosk system. This system utilizes a touch screen interface rather than a paper manifest, allowing for the real time tracking of trucked waste discharges, providing significant compliance and process control advantages.

No brine wastes (waste from oil and gas drilling) were accepted in 2018. Both DELCORA's DRBC Docket and NPDES permit prohibit the authority from accepting any material generated from oil/gas drilling operations. DELCORA did not receive any material from centralized waste facilities engaged in brine water treatment.

#### TYPES/ ACCEPTANCE PROCEDURES

DELCORA accepts domestic septic, domestic holding tank, industrial wastewaters, landfill leachate, groundwater, grease, Form U (residual) and 43 (municipal) residual waste. All industrial material is evaluated for compliance with any applicable federal, state, and local regulations prior to approval. This evaluation process includes submission of analytical testing. Upon approval, every delivery is tested for pH and manifested prior to discharge. All industrial wastewater is tested for TSS and COD on a monthly basis. Form U and 43 residual wastes are required to comply with a PADEP approved Waste Analysis and Classification Plan (WACP). The WACP requires all residual waste be subject to a 15 day PADEP comment period and approved by PADEP on a case by case basis. Form U and Form 43 permits are currently issued for four years.

Attachment 3: Approved Haulers 2018  
 Attachment 4: Form U and 43 Residual Waste accepted in 2018  
 Attachment 5: Industrial Wastewater accepted in 2018  
 Attachment 6: Monthly Totals of Trucked Waste Received in 2018

#### CLASSIFICATION

In 2018, there were twenty (20) significant and/or categorical users who were permitted to discharge wastewater into the DELCORA trucked waste receiving area. These users include:

Atlantic Waste Disposal Inc.\*  
 Burlington County Board of Chosen Freeholders  
 Charles City County Landfill\*  
 Chelton House Products  
 Chester County Solid Waste Authority  
 Container Research Corporation  
 Cumberland County Improvement Authority  
 Delaware County Solid Waste Authority  
 Eldredge, Inc.  
 First Time US Generics  
 King George Landfill Inc.\*  
 New Morgan Landfill Co. Inc.\*  
 Polyurethane Specialties Co.  
 PSE&G Audubon Gas District  
 Qualawash Holdings LLC  
 Refresco Beverages US, Inc. (formerly Cott Beverages)  
 Salem County Improvement Authority  
 Southeastern Chester County Refuse Authority  
 Sustainable Decarbonization Services  
 Waste Management of PA\*

\*Permit inactive at the end of 2018

#### 4. DENTAL OFFICE CATEGORICAL STANDARDS

On June 14, 2017, USEPA promulgated the Dental Office categorical standards, 40 CFR 441. Under this category, dental offices are not considered significant industrial users and were not included in the total number of categorical industrial users for this annual report. DELCORA is currently implementing a plan to ensure compliance by dentists located within the service area. A list of those dentists located in Delaware County and registered with the State Board of Dentistry has been obtained. DELCORA has also developed a "One Time Compliance Report for Dental Dischargers" and plans to send a mass mailing to dental dischargers in 2019. The receipt of compliance reports will be tracked and included in future annual pretreatment reports. See Attachment 8 for the "One Time Compliance Report for Dental Dischargers"

#### II. PRETREATMENT PROGRAM CHANGES

In recent years, DELCORA has seen an increase to the number of permitted significant industrial users as demonstrated in the table below.

REPORTING YEAR	NUMBER OF PERMITTED SIUS	REPORTING YEAR	NUMBER OF PERMITTED SIUS
2011	17	2015	42

2012	19	2016	44
2013	23	2017	40
2014	33	2018	39

The Pretreatment Program continues to permit new industries while maintaining a strong presence in countywide wastewater regulation. Conversely, DELCORA has also eliminated the possible inclusion of other potential industries through inspections and user surveys. In the Eastern Service Area, flow goes through DELCORA-owned pump stations with final discharge to the Philadelphia Southwest Water Pollution Control Plant. All permits in both the Western and Eastern Service Areas are now up to date, or in draft status.

Choice Party Linens is the only significant industry in the service area that is serviced by the Central Delaware Pump Station and there are no categorical industries in this area. The effluent limits enforced in the permit issued to Choice Party Linens, Inc. are derived from the more stringent of the Eastern and Western service area limits. In dry weather the flow is directed to the Western Regional Treatment Plant; in wet weather a portion of the flow is diverted to the Philadelphia Southwest Treatment Plant, thus both sets of limits apply. Maximum monthly limits are from the Eastern Service area except where the Western maximum day limits are more stringent. In this case, the maximum day and maximum monthly limits are the same.

### III. MISCELLANEOUS DEVELOPMENTS

The DELCORA Laboratory is accredited by the PADEP Bureau of Laboratories as an environmental laboratory. The PADEP conducted an audit of the laboratory on September 05, 2018. The Certificate of Accreditation, which expires 11/30/2019, has the Laboratory Identification Number **23-00671**.

DELCORA personnel continue to attend the EPWPCOA Pretreatment Forum and Technical Conference annually. In May of 2018, DELCORA sent one pretreatment department employee to the National Association of Clean Water Agencies (NACWA), National Pretreatment & Pollution Prevention Workshop in Providence, RI. This workshop was very beneficial to the overall operation of the DELCORA Pretreatment Program and DELCORA will continue to evaluate future educational opportunities.

In 2018, DELCORA actively worked to implement an outreach/education program with the hopes of increasing communication with the industrial users. The Compliance Awards Program (CAP) was officially introduced and was effective throughout the 2017 calendar year. It was established to recognize those DELCORA pretreatment permittees with exemplary compliance and, by doing so, ultimately help DELCORA achieve our mission of providing environmentally responsible and cost-effective wastewater management services. See Attachment 9 for the CAP Flyer and a list of 2018 CAP Award recipients.

As always, DELCORA will continue to investigate the industrial users in all service areas and is committed to protecting the health and safety of the public and the environment.

**Attachment 1**

**Western Sampling Schedule**

**2018**

INDUSTRY NAME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Alloy Surfaces Company Plant 1				X							X	
Barry Callebaut				X					X			
Braskem America, Inc.							X					X
Burlington County Board					X					X		
C & R Laundry							X					
Chelton House					X					X		
Chester County Solid Waste Authority										X		
Choice Party Linens, Inc.				X					X			
Cintas - Aston				X					X			
Container Research Corp.			X									
Cumberland County Improvement Authority					X					X		
Delaware County Linen				X				X				
Delaware County Solid Waste Authority							X				X	
Eldredge, Inc.					X					X		
Esschem Inc.					X						X	
FC PA Stadium, LLC									X			
First Time US Generics	No Discharge											
Kimberly-Clark of PA, LLC					X					X		
Liberty Electric Power, LLC				X			X					
Marcus Hook 50 L.P.	No Sample Necessary											
Marcus Hook Energy L.P.												X
Monroe Energy LLC					X							X
Nalco Res Kem								X				
Norquay LLC.	No Discharge											
Olympic Tool & Machine Corp						X						X
Pennsylvania Machine Works	No Discharge											
Polyurethane Specialties Co.					X					X		
P.Q. Corporation			X				X					
Pyromet					X							
Pyromet Recycle LLC					X							
Qualawash Holdings LLC											X	
Refresco Beverages US, Inc.					X					X		
Salem County Improvement Authority					X					X		
SECCRA	No Discharge											
Sunoco Partners Marketing & Terminals										X		X



**2018**

INDUSTRY NAME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Sustainable Decarbonization Services					X					X		
Waste Management of PA					XX					XXX		
Wawa Beverage Co.					X						X	

## **Attachment 2**

### **Western Inspection Schedule**

Industry Name	Inspection Date
Alloy Surfaces Company, Inc. Plant 1	08/31/18
Barry Callebaut	07/25/18
Braskem America, Inc	11/29/18
Burlington County Board of Chosen Freeholders	06/04/18
C&R Laundry	12/20/18
Chelton House Products	07/23/18
Choice Party Linens, Inc.	08/16/18
Cintas - Aston	05/23/18
Container Research Corp	06/14/18
Cumberland County Improvement Authority	11/08/18
Delaware County Linen	12/06/18
Delaware County Solid Waste Authority	05/22/18
Eldredge, Inc	07/02/18
Esschem, Inc	11/20/18
FC Pennsylvania Stadium, LLC	06/13/18
First Time US Generics	08/01/18
Kimberly-Clark Corporation	10/17/18
Liberty Electric Power, LLC	03/26/18
Marcus Hook 50 L.P.	06/12/18
Marcus Hook Energy L.P.	06/12/18
Monroe Energy, LLC	12/18/18
Nalco Res-Kem	08/28/18
Norquay, LLC	07/03/18
Olympic Tool and Machine	11/09/18
P.Q. Corporation	07/20/18
Pennsylvania Machine Works, Inc	08/30/18
Polyurethane Specialties Co.	12/04/18
Pyromet Inc.	10/23/18
Pyromet Recycling LLC	10/23/18
Refresco Beverages US, Inc.	05/31/18
Salem County Improvement Authority	08/22/18
Southeastern Chester County Refuse Auth.	05/07/18
Sunoco Partners Marketing & Terminals L.P.	10/11/18
Sustainable Decarbonization Services LLC	09/07/18
Waste Management of PA	05/15/18
Wawa Beverage Co.	08/29/18

## **Attachment 3**

### **Form U, Form 43, and Septic Users**

Hauler	Address	PERMIT NO.	PERMIT EXPIRATION DATE
A HONEYDIPPER SEPTIC SERVICE	A Honeydipper Septic Service 87 Township Line Road P. O. Box 427 Douglassville, PA 19518	062818	9/30/2020
A TO U SERVICES, INC.	A To U Services, Inc. 52 N. Ridgeway Avenue Glenolden, PA 19036	092118	10/31/2020
A&L SEPTIC SERVICE	A & L SEPTIC SERVICES 1374 Rt. 38 Hainesport, NJ 08036	052518	6/30/2020
A-1 SANITATION SERVICE	A-1 Sanitation Service, Inc. 1009 River Road New Castle, DE 19720	100117	1/31/2020
A-ACTION PLUMBING, INC.	A-Action Plumbing, Inc. 2305 Garry Road, Suite B Chinnaminson, NJ 08077	080217	9/30/2019
ACCURATE WASTE SYSTEMS, INC.	Accurate Waste Systems, Inc. 226 Prospect Point Road Lake Hopatcong, NJ 07849	010517	4/30/2019
ACE DISPOSAL	ACE Disposai 1133 W. Valley Hill Road Malvern, PA 19355	020118	5/31/2020
AGRI-SERVICES CORP.	Agri-Services, Corp. 1170 Kings Hwy King George, VA 22485	111817	12/31/2019
AJ NESTI MATERIALS, LLC	AJ Nesti Materials, LLC 32 Monroe Blvd. Monroe Township, NJ 08831	032018	3/31/2020
ALLSTATE POWER VAC	Allstate Power Vac 928 East Hazelwood Avenue Rahway, NJ 07065-5634	050117	8/31/2019
AQUA-TEX TRANSPORT, INC.	AQUA-TEX TRANSPORT, INC 1512 Mays Landing Rd., P. O. Box 1204	082518	10/31/2020
ARF RENTAL SERVICES, INC.	ARF Rental Services, Inc. P.O. Box 3126 Bridgeport, CT 06605	042817	5/31/2019
ARROW LEASING CORP.	Arrow Leasing Corp 1772 Pulaski Highway Bear, Del 19701	020718	5/31/2020
ASSOCIATED PRODUCTS SERVICES, INC.	Associated Products Services, Inc. 2 East Road Mechanicsburg, PA 17050	042817	9/30/2019
B. MARTIN WASTEWATER SERVICES, LLC.	B. Martin Wastewater Services, LLC. 274 Concord Road Garnet Valley, PA 19060	080317	11/30/2019
BIROS SEPTIC & DRAIN CLEANING INC.	Biros Septic & Drain Cleaning, Inc. 1365 State Road Zion Grove, PA 17985	080218	12/31/2020

Hauler	Address	PERMIT NO.	PERMIT EXPIRATION DATE
BRANDYWINE SEPTIC SERVICES, INC.	Brandywine Septic, Inc 1325 Wilmington Pike West Chester, PA 19382	021218	6/2/2020
BRANDYWINE WASTEWATER GENERATIONS LLC	Brandywine Septic Services, Inc. 1160 State Road Lincoln University, PA 19352	070817	9/30/2019
C&H DISPOSAL SERVICE, INC.	C&H Disposal Service, Inc., 47 Griers Lane Elmer, NJ 08318	080117	11/30/2019
C. M. KRISTMAN SANITATION	C. M. Kristman Sanitation 1099 Cannery Road Coatesville, PA 19320	060818	10/31/2020
CAPRIONI PORTABLE TOILETS, INC	Caprioni Portable Toilets, Inc. 188 Head of the River Road Belleplain, NJ 08270	062617	9/30/2019
CEMCO - CUSTOM ENVIRON. MANAGEMENT	CEMCO - Custom Environmental Management Co., Inc. P.O. Box 212 Hainesport, NJ 08036	061717	7/31/2019
CHESAPEAKE ENV. SERVICES (dba - CES)	Clark's Environmental Services, LLC 4344 Allen Road Salisbury, MD 21801	022517	5/31/2019
CHRISTMAN'S SEPTIC SERVICE	Christman's Septic Service P.O. Box 714 Fogelsville, PA 18051	080717	8/31/2019
CLARK SERVICES GROUP, LLC	Clark Services Group, LLC - The Degreasers 1200 E. Sedgley Avenue Philadelphia, PA 19134	051417	6/30/2019
CLEAN DELAWARE INC.	Clean Delaware LLC P.O. Box 123 Milton, Delaware 19968	012019	2/28/2021
CLEAN HARBORS ENV. SVCS.	Clean Venture, Inc. 201 South First Street Elizabeth, NJ 07206	072618	7/31/2020
COAST TO COAST INTERNATIONAL MARINE SVCS.	Coast to Coast International Marine Services 1314-16 S Howard Street Philadelphia, PA 19147	092317	10/31/2019
CONTRACTOR TRANSPORT LLC	Contractor Transport, LLC 1380 Mt. Cobb Road Lake Ariel, PA 18436	011519	1/31/2021
COPPERHEAD CUSTOM, INC.	Copperhead Custom Inc 942 Old Lincoln Hwy., P.O. Box 1148 Langhorne, PA 19047	072517	9/30/2019
CR SMITH TRANSPORT, LLC	CR Smith Transport LLC 1146-B Kings Hwy. King George, VA 22485	101917	11/30/2019
CUMBERLAND COUNTY UTILITY AUTHORITY	Cumberland County Utilities Authority 333 Water Street Bridgeport, NJ 08302	091618	10/31/2020

Hauler	Address	PERMIT NO.	PERMIT EXPIRATION DATE
DELAWARE VALLEY SEPTICS LLC	Delaware Valley Septics LLC 504 Eagle Road, Suite B Springfield, PA 19063	071017	7/31/2019
DENALI WATER SOLUTIONS	2323 Marston Road P.O. Box 600 New Windsor, MD 21776	101618	5/31/2020
DIGATI WASTEWATER SVCS. LLC	DiGati Wastewater Services, LLC 2698 Underwoods Corner Road Clayton, DE 19938	052918	5/31/2020
DUFFIELD HAULING, INC.	DUFFIELD HAULING, INC. 1170 Kings Highway King George, VA 22485	102017	11/30/2019
E.T. REUTER TRUCKING, LLC	E.T. Reuter Trucking, LLC 18 Wilson Avenue Lumberton, NJ 08048	100918	10/31/2020
ECOTEK, LLC dba EARTH BIO TECH	Ecotek LLC, dba Earth Bio Technologies 50 Rices Mill Road Glenside, PA 19038	021717	3/31/2019
EDEN GREEN ENERGY	Eden Green Energy 2405 Federal Street Philadelphia, PA 19146	033118	6/30/2020
ELDREDGE, INC. - FERN HILL	Eldredge, Inc. - Fern Hill 898 Fern Hill Road West Chester, PA 19380-4256	020718	6/30/2020
ELK TRANSPORTATION, INC dba Elk Environmental	Elk Transportation, Inc. 1420 Clarion Street Reading, PA 19601	100118	1/31/2020
ENGLISH SEWAGE DISPOSAL, INC.	English Sewage Disposal, Inc. 1082 Parsonage Road P. O. Box 5189 Seabrook, NJ 08302	020117	5/31/2019
ENVIRONMENTAL TRANSPORT GROUP	Environmental Transport Group, Inc. 194 Gold Mine Road Flanders, NJ 07836	030917	3/31/2019
FRANC ENVIRONMENTAL, INC.	Franc Environmental, Inc. 321 Maple Avenue Horsham, PA 19044	031917	6/30/2019
FREEHOLD CARTAGE (SNOW ENVIRONMENTAL)	Freehold Cartage, Inc. 825 Highway 33 East P. O. Box 5010 Freehold, NJ 07728-5010	022818	4/31/2020
GARY W. GRAY TRUCKING INC.	Gary W. Gray Trucking, Inc., P.O. Box 48 Delaware, NJ 07833	081518	9/30/2020
GEORGE ALLEN WASTEWATER INC.	George Allen Wastewater, Inc. 4375 County Line Road Colmar, PA 18915	080518	11/30/2020
GRANNETINO INC. (Co, NAME CHANGE)	Grannetino, Inc. 1311 Ashbridge Road West Chester, PA 19380	110717	2/28/2019

Hauler	Address	PERMIT NO.	PERMIT EXPIRATION DATE
GTO SERVICES, INC.	7330 Tulip Street Philadelphia, PA 19013	112017	1/31/2020.
H.R. EWELL, INC.	H. R. EWELL, INC. dba Tate & Lyle P.O. Box 8 East Earl, PA 17519	080417	9/30/2019
HEPACO, LLC	HEPACO REACT LLC 716 Jersey Avenue Gloucester City, NJ 08030	022218	3/31/2020
HICKMAN SANITATION SERVICE, LLC	HICKMAN SANITATION SERVICE, LLC P.O. Box 3040, 352 Snyder Avenue West Chester, PA 19381-3040	102118	12/31/2020
HILLTOP ENTERPRISES	1157 Phoenixville Pike Suite 102 West Chester, PA 19380	010318	1/31/2020
HYDROTECH ENVIRONMENTAL, LLC	2112 Danville Drive Pennsburg, PA 18073	092017	9/30/2019
IEC, INC.	IEC, Inc. 50 Hampton Street Metuchen, NJ 08840	021517	2/28/2019
J&M WARRELL INC. dba J&M PLUMBING	J&M Warrell Inc. d/b/a J&M Plumbing & Drain Cleaning 257 Elderberry Drive Levittown, PA 19054	030819	4/30/2021
J. GALLAGHER SEPTIC & WW	J. Gallagher Septic & Wastewater Control 1806 Embreeville Road Coatesville, PA 19320	030117	6/30/2019
JG ENVIRONMENTAL, LLC	JG Environmental, LLC. 2640 Spring Valley Road Lancaster, PA 17601	041917	7/30/2019
J. R. PIERSON & SON, INC.	J. R. Pierson & Son, Inc. 195 Laurel Heights Road Landenberg, PA 19350	061518	11/30/2020
KBX GOLDEN, LLC	KBX Golden, LLC 439 McFarlan Road Kennett Square, PA 19348	110918	11/30/2020
KEISTER MILLER INVEST, LLC	Keister Miller Investments, LLC 204 Miller Road Mahaffey, PA 15757	011419	1/31/2021
KLINE'S SERVICES LLC	Kline's Service Inc. 5 Holland Street Salunga, PA 17538	112418	2/29/2020
KOBERLEIN ENVIRONMENTAL SERVICES	Koberlein Environmental Services 188 Beach Lake Highway Honesdale, PA 18431	092318	12/31/2020
LACY'S EXPRESS, INC.	Lacy's Express, Inc. 26 East Mill Street P. O. Box 130 Pedricktown, NJ 08067	101618	1/31/2019



Hauler	Address	PERMIT NO.	PERMIT EXPIRATION DATE
LANCASTER OIL CO., dba ENVIRON. RECOVERY CORP. OF PA	1076 Old Manheim Pike Lancaster, PA 17601	050718	7/31/2020
LANDER SEPTIC SERVICE LLC	Lander Septic Service LLC 267 Red Pump Road Nottingham, PA 19362	062717	8/31/2019
LEWIS ENVIRONMENTAL, INC.	Lewis Environmental, Inc. 155 Railroad Plaza P.O. Box 639 Royersford, PA 19468	121017	2/28/2019
LIQUID ENVIRONMENTAL SOLUTIONS	Liquid Environmental Solutions 7651 Esters Blvd. Irving, TX 75063	010618	4/30/2020
MANNYS SEPTIC SERVICES	Mannys Septic Services P.O. Box 72831 Thorndale, PA 19372-0831	062518	9/30/2020
MARLIN D NOLT TRUCKING	MARLIN D NOLT TRUCKING 4977 Division Hwy. East Earl, PA 17519	030718	5/31/2020
McGOVERN ENVIRONMENTAL LLC (formerly Earthcare)	McGovern Environmental, LLC (formerly Earthcare) 223 Fellowship Road P. O. Box 756 Eagle, PA 19480	090117	12/31/2019
MOBILE DREDGING & PUMPING COMPANY	Mobile Dredging & Pumping Company 3100 Bethel Road Chester, PA 19013	070117	10/31/2019
MOORE OUTDOOR REJ. INC. DBA MOR CONSTRUCTION	Moore Outdoor Rejuvenation, Inc. dba MOR Construction Services, Inc. 139 Schoolhouse Lane Glen Mills, PA 19342	101218	10/31/2020
MR DIRT LLC	MR Dirt Inc. 21186 Route 187 Towanda, PA 18848	062717	6/30/2019
NELBUD SERVICES GROUP, INC	Nelbud Services, Group, Inc. 1202 Moss Mill Road Egg Harbor City, NJ 08215	010218	4/30/2020
ONSITE MANAGEMENT, INC.	OnSite Management, Inc. 1109 Saunders Court West Chester, PA 19380	020118	5/31/2020
PACKARD ENVIRONMENTAL SERVICES LLC	PACKARD ENVIRONMENTAL SERVICES, LLC 772 Haunted Lane Bensalem, PA 19020	062618	9/30/2020
PD QUALITY TRANSPORT, LLC	PD Quality Transport, LLC P.O. Box 105 Williamsburg, PA 16693	010819	01/31/2021
PHILIPS SERVICES CORP.	PSC INDUSTRIAL OUTSOURCING LP 550 Pine Town Road, Suite 166 Ft. Washington, PA 19034	080416	11/30/2018
PIPE SERVICES CORPORATION	PIPE SERVICES CORPORATION 665 Tower Lane West Chester, PA 19380	012217	3/31/2019

Hauler	Address	PERMIT NO.	PERMIT EXPIRATION DATE
PRECISION DRILLING, INC.	Precision Drilling, Inc. 277 County Road 519 Stockton, NJ 08559	013019	01/31/2021
PRECISION SEWER SERVICES, LLC	PRECISION SEWER SERVICES, LLC 527 Huddell Ave. Linwood, PA 19061	080918	11/30/2020
PREDOC, INC.	PreDoC, Inc. 14 Chrisevyn Lane Phoenixville, PA 19460	070117	10/31/2019
PRESTON HECKLER LIQUID DISPOSAL LLC	Preston Heckler Liquid Disposal LLC 400 General Hancock Blvd. North Wales, PA 19454	040917	5/31/2019
PRINCIPLE ENTERPRISES LLC	Principle Enterprises LLC 510 Route 414 Canton, PA 17724	041317	4/30/2019
QUALITY CARRIERS, INC.	Residuals Management Services, LLC (dba Earthcare/Wind River Environmental) 99 Maple Grange Road Vernon, NJ 07462	071118	10/31/2020
QUANTUM ENVIRONMENTAL ENTERPRISE	Quantum Environmental Enterprise Inc. 858 Easkey Lane Avondale, PA 19311	031518	3/31/2020
QUEEN BEE'S SEPTIC, INC.	Queen Bee's Septic, LLC 28 River Mist Drive Elkton, MD 21921	083117	9/30/2019
RAVEN INC. DBA TRUTEK DRILL	Raven Inc. DBA TruTek Drilling 13116 Hwy. 18 Conneaut Lake, PA 16316	032018	3/31/2020
RAYMOND HARRISON SEPTIC SVC.	Raymond Harrison Septic Service, LLC 800 Truslow Road Chestertown, MD 21620	020118	2/29/2020

Generator	Location	CARRIER	Type of Facility	PERMIT EXPIRATION	Average Volume discharged
Aberdeen Proving Grounds WWTP (Form 43)	Bldg - E5185 Aberdeen Proving Ground, MD 21010	GRANNETINO	Municipal Authority	1/31/2022	9123
Aqua WWTP - Media Borough (Form 43)	635 S. Ridley Road Media PA 19063	RUSSELL REID	Municipal Authority	1/31/2020	18440
Beverly Sewerage Authority (Form 43)	P.O. Box 374 Burlington, NJ 08010	TBD per Ian Piro	Municipal Authority	7/31/2021	7026
Bristol Borough (Form 43)	250 Pond Street Bristol, PA 19007	FRANC ENVIRONMENTAL	Municipal Authority	8/31/2018	14804
Cinnaminson Sewerage Authority (Form 43)	521 Riverton Road P.O. Box 2100 Cinnaminson, NJ 08077-5100	RUSSELL REID	Municipal Authority	4/30/2020	14089
Collingswood - Comly Ave (Form U)	215 Hillcrest Avenue Collingswood, NJ 08108	WM. P. MCGOVERN, INC.	Water Treatment Backwash	8/31/2019	6133
Collingswood - Roberts Park (Form U)	215 Hillcrest Avenue Collingswood, NJ 08108	WM. P. MCGOVERN, INC.	Water Treatment Backwash	8/31/2019	4540
Concord Township SA (Form 43)	664 Concord Road Glen Mills, PA 19342	FRANC ENVIRONMENTAL	Municipal Authority	6/30/2019	29521
Cumberland County Utilities Authority (Form 43)	333 Water Street Bridgeport, NJ 08302	C & H DISPOSAL	Municipal Authority	1/31/2020	12715

Generator	Location	CARRIER	Type of Facility	PERMIT EXPIRATION	Average Volume discharged
East Norriton-Plymouth-Whitpain JSA ( Form 43 )	200 Ross Street Plymouth Meeting, PA 19462	FRANC ENVIRONMENTAL	Municipal Authority	8/31/2019	14065
Goose Creek WWTP (Form 43)	351 Snyder Avenue West Chester, PA 19382	MCGOVERN ENVIRONMENTAL	Municipal Authority	4/30/2019	18077
Inving Textile Products ( Form U )	Post Office Box 270 Atglen, PA 19310-0270	RUSSELL REID/ WWM MCGOVERN	Latex Rinse Water from Non- Woven Fabrics	4/30/2020	5296
Kelly Foods ( Form U )	10313 Old Ocean City Blvd. Berlin, MD 21811	CLARKS ENVIRONMENTAL SVCS	Food Processing Waste	12/31/2019	5941
Logan Township Municipal Authority ( Form 43 )	69 Jefferson Lane P. O. Box 71 Bridgeport, NJ 08014	FREEHOLD	Municipal Authority	3/31/2019	15622
Mannington Mills ( Form U )	75 Mannington Mills Road P. O. Box 30 Salom, NJ 08079-0030	Wm MCGOVERN & US ENVIRONMENTAL	Vinyl Flooring Manufacturing	2/29/2020	5453
McAdoo & Allen Inc (Quaker Color) ( Form U )	201 S. Hellertown Avenue Quakertown, PA 18951	US ENVIRONMENTAL & SJ TRANS CO.	Paint Wash Water	6/30/2020	4981
Palmyra Borough ( Form 43 )	20 WEST BROAD STREET, PALMYRA, NJ 08065	FRANC ENVIRONMENTAL	Municipal Authority	4/30/2022	6420
Pennsville Sewage Authority ( Form 43 )	183 Delaware Drive Pennsville, NJ 08070	C & H DISPOSAL	Municipal Authority	6/30/2021	15660

Generator	Location	CARRIER	Type of Facility	PERMIT EXPIRATION	Average Volume discharged
Shiseido ( Form U )	366 Princeton-Hightstown Road East Windsor, NJ 08520	FREEHOLD	Manufacturing of consumer health care products	10/31/2021	5939
Sunoco Logistics Partners, LLC.	100 Green Street Marcus Hook, PA 19061	WM. P. MCGOVERN, INC.	Hydrocarbon contaminated sludge generated during 2013 Event	9/30/2021	9586
Taylor Run ( Form 43 )	795 Downingtown Pike West Chester, PA 19380	MCGOVERN ENVIRONMENTAL	Municipal Authority	3/3/2021	9008
Telford Borough Authority ( Form 43 )	109 Telford Pike Telford, PA 18969	FRANC ENVIRONMENTAL	Municipal Authority	6/30/2021	14702
Tinicum Township ( Form 43 )	629 Governor Printz Boulevard Essington, PA 19029-1119	US ENVIRONMENTAL/ WM. MCGOVERN	Municipal Authority	2/29/2020	14302
Town of Selbyville ( Form 43 )	P.O. BOX 106, SELBYVILLE, DE 19975	CLEAN DELAWARE	Municipal Authority	12/31/2021	15361
Upper Dublin WWTP ( Form 43 )	1275 ALMSHOUSE ROAD, WARRINGTON, PA 18976	MCGOVERN ENVIRONMENTAL	Municipal Authority	12/31/2020	11913
Upper Gwynedd Sludge ( Form 43 )	P. O. Box 1 Parkside Place West Point, PA 19486	RUSSELL REID/ RINEHARTS POTTY QUEEN	Municipal Authority	5/31/2020	16848
Valspar ( Form U )	3050 Hanford Drive Lebanon, PA 17046	US ENVIRONMENTAL/WM. P. MCGOVERN	Paint Wash water	10/31/2021	5563

Generator	Location	CARRIER	Type of Facility	PERMIT EXPIRATION	Average Volume discharged
Wawa Dairy Sludge ( Form U )	260 Baltimore Pike Media, PA 19063	RUSSELL REID	Dairy and Juice Product Packaging DAF Sludge	2/29/2020	4634

## **Attachment 4**

### **PA DEP Residual Waste Reports**



DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY  
P.O. Box 999 • Chester, PA 19016-0999

April 19, 2018

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Calvin E. Ligons  
Solid Waste Supervisor  
PA Department of Environmental Protection  
Southeast Regional Office (SERO)  
2 East Main Street  
Norristown, PA 19401

RE: Permit #400246 for Solid Waste Processing Facility  
1<sup>st</sup> Quarter Report – 2018

Dear Mr. Ligons:

In accordance with the above referenced permit, Section 14G on Page 7 of 9, enclosed is an Amended Appendix to the permit, which lists all residual waste from specific generators accepted for incineration at DELCORA. All required information has been included in this 1<sup>st</sup> quarter report. All original Form 43 and Form U applications were previously sent to PA DEP.

Please contact me at 610-876-5523, extension 110, if you have any questions.  
Thank you for your attention.

Sincerely,

Robert J. Willert  
Executive Director

RJW:smf  
Enclosure

cc: w/encl. via email  
M. DiSantis, DELCORA  
C. Lenton, DELCORA  
I. Fitzgerald, DELCORA  
I. Piro, DELCORA  
D. Zetusky, DELCORA  
File

ADMINISTRATION

☐ 610-876-5523

☐ FAX: 610-876-2728

CUSTOMER SERVICE/BILLING

☐ 610-876-5526

☐ FAX: 610-876-1460

PURCHASING & STORES

☐ 610-876-5523

☐ FAX: 610-497-7959

PLANT & MAINTENANCE

☐ 610-876-5523

☐ FAX: 610-497-7950



DELCORA

SEWAGE SLUDGE DISPOSAL REPORT - PERMIT #400246

APPENDIX - 1ST QUARTER 2018

1ST QTR. (DUE APRIL 30) - 2ND QTR. (DUE JULY 31) - 3RD QTR. (DUE OCTOBER 31) - 4TH QTR. (DUE JANUARY 31)

PERMIT NUMBER	ANNIVERSARY ACCEPTANCE DATE/STATUS	GENERATOR	FORM TYPE	WASTE DESCRIPTION	HAZAR	D = GPDRY M = GEMOHD W = GEMOHD V = GEMOHD	QUANTITY ACCEPTED (GALLONS)
1701	06/30/2021 (A)	Salem Wastewater Treatment Facility	43	Municipal Wastewater	C & H Disposal	35,000	0
1302	08/31/2017 (A)	Catsaugue Wastewater Treatment Plant	43	Municipal Wastewater	Russell Reid	28,000	0
1803	02/28/2022 (A)	Cott Beverages Inc.	U	Industrial Waste	Wm. P. McGovern	36,000	0
1405	2/28/2018 (A)	UTZ Quality Foods	U	Food Processing Waste	Spears & Co.	100,000	0
1408	3/31/2018 (E)	Palmyra Borough NJ WWTP	43	Municipal Wastewater	Franc Environmental	13,000	128,000
1510	04/30/2020 (A)	Sellers Absorbent Material (Irving Talcum Products)	U	Latex Rinsed Wipes	Wm. McGovern	12,000	35,200
1511	02/29/2020 (A)	Tridawn Township	43	Municipal Wastewater	US Environmental/Wm. McGovern	72,000	89,500
1228	03/31/2017 (E)	Amble Waste Water Treatment Facility	43	Municipal Wastewater	Franc Environmental	400,000	0
1546	06/30/2019 (A)	Concord Twp. Sewer Authority	43	Municipal Wastewater	McGovern Environmental	190,000	394,300
1657	06/30/2020 (A)	McAdoo & Allen (Quaker Color Division)	U	Industrial Waste	Russell Reid/US Environmental	12,000	11,435
1661	02/29/2020 (A)	Wawa	U	Food Processing Waste	Russell Reid	16,000	127,169
1582	03/31/2019 (A)	Borough of Collingswood, NJ	43	Municipal Wastewater	Freehold Carriage	28,000	1,173,518
1584	02/29/2020 (A)	Wm. P. McGovern	U	Potable Water Treatment	Wm. P. McGovern	5,500	13,800
1587	02/29/2020 (A)	West Chester Borough - Goose Creek	43	Municipal Wastewater	McGovern	120,000	643,000
1589	02/29/2020 (A)	East Northampton/Watkins Joint SA	43	Municipal Wastewater	Franc Environmental	24,000	535,500
1570	05/31/2020 (A)	Upper Gwynedd Twp. WWTP (DELCORA as alternative backup only)	43	Municipal Wastewater	Franc Environmental	200,000	744,500
1579	02/29/2020 (A)	Manning Mills, Inc.	U	Process Wastewater	Wm. McGovern/US Environmental	6,000	28,500
1583	01/31/2020 (A)	Cumberland County Utilities Authority	43	Municipal Wastewater	C&H Disposal	15,000	537,500
1684	4/30/2020 (A)	Cinnaminson Sewerage Authority	43	Municipal Wastewater	Russell Reid	75,000	19,700
1686	04/30/2020 (A)	Warminster Municipal Authority	43	Municipal Wastewater	Wm. McGovern/Polly Queen	120,000	0
1789	3/31/2021 (A)	West Chester Borough - Taylor Run	43	Municipal Wastewater	McGovern	250,000	425,000
1791	10/31/2021 (A)	Vaigler	U	Latex Rinsed Wipes	Wm. McGovern/US Environmental	15,000	15,500
1492	03/31/2018 (A)	Bristol Borough Waste Water Plant	43	Municipal Wastewater	Franc Environmental	720,000	141,500
1697	11/30/2020 (A)	Lower Bucks County Municipal Authority	U	Water Treatment	Russell Reid	25,000	0
1789	06/30/2021 (A)	Pennsylvania Sewerage Authority	43	Municipal Wastewater	Aqua-Tex Transport	35,000	417,910
14100	07/31/2018 (A)	Puratos Corporation	U	Food Processing Waste	McGovern	6,000	0
14101	10/31/2018 (A)	Maryland & Virginia Milk Producers	U	Food Processing Waste	Integrated Astronics	50,000	0

DEL CORA  
SEWAGE SLUDGE DISPOSAL REPORT - PERMIT #400246  
APPENDIX - 1ST QUARTER 2018  
1ST QTR. (DUE APRIL 30) 2ND QTR. (DUE JULY 31) 3RD QTR. (DUE OCTOBER 31) 4TH QTR. (DUE JANUARY 31)

PERMIT NUMBER	ANNIVERSARY ACCEPTANCE DATE/STATUS	GENERATOR	FORM TYPE	WASTE DESCRIPTION	HAULER	D = GPDAY W = GFWEEK M = GFMONTH Y = GFYEAR	QUANTITY ACCEPTED (GALLONS)
14102	01/31/2019 (A)	Riverside Water Reclamation Authority	43	Municipal Wastewater	Coppola Services	60,000	0
15103	12/31/2019 (A)	Kelly Floods	U	Food Processing Waste	Clark's Environmental Svcs.	30,000	6,235
15104	01/31/2020 (A)	Aqua PA Waste Water, Inc. - Media WWTP (Little Washington)	43	Municipal Wastewater	Russell Red	50,000	31,400
15105	04/30/2020 (A)	Cape May County MUA - Cape May Regional WWTF	43	Municipal Wastewater	TBD	527,578	0
15106	04/30/2020 (A)	Cape May County MUA - Ocean City Regional WWTF	43	Municipal Wastewater	TBD	175,859	0
15107	04/30/2020 (A)	Cape May County MUA - Seven Mile Island Middle Regional WWTF	43	Municipal Wastewater	TBD	351,719	0
15108	04/30/2020 (A)	Cape May County MUA - Wildwood / Lower Regional WWTF	43	Municipal Wastewater	TBD	263,786	0
15109	12/31/2020 (A)	Bucks County WSA/Upper Dublin WWTP	43	Municipal Wastewater	Franc Environmental	220,000	219,500
17110	06/30/2021 (A)	Tellord Borough Authority	43	Municipal Wastewater	Franc Environmental	193,000	393,500
17111	07/31/2021 (A)	Beverly Sewerage Authority	U	Municipal Wastewater	TBD	7,000	52,000
17112	08/30/2021 (A)	Sunoco Partners Marketing	43	Industrial Wastewater	Wm. P. McGovern	83,353	0
17113	08/30/2021 (A)	Upper Merioness Joint Authority	43	Municipal Wastewater	TBD	N/A	0
17114	10/31/2021 (A)	Shesado America Inc.	U	Municipal Wastewater	TBD	350,000	255,217
17115	12/31/2021 (A)	Town of Selbyville, DE	43	Municipal Wastewater	Clean Delaware	80,000	741,539
17116	1/31/2022 (A)	APS - Aberdeen Proving	43	Municipal Wastewater	Gellerino	35,000	120,000
TOTAL							7,313,326

STATUS: (A) = ACTIVE (E) = EXPIRED (X) = TERMINATED (\*) = PERMIT ISSUANCE IN PROGRESS  
1st Quarter 2018



DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY  
P.O. Box 999 • Chester, PA 19016-0999

July 16, 2018

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Calvin E. Ligon  
Solid Waste Supervisor  
PA Department of Environmental Protection  
Southeast Regional Office (SERO)  
2 East Main Street  
Norristown, PA 19401

RE: Permit #400246 for Solid Waste Processing Facility  
2<sup>nd</sup> Quarter Report – 2018

Dear Mr. Ligon:

In accordance with the above referenced permit, Section 14G on Page 7 of 9, enclosed is an Amended Appendix to the permit, which lists all residual waste from specific generators accepted for incineration at DELCORA. All required information has been included in this 2<sup>nd</sup> quarter report. All original Form 43 and Form U applications were previously sent to PA DEP.

Please contact me at 610-876-5523, extension 110, if you have any questions.  
Thank you for your attention.

Sincerely,

Robert J. Willert  
Executive Director

RJW:smf  
Enclosure

cc: w/encl. via email  
M. DiSantis, DELCORA  
C. Lenton, DELCORA  
I. Fitzgerald, DELCORA  
I. Piro, DELCORA  
D. Zetusky, DELCORA  
File

ADMINISTRATION  
☐ 610-876-5523  
☐ FAX: 610-876-2728

CUSTOMER SERVICE/BILLING  
☐ 610-876-5526  
☐ FAX: 610-876-1460

PURCHASING & STORES  
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PLANT & MAINTENANCE  
☐ 610-876-5523  
☐ FAX: 610-497-7950

**DELCORA  
SEWAGE SLUDGE DISPOSAL REPORT - PERMIT #400245  
APPENDIX - 2ND QUARTER 2018**

1ST QTR. (DUE APRIL 30) - 2ND QTR. (DUE JULY 31) - 3RD QTR. (DUE OCTOBER 31) - 4TH QTR. (DUE JANUARY 31)

PERMIT NUMBER	GENERATOR	FORM TYPE	WASTE DESCRIPTION	HAZARDOUS	IF OTHER WASTE SERVICES	QUANTITY ACCEPTED (GALLONS)
1701	Salem Wastewater Treatment Facility	43	Municipal Wastewater	C & H Disposal	35,000	W
1302	Catawissa Wastewater Treatment Plant	43	Municipal Wastewater	Russell Reid	28,000	D
1803	Cort Beverage Inc.	U	Industrial Waste	Wm. P. McGovern	36,000	W
1405	UTZ Quality Foods	U	Food Processing Waste	Spechtaserv	100,000	M
1406	Palmyra Borough NJ WWTP	43	Municipal Wastewater	Franc Environmental	13,000	W
1510	Sellers Absorbent Material (Irving Textile Products)	U	Latex Rinse Water	Wm. McGovern	12,000	M
1511	Tricum Township	43	Municipal Wastewater	US Environmental/Wm. McGovern	72,000	M
1228	Ambley Waste Water Treatment Facility	43	Municipal Wastewater	Franc Environmental	400,000	M
1546	Concord Twp. Sewer Authority	43	Municipal Wastewater	McGovern Environmental	190,000	M
1557	McAdoo & Allen (Quaker Color Division)	U	Industrial Waste	Russell Reid/US Environmental	12,000	M
1551	Wawa	U	Food Processing Waste	Russell Reid	18,000	W
1552	Lozan Township	43	Municipal Wastewater	Freehold Carcase	28,000	D
1554	Borough of Collingswood, NJ	U	Palatable Water Treatment	Wm. P. McGovern	5,500	M
1557	West Chester Borough - Goose Creek	43	Municipal Wastewater	McGovern	120,000	D
1559	East Norriton/Plymouth/Whitpain Joint SA	43	Municipal Wastewater	Franc Environmental	24,000	M
1570	Upper Gwynedd Twp. WWTP (DELCORA as alternative backup only)	43	Municipal Wastewater	Franc Environmental	200,000	M
1579	Mannington Mills, Inc.	U	Process Wastewater	Wm. McGovern/US Environmental	6,000	W
1583	Cumberland County Utilities Authority	43	Municipal Wastewater	C&H Disposal	15,000	W
1584	Cinnaminson Sewerage Authority	43	Municipal Wastewater	Russell Reid	75,000	M
1586	Warminster Municipal Authority	43	Municipal Wastewater	Wm. McGovern/Porty Queen	120,000	M
1789	West Chester Borough - Taylor Run	43	Municipal Wastewater	McGovern	250,000	M
1791	Valispar	U	Latex Rinse Water	Wm. McGovern/US Environmental	15,000	M
1492	Strick Borough Waste Water Plant	43	Municipal Wastewater	Franc Environmental	720,000	M
1597	Lower Bucks County Municipal Authority	U	Water Treatment	Russell Reid	25,000	M
1799	Pennsville Sewerage Authority	43	Municipal Wastewater	Aque-Tex Transport	35,000	W
14100	Puratos Corporation	U	Food Processing Waste	McGovern	6,000	W
14101	Marland & Virginia Milk Producers	U	Food Processing Waste	Integrated Aeronomics	50,000	W
14102	Riverside Water Reclamation Authority	43	Municipal Wastewater	Coppola Services	60,000	W
15103	Kelly Foods	U	Food Processing Waste	Clark's Environmental Svcs.	30,000	W
15104	Agua PA Waste Water, Inc. - Media WWTP (Little Washington)	43	Municipal Wastewater	Russell Reid	50,000	W
15105	Cape May County MUA - Cape May Regional WWTF	43	Municipal Wastewater	TBD	527,578	M
15106	Cape May County MUA - Ocean City Regional WWTF	43	Municipal Wastewater	TBD	175,859	M
15107	Cape May County MUA - Seven Mile Island Middle Regional WWTF	43	Municipal Wastewater	TBD	351,719	M
15108	Cape May County MUA - Wildwood / Lower Regional WWTF	43	Municipal Wastewater	TBD	263,768	M
15109	Bucks County WSA/Upper Dublin WWTP	43	Municipal Wastewater	Franc Environmental	220,000	M
17110	Telford Borough Authority	43	Municipal Wastewater	Franc Environmental	195,000	M
17111	Beverly Sewerage Authority	43	Municipal Wastewater	TBD	7,000	D
17112	Sunoco Partners Marketing	U	Industrial Wastewater	Wm. P. McGovern	83,333	M
17113	Upper Montclair Joint Authority	43	Municipal Wastewater	TBD	N/A	0
17114	Shiadeo America Inc.	U	Industrial Wastewater	TBD	350,000	Y
17115	Town of Salisbury, DE	43	Municipal Wastewater	Clean Delaware	80,000	Y
17116	APG - Aberdeen Proving	43	Municipal Wastewater	Gallatin	36,000	W
TOTAL						7,530,277

STATUS: (A) = ACTIVE (E) = EXPIRED (X) = TERMINATED (\*) = PERMIT ISSUANCE IN PROGRESS

2nd Quarter 2018 - snf



DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY  
P.O. Box 999 • Chester, PA 19016-0999

October 16, 2018

**CERTIFIED MAIL  
RETURN RECEIPT REQUESTED**

Calvin E. Ligon  
Solid Waste Supervisor  
PA Department of Environmental Protection  
Southeast Regional Office (SERO)  
2 East Main Street  
Norristown, PA 19401

RE: Permit #400246 for Solid Waste Processing Facility  
3<sup>rd</sup> Quarter Report – 2018

Dear Mr. Ligon:

In accordance with the above referenced permit, Section 14G on Page 7 of 9, enclosed is an Amended Appendix to the permit, which lists all residual waste from specific generators accepted for incineration at DELCORA. All required information has been included in this 3<sup>rd</sup> quarter report. All original Form 43 and Form U applications were previously sent to PA DEP.

Please contact me at 610-876-5523, extension 110, if you have any questions.  
Thank you for your attention.

Sincerely,

Robert J. Willert  
Executive Director

RJW:smf  
Enclosure

cc: w/encl. via email  
M. DiSantis, DELCORA  
C. Lenton, DELCORA  
I. Fitzgerald, DELCORA  
I. Piro, DELCORA  
D. Zetusky, DELCORA  
File

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PLANT & MAINTENANCE  
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**DELCORA  
SEWAGE SLUDGE DISPOSAL REPORT - PERMIT #400246  
APPENDIX - 3RD QUARTER 2018**

1ST QTR. (DUE APRIL 30-2ND QTR. (DUE JULY 31) - 3RD QTR. (DUE OCTOBER 31) - 4TH QTR. (DUE JANUARY 31)

PERMIT NUMBER	APPROVAL DATE/STATUS	GENERATOR	WASTE/DESCRIPTION	FORM TYPE	WASTE/DESCRIPTION	WASTE TYPE	WASTE VOLUME (GALLONS)	WASTE TYPE	WASTE VOLUME (GALLONS)
1721	08/30/2021 (A)	Salem Wastewater Treatment Facility	Municipal Wastewater	43	Municipal Wastewater	C&H Disposal	35,000	W	0
1302	08/31/2017 (A)	Cornwall Wastewater Treatment Plant	Municipal Wastewater	43	Municipal Wastewater	Russell Road	25,000	D	0
1839	02/28/2022 (A)	Cort Beverage Inc.	Industrial Waste	U	Industrial Waste	Wm. P. McGovern	38,000	W	0
1405	2/28/2018 (A)	UTZ Quality Foods	Food Processing Waste	U	Food Processing Waste	Spears	100,000	M	0
1405	3/5/2018 (B)	Palmyra Borough NJ WWTP	Municipal Wastewater	43	Municipal Wastewater	Franc Environmental	13,300	W	128,500
1810	04/20/2020 (A)	Sellers Absorbent Medical (Infina Tissue Products)	Latex Rhine Water	U	Municipal Wastewater	Wm. McGovern	12,000	M	32,300
1811	02/28/2020 (A)	Thiham Township	Municipal Wastewater	43	Municipal Wastewater	US Environmental/Wm. McGovern	72,000	M	142,800
1346	08/30/2018 (A)	Concord Twp. Sewer Authority	Municipal Wastewater	43	Municipal Wastewater	Russell Road/US Environmental	12,000	M	11,875
1557	05/30/2020 (A)	McAfee & Allen (Quaker Color Division)	Food Processing Waste	U	Food Processing Waste	Russell Road	18,000	W	118,105
1651	02/28/2020 (A)	Logan Township	Municipal Wastewater	43	Municipal Wastewater	Frankford Cereals	28,000	D	815,851
1552	03/31/2019 (A)	South of Collierville, NJ	Portable Water Treatment	U	Portable Water Treatment	Wm. P. McGovern	5,500	M	13,200
1554	04/25/2019 (A)	West Chester Borough - Goose Creek	Municipal Wastewater	43	Municipal Wastewater	McGovern	120,000	D	1,558,900
1557	08/31/2019 (A)	East Northampton/Wilmington Joint SA	Municipal Wastewater	43	Municipal Wastewater	Franc Environmental	24,000	M	186,000
1559	08/31/2019 (A)	Upper Governor Twp. WWTP (DELCORA as alternative baseline only)	Municipal Wastewater	43	Municipal Wastewater	Franc Environmental	200,000	M	554,000
1570	05/31/2020 (A)	Mannington Milk, Inc.	Process Wastewater	U	Process Wastewater	Wm. McGovern/US Environmental	6,000	W	31,500
1575	02/28/2020 (A)	Cumberland County Utilities Authority	Municipal Wastewater	43	Municipal Wastewater	C&H Disposal	15,000	W	875,250
1583	01/31/2020 (A)	Cinnaminson Sewerage Authority	Municipal Wastewater	43	Municipal Wastewater	Russell Road	75,000	M	0
1584	04/30/2020 (A)	Warrington Municipal Authority	Municipal Wastewater	43	Municipal Wastewater	Wm. McGovern/Posty, Queen	120,000	M	0
1588	08/31/2020 (A)	West Chester Borough - Taylor Run	Municipal Wastewater	43	Municipal Wastewater	McGovern	250,000	M	505,800
1705	3/31/2021 (A)	Volper	Latex Rhine Water	U	Latex Rhine Water	Wm. McGovern/US Environmental	15,000	M	58,750
1791	1/31/2021 (A)	Bridgeton Borough Wastewater Plant	Municipal Wastewater	43	Municipal Wastewater	Franc Environmental	720,000	M	228,700
1482	09/30/2018 (A)	Lower Bucks County Municipal Authority	Water Treatment	U	Water Treatment	Russell Road	25,000	M	0
1557	11/20/2020 (A)	Pennsville Sewerage Authority	Municipal Wastewater	43	Municipal Wastewater	Am-Tex Transport	35,000	W	472,440
1799	05/30/2021 (A)	Puritan Corporation	Food Processing Waste	U	Food Processing Waste	McGovern	6,000	W	0
14100	07/31/2018 (A)	Maryland & Virginia Milk Producers	Food Processing Waste	U	Food Processing Waste	Integrated AgriMedia	50,000	W	0
14101	1/31/2018 (A)	Riverside Water Reclamation Authority	Municipal Wastewater	43	Municipal Wastewater	Capella Services	60,000	W	0
14102	3/31/2019 (A)	Kelly Foods	Food Processing Waste	U	Food Processing Waste	Clark Environmental Svcs.	30,000	W	11,868
15103	12/31/2019 (A)	Jeans PA Wastewater, Inc. - Media WWTP (Lowe Washburn)	Municipal Wastewater	43	Municipal Wastewater	Russell Road	50,000	W	0
15104	01/15/2020 (A)	Cape May County NJA - Cape May Regional WWTP	Municipal Wastewater	43	Municipal Wastewater	TBD	527,278	M	0
15105	04/30/2020 (A)	Cape May County NJA - Ocean City Regional WWTP	Municipal Wastewater	43	Municipal Wastewater	TBD	175,855	M	0
15106	04/30/2020 (A)	Cape May County NJA - Seven Mile Island Middle Regional WWTP	Municipal Wastewater	43	Municipal Wastewater	TBD	351,719	M	0
15107	04/30/2020 (A)	Cape May County NJA - Wildwood (Lower Regional WWTP	Municipal Wastewater	43	Municipal Wastewater	TBD	283,785	M	0
15108	04/30/2020 (A)	Bucks County YSA/Upper Dublin WWTP	Municipal Wastewater	43	Municipal Wastewater	Franc Environmental	220,000	M	334,500
17110	05/30/2021 (A)	Telford Borough Authority	Municipal Wastewater	43	Municipal Wastewater	Franc Environmental	195,000	M	0
17111	07/31/2021 (A)	Beverly Sewerage Authority	Industrial Wastewater	U	Industrial Wastewater	Wm. P. McGovern	7,000	D	54,000
17112	09/30/2021 (A)	Synco Partners Marketing	Industrial Wastewater	U	Industrial Wastewater	TBD	83,800	M	47,550
17113	09/30/2021 (A)	Upper Merioness Joint Authority	Municipal Wastewater	43	Municipal Wastewater	TBD	N/A	Y	0
17114	1/31/2021 (A)	Shades America Inc.	Industrial Wastewater	U	Industrial Wastewater	TBD	350,000	Y	341,500
17115	1/31/2021 (A)	Town of Salisbury, DE	Industrial Wastewater	43	Industrial Wastewater	Clean Delaware	80,000	Y	0
17116	1/31/2022 (A)	APG - Aberdeen Proving	Municipal Wastewater	43	Municipal Wastewater	Galindo	38,000	W	212,400
								TOTAL	7,561,788

STATUS: (A) = ACTIVE (B) = EXPIRED (X) = TERMINATED (\*) = PERMIT ISSUANCE IN PROGRESS  
3rd Quarter 2018 - end



DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY  
P.O. Box 999 • Chester, PA 19016-0999

January 15, 2019

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Calvin E. Ligonis  
Solid Waste Supervisor  
PA Department of Environmental Protection  
Southeast Regional Office (SERO)  
2 East Main Street  
Norristown, PA 19401

RE: Permit #400246 for Solid Waste Processing Facility  
4<sup>th</sup> Quarter Report – 2018

Dear Mr. Ligonis:

In accordance with the above referenced permit, Section 14G on Page 7 of 9, enclosed is an Amended Appendix to the permit, which lists all residual waste from specific generators accepted for incineration at DELCORA. All required information has been included in this 4<sup>th</sup> quarter report. All original Form 43 and Form U applications were previously sent to PA DEP.

Please contact me at 610-876-5523, extension 110, if you have any questions.  
Thank you for your attention.

Sincerely,

Robert J. Willert  
Executive Director

RJW:smf  
Enclosure

cc: w/encl. via email  
M. DiSantis, DELCORA  
C. Lenton, DELCORA  
I. Fitzgerald, DELCORA  
I. Piro, DELCORA  
D. Zetuskys, DELCORA  
File

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PLANT & MAINTENANCE  
☐ 610-876-5523  
☐ FAX: 610-497-7950

DELCORA

SEWAGE SLUDGE DISPOSAL REPORT - PERMIT #400246

APPENDIX - 4TH QUARTER 2018

1ST QTR. (DUE APRIL 30) - 2ND QTR. (DUE JULY 31) - 3RD QTR. (DUE OCTOBER 31) - 4TH QTR. (DUE JANUARY 31)

PERMIT NUMBER	ANNUALITY RECEIPT DATE	GENERATOR	FORM TYPE	WASTE DESCRIPTION	HAULER	DISTRICT M - GENERAL W - SPECIAL Y - OTHER	QUANTITY RECEIVED TONS
1701	05/31/2017 (A)	Salem Wastewater Treatment Facility	43	Municipal Wastewater	C & H Disposal	W	0
1302	09/31/2017 (A)	Catawaura Wastewater Treatment Plant	43	Municipal Wastewater	Russell Reid	D	0
1303	01/31/2018 (A)	Cott Beverage Inc.	U	Industrial Waste	Wm. P. McGovern	W	0
1405	2/28/2018 (A)	UTZ Quality Foods	U	Food Processing Waste	Spectrass	M	0
1406	3/31/2018 (A)	Palmyra Borough NJ WWTP	43	Municipal Wastewater	Franc Environmental	W	89,500
1510	04/30/2020 (A)	Sellers Absorbent Material (Living Textile Products)	U	Latex Rins Water	McGovern, Inc.	M	41,500
1511	02/28/2020 (A)	Tritium Township	43	Municipal Wastewater	US Environmental/McGovern, Inc.	M	168,200
1228	03/31/2017 (A)	Ambler Waste Water Treatment Facility	43	Municipal Wastewater	Franc Environmental	M	0
1546	06/30/2019 (A)	Concord Twp. Sewer Authority	U	Municipal Wastewater	McGovern Environmental	M	338,000
1557	06/30/2020 (A)	McAdoo & Allen (Quaker Color Division)	U	Industrial Waste	Russell Reid/US Environmental	M	11,900
1861	02/28/2020 (A)	Wawa	U	Food Processing Waste	Russell Reid	W	207,875
1552	03/31/2019 (A)	Lozan Township	43	Municipal Wastewater	Russell Reid/Frehold Carcare	D	750,174
1564	09/31/2019 (A)	Borough of Collingswood, NJ	U	Possible Water Treatment	McGovern, Inc.	M	13,800
1567	04/30/2019 (A)	West Chester Borough - Goose Creek	43	Municipal Wastewater	McGovern Environmental, LLC	D	1,221,000
1569	08/31/2019 (A)	East Norriton/Plymouth/Whitpain Joint SA	43	Municipal Wastewater	McGovern Environmental, LLC	M	12,000
1570	05/31/2020 (A)	Upper Gwynedd Twp. WWTP (DELCORA's alternative backup only)	U	Municipal Wastewater	Franc Environmental	M	882,000
1573	02/29/2020 (A)	Manrington Mills, Inc.	U	Process Wastewater	McGovern, Inc./US Environmental	W	15,800
1583	01/31/2020 (A)	Cumberland County Utilities Authority	43	Municipal Wastewater	C&H Disposal	W	858,000
1584	4/30/2020 (A)	Cincinnati Sewerage Authority	43	Municipal Wastewater	Russell Reid	M	39,654
1686	08/31/2020 (A)	Warrminster Municipal Authority	43	Municipal Wastewater	Wm. McGovern/Fordy Queen	M	0
1769	3/31/2021 (A)	West Chester Borough - Taylor Run	43	Municipal Wastewater	McGovern Environmental, LLC	M	500,800
1791	08/30/2017 (A)	Valsoar	U	Latex Rins Water	McGovern Environmental, LLC	M	63,000
1492	08/31/2018 (A)	Bristol Borough Wastewater Plant	43	Municipal Wastewater	Franc Environmental	M	154,514
1597	11/30/2020 (A)	Lower Bucks County Municipal Authority	U	Water Treatment	Russell Reid	M	0
1759	05/31/2017 (A)	Pennsylvania Sewerage Authority	43	Municipal Wastewater	Aqua-Tex Transport	W	408,380
14100	07/31/2018 (A)	Puratos Corporation	U	Food Processing Waste	McGovern	W	0
14101	10/31/2018 (A)	Maryland & Virginia Milk Producers	U	Food Processing Waste	Integrated Agronomics	W	0
14102	01/31/2019 (A)	Riverside Water Reclamation Authority	43	Municipal Wastewater	Coppla Services	W	0
15103	12/31/2019 (A)	Kelly Foods	U	Food Processing Waste	Clark's Environmental Sys.	W	0
15104	01/31/2020 (A)	Aqua PA Waste Water, Inc. - Media WWTP (Little Washington)	43	Municipal Wastewater	Russell Reid	W	50,800



DELCORA  
SEWAGE SLUDGE DISPOSAL REPORT - PERMIT #400246  
APPENDIX - 4TH QUARTER 2018

PERMIT NUMBER	PERMIT EXPIRATION DATE	GENERATOR	FORM TYPE	WASTE DESCRIPTION	HAULER	D = GDSW W = GDSW M = GDSW Y = GDSW	QUANTITY ACCEPTED (GALLONS)
15105	04/30/2020 (A)	Cape May County MUA - Cape May Regional WWTF	43	Municipal Wastewater	TBD	M	0
15106	04/30/2020 (A)	Cape May County MUA - Ocean City Regional WWTF	43	Municipal Wastewater	TBD	M	0
15107	04/30/2020 (A)	Cape May County MUA - Seven Mile Island Middle Regional WWTF	43	Municipal Wastewater	TBD	M	0
15108	04/30/2020 (A)	Cape May County MUA - Wildwood / Lower Regional WWTF	43	Municipal Wastewater	TBD	M	0
15109	12/31/2020 (A)	Bucks County WSA/Upper Dublin WWTP	43	Municipal Wastewater	Franc Environmental	M	218,500
17110	06/30/2021 (A)	Telford Borough Authority	43	Municipal Wastewater	Franc Environmental	M	0
17111	07/31/2021 (A)	Beverly Sewerage Authority	43	Municipal Wastewater	AAI Septic Service	D	74,750
17112	09/30/2021 (A)	Sumco Partners Marketing	U	Industrial Wastewater	McGovern, Inc.	M	0
17113	09/30/2021 (A)	Upper Montgomery Joint Authority	43	Municipal Wastewater	TBD	N/A	0
17114	10/31/2021 (A)	Shiadeo America Inc.	U	Industrial Wastewater	Freehold Carbage	Y	182,002
17115	12/31/2021 (A)	Town of Salisbury, DE	43	Municipal Wastewater	Clean Delaware	Y	149,000
17116	1/31/2022 (A)	APG - Aberdeen Proving	43	Municipal Wastewater	B. Martin/McGovern Environmental, LLC	W	155,100
						TOTAL	6,569,649

STATUS: (A) = ACTIVE (E) = EXPIRED (X) = TERMINATED (\*) = PERMIT ISSUANCE IN PROGRESS  
4th Quarter 2018

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**Attachment 5**

**Hauled Industrial Wastewaters**

Facility	Address	Industry Classification and Description	Permitting Required	Average Gallons Discharged Per Day
A & T Chevrolet (1)	801 Bethlehem Pike Sellersville, PA 18960	Automotive Dealership floor cleaning	No < 25,000 gpd	1,250
ADM (1)	100 Cabot Blvd. Langhorne, PA 19047	Food sweetener wash water	No < 25,000 gpd	4,852
Advance Pierre Foods (IFW)	1585 W Forest Grove Rd. Vineland, NJ 08360	Meat Products Washdown	No < 25,000 gpd	6,551
Air Cruisers (1)	1740 Highway 34 Wall, NJ 07719	Inflatable Products Testing	No < 25,000 gpd	4,358
Air Liquide (1)	Steel Road Fairless Hills, PA 19030	Cooling Tower Wastewater	No < 25,000 gpd	10,000
Alfa Adhesives, Inc. (1)	15 Lincoln St Hawthorne, NJ 07506	Adhesives & Coatings (non-OCPSF)	No < 25,000 gpd	5,000
American Almond (IFW)	9155 River Road Pennsauken, NJ 08110	Nut processing facility washdown water	No < 25,000 gpd	7,567
American Custom Drying (ACD) (1)	109 Elbow Lane Burlington, NJ 08016	Spray Drying of Food Products	No < 25,000 gpd	9,338
AMT Pump Co. (American Machine & Tool) (1)	400 Spring Street Royersford, PA 19468	Pump wash water	No < 25,000 gpd	1,000
Armstrong World Industrial (1)	1067 Dillerville Road Lancaster, PA 17603	Vinyl Flooring Manufacturer	No < 25,000 gpd	4,201
Art Stone (formerly Paul Brothers) (1)	113 Church Street Newfield, NJ 08344	Masonry	No < 25,000 gpd	6,541
Astra Foods (IFW)	6430 Market Street Upper Darby, PA 19082	Food Processing	No < 25,000 gpd	10,799
Atlantic Coast Freezers (IFW)	2192 NW Blvd Vineland, NJ 08360	Frozen Meat Processing Wash water	No < 25,000 gpd	1,357
Automatic Rolls of Baltimore (IFW)	7111 Commercial Ave. Rosedale, MD 21237	Bakery	No < 25,000 gpd	1,000
Bake Rite Rolls (IFW)	2945 Samuel Dr. Bensalem, PA 19020	Bakery Wash water	No < 25,000 gpd	1,000
Barry Callebaut NJ (IFW)	1500 Suckle Highway Pennsauken, NJ 08110	Chocolate Products	No < 25,000 gpd	6,610
Barry Callebaut (IFW)	1500 Suckle Highway Pennsauken, NJ 08110	Chocolate Products	No < 25,000 gpd	17,786
Beef International (IFW)	7010 Central Highway Pennsauken, NJ 08103	Beef Processing Wash water	No < 25,000 gpd	4,117

Facility	Address	Industry Classification and Description	Permitting Required	Average Gallons Discharged Per Day
Bierig Brothers ( I )	3539 Reilly Ct Vineland, NJ 08360	Meat Products Washdown	No < 25,000 gpd	4,053
Bilcare ( I )	1389 School House Road New Castle, DE 19720	Non Contact cooling water From PVC film production	No < 25,000 gpd	2,938
Black Prince Distillery ( IFW )	691 Clifton Ave Clifton, NJ 07011	Blending alcoholic beverages (no distillation) Tank and line flushing wastewater	No < 25,000 gpd	5,257
Bread Partners ( IFW )	2800 Cindel Drive Cinnaminson, NJ 08077	Bakery	No < 25,000 gpd	1,413
Bridgeport Rental & Oil Services (BROS) ( I )	Cedar Swamp Road Bridgeport, NJ 08014	Purging of wells at US EPA CERCLA Site (groundwater tested, non-hazardous)	No < 25,000 gpd	9,214
Bristol-Myers Squibb Spent Cell (Medarex) ( I )	519 Route 173 Bloomsbury, NJ 08804	Research and Development of monoclonal antibodies (wastewater from lab sinks of inactivated cultures of non-human origin)	No < 25,000 gpd	2,000
Burlington County Office of Solid Waste Management	2098 Burlington-Columbus Road Florence, NJ 08518	Sanitary Landfill Leachate	Yes > 25,000 gpd	108,471
Car Sense- Chester Springs	21 Pottstown Pike Chester Springs, PA 19425	Car wash wastewater	No < 25,000 gpd	2,375
Car Sense- Hatfield	2801 Bethlehem Pike Hatfield, PA 19440	Car wash wastewater	No < 25,000 gpd	2,375
Car Sense- Mount Holly	1971 Burlington-Mt. Holly Road Mount Holly, NJ 08060	Car wash wastewater	No < 25,000 gpd	2,375
Cargill Sweeteners ( IFW )	1285 Appleton Road Elkton, MD 21921	Sugar and Syrup Products	No < 25,000 gpd	5,126
CH2M HILL ENGINEERS, INC.	3 Paradise Rd. Paulsboro, NJ 08066	New Construction (pre-operational) Boiler Rinse at Power Plant	No < 25,000 gpd	6,500
Chelton House Products ( IFW )	607 Heron Drive Logan Township, NJ 08085	Food Processing	Yes > 25,000 gpd	16,886
Chester County Solid Waste Authority ( Leachate )	7224 Division Highway Narvon, PA 17555	Sanitary Landfill Leachate	No < 25,000 gpd	12,521
Chester Water Authority Village Green ( I )	4600 Concord Road Aston, PA 19014	Rinse water from a drinking water sediment tank	No < 25,000 gpd	3,772
Church & Dwight Company, Inc. ( I ) ( NJ )	800 Airport Road Lakewood, NJ 08701	Wash water from production line of health care products	No < 25,000 gpd	5,979
Church & Dwight Company, Inc. ( I ) ( PA )	5197 Commerce Drive York, PA 17408	Wash water from production of gummy vitamins	No < 25,000 gpd	6,429
Cintas Uniform (PA) ( I )	1008 Sandmeyer Lane Philadelphia, PA 19116	Industrial Laundry	No < 25,000 gpd	4,750

Facility	Address	Industry Classification and Description	Permitting Required	Average Gallons Discharged Per Day
Citizens Bank Park ( I )	1 Citizens Bank Way Philadelphia, PA 19148	Stormwater Tank Cleaning at Stadium	No < 25,000 gpd	5,267
Citterio USA Corp (IFW)	2008 State Route 940 Freeland, PA 18224	Meat Processing Washdown Water	No < 25,000 gpd	4,550
Clean Delaware LLC	Multiple Truck Washes	Municipal Solid Waste Transport equipment washing	No < 25,000 gpd	5,040
Clean Rental Services Inc. ( I )	4352 North American Street Philadelphia, PA19140	Laundry Wastewater	No < 25,000 gpd	1,528
Clemens Food Group ( IFW )	2700 Clemens Road Hatfield, PA 19440	Hog slaughtering and rendering wastewater	No < 25,000 gpd	9,467
Clement Pappas ( IFW )	1045 Parsonage Road Seabrook, NJ 08302	Juice processing wastewater	No < 25,000 gpd	16,948
Cocoa Services, LLC. ( IFW )	400 Eagle Court Logan Township, NJ 08085	Chocolate Products	No < 25,000 gpd	3,500
Conshohocken Brewery Company (IFW)	739 E Elm St Conshohocken, PA 19428	Brewery Wastewater	No < 25,000 gpd	1,025
Cott Beverage ( IFW )	9 Lacrue Avenue Concordville, PA 19331	Soda Bottling	No < 25,000 gpd	17,989
Covanta Fairfax ( I )	9898 Furnace Road Lorton, VA 22079	Fire Clean Up Water at Office Building	No < 25,000 gpd	9,976
CRW Graphics ( I )	9100 Pennsauken Highway Pennsauken, NJ 08110	Rinsing of printing press equipment and wash sinks	No < 25,000 gpd	2,020
CSC Sugar ( IFW )	2185 High Hill Road Logan Township, NJ 08085	Sugar Water Preparation Process	No < 25,000 gpd	10,844
Cumberland County Improvement Authority (Leachate)	2 N High St Millville, NJ 08332	Sanitary Landfill Leachate	Yes > 25,000 gpd	52,108
Delaware County Solid Waste Authority - Broomall	3 Sussex Boulevard Broomall, PA 19008	Municipal Solid Waste Transfer Station	No < 25,000 gpd	5,023
Delaware County Solid Waste Authority - Chester	2300 Concord Rd Chester, PA 19013	Municipal Solid Waste Transfer Station	No < 25,000 gpd	2,393
Delaware County Solid Waste Authority (Leachate)	583 Longview Road Boyertown, PA 19512	MSW Leachate	Yes > 25,000 gpd	46,821
Delaware River Partners (Repauno Plant)(I)	200 North Repauno Ave Gibbstown, NJ 08027	Groundwater	No < 25,000 gpd	6,771
Dogfish Head Brewery ( IFW )	6 Cannery Village Center Milton, DE 19968	Brewery Wastewater	No < 25,000 gpd	4,067

Facility	Address	Industry Classification and Description	Permitting Required	Average Gallons Discharged Per Day
Dominion Energy Fairless LLC ( I )	50 Energy Center Fairless Hills, PA 19030	Cleaning of turbines/RO membranes at a natural gas power plant (non chemical cleaning)	No < 25,000 gpd	4,126
D'Orazio Foods ( IFW )	960 Creek Rd Bellmawr, NJ 08031	Pasta production water	No < 25,000 gpd	1,000
Eldredge, Inc. ( CI )	898 Fern Hill Road West Chester, PA 19380	Waste Oil Recovery	Yes Categorical (40 CFR 437)	18,156
Enbridge – Texas Eastern transmission Project HDD	1448 Shippack Pike Blue Bell, PA 19422	Hydrostatic test water	No < 25,000 gpd	8,000
Erachem Comilog, Inc ( I )	610 Pittman Road Baltimore, MD 21226	Manganese Refining	No < 25,000 gpd	5,633
ESCO ( I )	2239 High Hill Road Logan, NJ 08085	Aviation Support Concrete and Foam Beds; Wash water from equipment and work areas	No < 25,000 gpd	4,200
Esstech ( I )	48 Powhattan Avenue Essington, PA 19029	Biomedical Technology Manufacturing Polymer Water (non-OCP5F)	No < 25,000 gpd	5,200
Exelon Corporation ( I )	Various Locations	Electrical Conduit Dewatering	No < 25,000 gpd	1,683
Food Processing International ( IFW )	903 Industrial Highway Eddystone, PA 19022	Chocolate Products	No < 25,000 gpd	2,000
Forrest Park Water ( I )	144 Park Ave Chalfont, PA 18914	Drinking Water Plant lagoon	No < 25,000 gpd	12,856
Garelick Farms ( IFW )	600 Cumberland Blvd. Florence, NJ 08518	Dairy Product Wash-down	No < 25,000 gpd	10,976
Gemma Moxie Freedom Generating Project ( I )	237 Mingle Inn Rd Berwick, PA 18603	New Construction (pre-operational) Boiler Rinse at Power Plant	No < 25,000 gpd	12,000
Geo Structures, Inc. ( I )	1000 West 9th Ave King of Prussia, PA 19406	Drilling of a geothermal well	No < 25,000 gpd	5,610
Global Landfill PRP Group ( I )	Ernst Road Old Bridge Township, NJ 08857	Non-Hazardous Leachate from inactive landfill (CERCLA Site)	No < 25,000 gpd	8,070
Gloucester County Improvement Authority (Leachate)	503 Monroeville Rd Swedesboro, NJ 08085	MSW Leachate	No < 25,000 gpd	15,165
GoodWest ( IFW )	48 Quarry Road Douglassville, PA 19518	Dairy Product Washdown	No < 25,000 gpd	3,245
Green Lane Village ( I )	251 Aura Road Mullica Hill, NJ 08062	Meat Products Washdown	No < 25,000 gpd	4,120
H & K Biosols ( I )	1 Quarry Road Douglassville, PA 19518	Storm water from a yard waste composting facility	No < 25,000 gpd	2,000

Facility	Address	Industry Classification and Description	Permitting Required	Average Gallons Discharged Per Day
Hibrett Puratex ( I )	7001 West Field Ave Pennsauken, NJ 08110	Equipment washdown from blending soaps and degreasers	No < 25,000 gpd	11,000
I. Rice ( IFW )	11500 Roosevelt Blvd Philadelphia, PA 19116	Food Product Manufacturing Rinse water from fruit flavoring machines	No < 25,000 gpd	5,604
Independent Transfer Operators (Leachate)	1170 S. Dupont Blvd. Milford, DE 19963	Municipal Solid Waste Transfer Station	No < 25,000 gpd	6,503
Indian River Transport (IFW)	1528 Bristol Pike Bensalem, PA 19020	Expired orange juice	No < 25,000 gpd	5,746
International Paper ( I )	370 Benigno Blvd Bellmawr, NJ 08031	Ink Wash Water	No < 25,000 gpd	3,325
John Middleton ( I )	418 W Church Rd King of Prussia, PA 19406	Water generated from rinsing machinery and lines from the manifesting of flavoring used to flavor tobacco.	No < 25,000 gpd	4,564
Johnson Matthey ( I )	456 Devon Park Drive Wayne, PA 19087	Automotive Parts Manufacturing – Catalytic Converters; Scrubber Wastewater Non Process Water	No < 25,000 gpd	6,209
Junior's Cheesecake ( Commercial HT )	499 Veterans Drive Burlington, NJ 08016	Bakery	No < 25,000 gpd	8,027
Kearny Steel Container ( I )	401 South Street Newark, NJ 07105	Wash water from IBC/Drums containing flavors, food ingredients, fragrances and cosmetics.	No < 25,000 gpd	5,500
Knauss Foods LLC. ( IFW )	625 E Broad St Quakertown, PA 18951	Meat Products Washdown	No < 25,000 gpd	2,133
LaBrea Bakery ( IFW )	11 Technology Drive Bridgeport, NJ 08085	Commercial Bakery	No < 25,000 gpd	3,165
Land Tech Enterprises Inc. ( I )	3084 Bristol Road Warrington, PA 18976	Landscaping Wash water	No < 25,000 gpd	1,250
Lehigh Valley Dairies ( IFW )	880 Allentown Road Lansdale, PA 19446	Off Spec Dairy Wastewater	No < 25,000 gpd	6,907
Leidy's Pork Products ( IFW )	266 W Cherry Ln Souderton, PA 18964	Food Processing	No < 25,000 gpd	6,543
Mid-Atlantic Bakery ( IFW )	2945 Samuel Drive Bensalem, PA 19020	Bakery wash water	No < 25,000 gpd	2,507
Misco Products Corporation ( I )	1048 Stinson Drive Reading, PA 19605	Formulation of various detergents, and janitorial cleansers.	No < 25,000 gpd	5,621
Modern Blending ( I )	2061 Hartel Street Levittown, PA 19057	Adhesives & Coatings (non-OCP5F)	No < 25,000 gpd	5,500
Montgomery Chemical ( I )	901 Conshohocken Road Conshohocken, PA 19428	Manufacturer of Sodium Borohydride- Chemical Plant Wash waters	No < 25,000 gpd	15,161



Facility	Address	Industry Classification and Description	Permitting Required	Average Gallons Discharged Per Day
Mountaire Farms, Inc. ( IFW )	55 Hosier Street Selbyville, DE 19975	Poultry Processing Wastewater	No < 25,000 gpd	11,167
Multi Flow ( IFW )	1434 County Line Rd Huntingdon Valley, PA 19006	Food processing- Fountain Beverages	No < 25,000 gpd	3,059
National Casin ( I )	401 Martha's Lane Riverton, NJ 08077	Industrial Adhesives Kettle Wash Rinse Water-Non OCPSP, SIC code: 2891-441	No < 25,000 gpd	5,956
National Gypsum ( I )	1818 River Road Burlington, NJ 08016	Gypsum Board Manufacturer	No < 25,000 gpd	6,600
NATIONAL REFRIGERATION ( I )	661 Kenyon Ave Bridgeton, NJ 08302	Washdown of refrigeration equipment	No < 25,000 gpd	4,911
Neshaminy Creek Brewing (IFW)	909 Ray Avenue Croydon, PA 19021	Brewery Wastewater	No < 25,000 gpd	6,521
Noodle's Truck Wash ( I )	5 School House Road Carneys Point, NJ 08069	Exterior trucked washing wastewater	No < 25,000 gpd	2,826
Northeast Container Services ( I )	9 Fellows Ave. Hanover Township, PA 18706	Non Hazardous ink process Wash Water	No < 25,000 gpd	6,561
Nutrient AG Solutions ( I )	471 Landis Ave. Bridgeton, NJ 08302	Liquid fertilizer storage	No < 25,000 gpd	3,500
Paver Art, LLC ( I )	2512 Egg Harbor Road Lindenwold, NJ 08021	Wet Cutting of Paver Stones	No < 25,000 gpd	3,011
Penn-Dot (Barnett and Levick St.) ( I )	Barnett and Levick St Philadelphia, PA 19135	Geotechnical Investigation for Highway Expansion	No < 25,000 gpd	18,500
Perdue Farms, Inc. ( IFW )	P.O. Box 1537 Salisbury, MD 21802	Poultry Processing Waste water	No < 25,000 gpd	5,923
Pete's Express Car Wash ( I )	75 Easton Road Warrington, PA 18976	Car Wash Wastewater	No < 25,000 gpd	4,000
Philadelphia Airport (Injector Pit) ( I )	8000 Essington Ave. Philadelphia, PA 19153	Fire Suppression System	No < 25,000 gpd	2,500
Philadelphia Newspapers ( I )	800 River Road Conshohocken, PA 19428	Newspapers Non Hazardous process Wash Water	No < 25,000 gpd	5,415
Phoenix Resources Landfill ( Leachate )	782 Antrim St Wellsboro, PA 16901	Sanitary Landfill Leachate	No < 25,000 gpd	8,573
Polyurethane Specialties Company ( CI )	624 Schuyler Avenue Lyndhurst, NJ 07071	Wastewater from the manufacturing of polyester and polyurethanes	Yes Categorical (40 CFR 414)	6,492
Precision Drilling, Inc. ( Carney's Point ) ( I )	344 Penns Grove Auburn Road Carneys Point, NJ 08069	Polymer used in drilling holes and stabilizing concrete	No < 25,000 gpd	9,400



Facility	Address	Industry Classification and Description	Permitting Required	Average Gallons Discharged Per Day
Precision Drilling, Inc. (1)	277 County Road 519 Stockton, NJ 08559	Polymer used in drilling holes and stabilizing concrete	No < 25,000 gpd	6,740
Precision Drilling, Inc. (Linden NJ) (1)	3711 Tremley Point Road Linden, NJ 07036	Polymer used in drilling holes and stabilizing concrete	No < 25,000 gpd	5,500
Precision Drilling, Inc. (Stockton NJ) (1)	277 County Road 519 Stockton, NJ 08559	Polymer used in drilling holes and stabilizing concrete	No < 25,000 gpd	11,667
PSE&G Audubon Gas District (1)	535 W. Nicholson Road Audubon, NJ 08105	Groundwater	Yes > 25,000 gpd	27,034
PTR Baier (1)	2207 E Ontario St Philadelphia, PA 19134	Trash Compactor Wash Water	No < 25,000 gpd	1,850
Puratos (IFW)	945 Sherman Ave Pennsauken, NJ 08110	Food processor/ bakery	No < 25,000 gpd	20,176
Qualawash Holdings LLC	208 Cedar Swamp Road Bridgeport, NJ 08014	Interior cleaning and decontamination of tank trailers	Yes Categorical (40 CFR 442)	7,068
Quarry Manufacturing Inc. (1)	7 Frontage Rd Clinton, NJ 08809	Wet Cutting of Paver Stones	No < 25,000 gpd	3,000
Rafferty Subaru (1)	4700 West Chester Pike Newtown Square, PA 19073	Car Wash	No < 25,000 gpd	4,000
Ready Pac (IFW)	101 Arlington Blvd Swedesboro, NJ 08085	Fruit and vegetables washing	No < 25,000 gpd	4,994
Republic Services ( Multiple Truck Washes) (1)	Multiple Truck Washes	Municipal Solid Waste Transport equipment washing	No < 25,000 gpd	2,000
Rosey's Car Wash Water (1)	1940 Harris Dr Deptford Township, NJ 08096	Car wash wastewater	No < 25,000 gpd	5,552
Rt. 72 Bridge Project	NJ-72 Stafford Township, NJ 08050	Polymer used in drilling holes and stabilizing concrete	No < 25,000 gpd	2,210
Saint Gobain (1)	210 Harmony Road Mickleton, NJ 05056	Non-Contact Cooling Water	No < 25,000 gpd	2,091
Salem County Improvement Authority	52 McKillip Road Alloway, NJ 08001	Sanitary Landfill Leachate	Yes > 25,000 gpd	76,245
Salem Meats (IFW)	705 Quanton Rd Salem, NJ 08079	Meat Products Washdown	No < 25,000 gpd	10,300
Shiseido - Perfume Rinsate (1)	366 Princeton-Hightstown Road East Windsor, NJ 08520	Perfume Reinstatement; Cosmetics Rinse Water	No < 25,000 gpd	8,196
Sika Corporation (1)	150 Ben Fairless Drive Fairless Hills, PA 19030	Water generated from the rinse out of bulk trailer compartments during lignin concrete additive manufacturing.	No < 25,000 gpd	9,463

Facility	Address	Industry Classification and Description	Permitting Required	Average Gallons Discharged Per Day
Silver Springs Farm Inc. ( IFW )	640 Meetinghouse Road Harleysville, PA 19438	Meat Products Washdown	No < 25,000 gpd	1,500
Specialty Industries ( 1 )	175 East Walnut Street Red Lion, PA 17356	Ink Plate and nozzle wash water at corrugated product manufacturing facility.	No < 25,000 gpd	4,837
Summit Research Labs Inc. ( 1 )	15 Big Pond Road Huguenot, NY 12746	Production of antiperspirant salts	No < 25,000 gpd	7,238
Sustainable Decarbonization Services LLC. (IFW)	267 Jefferson Street Camden, NJ 08104	Beverage Residual Wastewater	Yes > 25,000 gpd	18,430
TastyKake ( IFW )	2801 W. Hunting Park Avenue Philadelphia, PA 19129	Cake Baking Equipment Wash Down	No < 25,000 gpd	5,252
Tate & Lyle ( IFW )	E Post Rd Morrisville, PA 19067	Sugar Processing wash water	No < 25,000 gpd	9,218
Tavo Packaging ( 1 )	2 Canal Road Fairless Hills, PA 19030	Ink Wash water	No < 25,000 gpd	5,951
Taylor Farms (formerly Unileg) ( IFW )	406 Heron Drive Swedesboro, NJ 08085	Food processing	No < 25,000 gpd	4,097
Trane Company ( 1 )	2231 East State Street Trenton, NJ 08619	Air Conditioning & Refrigeration Equipment	No < 25,000 gpd	7,453
TRC Companies, Inc. ( 1 )	2904 South Delaware Ave Philadelphia, PA 19148	Groundwater generated from construction	No < 25,000 gpd	2,738
Uptown Bakeries ( IFW )	300 Eagle Ct Logan Township, NJ 08085	Bakery	No < 25,000 gpd	8,034
USEPA Region II Kiltone Superfund Site OU-1 ( 1 )	511 Paul Street Vineland, NJ 08360	Rainwater collection	No < 25,000 gpd	18,000
Wakefern ( 1 )	8301 Industrial Blvd Breinigsville, PA 18031	Food storage warehouse floor wash water.	No < 25,000 gpd	1,438
Wallquest, Inc. ( 1 )	465 Devon Park Drive Wayne, PA 19087	Wallpaper manufacturing	No < 25,000 gpd	8,648
Waste Management (Multiple Truck Washes) ( 1 )	Multiple Truck Washes	Municipal Solid Waste Transfer Station	No < 25,000 gpd	2,506
Waste Management Fairless Hills ( Leachate )	Old Bordentown Road & Steel Road South Morrisville, PA 19067	MSW Leachate	Yes > 25,000 gpd	37,533
Waste Management Grand Central (Leachate)	910 West Pennsylvania Avenue Pen Argyl, PA 18072	MSW Leachate	No < 25,000 gpd	5,782
Waste Management Grows ( Leachate )	1513 Bordentown Rd Morrisville, PA 19067	Sanitary Landfill Leachate	Yes > 25,000 gpd	19,377

Facility	Address	Industry Classification and Description	Permitting Required	Average Gallons Discharged Per Day
Waste Management Grows Crystal ( I )	1513 Bordentown Rd Morrisville, PA 19067	Sanitary Landfill Leachate Treatment R.O. reject	Yes > 25,000 gpd	11,370
Waste Management Grows-North (Leachate)	1400 Bordentown Rd Morrisville, PA 19067	Sanitary Landfill Leachate	Yes > 25,000 gpd	13,677
Waste Management Hayes Blvd. ( I )	1224 Hayes Blvd Bristol, PA 19007	Exterior trucked washing wastewater	No < 25,000 gpd	2,550
Waste Management Tullytown ( Leachate )	200 Bordentown Rd Tullytown, PA 19007	Sanitary Landfill Leachate	Yes > 25,000 gpd	34,104
Wawa Dairy - Expired Products ( IFW )	1393 W. Baltimore Pike Wawa, PA 19063	Off Spec Dairy Wastewater	No < 25,000 gpd	4,792
White Dog Lab ( I )	239 Lisa Drive New Castle, DE 19720	Corn Meal Waste	No < 25,000 gpd	4,950
Wilmad Glass ( I )	1002 Harding Highway Buena, NJ 08310	Glass rinse water	No < 25,000 gpd	3,155
World Flavors ( IFW )	76 Louise Drive Ivyland, PA 18974	Food processing	No < 25,000 gpd	2,500
Y&S Candies (IFW)	400 Running Pump Rd Lancaster, PA 17063	Candy processing equipment wash-down	No < 25,000 gpd	10,953
Yards Brewing Company ( IFW )	500 Spring Garden St. Philadelphia, PA 19123	Brewery	No < 25,000 gpd	3,038
Zentis U.S.A. (formerly Sweet Ovations) (IFW)	1741 Tomlinson Road Philadelphia, PA 19116	Desserts, Frozen Dairy, Sweet Beverages	No < 25,000 gpd	6,642

## **Attachment 6**

### **Records of Received Septage, Grease, and Residual Waste**



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Categorical Trucked Waste</b>													
Duplicate Manifest								891,127	12,000				1,802,763
Eldredge, Inc. ( CI )	141,500	329,826	252,200	197,800	575,836	1,032,731	295,350	297,523	382,837	571,611	612,450	413,900	5,083,564
Polyurethane Specialties Company ( CI )	78,000	64,800	71,500	77,800	64,800	57,000	64,000	57,900	51,600	64,600	64,400	49,700	766,100
Qualawash Holdings LLC											107,402	111,700	219,102
<b>Categorical Trucked Waste</b>	<b>219,500</b>	<b>394,626</b>	<b>323,700</b>	<b>275,600</b>	<b>640,636</b>	<b>1,138,797</b>	<b>1,009,920</b>	<b>1,246,550</b>	<b>426,437</b>	<b>636,211</b>	<b>784,252</b>	<b>575,300</b>	<b>7,671,529</b>
<b>Domestic Septic Tank / Cesspool</b>													
A & L Septic Service	34,950	3,500	37,200	39,750	51,300	69,100	51,000	31,700	30,000	53,300	43,700	12,950	458,450
A-1 Sanitation Services, Inc.	34,000	206,100	294,000	282,500	312,500	343,500	231,000	280,500	306,000	297,000	206,500	228,000	3,021,600
A-Action Plumbing				7,700	3,800		12,000	7,100	3,400	180	7,700	3,502	45,382
Ace Disposal	7,250	17,650	19,900	15,300	8,750	10,900	7,150	7,100	1,100	1,500	3,000	7,000	106,600
AQUA-TEX TRANSPORT, INC.													5,460
Arrow Leasing Corporation	79,800	113,800	128,530	173,950	144,250	152,000	141,910	136,150	116,130	126,500	115,600	122,800	1,551,220
Associated Products Service					1,000		3,400				9,500		3,400
B. Martin Wastewater	1,500	18,860	19,600										50,460
Brandywine Septic Wastewater Generation	2,000	1,000		1,800									4,800
Christman's Septic Service													14,200
Clean Delaware LLC.	119,500		16,000					14,200	50,000	73,100	20,200	4,800	332,400
Copperhead Custom, Inc.				750		2,800				1,500			5,050
Delaware Valley Septics LLC	15,000	6,000	9,000					4,000			4,000	3,000	41,000
Eldredge Sanitation (Steve Eldredge)	41,800	42,600	57,450	70,358	50,250	41,950	75,260	82,550	92,570	70,300	75,250	65,470	765,808
English Sewage Disposal, Inc.	17,600	12,540	30,400	36,650	15,700	22,000	15,000	8,400	13,200	4,400	30,496	12,160	218,546
Franc Environmental, Inc.	20,825	24,700	22,200	5,500	28,300	38,508	29,600	47,700	49,900	21,750	10,000	15,000	313,983
Gallagher, J. Septic & Wastewater	11,200	8,800	2,500	3,800	7,750	12,000	7,500	4,000					57,550
George Allen Wastewater, Inc.								4,000			4,000		8,000
Gray Brothers, Inc./Somax Environmental	37,050	15,250	24,450	15,750	27,500	30,838	23,600	30,350	15,920	18,600	12,600	12,500	264,408
Hepaco, LLC.									2,150				2,150
Hickman Sanitation Service, LLC.	26,900	46,800	50,200	58,350	75,650	49,054	38,250	62,200	29,700	42,050	19,300	43,450	541,944
HydroTech Environmental, LLC				2,000			2,000				2,000		6,000
KBX Golden, LLC.													2,500
Koberlein, Inc.						4,500							4,500
Kristman, C.M. Sanitation	17,000	23,000	15,750	13,000	27,000	33,000	20,000	38,550	9,000	23,250	35,250	12,450	267,250



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Domestic Septic Tank / Cesspool</b>													
Manny's Septic Service	1,200			2,000	1,500	4,500							9,200
McGovern Environmental, LLC.	23,250	29,955	57,750	58,580	39,500	39,150	29,350	33,000	28,800	3,750	27,450	20,700	391,235
McGovern, Inc.	47,350	30,000	32,850	20,250	33,250	26,000	67,710	133,550	52,800	23,200	38,300	17,600	522,860
MOBILE DREDGING					3,000								3,000
On-Site Management, Inc.	27,357	13,733	3,300	15,733	16,253	10,399	12,700	13,500	13,500	3,000	19,747	11,000	160,222
Packard Environmental Services, LLC.		3,200	8,800	3,200	1,800	3,200		6,800					27,000
Peco Manholes (ST/HT)	12,000	3,000	35,250		70	27,300				3,700	360	6,198	87,878
Philip Environmental Services (PSC)				300									300
Pierson & Son, J.R., Inc.					3,500	2,000					3,150		8,650
Potty Queen/United Site Services	1,800			2,500	11,500		9,500				2,000	1,000	28,100
Precision Sewer Services, LLC.	2,450	9,800	7,400	5,600	10,400	400		900	750	900	400	1,500	40,500
PreDoc, Inc	3,900	11,500	26,500	16,000	20,000	16,001	38,000	23,000	12,000	31,500	22,500	27,000	247,901
Preston Heckler Liquid Disposal LLC.						1,500			1,000			1,000	3,500
Queen Bee Septic, LLC.	27,000	28,000	22,500	36,000	7,200		15,000	18,500	19,500	37,000	25,500	19,000	255,200
Rosey's Tank Cleaning	47,300	37,850	40,050	35,756	58,744	63,550	82,450	49,785	35,900	53,130	35,800	33,400	573,715
Russell Reid Wastewater Management	82,450	56,050	114,650	109,404	108,545	146,687	117,876	65,450	117,875	117,466	75,653	93,325	1,205,651
Sawyer's Sanitation Services, Inc.	30,000	5,000	92,500	9,500	68,000	85,000	5,000		38,500	130,800	50,000	84,000	598,300
Starr General Contracting Corporation	28,000	6,250	23,750	27,500	4,500	15,750		1,500	3,500	500	7,750	6,750	120,250
TLC Drain & Sewer	5,750	1,500	3,000	1,500	2,000	3,500					2,000		24,750
Tri-State Landscaping	53,250	72,000	85,750	81,500	113,750	101,000	114,500	89,450	70,500	121,750	99,000	54,250	1,056,700
UPS ( Septic )									1,800				1,800
Wawa Stores (ST)	4,600	6,500	2,656	4,000	11,100	45,500	76,851	104,077	37,698	17,393	15,913	13,370	339,658
Web Hauling						3,500							3,500
<b>Domestic Septic Tank / Cesspool</b>	<b>863,832</b>	<b>854,938</b>	<b>1,283,886</b>	<b>1,156,481</b>	<b>1,268,362</b>	<b>1,401,587</b>	<b>1,230,107</b>	<b>1,346,812</b>	<b>1,153,193</b>	<b>1,292,499</b>	<b>1,015,319</b>	<b>935,515</b>	<b>13,802,531</b>
<b>Domestic Wastewater Treatment Plant (Form 43)</b>													
Aberdeen Proving Grounds WWTP (Form 43)	60,000	60,000		60,000	24,000	93,500	57,000	45,300	110,100	37,600	62,300	56,200	666,000
Aqua WWTP - Media Borough ( Form 43 )			31,400									60,800	92,200
Beverly Sewerage Authority (Form 43)		26,000	26,000	24,000	41,250	28,000	26,000	7,000	21,000	40,000	23,250	11,500	274,000
Bristol Borough ( Form 43 )	57,500	55,500	28,500	74,500	73,500	131,500	65,700	72,000	91,000	24,000	68,514	72,000	814,214
Cinnaminson Sewage Authority ( Form 43 )	19,700									13,000	23,654		56,354
Concord Township SA ( Form 43 )	115,500	122,900	155,900	119,400	129,600	129,400	127,000	148,800	128,100	97,500	162,100	128,400	1,564,600





## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Domestic Wastewater Treatment Plant (Form 43)</b>													
Cumberland County Utilities Authority (Form 43)	99,000	188,500	250,000	335,000	165,000	190,507	146,750	313,000	215,500	225,000	379,000	252,000	2,755,257
East Norriton-Plymouth-Whitpain JSA (Form 43)	313,500	162,000	60,000	36,000	36,500	66,000	72,000	66,000	48,000	6,000	6,000	6,000	872,000
Goose Creek WWTP (Form 43)	275,500	139,900	227,600	348,000	965,000	965,000	611,800	494,300	452,800	462,300	431,300	327,400	4,736,300
Logan Township Municipal Authority (Form 43)	392,868	339,732	440,918	371,200	440,122	308,057	284,850	288,035	242,636	283,030	225,587	241,557	3,858,592
Palmyra Borough (Form 43)	52,000	58,000	19,000	6,500	28,000	28,000	19,500	45,000	44,000	6,500	24,500	58,500	359,500
Pennsville Sewage Authority (Form 43)	135,980	121,070	160,860	176,520	124,900	141,580	143,420	131,620	148,400	122,380	143,100	141,400	1,691,230
Taylor Run (Form 43)	150,000	144,000	132,000	198,500	222,000	180,000	168,000	270,800	168,000	234,000	185,600	180,000	2,233,900
Telford Borough Authority (Form 43)	199,500	95,000	99,000	224,000	94,300	60,600	50,200	39,200	53,400	70,700	58,700	38,800	617,500
Tinicum Township (Form 43)	55,500	27,000	7,000	31,000	94,300	60,600	50,200	39,200	53,400	70,700	58,700	38,800	586,400
Town of Selbyville (Form 43)	357,739	256,200	128,000	122,500	97,500	103,500	103,000	135,000	96,500	51,000	70,000	97,500	890,939
Upper Dublin WWTP (Form 43)	110,000	96,500	13,000	122,500	97,500	103,500	103,000	135,000	96,500	51,000	70,000	97,500	1,096,000
Upper Gwynedd Sludge (Form 43)	356,000	271,500	117,000	320,000	273,000	362,500	324,000	338,000	292,000	136,500	263,000	292,500	3,336,000
<b>Domestic Wastewater Treatment Plant (Form 43)</b>	<b>2,750,687</b>	<b>2,163,802</b>	<b>1,896,178</b>	<b>2,447,120</b>	<b>1,721,672</b>	<b>2,786,144</b>	<b>2,199,220</b>	<b>2,394,055</b>	<b>2,111,436</b>	<b>1,946,510</b>	<b>2,099,951</b>	<b>1,988,211</b>	<b>25,504,986</b>
<b>Domestic-Holding Tank</b>													
A & L Septic Service				4,500									4,500
A-1 Sanitation Services, Inc.	46,000	229,000	160,500	183,500	178,000	112,500	136,000	101,000	72,000	77,000	31,000	41,000	1,367,500
A-Action Plumbing		2,000											2,000
Ace Disposal	15,500	17,700	15,000	25,800	20,050	24,000	16,750	12,500	22,800	13,000	16,000	19,500	218,600
AQUA-TEX TRANSPORT, INC.	17,920	405	1,770								5,110		25,205
Arrow Leasing Corporation	22,000	9,000		12,000	16,000	10,000	11,500	4,500	18,000	16,000	30,000	33,000	182,000
B. Martin Wastewater	43,300	54,700	104,700	86,000	72,500	74,200	35,000	32,700	27,500	38,500	60,250	59,500	688,850
Bentley Homes (HT)						8,000		4,000		4,000			16,000
Brandywine Septic Service	139,800	132,000	115,750	255,500	265,158	178,900	222,700	250,750	220,000	251,850	276,100	186,300	2,494,808
Brandywine Septic Wastewater Generation	33,179	31,700	38,915	34,500	42,700	12,200	2,000	1,000	1,500	16,500	15,800	700	230,694
C & H Disposal Service, Inc.	35,800	29,000	30,000	6,000	102,000	156,000	144,000	113,000	54,000	132,000	114,000	101,500	1,017,300
Christman's Septic Service								4,200					4,200
Clean Delaware LLC.			6,000		2,200			2,200					8,200
Coast to Coast International Marine Services	16,800	21,000	42,825	17,800	27,000	27,400	22,680	23,900	11,996	13,412	10,000	16,798	251,621
Copperhead Custom, Inc.	1,000				3,000							50	1,050
Delaware County Solid Waste Authority - Chesl													3,000
Delaware Valley Septics LLC	12,000	15,000	17,000	36,500	21,000	28,500	33,500	55,750	36,250	26,000	37,300	28,200	347,000



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Domestic-Holding Tank</b>													
Eldredge Sanitation (Steve Eldredge)								5,800			1,800	6,300	26,500
English Sewage Disposal, Inc.	3,000		4,000	4,000	12,800		4,200	2,500		7,360			33,660
Franc Environmental, Inc.	41,350	29,575	20,600	25,250	50,848	65,650	28,300	45,000	39,000	26,500	28,025	28,875	428,973
Gallagher, J. Septic & Wastewater			4,000						4,000		4,000		12,000
Garelick Farms ( HT )	18,961	41,494	41,844	42,700	12,688	29,077	1,000	53,715	82,301	13,465	25,073	11,857	374,175
George Allen Wastewater, Inc.	2,500	4,000	20,400	30,000	22,000	39,800	27,500	31,500	46,000	35,000	27,500	19,000	305,200
Gray Brothers, Inc./Somax Environmental	3,000					1,000			500	1,000		500	6,000
Hepaco, LLC.					1,000						3,200		4,200
Hickman Sanitation Service, LLC.				2,000		1,800		1,900		400		1,250	7,350
Hong Kong Pearl	2,000	3,000	2,000	1,500	1,500	1,500	1,500	1,500		1,500	1,500		20,500
HydroTech Environmental, LLC	32,500	181,500	130,000	13,000	160,500	370,500	799,000	648,000	214,000	221,000	273,000	253,500	3,296,500
JG Environmental, LLC.								4,800					4,800
Jimmy Johns ( HT )	5,000						187,900	206,500	177,550	248,719	215,000	178,000	1,213,669
Junior's Cheesecake ( Commercial HT )													
KBX Golden, LLC.												14,600	14,600
Kristman, C.M. Sanitation								4,000					4,000
Manny's Septic Service	59,800	61,000	66,900	53,100	47,100	77,800	43,700	64,950	62,300	60,350	73,400	50,000	720,400
McGovern Environmental, LLC.	113,180	46,450	89,350	93,050	82,050	27,150	30,800	28,680	38,080	97,980	64,875	53,300	764,945
McGovern, Inc.	360,840	245,140	245,210	328,380	355,550	228,530	222,415	179,030	211,860	207,210	284,930	257,810	3,126,905
New Garden Township ( HT )	24,500	33,600	25,200	38,000	23,200	19,500	23,600	26,700	44,900	84,500	90,800	212,350	648,850
On-Site Management, Inc.	18,626	13,370	13,378	13,908	16,298	13,038	13,876	18,894	18,000	9,800	10,000	3,700	162,888
Packard Environmental Services, LLC.	68,000	34,800	18,800	20,600	27,800	29,500	40,000	17,300	10,000	12,800	28,600	37,700	345,900
Peco Manholes (ST/HT)									4,500	3,000			7,500
Philip Environmental Services (PSC)	10,150	17,250	14,595	13,125	24,300	11,321	9,700	11,840	50,256	29,000	24,400	24,600	240,537
Potty Queen/United Site Services	53,000	26,200	22,700	38,410	117,200	13,000	10,750	10,500	9,700	1,225	13,000	4,000	319,885
Precision Sewer Services, LLC.	1,450	4,078	2,500	2,275	10,200	10,180		700	1,300	250		500	33,433
PreDoc, Inc									4,000				4,000
Preston Heckler Liquid Disposal LLC.	500	500	500	500	500	500	500	500	1,500	500	2,500	500	9,000
Quantum Environmental Enterprise, Inc.				1,500									1,500
Queen Bee Septic, LLC.	16,000	45,900	146,400	8,500	4,000	13,700	52,400	24,800	15,400	17,000	18,000	26,700	388,800
Rosey's Tank Cleaning				1,700	4,000						3,000		8,700
Rt. 72 Bridge Project				2,750									2,750
Russell Reid Wastewater Management	123,603	114,788	84,298	111,750	141,225	137,659	161,953	268,451	257,801	405,179	467,942	297,787	2,572,436
Tri-State Landscaping		3,000	3,000										6,000





## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Domestic-Holding Tank</b>													
US Environmental, Inc.	3,900		5,100		—			1,500	1,800		1,000	3,558	10,000
Verizon Manholes (HT)											6,402		13,260
Vincent Giordano ( GR )	4,500	3,000	3,600	8,000			2,000						19,100
Warren County MUA								8,600	5,000	16,500	5,000	11,500	2,000
Washington Crossing ( HT )			10,000	15,000	13,600	19,400	27,700						132,300
Wawa Stores ( HT )	256,600	219,738	277,521	249,321	267,150	288,900	385,586	379,077	308,828	346,162	224,790	236,853	3,441,526
<b>Domestic-Holding Tank</b>	<b>1,606,259</b>	<b>1,669,888</b>	<b>1,784,356</b>	<b>1,780,419</b>	<b>2,142,917</b>	<b>2,041,605</b>	<b>2,697,520</b>	<b>2,652,237</b>	<b>2,074,122</b>	<b>2,434,662</b>	<b>2,493,297</b>	<b>2,222,788</b>	<b>25,600,070</b>
<b>Grease (Food / Restaurant)</b>													
A & L Septic Service	17,000	15,000	12,500	9,500	13,000		3,000	16,750	4,500	10,200	18,000		119,450
A-1 Sanitation Services, Inc.	3,000	4,000											7,000
A-Action Plumbing		7,900	9,900	17,000	21,100	15,400	24,100	7,300	14,400	18,000	16,400	21,100	171,700
Ace Disposal	11,700	18,350	17,700	6,750	12,450	22,225	13,300	20,300	16,700	10,750	10,600	16,400	177,225
Amick Farms ( G )	8,974	64,051											73,025
Arrow Leasing Corporation	15,530	16,050	32,500	20,700	24,000	23,000	15,200	5,000	13,500	11,200			176,680
Associated Products Service							3,400	20,700					24,100
B. Martin Wastewater		1,000		2,000								1,500	4,500
Banana Puree (G)										2,715			2,715
Beef International ( IFW )				1,000									1,000
Brandywine Septic Wastewater Generation			1,000		2,000					4,200			7,200
Clark Services Group, LLC.	1,400	2,653		600	2,727	1,795	1,172	2,800	650	1,047	5,125		19,969
Clark's Environmental Services, LLC.					11,843								11,843
Clean Delaware LLC.	3,500					6,500	4,800		14,850				29,650
Clemens Food Group ( G )		30,200				3,000					2,500	5,000	33,200
Copperhead Custom, Inc.		1,500		500		5,000	14,000			1,500			30,000
CRODA, INC.	80,750	73,989		137,300	53,010	40,095	50,318	69,000	45,300	56,870	60,078	52,400	719,110
Delaware Valley Septics LLC		500						1,000			1,000		2,500
EatEm Foods ( G )				32,000				36,000		20,000	8,000		96,000
EcoTek, LLC	4,775	5,200	5,800	7,620	6,120	6,500	2,460	1,200	3,600	7,200	4,200	4,800	59,475
Eden Green Energy	8,250	7,200	11,000	8,350	12,450	13,800	14,950	13,200	4,900	10,300	13,500	10,500	128,400
Eldredge Sanitation (Steve Eldredge)	800	150	150	1,250	300	1,150	990	—	230	500	50	1,080	6,900
Eldredge, Inc.		12,450			7,200	5,200		13,200				13,300	51,350



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
Grease (Food / Restaurant)								3,360					3,360
English Sewage Disposal, Inc.	141,550	73,485	17,500	11,000	39,976	60,950	58,528	52,067	21,250	28,300	34,350	32,100	571,056
Franc Environmental, Inc.		4,000	3,200	3,800	3,200	4,000	3,300	4,000	3,000	6,950	3,500	3,900	42,850
Gallagher, J. Septic & Wastewater													
George Allen Wastewater, Inc.	1,500		8,500	28,500	18,000	11,700	17,500	4,000	8,800	5,000	6,000	13,500	123,000
Gray Brothers, Inc./SOMAX Environmental	26,500	14,250	26,475	16,550	43,750	28,000	35,100	46,800	40,400	56,850	54,350	45,600	434,625
GTO Services	57,900	45,600	50,000	60,650	64,250	56,550	60,500	66,300	56,800	69,180	60,250	52,470	700,450
Henning's Market			1,100			1,100			1,100			1,100	4,400
Honeydipper Septic Services	22,900	26,050	14,000	4,750	27,870	18,550	13,050	33,600	18,100	22,600	18,650	26,030	246,150
Hong Kong Pearl	400	1,000	500	1,000	1,000	400	1,000	1,000	1,000	1,000	1,000	1,000	10,300
Hydro Man, Inc.	580	100	200	325	400	400	360	200	200	490	340		3,595
HydroTech Environmental, LLC						15		500					515
J&M Warrell Inc.	2,950	1,500	1,800	2,200	1,400		700	1,600	1,100	1,800	700	400	16,150
JG Environmental, LLC.	10,000		11,500	5,545					3,500				30,546
KFC ( Grease )				8,000				4,000					
Klines Services	131,790	147,580	204,745		474,480	247,585	250,845	167,320	183,585	172,345	118,610	159,560	2,288,445
Koberlein, Inc.	4,500	9,000		8,500	4,500	9,000	9,000	4,500	4,500				53,500
Liquid Environmental Solutions	94,073	114,701	113,739	73,758	100,872	112,137	111,637	78,300	68,903	66,590	99,811	89,287	1,123,808
Manny's Septic Service	8,400	3,600	8,450	5,150	6,550	8,750	6,100	6,900	8,300	6,650	7,900	8,450	85,200
McGovern Environmental, LLC.				146,635				109,025	86,115	127,980	115,475	90,565	675,795
McGovern, Inc.	416,250	511,680	438,840	167,100	506,840	486,996	416,695	328,770	294,635	303,155	244,780	234,080	4,349,821
Mrs. Ressler's Foods (Grease)				5,500				8,000		2,500	8,000	6,000	30,000
On-Site Management, Inc.	3,000	7,775	7,565	1,000	3,710	2,000	5,000	5,000	3,500	8,000	5,000	5,000	56,550
Pepperidge Farm Inc (G)		700			500	2,250		3,000					6,450
Perdue Farms, Inc. (Grease)		58,035	28,868	23,530	16,874	23,383	29,379	23,594	23,150	29,254	24,163	29,057	309,288
Precision Sewer Services, LLC.	600	1,600	600	200		500	1,800	2,000	370		720	500	8,890
PreDoc, Inc		5,000		8,000			10,000			4,000	4,000	4,000	35,000
Preston Heckler Liquid Disposal LLC.	7,500	9,500	8,000	6,000	6,000	9,500	6,000	6,000	7,500	8,000	7,500	9,250	90,750
Residuals Management Services, Inc.	42,500	21,500	55,000	50,100	28,420	21,000	7,000	14,600	21,500	7,000	14,000	7,000	289,620
Rosey's Tank Cleaning	25,500	40,600	61,050	53,766	85,330	88,700	88,400	209,850	143,300	151,000	166,050	119,400	1,231,946
Russell Reid Wastewater Management	463,521	364,319	404,997	260,692	752,957	528,737	386,296	294,074	390,350	408,616	323,494	225,365	4,803,418
Simmons Pet Foods ( Formerly Menu Foods) ( (				100,794				95,802		97,063	62,444	78,403	434,506
Starr General Contracting Corporation	14,000	20,750	7,000									12,550	54,300
Tel-Hai ( GR )												4,000	4,000
TLC Drain & Sewer	19,000	13,575	18,600	11,000	15,800	7,500	34,500	9,500	31,000	23,000	58,000	26,500	267,975



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Grease (Food / Restaurant)</b>													
Tri-State Landscaping										3,000			3,000
Valley Protein	66,500	62,350	66,500	72,190	52,725	51,330	73,500	66,050	63,000	71,500	61,000	50,000	756,645
Vincent Giordano ( GR )								4,500			4,000	3,000	11,500
Waste Oil Recyclers, Inc. ( Grease )								13,300		13,000	19,000	32,000	77,300
Wawa Stores (GR)	10			4,250				43,900		17,250	3,500		68,910
Web Hauling	3,500	3,500	5,000	10,000		3,500	5,000		10,000	5,000		5,000	50,500
<b>Grease (Food / Restaurant)</b>	<b>1,720,603</b>	<b>1,821,043</b>	<b>1,654,280</b>	<b>1,395,056</b>	<b>2,421,604</b>	<b>1,928,198</b>	<b>1,778,880</b>	<b>1,918,112</b>	<b>1,613,588</b>	<b>1,889,805</b>	<b>1,676,290</b>	<b>1,506,647</b>	<b>21,324,106</b>
<b>Industrial Food Waste</b>													
Advance Piere Foods ( IFW )	155,900	86,700	38,800	35,800	39,300	60,000	45,300	45,000	41,100	39,000	38,500	69,000	694,400
American Almond (IFW)	174,600	157,800	124,800	127,300	185,400	173,400	137,700	175,900	143,800	163,100	109,300	82,500	1,755,600
Astra Foods ( IFW )	92,700	79,100	84,600	77,700	92,400	87,100	95,500	107,300	116,000	205,600	207,600	201,400	1,447,000
Atlantic Coast Freezers ( IFW )			1,300		1,200	1,200		1,600	1,500	1,000	1,700		9,500
Automatic Rolls of Baltimore (IFW)												1,000	1,000
Bake Rite Rolls ( IFW )	1,000												1,000
Barry Callebaut NJ ( IFW )	38,500	26,800	31,400	45,200	20,300	32,800	25,100	40,100	26,300	26,300	31,800	38,800	383,400
Barry Callebaut ( IFW )	204,900	174,400	193,600	200,000	255,200	254,800	265,000	301,600	220,700	321,800	260,500	228,800	2,881,300
Beef International ( IFW )	11,000	7,000	9,500	9,500	27,600	14,500	16,100	16,100	13,000	17,500	15,100	16,000	172,900
Black Prince Distillery ( IFW )	6,300		6,000			5,500		5,500	7,500		6,000		36,800
Bread Partners ( IFW )		1,200	1,200		2,000				1,250				5,650
Cargill Sweeteners ( IFW )	23,500	17,900	23,500	20,100	33,800	18,800	20,700	29,300	20,500	26,500	38,100	19,500	292,200
Chelton House Products ( IFW )	380,000	183,500	97,500	214,000	304,500	169,000	253,400	253,500	247,000	286,000	214,500	149,500	2,752,400
Citterio USA Corp (IFW)										4,550			4,550
Clemens Food Group ( IFW )	12,000	33,300				1,000		6,500		4,000			56,800
Clement Pappas ( IFW )									103,800	396,600	426,422	107,000	1,033,822
Cocoa Services, LLC. ( IFW )			3,500	3,000						4,000			10,500
Conshohocken Brewery Company (IFW)	3,300	3,750	5,000	5,525	4,000	3,975	3,037	4,100	4,300	5,025	4,000	4,200	50,212
Cott Beverage ( IFW )	709,600	564,200	370,800	113,200	87,300	48,300	75,800	88,900	132,900	160,800	117,700	120,900	2,590,400
CSC Sugar ( IFW )	57,762	87,667	101,636	84,440	68,679	94,006	77,033	118,895	253,567	349,794	442,667	345,671	2,082,117
D'Orazio Foods ( IFW )	1,000	3,000	1,000	3,000	1,000	2,000	2,000	3,000	2,000	3,000	3,000	2,000	26,000
Dogfish Head Brewery ( IFW )								4,000	4,200		4,000		12,200
Food Processing International ( IFW )										2,000			2,000



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Industrial Food Waste</b>													
Garelick Farms ( IFW )	135,554	127,921	142,476	113,832	155,546	300,328	237,555	218,827	176,043	200,481	239,946	236,875	2,286,584
George Allen Wastewater, Inc.								2,000					2,000
GoodWest ( IFW )	8,000	9,500	13,900	22,000	13,100	17,200	21,500	23,900	21,100	16,050	14,100	11,000	191,450
I. Rice ( IFW )	31,000	26,100	46,800	47,700	42,500	47,300	50,300	36,750	22,000	41,400	41,500	26,156	459,506
Indian River Transport ( IFW )				18,500	6,000	6,500	6,500	12,000	19,566	25,800	18,500	18,800	132,166
Junior's Cheesecake ( Commercial HT )	162,500	176,100	180,300	189,600	215,300	217,600		6,500					1,147,900
Knauss Foods LLC. ( IFW )	1,500	3,500	1,500	3,500	1,500	3,500	3,500	3,500	1,500	3,500	1,500	3,500	32,000
LaBrea Bakery ( IFW )	64,900	46,900	52,000	44,700	55,400	52,200	43,500	62,600	55,000	49,700	43,900	24,300	595,100
Lehigh Valley Dairies ( IFW )	169,000	175,500	156,000	149,000	123,000	156,000	156,000	136,000	155,000	175,500	208,000	182,000	1,941,000
Leidy's Pork Products ( IFW )	26,000	32,000	58,500	30,000	52,000	45,500	32,500	32,500	45,500	39,000	78,000	66,000	536,500
McGovern Environmental, LLC.				2,000								1,000	3,000
McGovern, Inc.										1,500	1,000		2,500
Mid-Atlantic Bakery ( IFW )	10,000	16,000	22,000	8,500	12,500	9,000	10,000	12,500	7,500	16,700	10,000	10,700	145,400
Montaine Farms, Inc. ( IFW )	126,534	216,167						53,506	65,424		170,382	306,000	938,013
Mrs. Ressler's Foods ( IFW )								4,600					4,600
Multi Flow ( IFW )	18,900	16,000	11,700	20,700	16,000	15,100	15,500	8,500		3,000	3,500		128,900
Neshaminy Creek Brewing ( IFW )									14,000	73,600	64,900	62,700	215,200
Perdue Farms, Inc. ( IFW )			23,316	23,857	17,983								65,156
Puratos ( IFW )	418,800	386,600	370,900	433,100	406,300	440,900	442,400	481,500	395,200	413,000	413,300	334,500	4,916,500
Ready Pac ( IFW )	68,000	57,500	61,700	63,600	67,500	65,900	61,200	74,100	64,200	71,300	59,200	54,800	769,000
Rosey's Tank Cleaning										3,000	3,500		6,500
Salem Meats ( IFW )					26,800	25,800	20,000	34,500	32,400	33,300	27,000	26,800	226,600
Silver Springs Farm Inc. ( IFW )	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	18,000
Sustainable Decarbonization Services LLC. ( IFW )	476,800	569,800	422,000	375,800	280,800	322,300	464,900	509,100	444,000	570,400	435,600	270,500	5,142,000
TastyKake ( IFW )	55,600	51,800	57,800	46,300	41,900	41,600	54,900	47,300	55,200	50,500	43,000	37,100	583,000
Tate & Lyle ( IFW )	297,500	262,000	291,932	232,092	247,519	220,130	226,102	283,000	192,000	246,000	273,400	298,000	3,069,675
Taylor Farms (formerly Univeg) ( IFW )	35,755	32,885	33,174	34,580	37,079	40,599	32,877	31,913	31,208	39,678	42,472	33,908	426,128
Uptown Bakeries ( IFW )	339,500	318,600	316,900	316,700	344,650	379,264	388,950	377,749	347,500	365,600	312,300	361,800	4,169,513
Wawa Dairy - Expired Products ( IFW )	8,000	9,000	11,300	12,000	21,500	10,500	17,000	21,100	17,000	11,500	17,500	16,000	172,500
World Flavors ( IFW )		2,500	1,000	3,000				2,500		3,000		3,000	15,000
Y&S Candies ( IFW )	234,300	255,300	391,600	343,000	180,800	135,800	136,500	242,900	116,500	92,000	132,800	71,500	2,333,000
Yards Brewing Company ( IFW )			30,750						2,750		1,500	4,500	39,500
Zentis U.S.A. (formerly Sweet Ovations) ( IFW )	26,000	22,300	12,800	13,000	4,600	19,000	6,500	19,500	28,400	21,900	19,500	25,700	219,200



Report updated on: 3/2/2017





## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Industrial Wastewater</b>													
Church & Dwight Company, Inc. (I) (PA)		13,000		6,000			6,500	6,500	6,500		5,500		45,000
Cintas Uniform (PA) (I)					6,000	3,500							9,500
Citizens Bank Park (I)		12,800				3,000							15,800
Clean Rental Services Inc. (I)		750	7,500	750		1,000		1,500	750		1,500		13,750
Covanta Fairfax (I)	197,700	6,000							45,700				249,400
CRW Graphics (I)										2,020			2,020
Delaware River Partners (Repauno Plant)(I)			32,570	32,200	28,000	26,850	13,700	23,900	16,381	18,163	25,623	19,600	236,987
Dominion Energy Fairless LLC. (I)			7,771			8,300		4,500	2,900		5,409		28,880
Enbridge - Texas Eastern transmission Project							8,000						8,000
Erachem Comilog, Inc (I)					5,400					11,500			16,900
ESCO (I)							4,200						4,200
Esstech (I)			5,200	5,300				5,300					20,800
Exelon Corporation (I)			1,400		2,000						5,000		10,100
Forrest Park Water (I)		300							5,700		700		115,700
Gemma Moxie Freedom Generating Project (I)	12,000					115,700							12,000
Geo Structures, Inc. (I)													28,050
Global Landfill PRP Group (I)													24,209
Green Lane Village (I)		11,500		7,963	4,000	4,000		8,000		4,600	4,746		20,600
H & K Biosolis (I)										2,000			2,000
Hibrett Puratex (I)					10,000				12,000				22,000
International Paper (I)	3,500	3,000	3,500	3,200	3,500	3,500	3,500	3,000	3,000	4,100	3,800	2,300	39,900
John Middleton (I)	15,500	19,050	17,455	17,800	17,107	15,500	10,000	25,992	17,344	18,180	19,046	21,511	214,485
Johnson Matthey (I)	43,900	29,114	24,220	35,169	36,511	32,066	21,320	28,800	30,600	38,236	24,128	28,742	373,806
Kearny Steel Container (I)								5,500					5,500
Land Tech Enterprises Inc. (I)											1,250		1,250
Misco Products Corporation (I)	27,657	28,683	17,501	23,920	28,000	17,882	34,257	30,396	24,400	29,104	23,772	29,221	314,793
Modern Blending (I)					6,000					4,000		6,500	16,500
Montgomery Chemical (I)	97,500	110,500	117,000	117,000	123,000	117,000	91,500	136,500	90,500	104,000	143,000	117,000	1,364,500
National Casin (I)	5,915			5,500		6,000		5,900		18,888	11,400		53,603
National Gypsum (I)	6,500			6,300				7,000					19,800
NATIONAL REFRIGERATION (I)	5,000	9,200		8,851		9,050	9,738	5,150	3,900	13,702	16,150	7,662	88,403
Noodle's Truck Wash (I)	50,000	39,000	44,100	37,500	38,500	43,000	28,500	41,000	27,500	44,500	31,500	35,500	460,600
Northeast Container Services (I)	12,600	6,300	7,000	12,600	6,300	13,000	6,300	14,000	7,000	13,500	6,500	13,000	118,100
Nutrien AG Solutions (I)											3,500		3,500



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Industrial Wastewater</b>													
Paver Art, LLC. (I)	6,000	5,700	2,500		5,500	2,500	2,000	5,500	2,500	12,750	3,250	6,000	54,200
Penn-Dot (Barnett and Levick St.) (I)									24,000	13,000			37,000
Pete's Express Car Wash (I)						4,000							4,000
Philadelphia Airport (Injector Pit) (I)							6,000	6,000	1,500	1,500			15,000
Philadelphia Newspapers (I)	9,000	11,500	16,386	11,500	17,500	24,500	21,948	34,500	28,819	22,100	15,000	25,500	238,253
Precision Drilling, Inc. (Carney's Point) (I)							9,400						9,400
Precision Drilling, Inc. (Linden NJ) (I)												11,000	11,000
Precision Drilling, Inc. (Stockton NJ) (I)										35,000			35,000
Precision Drilling, Inc. (I)								13,479					13,479
PSE&G Audubon Gas District (I)										150,864	200,574		351,438
PTB Baler (I)					500	6,000				500		400	7,400
Quality Carriers, Inc. (I)						12,000	24,000	12,000	24,000	6,000	12,000		90,000
Quarry Manufacturing Inc. (I)		3,000				3,000			3,000			16,000	12,000
Rafferty Subaru (I)													16,000
Republic Services (Multiple Truck Washes) (I)				2,000									2,000
Rio Tinto (I)					18,000								18,000
Rosey's Car Wash Water (I)	70,800	42,200	44,000	71,050	63,800	67,100	56,100	47,600	39,800	89,800	61,900	62,200	716,150
Rt. 72 Bridge Project										4,420			4,420
Saint Gobain (I)	4,500	4,500		2,000	4,500	2,000	4,000	8,000	4,500	2,000	6,000	4,000	46,000
Shiseido - Perfume Rinsate (I)	2,342		71,000			12,100	5,500	11,500	5,500	9,000	6,000		122,942
Sika Corporation (I)	148,700	141,600	154,700	169,200	170,100	133,200	124,000	100,700	86,000	114,100	104,600	105,000	1,551,900
Specialty Industries (I)	10,100	10,600	15,600	9,100	15,100	9,800	10,292	14,900	9,700	6,100	9,700	9,600	130,592
Summit Research Labs Inc. (I)	113,500	129,500	122,000	136,000	165,000	106,000	126,500	114,800	130,000	192,500	126,000	145,000	1,606,800
Tavo Packaging (I)	6,130		5,842		5,840		5,784		5,904	6,206			35,706
Trane Company (I)	31,200	49,200	31,700	72,450	93,822	71,500	107,450	184,200	41,606	75,608	35,700	137,200	931,636
TRC Companies, Inc. (I)	2,800	4,000	3,500		3,000	1,600	1,000				3,000	3,000	21,900
USEPA Region II Kiltone Superfund Site OU-1					18,000								18,000
Wakefern (I)			1,500			1,500			1,250			1,500	5,750
Wallquest, Inc. (I)	5,500	15,128	12,600		12,000	5,000	16,250	12,500	11,100	13,000		18,000	121,078
Waste Management (Multiple Truck Washes) (I)	5,500	17,800	14,559	12,100	16,100	22,300	26,100	17,000	26,100	22,300	22,600	25,600	228,059
Waste Management Grows Crystal (I)	220,651	140,902	120,446	190,945	430,394	326,957	213,713	348,054	321,796	352,157	200,153	239,816	3,103,974
Waste Management Hayes Blvd. (I)	10,000	8,500	12,500	5,000	7,500	2,500		2,500			2,500		51,000
White Dog Lab (I)						10,300	6,000				3,500		19,800
Willmad Glass (I)	2,000	4,000	3,000		4,000	3,500	3,500	3,500		4,200	3,500	3,500	34,700



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Industrial Wastewater</b>	1,407,095	1,216,127	1,263,250	1,310,283	1,752,908	1,446,220	1,354,552	1,717,135	1,417,302	1,834,048	1,414,717	1,354,352	17,487,990
<b>Leachate</b>													
Burlington County Office of Solid Waste Manag	606,252	3,357,177	4,504,057	1,387,365	1,200,711	1,904,607	282,303	108,083	1,027,772	2,567,834	3,102,550	3,380,924	23,429,635
C & H Disposal Service, Inc.					12,333								12,333
Chester County Solid Waste Authority ( Leacha	18,000	405,800	479,200	379,500	66,500			546,000	367,500	859,000	1,045,500	1,277,700	5,446,700
Clean Delaware LLC.				4,000		13,000		8,200					25,200
Cumberland County Improvement Authority (Lea		1,512,762	1,688,825	1,693,407	749,615	735,016	360,610	442,074	1,310,543	1,923,122	2,508,488	1,769,969	14,694,431
Delaware County Solid Waste Authority (Leach							71,047	104,790	241,672		378,455		795,964
Delaware County Solid Waste Authority - Broor	2,500	12,000	11,000	8,200	3,600	11,500			3,500	7,000	3,500	2,500	65,300
Delaware County Solid Waste Authority - Chesl	2,000		4,000	2,500	2,000	2,500	4,500		2,500	5,000	6,000	2,500	33,500
Gloucester County Improvement Authority (Lea				11,800	7,000		14,000	4,800		19,818		63,900	121,318
HEL of PA, Inc. trading as Hilltop Enterprises		6,199											6,199
Independent Transfer Operators (Leachate)	8,000	12,000	17,000	12,000	32,000	13,000	24,300	24,000	77,900	36,800	37,700	23,955	318,655
JG Environmental, LLC.											5,500		5,500
McGovern Environmental, LLC.												5,465	5,465
Phoenix Resources Landfill ( Leachate )	55,275	30,450											85,725
Salem County Improvement Authority	807,896	2,134,966	2,836,233	2,302,489	1,965,343	1,253,971	895,158	2,072,895	1,995,904	1,952,339	2,484,838	2,393,918	23,095,850
Waste Management Fairless Hills ( Leachate )				570,505	5,926	5,801	5,988	34,377	5,230	1,635,639	422,985	766,806	3,453,057
Waste Management Grand Central (Leachate)										17,245	5,882		23,127
Waste Management Grows ( Leachate )	962,226	954,192	2,513,811	1,509,532	416,676	300,749	265,846	2,209,261	1,268,001	2,864,351	1,891,001	2,671,464	17,827,110
Waste Management Grows-North (Leachate)	1,210,492	1,093,256	1,021,767	911,953	384,134	350,929	343,725	729,017	549,682	903,848	613,807	579,811	8,692,421
Waste Management Tullytown ( Leachate )	744,378	2,341,985	3,435,343	1,491,442	822,606	817,827	840,707	1,135,686	903,939	919,098	1,915,005	2,545,380	17,913,396
<b>Leachate</b>	4,416,819	11,860,787	16,511,236	10,284,693	5,668,444	5,408,900	3,108,184	7,421,183	7,754,143	13,711,094	14,421,311	15,484,092	116,050,886
<b>Package Plant</b>							3,500						3,500
A-1 Sanitation Services, Inc.												26,000	26,000
Aberdeen Proving Grounds (PP)												34,250	34,250
AQUA-TEX TRANSPORT, INC.												58,400	58,400
Avondale Borough ( PP )	36,000	27,600	34,800	69,800	42,000	28,000	55,700	69,400	72,200	81,000	68,000	12,000	642,900
Balmoral ( PP )	4,000	4,000	4,000	4,000	8,000	32,500	6,300	6,300	12,600				105,700
Bayside State Prison ( PP )	60,000	90,000	30,000	78,000	66,000	78,000	42,000	66,000	66,000	90,000	48,000	84,000	798,000
Bear Creek (PP)	8,070	9,640	9,640	16,140	1,570	14,570	14,570	1,570	1,570	16,140	1,570	3,140	98,190





## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Package Plant</b>													
Beaver Creek ( PP )	4,000	9,600	6,514	12,393	23,439		5,800	17,600				34,337	113,553
Best Western ( PP )	4,000	4,000	4,000	4,000	4,000	8,000	16,000	4,000	3,600	4,000	4,000	4,000	63,600
Borough of Dublin ( PP )	6,500	13,000	12,800	6,500	19,500			12,500	6,500	13,000	6,500	13,000	109,800
Bridlewood WWTP	64,830	79,145	77,880	79,062	94,700	89,000	73,929	86,100	86,222	73,600	73,200	73,671	951,339
Brookhaven Borough ( PP )	26,000	19,500	13,400	26,000		26,000		30,600	17,600		26,000	26,000	211,100
Bryn Manor ( PP )		4,000	3,000										7,000
Caproni Portable Toilets			12,000					6,000	6,000	18,000	12,000	6,000	60,000
Chadds Ford Township - Ridings ( PP )	22,500	20,000	28,000	24,000	24,000	36,000	24,000	28,000	24,000	24,000	36,000	28,600	319,100
Chadds Ford Township - Turner's Mills ( PP )	16,600	32,000	20,000	50,000	24,000	16,000	20,000	20,000	20,600	16,000	15,500	16,000	266,700
Cheyney University ( PP )	12,000	11,000	10,500		1,200	8,000	8,000	8,000	8,000	13,200	26,700	20,700	127,300
Clean Delaware LLC.	39,300	40,500	64,530	77,500	182,000	152,807	184,700	173,000	132,800	89,700	127,100	177,300	1,441,237
Country Crossing ( PP )			32,500	32,500	58,500	32,500	32,500	26,000	19,500	19,500	32,500	26,000	312,000
Coventry Crossing ( PP )	39,500	11,500	11,200	15,500	14,700	20,000	16,000	19,600	15,600	16,600			180,200
Darlington Woods ( PP )		11,200	48,000	23,000	9,200	16,000	12,000	8,000			16,700		144,100
Eldredge Sanitation (Steve Eldredge)	10,400	18,150	11,350	17,000	11,800	11,750	6,050	19,550	5,500	10,300	11,700	8,100	141,650
Franc Environmental, Inc.	168,300	23,200	16,850	5,950	17,200	19,500	21,500	23,500		17,500	35,750	13,000	362,250
Freehold Cartage							5,250						5,250
Garelick Farms ( IFW )			4,600										4,600
Glen Mills School ( PP )	24,300	15,000	47,200	9,000	36,000	15,500	36,600	16,500	33,600	40,000	17,000	34,300	325,000
Harding Woods ( PP )	12,000	6,000	12,000	31,000	6,000				6,000	6,000		6,000	85,000
Hershey's Mill ( PP )						6,000	7,000						13,000
HydroTech Environmental, LLC	52,000	26,000	84,500	121,500	84,500	65,000	78,000	39,000	71,500	58,500	39,000	45,500	765,000
Immaculata College ( PP )		12,800		19,300	13,000		12,600			13,500	6,500	13,000	90,700
JG Environmental, LLC.		24,800							2,400	3,000	78,500	13,281	121,981
KBX Golden, LLC.											7,200	18,300	25,500
Knights Bridge ( PP )	16,400	16,400	20,400	4,000	16,000	8,200	4,000	8,000				2,500	95,900
Knolls of Birmingham ( PP )	16,000	15,600	15,600	24,000	22,800	25,700	16,200	23,600	36,200	16,600	32,700	24,300	269,300
Lincoln University ( PP )		65,900	28,000	64,200	26,400		17,200		32,400	49,400	25,900	45,400	354,800
Little Washington Downtown ( PP )	19,500	44,900	52,400	40,423	26,000	41,500	32,900	52,500	26,200	33,223	53,400	109,100	532,046
McGovern Environmental, LLC.	251,000	100,600	134,500	124,800	299,700	256,300	206,700	257,100	196,200	179,900	171,300	154,100	2,332,200
McGovern, Inc.	106,447	72,895	64,240	52,600	120,500	98,760	64,700	93,450	56,150	59,400	120,500	72,900	982,542
Meadford Lakes ( PP )	110,000	52,000	103,500	52,000	97,000	71,500	52,000	58,500	58,500	71,500	51,500	45,500	823,500
Melody Lakes WWTP ( PP )												6,500	6,500
Mendenhall Inn ( PP )	4,000	7,500	7,500	6,500	7,500	8,000	4,000	4,000	4,000	7,000	4,000	4,000	68,000



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
<b>Package Plant</b>													
Northrop Grumman Innovation Services (PP)							2,000		6,000				8,000
Oxford Area Sewer Authority (PP)						37,800							37,800
Oxford Village (PP)						2,500					8,000		10,500
Penn Township (PP)	39,600	64,800	52,400	61,846	68,000	73,295	71,009	80,000	61,500	54,400	87,040	70,100	783,990
Penn's Grove (PP)	44,800	25,800	19,500	39,000	32,500	26,000	39,000	26,000	37,000	32,500	19,500	32,500	374,100
Pond's Edge - Chadds Ford (PP)	4,000	3,500	4,000			4,000	7,500	4,000	4,600	4,000	4,000	4,000	43,500
Potty Queen/United Site Services	389,500	386,000	62,000										837,500
Queen Bee Septic, LLC.	7,700	4,200		12,600	4,200	42,000	50,400	33,600	21,800	21,000	12,600		210,100
Radley Run Mews (PP)	6,000	16,300		12,300	22,600	6,300	18,300	23,100	4,000	6,000	10,000	15,000	139,900
Riverton NJ (PP)	58,500	52,000	52,000	45,500	58,500	39,000	26,000	26,000	26,000	39,000	52,000	45,500	520,000
Rose Valley Borough (PP)		20,000	12,000		130,500								162,500
Russell Reid Wastewater Management	706,760	495,400	702,038	661,708	638,820	748,528	682,816	635,604	689,392	770,709	542,422	787,027	8,059,244
Schwenksville Borough (PP)	32,000	26,000			8,500	6,500	6,500	12,500					92,000
Spring Run Estates (PP)	12,600	12,600	12,600	6,300	12,000	12,600	12,600	6,300	6,300	6,000	11,500	12,000	123,400
Springhill Farms (PP)							34,400						34,400
State Farm Insurance (PP)		3,600		4,000			4,000					4,000	15,600
Stonewater Creek (PP)	41,656	29,680	28,890	34,838	47,089	22,465	46,733	58,612	29,274	23,390	53,161	101,363	517,151
Swedesboro WWTP (PP)	26,000					26,000	58,500	52,000	26,000				188,500
Tel-Hai (PP)	19,500	16,000	12,000	24,000	20,700	19,300	31,600	20,000	24,800	19,600	8,000	24,600	239,900
Thornbury Hunt (PP)							26,000						26,000
Thornbury Township (PP)	22,600	63,500	42,000	56,500	34,500	59,000	84,000	50,500		61,000	59,000	37,500	550,100
Tidewater Utilities (PP)		6,300				7,500	6,000	4,500	2,000	84,500	54,000	54,500	199,300
Tidewater Utilities Bayfront (PP)		12,600	23,100	4,500	14,300	9,800	4,500		9,000	6,300	9,000	11,000	104,100
Tidewater Utilities Cedar Home Park (P	11,500	10,800			12,500		4,500						39,300
Tidewater Utilities Hart's Landing (PP)			10,800	9,000	4,500			6,300	6,300	9,800	6,300	4,500	46,700
Tidewater Utilities Milton (PP)				7,000	4,500						4,500		26,800
Tidewater Utilities The Retreat (PP)													7,000
Tidewater Utilities The Ridings (PP)	11,800		15,300			17,100	12,600						56,800
Tidewater Utilities Lewes Plant (PP)								35,800	63,500			7,200	99,100
US Environmental, Inc.	96,200	86,500	55,700	22,000	36,000	25,500	15,000	11,500	24,100				379,700
Utilities Inc. of PA (Broad Run) (PP)			48,400	68,100	48,300	68,100	86,100	74,400	61,000	84,500	91,000	84,500	714,400
Warwick Township / Fish Creek (PP)			147,300	420,100	513,500	435,500	422,500	416,000	273,000	351,000	341,500	294,200	3,614,600
Whitehorse Village (PP)	8,000	11,600	11,600	9,200	9,200	4,000	8,000	11,500		12,600	8,600	12,600	107,000
Winterthur Gardens (PP)		8,000	4,000	4,000	16,000	8,000		8,000	8,000	25,200	8,000		89,200



## Generator Received Gallons - 2018

Name	January	February	March	April	May	June	July	August	September	October	November	December	Row Total
Package Plant	2,722,283	2,274,770	2,359,662	2,628,900	3,131,543	2,899,115	2,851,782	2,811,577	2,420,218	2,666,892	2,593,123	2,861,269	32,221,134
<b>Grand Total:</b>	<b>20,479,719</b>	<b>26,628,047</b>	<b>31,071,879</b>	<b>24,946,981</b>	<b>22,418,039</b>	<b>22,804,509</b>	<b>19,934,707</b>	<b>25,635,239</b>	<b>22,833,300</b>	<b>31,201,767</b>	<b>31,260,333</b>	<b>30,971,409</b>	<b>310,185,929</b>

## **Attachment 7**

### **Plant Performance Influent, Effluent, and Sludge Data**

2018 Effluent

Date sampled	1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/5/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	11/1/2018	12/6/2018	2018 Average
Parameter	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Aluminum	0.16	0.089	0.12	0.062	0.084	0.041	0.082	0.060	0.100	0.055	0.077	0.140	0.089
Antimony	0.0053	0.0091	0.0049	0.0100	0.011	0.005	0.034	0.037	0.034	0.0022	<0.001	0.034	<0.016
Arsenic	0.0029	0.0019	0.0023	0.0027	0.0023	0.0016	0.0017	0.0026	0.0020	0.0026	0.0022	0.0030	0.002
Barium	0.033	0.04	0.053	0.042	0.042	0.038	0.039	0.035	0.038	0.034	0.036	0.036	0.039
Beryllium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium	0.00023	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.00026	<0.0002	<0.0002	0.00026	<0.0002
Chromium	0.0012	0.0012	0.0015	0.0028	0.0016	0.0013	0.0013	0.0014	0.0015	0.0019	0.0015	0.0020	0.0016
Copper	0.015	0.0078	0.0061	0.0057	0.0062	0.0074	0.0110	0.0045	0.0110	0.0053	0.0044	0.0095	0.0078
Iron	0.32	0.21	0.25	0.23	0.25	0.15	0.21	0.2	0.42	0.21	0.25	0.32	0.25
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	0.003	<0.0010	<0.0010	0.0013	<0.001
Mercury	<0.0001	<0.0001	<0.0001	<0.0001	<0.00010	<0.00010	<0.00010	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Molybdenum	0.0031	0.0054	0.004	0.0051	0.0037	0.0061	0.0064	0.0067	0.0057	0.0041	0.0045	0.0040	0.0052
Nickel	0.0043	0.0044	0.0068	0.0078	0.0044	0.0061	0.0059	0.0067	0.0053	0.0058	0.0045	0.0060	0.0057
Selenium	0.0049	0.0028	<0.0020	0.0024	<0.0020	<0.0020	0.0059	<0.0020	<0.0020	<0.0020	<0.0020	0.0026	<0.0027
Silver	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Thallium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	0.041	0.023	0.033	0.025	0.028	0.025	0.031	0.024	0.058	0.028	0.029	0.035	0.032
Total Phenols (G)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide (G)	0.051	0.019	0.027	0.027	0.032	0.032	0.027	0.014	0.007	0.0225	0.0279	<0.002	<0.024
Sulfide	<1.0	<1.0	<5.7	<1.0	<1.0	<1.0	<1.0	<1.0	3.8	<1.0	<1.0	<2.5	<1.75
Cyanide (24HC) T.O.X.	0.027	0.015	0.012	0.009	<0.005	0.013	0.015	0.013	0.008	0.0104	0.0112	0.018	<0.013
Phosphorus	0.121	0.14	0.186	0.185	0.163	0.197	0.175	0.241	0.171	0.188	0.14	0.221	0.177
Total Phenols (24HC)	2.5	0.32	0.55	0.82	1	0.82	0.88	1.2	1.3	1.5	1.2	1.4	1.124
Chloride	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005
Hardness	200			229			254			195			220
Color (CU)	167			192			205			179			186
Note: Results above are listed in mg/l													
	50			45			50			40			46

Volatile Organics (EPA 624)

Acrolein	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<2.5	<2.5	<8.8
Acrylonitrile	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Benzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromodichloromethane	<1.0	<1.0	3.3	2.3	3.8	1.4	1.8	7.2	3.8	2	1.6	1.3	<2.5
Bromoform	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.3
Bromomethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorodibromomethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
Chloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2-Chloroethylvinyl ether	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Chloroform	<1.0	1.4	3.1	2.0	5.3	<1.0	2.3	3.8	2.3	2.1	2.0	2.5	<2.4
Chloromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

2018 Effluent

Date sampled	1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/6/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	11/1/2018	12/6/2018	2018
Parameter	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1,3-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-Dichloropropane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cis-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trans-1,3-Dichloropropene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,3-Dichloropropene, Total	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MTBE	1.4	5.3	2.0	3.4	3.0	2.0	15.6	163	1.2	32.1	19.0	35.5	23.6
Methylene chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2,2-Tetrachloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Xylenes (total)	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
1,1,1-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,2-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Trichlorofluoromethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vinyl chloride	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Note: EPA 624 results are listed in ug/l

Semi-volatile Organics (EPA 625)

	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Acenaphthene	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Acenaphthylene	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Anthracene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
benzidine	<7.5	<7.3	<7.4	<8.20	<7.4	<7.4	<7.5	<7.5	<7.5	<3.8	<3.7	<3.7	<6.58
benzo (a) anthracene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
benzo (a) pyrene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Benzo(b)fluoranthene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Benzo(g,h,i)perylene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Benzo(k)fluoranthene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
4-bromophenyl-phenylether	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Butylbenzylphthalate	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
4-chloro-3-methylphenol	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Bis(2-chloroethoxy)methane	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Bis(2-chloroethyl) ether	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Bis(2-chloroisopropyl) ether	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
2-chloronaphthalene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
2-chlorophenol	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
4-chlorophenyl-phenylether	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Chrysene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.41
Di-n-butylphthalate	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Di-n-octyl phthalate	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83

Note: Results for EPA 608, 624 625 are listed in ug/l



2018 Effluent

Date sampled Parameter	1/3/2018 Jan.	2/8/2018 Feb.	3/13/2018 March	4/5/2018 April	5/1/2018 May	6/6/2018 June	7/10/2018 July	8/2/2018 Aug.	9/5/2018 Sept.	10/2/2018 Oct.	11/1/2018 Nov.	12/6/2018 Dec.	2018 Average
Dibenzo(a,h)anthracene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.41
3,3-dichlorobenzidine	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
2,4-dichlorophenol	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Diethylphthalate	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
2,4-dimethylphenol	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Dimethyl phthalate	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
2,4-dinitrophenol	<5.7	<5.5	<5.6	<6.1	<5.6	<5.5	<5.6	<5.6	<5.6	<5.7	<5.6	<5.6	<5.64
2,6-dinitrotoluene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
1,2-diphenylhydrazine	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Bis(2-ethylhexyl) phthalate	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Fluoranthene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.41
Fluorene	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.41
Hexachlorobenzene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Hexachlorobutadiene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Hexachlorocyclopentadiene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Hexachloroethane	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.41
Indeno(1,2,3-cd)pyrene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Isophorone	<5.7	<5.5	<5.6	<6.1	<5.6	<5.5	<5.6	<5.6	<5.6	<5.7	<5.6	<5.6	<5.64
2-methyl-4,6-dinitrophenol	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.41
Naphthalene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
Nitrobenzene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
2-nitrophenol	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
4-nitrophenol	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
N-Nitrosodimethylamine	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
N-Nitroso-di-n-propylamine	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
N-Nitrosodiphenylamine	<5.7	<5.5	<5.6	<6.1	<5.6	<5.5	<5.6	<5.6	<5.6	<5.7	<5.6	<5.6	<5.64
Pentachlorophenol	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.41
Phenanthrene	<7.5	<7.3	<7.4	<8.2	<7.4	<7.4	<7.5	<7.5	<7.5	<7.6	<7.4	<7.5	<7.52
Phenol	<1.4	<1.4	<1.4	<1.5	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.41
Pyrene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
1,2,4-trichlorobenzene	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83
2,4,6-trichlorophenol	<2.8	<2.7	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.9	<2.8	<2.8	<2.83

Note: EPA 625 results are listed in ug/l

Pesticides/PCBs (EPA 608)

Aldrin	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
alpha-BHC	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
beta-BHC	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
delta-BHC	0.019	0.019	<0.018	<0.020	0.019	0.019	0.019	0.019	<0.018	0.019	0.019	<0.019	<0.02
Lindane (gamma-BHC)	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
Chlordane	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
4,4'-DDD	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
4,4'-DDE	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
4,4'-DDT	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
Dieldrin	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	0.023	<0.02
Endosulfan I	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02

Note: Results for EPA 608, 624 625 are listed in ug/l

2018 Effluent

Date sampled Parameter	1/3/2018 Jan.	2/8/2018 Feb.	3/13/2018 March	4/5/2018 April	5/1/2018 May	6/5/2018 June	7/10/2018 July	8/2/2018 Aug.	9/5/2018 Sept.	10/2/2018 Oct.	11/1/2018 Nov.	12/6/2018 Dec.	2018 Average
Endosulfan II	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
Endosulfan sulfate	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
Endrin	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
Endrin aldehyde	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
Heptachlor	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
Heptachlor epoxide	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
Mirex	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.018	<0.019	<0.019	<0.019	<0.02
Toxaphene	<0.93	<0.94	<0.92	<1.00	<0.93	<0.93	<0.96	<0.94	<0.92	<0.93	<0.96	<0.93	<0.94
Total PCBs	<3.2	<3.3	<3.2	<3.6	<3.2	<3.2	<3.4	<3.3	<3.2	<3.3	<3.4	<3.3	<3.30
PCB-1016	<0.46	<0.47	<0.46	<0.51	<0.46	<0.46	<0.48	<0.47	<0.46	<0.47	<0.48	<0.47	<0.47
PCB-1221	<0.46	<0.47	<0.46	<0.51	<0.46	<0.46	<0.48	<0.47	<0.46	<0.47	<0.48	<0.47	<0.47
PCB-1232	<0.46	<0.47	<0.46	<0.51	<0.46	<0.46	<0.48	<0.47	<0.46	<0.47	<0.48	<0.47	<0.47
PCB-1242	<0.46	<0.47	<0.46	<0.51	<0.46	<0.46	<0.48	<0.47	<0.46	<0.47	<0.48	<0.47	<0.47
PCB-1248	<0.46	<0.47	<0.46	<0.51	<0.46	<0.46	<0.48	<0.47	<0.46	<0.47	<0.48	<0.47	<0.47
PCB-1254	<0.46	<0.47	<0.46	<0.51	<0.46	<0.46	<0.48	<0.47	<0.46	<0.47	<0.48	<0.47	<0.47
PCB-1260	<0.46	<0.47	<0.46	<0.51	<0.46	<0.46	<0.48	<0.47	<0.46	<0.47	<0.48	<0.47	<0.47

Note: EPA 608 results are listed in ug/l



2018 Influent

Date sampled	1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/6/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	11/1/2018	12/5/2018	2018
Parameter	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Aluminum	5.6	9.4	4.5	4.0	5.3	6.6	2.6	21.5	7.3	11.8	<0.04	20.9	<8.3
Antimony	0.0042	0.020	0.007	0.013	0.015	0.0077	0.0370	0.0540	0.0430	0.0065	<0.001	0.0044	<0.0177
Arsenic	0.0051	0.0034	0.0023	0.0037	0.0033	0.0022	0.0024	0.0041	0.0025	0.0046	<0.0015	0.0034	<0.0032
Barium	0.1	0.1	0.11	0.15	0.12	0.12	0.085	0.19	0.12	0.12	0.048	0.11	0.114
Beryllium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.00031	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium	0.00038	0.00037	0.00029	0.00058	0.00022	0.00031	<0.0002	0.00046	0.00035	0.00042	<0.0002	0.00031	<0.0003
Chromium	0.0068	0.0067	0.0070	0.0066	0.0066	0.0049	0.0055	0.0085	0.0057	0.0086	<0.001	0.0058	<0.0061
Copper	0.083	0.082	0.059	0.092	0.079	0.089	0.047	0.140	0.092	0.089	0.0075	0.095	0.080
Iron	3.7	5.3	2.7	2.8	2.5	3.2	2.4	4.6	3.9	4.3	2.9	3.5	3.5
Lead	0.0068	0.0085	0.0054	0.0047	0.0054	0.0052	0.0061	0.0160	0.0170	0.0065	<0.001	0.0081	<0.0076
Mercury	<0.0001	<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.0001	0.00015	<0.0001	0.00011	<0.0001	0.00011	<0.0001
Molybdenum	0.0029	0.0069	0.0049	0.0045	0.0049	0.0034	0.0061	0.0120	0.0071	0.0048	0.0048	0.0061	<0.0059
Nickel	0.0091	0.0170	0.0098	0.0110	0.012	0.013	0.012	0.031	0.017	0.010	0.0041	0.014	<0.0133
Selenium	0.0083	0.0036	<0.002	<0.002	<0.002	0.0028	0.0052	0.0027	<0.002	<0.002	<0.002	0.0028	<0.0031
Silver	<0.0005	<0.0005	<0.0005	0.00084	0.0011	<0.0005	<0.0005	0.00065	0.00062	0.00068	<0.0005	<0.0005	<0.0006
Thallium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	0.16	0.15	0.11	0.16	0.13	0.14	0.094	0.25	0.16	0.14	0.039	0.15	0.140
Phenols, Total (G)	0.244	0.008	0.024	0.048	0.029	<0.016	0.031	0.036	0.009	0.125	0.331	0.037	<0.078
Cyanide(G)	<0.005	0.009	0.006	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.014	0.0328	0.011	<0.009
Sulfide	1.3	2.50	<1.0	<1.0	<1.0	1.1	<1.0	1.5	<1.0	2.6	2.6	<2.5	<1.592
Cyanide(24HC)	<0.005	0.009	0.005	<0.005	<0.005	<0.005	0.01	<0.005	<0.005	<0.008	0.0104	<0.008	<0.007
T.O.X.	0.0633	0.0691	0.0812	0.0678	0.792	0.127	0.106	0.129	0.109	0.107	0.102	0.142	0.100
Phosphorus	0.83	3.1	3.8	4.1	4.5	3.5	3.8	9.1	5.9	4	8.4	6.6	4.80
Phenols, Total (24HC)	0.102	0.019	0.046	0.043	0.065	0.038	0.043	0.055	0.038	0.06	0.049	0.135	0.06

Note: Results above are listed in mg/l

Volatile Organics (EPA 624)

Parameter	1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/6/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	11/1/2018	12/5/2018	2018
Acrolein	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<12.5	<12.5	<43.8
Acrylonitrile	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25.0
Benzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Carbon tetrachloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorodibromomethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Chloroethylvinyl ether	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloroform	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Note: Results for EPA 608, 624 625 are listed in ug/l

2018 Influent

Date sampled	1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/6/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	11/1/2018	12/6/2018	2018
Parameter	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Trans-1,2-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cis-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trans-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichloropropene, Total	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Ethylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MTBE	<5.0	6.7	<5.0	<5.0	<5.0	<5.0	20.0	157	<5.0	<5.0	10.4	84.8	<26.2
Methylene chloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	<5.0	16.7	13.2	8.5	<5.0	77.7	43.8	5.3	<5.0	14.3	19.7	6.3	<18.4
Xylenes (total)	<15.0	87.1	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<21.0
1,1,1-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl chloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Note: EPA 624 results are listed in ug/l

Semi-volatile Organics (EPA 625)

Parameter	1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/6/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	11/1/2018	12/6/2018	2018
Acenaphthene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Acenaphthylene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Anthracene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
benzidine	<7.50	<7.30	<7.30	<8.5	52.3	<7.40	<7.40	<7.50	<7.50	<3.9	<3.7	<7.60	<10.66
benzo (a) anthracene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
benzo (a) pyrene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Benzo(b)fluoranthene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Benzo(g,h,i)perylene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Benzo(k)fluoranthene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
4-bromophenyl-phenylether	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Butylbenzylphthalate	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
4-chloro-3-methylphenol	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Bis(2-chloroethoxy)methane	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Bis(2-chloroethyl) ether	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Bis(2-chloroisopropyl) ether	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
2-chloronaphthalene	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
2-chlorophenol	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
4-chlorophenyl-phenylether	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Chrysene	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Di-n-butylphthalate	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Di-n-octyl phthalate	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Dibenz(a,h)anthracene	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
3,3-dichlorobenzidine	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
2,4-dichlorophenol	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Diethylphthalate	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
2,4-dimethylphenol	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Dimethyl phthalate	<2.80	<2.70	<2.80	<3.2	<2.80	<2.80	<2.80	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08

Note: Results for EPA 608, 624 625 are listed in ug/l

2018 Influent

Date sampled	1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/6/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	11/1/2018	12/6/2018	2018
Parameter	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
2,4-dinitrophenol	<5.70	<5.50	<5.5	<6.4	<5.5	<5.5	<5.5	<5.70	<5.70	<5.80	<5.6	<11.40	<6.15
2,4-dinitrotoluene	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
2,6-dinitrotoluene	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
1,2-diphenylhydrazine	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Bis(2-ethylhexyl) phthalate	8.5	4.7	5.1	8	6.4	5.6	7.2	6.5	5.1	5.3	5.2	<5.70	<6.11
Fluoranthene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Fluorene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Hexachlorobenzene	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Hexachlorobutadiene	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Hexachlorocyclopentadiene	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Hexachloroethane	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Indeno(1,2,3-cd)pyrene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Isophorone	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
2-methyl-4,6-dinitrophenol	<5.70	<5.50	<5.5	<6.4	<5.6	<5.5	<5.5	<5.00	<5.6	<5.8	<5.6	11.4	<6.09
Naphthalene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<2.80	<1.53
Nitrobenzene	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
2-nitrophenol	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
4-nitrophenol	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
N-Nitrosodimethylamine	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
N-Nitroso-di-n-propylamine	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
N-Nitrosodiphenylamine	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
Pentachlorophenol	<5.70	<5.50	<5.50	<6.4	<5.6	<5.5	<5.5	<5.60	<5.60	<5.80	<5.60	<11.40	<6.14
Phenanthrene	<1.40	<1.40	<1.40	<1.6	<1.40	<1.4	<1.4	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
Phenol	32.2	<7.3	8.9	11.1	15.7	11.8	9.0	11.1	8.7	13.7	7.9	<15.2	<12.72
Pyrene	<1.40	<1.40	<1.4	<1.6	<1.4	<1.4	<1.4	<1.40	<1.40	<1.40	<1.40	<2.80	<1.53
1,2,4-trichlorobenzene	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08
2,4,6-trichlorophenol	<2.80	<2.70	<2.8	<3.2	<2.8	<2.8	<2.8	<2.80	<2.80	<2.90	<2.80	<5.70	<3.08

Note: EPA 625 Results are listed in ug/l

Pesticides/PCBs (EPA 608)

	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Aldrin	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
alpha-BHC	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
beta-BHC	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
delta-BHC	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Lindane (gamma-BHC)	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Chlordane	<0.19	<0.19	<0.18	<0.200	<0.19	<0.19	<0.19	<0.19	<0.19	<0.200	<0.19	<0.19	<0.19
4,4'-DDD	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
4,4'-DDE	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
4,4'-DDT	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Dieldrin	<0.019	0.032	0.050	0.024	<0.019	0.032	0.023	0.023	0.022	0.023	0.031	<0.019	<0.03
Endosulfan I	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Endosulfan II	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Endosulfan sulfate	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Endrin	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Endrin aldehyde	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Heptachlor	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Heptachlor epoxide	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02

Note: Results for EPA 608, 624 625 are listed in ug/l

2018 Influent

Date sampled	1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/6/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	11/1/2018	12/6/2018	2018
Parameter	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
Mirex	<0.019	<0.019	<0.018	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.020	<0.019	<0.019	<0.02
Toxaphene	<0.93	<0.93	<0.92	<1.00	<0.93	<0.93	<0.93	<0.94	<0.93	<0.98	<0.93	<0.93	<0.94
Total PCBs	<3.20	<3.30	<3.20	<3.50	<3.20	<3.30	<3.30	<3.30	<3.30	<3.40	<3.20	<3.30	<3.29
PCB-1016	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.47	<0.47	<0.47	<0.49	<0.46	<0.47	<0.47
PCB-1221	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.47	<0.47	<0.47	<0.49	<0.46	<0.47	<0.47
PCB-1232	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.47	<0.47	<0.47	<0.49	<0.46	<0.47	<0.47
PCB-1242	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.47	<0.47	<0.47	<0.49	<0.46	<0.47	<0.47
PCB-1248	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.47	<0.47	<0.47	<0.49	<0.46	<0.47	<0.47
PCB-1254	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.47	<0.47	<0.47	<0.49	<0.46	<0.47	<0.47
PCB-1260	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.47	<0.47	<0.47	<0.49	<0.46	<0.47	<0.47

Note: EPA 608 Results are listed in ug/l

2018 Primary Effluent

Date sampled	1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/6/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	11/1/2018	12/6/2018	2018 Average
Parameter	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
Aluminum	0.76	1.2	0.055	0.110	0.012	0.081	0.0360	0.0360	0.0330	0.0033	0.0010	0.0039	1.25
Antimony	0.0046	0.017	0.0024	0.0040	0.0029	0.0027	0.0027	0.0027	0.0030	0.0044	0.0032	0.0037	0.014
Arsenic	0.0032	0.0029	0.073	0.068	0.075	0.071	0.064	0.064	0.073	0.082	0.079	0.072	0.0032
Barium	0.055	0.06	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Beryllium	<0.0005	<0.0005	0.00023	0.00031	0.00022	0.00051	<0.0002	<0.0002	0.00028	0.00036	0.00031	0.00026	<0.0003
Cadmium	0.00043	<0.0002	0.0026	0.0039	0.0032	0.0031	0.0025	0.0025	0.0036	0.005	0.004	0.0031	0.0033
Chromium	0.0024	0.0033	0.021	0.025	0.029	0.035	0.029	0.029	0.04	0.037	0.041	0.03	0.032
Copper	0.033	0.029	1.5	1.6	2.1	2.4	1.5	1.5	2.5	2.2	2	1.8	1.9
Iron	1.5	2	0.0037	0.0021	0.0018	0.0029	0.0028	0.0028	0.0059	0.0033	0.0028	0.0027	0.0030
Lead	0.0027	0.0037	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Mercury	<0.0001	<0.0001	0.0041	0.0044	0.0047	0.043	0.0064	0.0064	0.0072	0.0041	0.0053	0.0053	0.0084
Molybdenum	0.0044	0.006	0.0075	0.0087	0.0085	0.0081	0.0081	0.0081	0.0100	0.0086	0.0079	0.0080	0.0081
Nickel	0.0055	0.008	0.002	0.003	0.0023	0.0031	0.0033	0.0033	<0.0002	0.002	0.0029	0.0032	0.0031
Selenium	0.0066	0.0041	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Thallium	<0.0005	<0.0005	0.047	0.046	0.046	0.068	0.057	0.057	0.066	0.06	0.076	0.05	0.058
Zinc	0.063	0.058											
Total Phenol (G)	0.063	0.062	0.047	0.06	0.214	0.083	0.117	0.117	0.079	0.093	0.068	0.115	0.093
Cyanide (G)	0.035	0.087	0.29	0.14	0.13	0.68	0.13	0.13	0.11	0.014	0.182	0.34	0.189
Sulfide	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.8	1.8	<1.0	<1.0	1.1	<2.5	<1.3
Cyanide (24HC)	0.032	0.41	0.23	0.180	0.13	0.44	0.11	0.11	0.077	0.0139	0.226	0.3	0.1882
T.O.X.	0.0769	0.067	0.0836	0.0854	0.0739	0.0663	0.125	0.125	0.0782	0.0929	0.0965	0.222	0.10
Phosphorus	3.9	2.8	2.9	3.3	4	4.8	2.5	2.5	3.5	2.7	5.2	<0.1	<3.2
Total Phenols (24HC)	0.0059	<0.005	0.036	0.043	0.083	0.056	0.051	0.051	<0.05	0.029	0.04	0.061	<0.04

Note: Results above are listed in mg/l

Volatile Organics (EPA 624)

Acrolein	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<12.5	<12.5	<43.8
Acrylonitrile	<25.0	<25.0	<25.0	<25.0	<25.0	32	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.6
Benzene	<5.0	<5.0	<5.0	<5.0	<5.0	6.6	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.1
Bromodichloromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromoform	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Bromomethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Carbon tetrachloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chlorodibromomethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Chloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
2-Chloroethoxyvinyl ether	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Chloroform	<5.0	<5.0	<5.0	<5.0	9.9	<5.0	7	6.4	<5.0	<5.0	12	<5.0	<6.3
Chloromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trans-1,2-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Note: Results for EPA 608, 624 625 are listed in ug/l



2018 Primary Effluent

Date sampled Parameter	1/3/2018 Jan.	2/8/2018 Feb.	3/13/2018 Mar.	4/5/2018 April	5/1/2018 May	6/6/2018 June	7/10/2018 July	8/2/2018 Aug.	9/5/2018 Sept.	10/2/2018 Oct.	11/1/2018 Nov.	12/6/2018 Dec.	2018 Average
1,2-Dichloropropane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cis-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trans-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichloropropene, Total	<10.0	<10.0	<10.0	<10.0	<10.0	<5.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<9.6
Ethylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
MTBE	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	17.6	163	<5.0	8.6	8.8	51.5	<23.7
Methylene chloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5.1	<5.0	<5.0	<5.0	<5.0
1,1,2,2-Tetrachloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	12.8	7.6	7.6	19	5.2	25.4	6.9	40.4	40.7	7.6	9.3	<5.0	<15.6
Xylenes (total)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
1,1,1-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl chloride	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Note: EPA 624 results are listed in ug/l

Semi-volatile Organics (EPA 625)

Acenaphthene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Acenaphthylene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Anthracene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
benzidine	<7.4	<7.3	<7.3	<8.3	<7.4	<7.4	<7.5	<7.5	<7.5	<7.5	<7.5	<7.5	<6.6
benzo (a) anthracene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
benzo (a) pyrene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Benzo(b)fluoranthene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Benzo(g,h,i)perylene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Benzo(k)fluoranthene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
4-bromophenyl-phenylether	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Butylbenzylphthalate	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
4-chloro-3-methylphenol	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Bis(2-chloroethoxy)methane	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Bis(2-chloroethyl) ether	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Bis(2-chloroisopropyl) ether	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
2-chloronaphthalene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
2-chlorophenol	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
4-chlorophenyl-phenylether	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Chrysene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Di-n-butylphthalate	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Di-n-octyl phthalate	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Dibenzof(a,h)anthracene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
3,3-dichlorobenzidine	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
2,4-dichlorophenol	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Diethylphthalate	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
2,4-dimethylphenol	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Dimethyl phthalate	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
2,4-dinitrophenol	<5.6	<5.5	<5.5	<6.3	<5.6	<5.6	<5.7	<5.7	<5.6	<5.6	<5.6	<5.7	<5.7
2,4-dinitrotoluene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8

Note: Results for EPA 608, 624 625 are listed in ug/l

2018 Primary Effluent

Date sampled Parameter	1/3/2018 Jan.	2/8/2018 Feb.	3/13/2018 Mar.	4/5/2018 April	5/1/2018 May	6/6/2018 June	7/10/2018 July	8/2/2018 Aug.	9/5/2018 Sept.	10/2/2018 Oct.	11/1/2018 Nov.	12/6/2018 Dec.	2018 Average
2,6-dinitrotoluene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
1,2-diphenylhydrazine	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Bis(2-ethylhexyl) phthalate	4.1	2.9	3.4	4.1	3.1	2.8	3.9	<2.8	<2.8	<2.8	2.9	3.2	<3.2
Fluoranthene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Fluorene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Hexachlorobenzene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Hexachlorobutadiene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Hexachlorocyclopentadiene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Hexachloroethane	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Indeno(1,2,3-cd)pyrene	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Isophorone	<5.6	<5.5	<5.5	<6.3	<5.6	<5.5	<5.7	<5.6	<5.6	<5.6	<5.6	<5.7	<5.7
2-methyl-4,6-dinitrophenol	<1.4	<1.4	<1.4	<1.6	<1.4	2.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.5
Naphthalene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Nitrobenzene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
2-nitrophenol	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
4-nitrophenol	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
N-Nitrosodimethylamine	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
N-Nitroso-di-n-propylamine	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
N-Nitrosodiphenylamine	<5.6	<5.5	<5.5	<6.3	<5.6	<5.5	<5.7	<5.6	<5.6	<5.6	<5.6	<5.7	<5.7
Pentachlorophenol	<1.4	<1.4	<1.4	<1.6	<1.4	1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Phenanthrene	14.1	<7.3	<7.3	8.5	18.5	13.5	11.5	13.4	13.3	<7.4	<7.4	11.8	<11.2
Phenol	<1.4	<1.4	<1.4	<1.6	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4	<1.4
Pyrene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
1,2,4-trichlorobenzene	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
2,4,6-trichlorophenol	<2.8	<2.8	<2.8	<3.1	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8

Note: EPA 625 Results are listed in ug/l

Pesticides/PCBs (EPA 608)

Aldrin	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
alpha-BHC	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
beta-BHC	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
delta-BHC	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Lindane (gamma-BHC)	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Chlordane	<0.18	<0.019	<0.18	<0.200	<0.019	<0.190	<0.20	<0.190	<0.190	<0.190	<0.190	<0.190	<0.162
4,4'-DDD	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
4,4'-DDE	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
4,4'-DDT	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Dieldrin	<0.018	<0.019	<0.018	0.023	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Endosulfan I	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Endosulfan II	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Endosulfan sulfate	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Endrin	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Endrin aldehyde	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Heptachlor	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Heptachlor epoxide	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Mirex	<0.018	<0.019	<0.018	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Toxaphene	<0.92	<0.93	<0.92	<0.99	<0.93	<0.93	<0.99	<0.94	<0.93	<0.93	<0.94	<0.94	<0.941
Total PCBs	<3.20	<3.30	<3.20	<3.50	<3.20	<3.30	<3.50	<3.30	<3.30	<3.20	<3.30	<3.30	<3.30
PCB-1016	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.50	<0.47	<0.47	<0.46	<0.47	<0.47	<0.47

Note: Results for EPA 608, 624 625 are listed in ug/l

2018 Primary Effluent

Date sampled Parameter	1/3/2018 Jan.	2/8/2018 Feb.	3/13/2018 Mar.	4/5/2018 April	5/1/2018 May	6/6/2018 June	7/10/2018 July	8/2/2018 Aug.	9/5/2018 Sept.	10/2/2018 Oct.	11/1/2018 Nov.	12/6/2018 Dec.	2018 Average
PCB-1221	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.50	<0.47	<0.47	<0.46	<0.47	<0.47	<0.47
PCB-1232	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.50	<0.47	<0.47	<0.46	<0.47	<0.47	<0.47
PCB-1242	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.50	<0.47	<0.47	<0.46	<0.47	<0.47	<0.47
PCB-1248	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.50	<0.47	<0.47	<0.46	<0.47	<0.47	<0.47
PCB-1254	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.50	<0.47	<0.47	<0.46	<0.47	<0.47	<0.47
PCB-1260	<0.46	<0.47	<0.46	<0.50	<0.46	<0.47	<0.50	<0.47	<0.47	<0.46	<0.47	<0.47	<0.47

Note: EPA 608 Results are listed in ug/l



**2018 Sludge Dry Weight**

Date sampled Day of Week Parameter	1/3/2018 Wednesday Jan.	2/8/2018 Thursday Feb.	3/13/2018 Tuesday March	4/5/2018 Thursday April	5/1/2018 Tuesday May	6/6/2018 Wednesday June	7/10/2018 Tuesday July	8/2/2018 Thursday Aug.	9/5/2018 Wednesday Sept.	10/2/2018 Tuesday Oct.	11/1/2018 Thursday Nov.	12/6/2018 Thursday Dec.	2018 Average
% Solids	24.2%	22.2%	22.9%	21.3%	24.3%	23.7%	23.4%	22.8%	24.1%	19.6%	22.1%	21.1%	22.6%
% Moisture	75.8%	77.8%	77.1%	78.7%	75.7%	76.3%	76.6%	77.2%	75.9%	80.4%	77.9%	78.9%	77.4%
% Vol. Solids	74.5%	75.7%	76.8%	75.9%	78.3%	76.80%	71.80%	70.80%	68.6%	69.2%	79.5%	79.8%	74.8%
Aluminum	10400	16900	16900	17500	16400	14800	28600	26100	34800	25600	15700	14000	19808
Antimony	10.3	25.6	18.2	26.3	25.7	10.3	65.9	59.8	68.3	43.0	<7.9	10.8	<31.0
Arsenic	<7.9	16.9	8.7	15	<8.1	<8.0	34.9	20.6	47.5	45.8	<7.9	11.9	<19.5
Barium	181	218	260	335	206	236	280	306	316	262	204	258	255
Beryllium	<4.0	<4.5	<4.4	<4.30	<4.0	<4.0	<4.1	<3.7	<4.1	<5.0	<4.0	<4.5	<4.2
Cadmium	<2.0	<2.3	2.5	2.3	<2.0	<2.0	<2.0	<1.8	<2.0	<2.5	<2.0	<2.3	<2.1
Chromium	18.2	24.2	25.6	28.7	32.2	24.2	33.6	29.3	28.5	32.1	23.8	27.0	27.3
Copper	214	262	264	321	240	255	268	337	345	317	302	260	282
Iron	10500	14200	15100	19200	12500	13200	14800	15200	13900	13600	10600	14500	13942
Lead	23.0	27.2	29.4	44.5	21.0	27.0	36.6	48.8	53.0	40.4	25.8	28.5	33.8
Mercury	0.57	0.41	0.43	0.41	0.43	0.34	0.39	0.41	0.35	0.34	0.36	0.61	0.42
Molybdenum	<7.9	<9.0	<8.7	<8.5	12.8	11.1	9.7	7.9	8.5	10.5	<7.9	<9.1	<9.3
Nickel	16.9	54.1	34.5	40.5	54.7	32.8	158.0	146.0	116	80.5	25.6	32.1	66.0
Selenium	<19.8	<22.6	<21.9	<21.3	<20.2	<19.9	<20.4	<18.4	<20.3	<25.2	<19.8	<22.7	<21.0
Silver	<2.0	<2.3	<2.2	158.0	<2.00	2.5	<2.00	<1.80	<2.00	<2.50	2.7	2.8	<15.2
Thallium	<2.0	<2.3	<2.2	<2.1	<2.0	<2.0	<2.0	<1.8	<2.0	<2.5	<2.0	<2.3	<2.1
Zinc	352	426	420	523	393	634	535	573	528	506	447	483	485
Phenolics	46.2	20.0	19.9	52.7	67.5	73.2	97.5	60.2	76.2	63.0	68.4	46.3	57.6
Cyanide	2.90	3.4	3.2	3.9	2.2	2.1	2.5	2.3	2.8	3.1	2.4	4.2	2.9
Sulfide	<82.9	98.8	<87.70	282	<10.00	117	595	170	105.0	287.0	<90.7	151.0	<173.09
T.O.X.	<20.3	73.10	<20.40	61.4	<20	<20.4	<21	<20.9	<20.2	<23.9	<20.6	<22.5	<28.7
Phosphorus	13800	12000	14100	17000	11400	12000	11000	15700	10900	12000	13000	14900	13150
Oil & Grease	195000	169000	102000	278000	253000	212000	200000	181000	182000	271000	219000	66200	194017
TPH (silica gel)	9610	6700	2470	6760	9230	9280	2000	1900	340	2400	2200	1500	6763
BTU	540	1600	2200	2200	4100	2500	2000	1900	340	2400	2200	1500	1957
% Solids (BTU sample)	24.2%	22.2%	22.9%	21.3%	24.3%	23.7%	23.4%	22.8%	24.1%	19.6%	22.1%	21.1%	22.64%
BTU (dry basis)	2231	7207	9607	10329	16872	10549	8547	8333	1411	12245	11370	11370	9173
Ignitability	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	NOT	

**Volatile Organics (EPA 624)**

	<10.70	<14.50	<12.50	<14.50	<14.30	<14.20	<10.80	<14.10	<13.30	<19.7	<6.90	<13.00	<13.21
Acrolein	<2.10	<2.90	<2.50	<2.90	<2.90	<2.80	<2.20	<2.80	<2.70	<3.9	<1.40	<2.60	<2.64
Acrylonitrile	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Benzene	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Bromodichloromethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Bromoform	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Bromomethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
2-Butanone (Methyl Ethyl Ketone)	33.8	75.9	30.9	5.8	19.1	23.0	69.7	39.5	17.7	51.50	42.80	58.3	<39.00
Carbon tetrachloride	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Chlorobenzene	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Chlorodibromomethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53

Note: All less than are equal to the detection level from the Laboratory  
Note: Results above are listed in mg/Kg

2018 Sludge Dry Weight

Date sampled Day of Week Parameter	1/3/2018 Wednesday Jan.	2/8/2018 Thursday Feb.	3/13/2018 Tuesday March	4/5/2018 Thursday April	5/1/2018 Tuesday May	6/6/2018 Wednesday June	7/10/2018 Tuesday July	8/2/2018 Thursday Aug.	9/5/2018 Wednesday Sept.	10/2/2018 Tuesday Oct.	11/1/2018 Thursday Nov.	12/6/2018 Thursday Dec.	2018 Average
Chloroethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
2-Chloroethylvinyl ether	<0.86	<1.20	<1.00	<1.20	<1.10	<1.10	<0.87	<1.10	<1.10	<1.60	<0.55	<1.00	<1.06
Chloroform	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Chloromethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
1,1-Dichloroethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
1,2-Dichloroethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
1,1-Dichloroethene	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Trans-1,2-Dichloroethene	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
1,2-Dichloropropane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
1,3-Dichloropropene, total	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Ethylbenzene	<0.43	<0.58	1.6	<0.58	<0.57	0.6	<0.43	0.7	<0.53	<0.79	<0.28	<0.52	<0.63
Methylene chloride	0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
1,1,2-tetrachloroethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Tetrachloroethene	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Toluene	12.2	3.1	5.0	4.5	12.1	21.9	34.5	9.4	16.2	16.1	27.8	12.1	<14.6
Xylenes (total)	2.0	<1.7	9.2	2.8	<1.7	9.0	1.5	4	<1.7	2.7	1.0	<1.6	<3.2
1,1,1-trichloroethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
1,1,2-trichloroethane	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Trichloroethene	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53
Vinyl chloride	<0.43	<0.58	<0.50	<0.58	<0.57	<0.57	<0.43	<0.57	<0.53	<0.79	<0.28	<0.52	<0.53

Semi-volatile Organics (EPA 625)

Acenaphthene	<0.19	0.29	<0.22	<1.1	<0.40	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
Acenaphthylene	0.20	<0.22	<0.22	<1.1	<0.40	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
Anthracene	<0.19	<0.22	0.28	<1.1	0.55	<1.1	<0.21	<0.88	<0.2	0.33	<0.22	<0.23	<0.46
benzidine	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.23	<1.68
benzo (a) anthracene	<0.19	<0.22	<0.22	<1.1	<0.40	<1.1	0.25	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
benzo (a) pyrene	<0.19	0.23	<0.22	<1.1	<0.40	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
Benzo(b)fluoranthene	<0.19	0.30	<0.22	<1.1	<0.40	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
Benzo(g,h,i)perylene	<0.19	<0.22	<0.22	<1.1	<0.40	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
Benzo(k)fluoranthene	<0.19	<0.22	<0.22	<1.1	<0.40	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
4-bromophenyl-phenylether	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
Butylbenzylphthalate	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
4-chloro-3-methylphenol	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.23	<1.74
Bis(2-chloroethoxy)methane	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
Bis(2-chloroethyl) ether	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
Bis(2-chloroisopropyl) ether	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
2-chloronaphthalene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
2-chlorophenol	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.23	<1.74
4-chlorophenyl-phenylether	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
Chrysene	<0.19	<0.22	<0.22	<1.1	<0.40	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
Di-n-butylphthalate	<0.39	<0.44	0.75	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
Di-n-octyl phthalate	<0.39	<0.44	5.9	14.9	<0.81	<2.1	3.4	<1.8	<0.39	0.67	<0.44	3.30	<2.86
Dibenz(a,h)anthracene	<0.19	<0.22	<0.22	<1.1	<0.40	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
1,2-Dichlorobenzene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.9

Note: All less than are equal to the detection level from the Laboratory  
Note: Results above are listed in mg/kg

2018 Sludge Dry Weight

Date sampled Day of Week Parameter	1/3/2018 Wednesday Jan.	2/8/2018 Thursday Feb.	3/13/2018 Tuesday March	4/5/2018 Thursday April	5/1/2018 Tuesday May	5/6/2018 Wednesday June	7/10/2018 Tuesday July	8/2/2018 Thursday Aug.	9/5/2018 Wednesday Sept.	10/2/2018 Tuesday Oct.	11/1/2018 Thursday Nov.	12/6/2018 Thursday Dec.	2018 Average
1,3-Dichlorobenzene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.9
1,4-Dichlorobenzene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.9
3,3-dichlorobenzidine	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.93	<1.74
2,4-dichlorophenol	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.93	<1.74
Diethylphthalate	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	0.61	<0.44	<0.47	<0.88
2,4-dimethylphenol	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.93	<1.74
Dimethyl phthalate	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
2,4-dinitrophenol	<0.77	<0.88	<0.86	<4.6	<1.60	<8.4	<1.70	<7.0	<1.6	<2.00	<1.70	<1.90	<2.75
2,4-dinitrotoluene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
2,6-dinitrotoluene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
1,2-diphenylhydrazine	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
Bis(2-ethylhexyl) phthalate	5.50	6.7	9.60	7.3	8.80	11.4	6.3	1.8	3.7	4.3	3.3	4.90	<0.96
Fluoranthene	0.47	0.47	0.31	<1.1	0.67	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.51
Fluorene	<0.19	<0.22	<0.22	<1.1	<0.40	<1.1	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
Hexachlorobenzene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
Hexachlorobutadiene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
Hexachlorocyclopentadiene	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.93	<1.74
Hexachloroethane	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	0.47	<0.87
Indeno(1,2,3-cd)pyrene	0.20	<0.22	<0.22	<1.1	<0.40	<1.10	<0.21	<0.88	<0.2	<0.25	<0.22	<0.23	<0.44
Isophorone	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
2-methyl-4,6-dinitrophenol	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.93	<1.74
Naphthalene	0.21	0.58	0.5	<1.1	0.47	<1.1	0.52	1.7	<0.2	0.25	<0.22	<0.23	<0.59
Nitrobenzene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
2-nitrophenol	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.93	<1.74
4-nitrophenol	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.93	<1.74
N-Nitrosodimethylamine	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
N-Nitroso-di-n-propylamine	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
N-Nitrosodiphenylamine	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
Pentachlorophenol	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.93	<1.74
Phenanthrene	0.69	1	0.42	<1.1	0.84	1.3	0.48	3.3	0.33	0.31	0.26	0.23	<0.86
Phenol	<0.77	1.6	<0.86	<4.6	<1.60	<4.2	3.1	<3.5	<0.78	1.8	1.3	1.60	<2.14
Pyrene	0.58	0.53	0.53	<1.1	0.81	<1.10	<0.21	<0.88	<0.2	<0.25	0.32	<0.23	<0.56
1,2,4-trichlorobenzene	<0.39	<0.44	<0.43	<2.3	<0.81	<2.1	<0.42	<1.8	<0.39	<0.49	<0.44	<0.47	<0.87
2,4,6-trichlorophenol	<0.77	<0.88	<0.86	<4.6	<1.60	<4.2	<0.85	<3.5	<0.78	<0.99	<0.87	<0.93	<1.74

Pesticides/PCBs (EPA 608)

Total PCBs	<0.14	<0.15	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.92
PCB-1016	<0.14	<0.15	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.14
PCB-1221	<0.14	<0.15	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.14
PCB-1232	<0.14	<0.15	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.14
PCB-1242	<0.14	<0.15	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.14
PCB-1248	<0.14	<0.15	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.14
PCB-1254	<0.14	<0.15	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.14
PCB-1260	<0.14	<0.15	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.14
Aldrin	<0.035	<0.038	<0.036	<0.039	<0.035	<0.034	<0.036	<0.036	<0.035	<0.430	<0.037	<0.039	<0.069

Note: All less than are equal to the detection level from the Laboratory  
Note: Results above are listed in mg/Kg

2018 Sludge Dry Weight

Date sampled Day of Week Parameter	1/3/2018 Wednesday Jan.	2/8/2018 Thursday Feb.	3/13/2018 Tuesday March	4/5/2018 Thursday April	5/1/2018 Tuesday May	6/6/2018 Wednesday June	7/10/2018 Tuesday July	8/2/2018 Thursday Aug.	9/5/2018 Wednesday Sept.	10/2/2018 Tuesday Oct.	11/1/2018 Thursday Nov.	12/6/2018 Thursday Dec.	2018 Average
alpha-BHC	<0.035	<0.038	<0.036	<0.039	<0.035	<0.034	<0.036	<0.036	<0.035	<0.430	<0.037	<0.039	<0.036
beta-BHC	<0.035	<0.038	<0.036	<0.039	<0.035	<0.034	<0.036	<0.036	<0.035	<0.430	<0.037	<0.039	<0.069
delta-BHC	<0.035	<0.038	<0.036	<0.039	<0.035	<0.034		<0.036	<0.035	<0.430	<0.037	<0.039	<0.069
Lindane (gamma-BHC)				<0.039	<0.035				<0.035				<0.086
alpha-Chlordane													#DIV/0!
gamma-Chlordane													#DIV/0!
Chlordane	<0.720	<0.79	<0.75	<0.80	<0.720	<0.710	<0.740	<0.740	<0.730	<0.88	<0.76	<0.810	<0.763
4,4'-DDD	<0.068	<0.074	<0.070	<0.075	<0.068	<0.067	<0.069	<0.070	<0.069	<0.830	<0.710	<0.076	<0.187
4,4'-DDE	<0.068	<0.074	<0.070	<0.075	<0.068	<0.067	<0.069	<0.070	<0.069	<0.830	<0.710	<0.076	<0.187
4,4'-DDT	<0.068	<0.074	<0.070	<0.075	<0.068	<0.067	<0.069	<0.070	<0.069	<0.830	<0.710	<0.076	<0.187
Dieldrin	<0.068	<0.074	<0.070	<0.075	<0.068	0.087	<0.069	<0.070	<0.069	<0.830	<0.710	<0.076	<0.189
Endosulfan I	<0.035	<0.038	<0.036	<0.039	<0.035	<0.034	<0.036	<0.036	<0.035	<0.830	<0.370	<0.039	<0.430
Endosulfan II	<0.068	<0.074	<0.070	<0.075	<0.068	<0.067	<0.069	<0.070	<0.069	<0.830	<0.710	<0.076	<0.187
Endosulfan sulfate	<0.068	<0.074	<0.070	<0.075	<0.068	<0.067	<0.069	<0.070	<0.069	<0.830	<0.710	<0.076	<0.187
Endrin	<0.068	<0.074	<0.070	<0.075	<0.068	<0.067	<0.069	<0.070	<0.069	<0.830	<0.710	<0.076	<0.187
Endrin aldehyde	<0.068	<0.074	<0.070	<0.075	<0.068	<0.067	<0.069	<0.070	<0.069	<0.830	<0.710	<0.076	<0.187
Endrin ketone													#DIV/0!
Alpha-HCH	<0.035	<0.038	<0.036	<0.039	<0.035	<0.034	<0.036	<0.036	<0.035	<0.430	<0.037	<0.039	<0.069
Heptachlor	<0.035	<0.038	<0.036	<0.039	<0.035	<0.034	<0.036	<0.036	<0.035	<0.430	<0.037	<0.039	<0.069
Heptachlor epoxide	<0.035	<0.038	<0.036	<0.039	<0.035	<0.034	<0.036	<0.036	<0.035	<0.430	<0.037	0.061	<0.071
Methoxychlor													#DIV/0!
Mirex													#DIV/0!
Toxaphene	<0.720	<0.79	<0.75	<0.80	<0.720	<0.710	<0.74	<0.74	<0.73	<0.88	<0.76	<0.81	<0.763

Note: All less than values are equal to the detection level from the Laboratory  
Note: Results above are listed in mg/Kg

2018 Ash

Date sampled Day of Week Parameter	1st Quarter 1/3/2018 Wednesday Jan.	2nd Quarter 4/5/2018 Thursday April	Annual Form 43 4/12/2018 Thursday April	3rd Quarter 7/10/2018 Tuesday July	Annual Form U 9/5/2018 Wednesday Sept.	4th Quarter 10/2/2018 Tuesday Oct.	2018 Average
PCBs	<0.033	<0.033	<0.048	<0.048	<0.290	<0.290	<0.217
Cyanide	0.95	1.4	<1.0	1.90	<10.00	3.4	<4.61
Oil & Grease	515	230	270	<201	<198	<199	<269
% moisture	0.2	<0.1	<0.1	0.5	<0.1	0.3	<0.2
pH	7.47	7.81	7.03	8.36	6.73	6.81	7.37
TPH	<278	<200	<200				<226
% Volatile Solids	<1	1.6	<1.0	2.4	<1.0	<1.0	<1.3
Total Solids	99.8	100	100	99.5	99.9	99.7	99.8
Sulfide			<6.2		<6.2		<6.2
Phenols			0.7		<0.7		<0.7

Totals Analysis (Mg/Kg Dry Wt)

	57300	52700	55900	72000	59475
Aluminum	49	76.4	95.5	106.0	81.7
Antimony	25.0	40.2	37.2	70	31.5
Arsenic	833	923	1020	775.00	878
Barium	<2.0	<1.9	<1.0	1.2	<1.5
Beryllium	2.0	4.6	6.7	3.0	4.30
Cadmium	60.6	55.8	52.8	62.1	58.2
Chromium	871	767	896	751	804
Copper	45200	47600	40200	39100	43025
Iron	94.2	108	88.6	76.0	91.7
Lead	<0.089	<0.089	<0.046	<0.045	<0.061
Mercury	24.1	18.4	23.4	17.6	20.9
Molybdenum	129	170	173.0	250.0	189
Nickel	<5.0	<9.6	<5.0	8.4	<6.0
Selenium	6.8	14.8	3.50	6.40	6.5
Silver	<0.5	<0.48	<0.50	0.52	<0.50
Thallium	1300	1060	1210	924	1094
Zinc					

TCLP Leachate (Mg/L)

	<0.55	<0.15	<0.14	<0.14	<0.55	<0.55	<0.63
Aluminum	0.86	<0.15	<0.14	<0.14	0.27	<0.55	<0.23
Antimony	0.16	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Arsenic	0.16	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Barium	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8	<2.80
Beryllium	<0.022	<0.022	<0.022	<0.022	<0.022	<0.0220	<0.0220
Cadmium	<0.011	<0.011	<0.011	<0.011	<0.011	0.012	<0.011
Chromium	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Copper	1.30	0.86	0.90	0.78	1.4	1.90	1.19
Iron	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Lead	<0.033	<0.033	<0.033	<0.033	<0.033	<0.033	<0.03
Manganese	<0.0020	<0.002	2.4	<0.002	<0.002	<0.002	2.30
Mercury	0.50	0.31	<0.11	0.32	<0.11	0.29	<0.002
Molybdenum	<0.11	<0.11	<0.11	<0.11	<0.11	0.12	0.36
Nickel	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11
Selenium	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11

Note: All less than are equal to the detection level from the Laboratory  
Note: Results above are listed in mg/Kg

2018 Ash

	1st Quarter	2nd Quarter	Annual Form 43	3rd Quarter	Annual Form U	4th Quarter	2018 Average
Date sampled	1/3/2018	4/5/2018	4/12/2018	7/10/2018	9/5/2018	10/2/2018	
Day of Week	Wednesday	Thursday	Thursday	Tuesday	Wednesday	Tuesday	
Parameter	Jan.	April	April	July	Sept.	Oct.	
Silver	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022
Thallium	<0.11	<0.11		<0.11		<0.11	<0.11
Zinc	0.94	0.25	0.35	0.40	0.34	0.46	0.46

ASTM Leachate (Mg/L)

Ammonia	0.383	<0.400	<0.400	1.950	1.36	3.32	<1.20
C.O.D.	21	<15	<15	22	<15	<15.0	<17.2
Cyanide	<0.005	<0.0063		<0.005		<0.005	<0.005
Oil & Grease	4.2	<3.0	<2.2	<3.1	<3.6	<3.2	<3.2
pH	7.65	7.57		8.70	6.73	8.47	7.82
TDS	339	476		320		804	485
T.O.C.	10.8	1.6		6.10		2.7	5.30
Total Solids	110	590	404	444	620	873	507
T.O.X.			<20		59.5		<39.8



2018 Domestic

Date sampled Parameter	1/3/2018 Jan.	4/5/2018 April	7/10/2018 July	10/2/2018 Oct.	2018 Average
SITE:	CRPS	MHPS	NPS	CDP5	
Aluminum	1.4	0.54	0.7	0.26	0.73
Antimony	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Barium	0.097	0.083	0.087	0.110	0.094
Beryllium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Cadmium	0.00026	0.0003	<0.0002	0.00027	<0.00027
Chromium	0.0036	0.0027	0.0035	0.0014	0.0028
Copper	0.084	0.067	0.11	0.072	0.083
Iron	1.8	3	0.91	1.2	1.73
Lead	0.0041	0.0064	0.0024	0.0068	0.0049
Mercury	<0.0001	<0.0001	<0.0001	0.00017	<0.00012
Molybdenum	0.023	<0.001	<0.001	0.0014	<0.0066
Nickel	0.0073	0.0058	0.0049	0.0041	0.0055
Selenium	0.0032	<0.002	<0.002	<0.002	<0.0023
Silver	<0.0005	0.00079	<0.0005	<0.0005	<0.0006
Thallium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Zinc	0.16	0.1	0.19	0.13	0.15
ph	7.15	7.23	7.3	7.36	7.26
Ammonia	24.2	19.1	28.4	19.4	22.8
BOD	371	148	449	175	286
Cyanide (24HC)	<0.005	<0.005	<0.005	0.0037	<0.0047
Total Phenols (24HC)	0.035	0.007	0.065	0.006	0.028
Phosphorus	4.9	2.8	4.1	3.9	3.93
TKN	44.3	23.6	37	23.8	32.2
TSS	292	173	346	192	251
Cyanide (G)	<0.005	<0.005	<0.005	0.0033	<0.0046
Total Phenol (G)	0.033	0.005	0.022	0.009	0.017

Note: Results above are listed in mg/l

Volatile Organics (EPA 624)				
Acrolein	<50.0	<50.0	<50.0	<50.0
Acrylonitrile	<25.0	<25.0	<25.0	<25.0
Benzene	<5.0	<5.0	<5.0	<5.0
Bromodichloromethane	<5.0	<5.0	<5.0	<5.0
Bromoform	<5.0	<5.0	<5.0	<5.0
Bromomethane	<5.0	<5.0	<5.0	<5.0
Carbon tetrachloride	<5.0	<5.0	<5.0	<5.0
Chlorobenzene	<5.0	<5.0	<5.0	<5.0
Chlorodibromomethane	<5.0	<5.0	<5.0	<5.0
Chloroethane	<5.0	<5.0	<5.0	<5.0
2-Chloroethylvinyl ether	<10.0	<10.0	<10.0	<10.0
Chloroform	<5.0	<5.0	8.8	<5.0
Chloromethane	<5.0	<5.0	<5.0	<5.0
1,2-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0

Note: Results for EPA 608, 624 625 are listed in ug/l

2018 Domestic

Date sampled Parameter	1/3/2018 Jan.	4/5/2018 April	7/10/2018 July	10/2/2018 Oct.	2018 Average
1,3-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0
1,4-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0
1,1-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0
Trans-1,2-Dichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0
1,2-Dichloropropane	<5.0	<5.0	<5.0	<5.0	5.00
Cis-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0
Trans-1,3-Dichloropropene	<5.0	<5.0	<5.0	<5.0	<5.0
1,3-Dichloropropene, Total	<10.0	<10.0	<10.0	<10.0	<10.0
Ethylbenzene	<5.0	<5.0	<5.0	<5.0	<5.0
MTBE	<5.0	<5.0	<5.0	<5.0	<5.0
Methylene chloride	<5.0	<5.0	<5.0	<5.0	5.00
1,1,2,2-Tetrachloroethane	<5.0	<5.0	<5.0	<5.0	<5.0
Tetrachloroethene	<5.0	<5.0	<5.0	<5.0	<5.0
Toluene	5.8	<5.0	<5.0	<5.0	<5.2
Xylenes (total)	<15.0	<15.0	<15.0	<15.0	<15.0
1,1,1-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0
1,1,2-Trichloroethane	<5.0	<5.0	<5.0	<5.0	<5.0
Trichloroethene	<5.0	<5.0	<5.0	<5.0	<5.0
Trichlorofluoromethane	<5.0	<5.0	<5.0	<5.0	<5.0
Vinyl chloride	<5.0	<5.0	<5.0	<5.0	<5.0

Note: EPA 624 results are listed in ug/l

Semi-volatile Organics (EPA 625)

Acenaphthene	<1.4	<1.4	<1.4	<1.4	<1.4
Acenaphthylene	<1.4	<1.4	<1.4	<1.4	<1.4
Anthracene	<1.4	<1.4	<1.4	<1.4	<1.4
benzidine	<7.7	<7.7	<7.5	<3.8	<6.7
benzo (a) anthracene	<1.4	<1.4	<1.4	<1.4	<1.4
benzo (a) pyrene	<1.4	<1.4	<1.4	<1.4	<1.4
Benzo(b)fluoranthene	<1.4	<1.4	<1.4	<1.4	<1.4
Benzo(g,h,i)perylene	<1.4	<1.4	<1.4	<1.4	<1.4
Benzo(k)fluoranthene	<1.4	<1.4	<1.4	<1.4	<1.4
4-bromophenyl-phenylether	<2.9	<2.9	<2.8	<2.8	<2.9
Butylbenzylphthalate	<2.9	<2.9	<2.8	<2.8	<2.9
4-chloro-3-methylphenol	<2.9	<2.9	<2.8	<2.8	<2.9
Bis(2-chloroethoxy)methane	<2.9	<2.9	<2.8	<2.8	<2.9
Bis(2-chloroethyl) ether	<2.9	<2.9	<2.8	<2.8	<2.9
Bis(2-chloroisopropyl) ether	<2.9	<2.9	<2.8	<2.8	<2.9
2-chloronaphthalene	<2.9	<2.9	<2.8	<2.8	<2.9
2-chlorophenol	<2.9	<2.9	<2.8	<2.8	<2.9
4-chlorophenyl-phenylether	<2.9	<2.9	<2.8	<2.8	<2.9
Chrysene	<1.4	<1.4	<1.4	<1.4	<1.4
Di-n-butylphthalate	<2.9	<2.9	<2.8	<2.8	<2.9
Di-n-octyl phthalate	<2.9	<2.9	<2.8	<2.8	<2.9

Note: Results for EPA 608, 624 625 are listed in ug/l



2018 Domestic

Date sampled Parameter	1/3/2018 Jan.	4/5/2018 April	7/10/2018 July	10/2/2018 Oct.	2018 Average
Dibenzo(a,h)anthracene	<1.4	<1.4	<1.4	<1.4	<1.4
3,3-dichlorobenzidine	<2.9	<2.9	<2.8	<2.8	<2.9
2,4-dichlorophenol	<2.9	<2.9	<2.8	<2.8	<2.9
Diethylphthalate	<2.9	4.8	2.9	<2.8	<3.4
2,4-dimethylphenol	<2.9	<2.9	<2.8	<2.8	<2.9
Dimethyl phthalate	<2.9	<2.9	<2.8	<2.8	<2.9
2,4-dinitrophenol	<5.8	<5.7	<5.7	<5.7	<5.7
2,4-dinitrotoluene	<2.9	<2.9	<2.8	<2.8	<2.9
2,6-dinitrotoluene	<2.9	<2.9	<2.8	<2.8	<2.9
1,2-diphenylhydrazine	<2.9	<2.9	<2.8	<2.8	<2.9
Bis(2-ethylhexyl) phthalate	9.4	5.0	8.6	4.0	<6.8
Fluoranthene	<1.4	<1.4	<1.4	<1.4	<1.4
Fluorene	<1.4	<1.4	<1.4	<1.4	<1.4
Hexachlorobenzene	<2.9	<2.9	<2.8	<2.8	<2.9
Hexachlorobutadiene	<2.9	<2.9	<2.8	<2.8	<2.9
Hexachlorocyclopentadiene	<2.9	<2.9	<2.8	<2.8	<2.9
Hexachloroethane	<2.9	<2.9	<2.8	<2.8	<2.9
Indeno(1,2,3-cd)pyrene	<1.4	<1.4	<1.4	<1.4	<1.4
Isophorone	<2.9	<2.9	<2.8	<2.8	<2.9
2-methyl-4,6-dinitrophenol	<5.8	<5.7	<5.7	<5.7	<5.7
Naphthalene	<1.4	<1.4	<1.4	<1.4	<1.4
Nitrobenzene	<2.9	<2.9	<2.8	<2.8	<2.9
2-nitrophenol	<2.9	<2.9	<2.8	<2.8	<2.9
4-nitrophenol	<2.9	<2.9	<2.8	<2.8	<2.9
N-Nitrosodimethylamine	<2.9	<2.9	<2.8	<2.8	<2.9
N-Nitroso-di-n-propylamine	<2.9	<2.9	<2.8	<2.8	<2.9
N-Nitrosodiphenylamine	<2.9	<2.9	<2.8	<2.8	<2.9
Pentachlorophenol	<5.8	<5.7	<5.7	<5.7	<5.7
Phenanthrene	<1.4	<1.4	<1.4	<1.4	<1.4
Phenol	<7.7	<7.7	<7.5	<7.6	<7.6
Pyrene	<1.4	<1.4	<1.4	<1.4	<1.4
1,2,4-trichlorobenzene	<2.9	<2.9	<2.8	<2.8	<2.9
2,4,6-trichlorophenol	<2.9	<2.9	<2.8	<2.8	<2.9

Note: EPA 625 Results are listed in ug/l

Pesticides/PCBs (EPA 608)

Aldrin	<0.02	<0.019	<0.019	<0.019	<0.019
alpha-BHC	<0.02	<0.019	<0.019	<0.019	<0.019
beta-BHC	<0.02	<0.019	<0.019	<0.019	<0.019
delta-BHC	<0.02	<0.019	<0.019	<0.019	<0.019
Lindane (gamma-BHC)	<0.02	<0.019	<0.019	<0.019	<0.019
Chlordane	<0.2	<0.19	<0.19	<0.19	<0.193
4,4'-DDD	<0.02	<0.019	<0.019	<0.019	<0.019
4,4'-DDE	<0.02	<0.019	<0.019	<0.019	<0.019
4,4'-DDT	<0.02	<0.019	<0.019	<0.019	<0.019
Dieldrin	<0.02	0.095	0.027	0.043	<0.046

2018 Domestic

Date sampled Parameter	1/3/2018 Jan.	4/5/2018 April	7/10/2018 July	10/2/2018 Oct.	2018 Average
Endosulfan I	<0.02	<0.019	<0.019	<0.019	<0.019
Endosulfan II	<0.02	<0.019	<0.019	<0.019	<0.019
Endosulfan sulfate	<0.02	<0.019	<0.019	<0.019	<0.019
Endrin	<0.02	<0.019	<0.019	<0.019	<0.019
Endrin aldehyde	<0.02	<0.019	<0.019	<0.019	<0.019
Heptachlor	<0.02	<0.019	<0.019	<0.019	<0.019
Heptachlor epoxide	<0.02	<0.019	<0.019	<0.019	<0.019
Mirex	<0.02	<0.019	<0.019	<0.019	<0.019
Toxaphene	<1.0	<0.97	<0.93	<0.95	<0.96
Total PCBs	<0.51	<0.49	<3.30	<3.30	<1.90
PCB-1016	<0.51	<0.49	<0.47	<0.48	<0.49
PCB-1221	<0.51	<0.49	<0.47	<0.48	<0.49
PCB-1232	<0.51	<0.49	<0.47	<0.48	<0.49
PCB-1242	<0.51	<0.49	<0.47	<0.48	<0.49
PCB-1248	<0.51	<0.49	<0.47	<0.48	<0.49
PCB-1254	<0.51	<0.49	<0.47	<0.48	<0.49
PCB-1260	<0.51	<0.49	<0.47	<0.48	<0.49

Note: EPA 608 Results are listed in ug/l

Facility Name: DELCORA		UNITS: MG/L													
Facility ID: PAP027103															
Location: INFLUENT		Pollutant		Goals	Frequency	Date	Date	Date	Date	Date	Date	Date	Date		
						1/3/2018	2/8/2018	3/13/2018	4/5/2018	5/1/2018	6/6/2018	7/10/2018			
01097	ANTIMONY- TOTAL	0.3455	4	0.0042	0.02	0.007	0.013	0.015	0.0077	0.037	0.0077	0.037			
01002	ARSENIC- TOTAL	0.0856	4	0.0051	0.0034	0.0023	0.0037	0.0033	0.0022	0.0024	0.0022	0.0024			
01007	BARIUM- TOTAL	228.93	0	0.1	0.1	0.11	0.15	0.12	0.12	0.085	0.12	0.085			
34030	BENZENE	106.6849	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
01012	BERYLLIUM- TOTAL	4.9274	1	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			
00310	BOD- 5-DAY	291.2772	0	399	326	315	320	262	343	373	343	373			
01027	CADMIUM- TOTAL	0.036	4	0.00038	0.00037	0.00029	0.00058	0.00022	0.00031	0.0002	0.00031	0.0002			
34306	CHLORODIBROMOMETHANE	0.0173	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
01032	CHROMIUM- HEXAVALENT	0.1181	0												
01034	CHROMIUM- TOTAL	5.1885	4	0.0068	0.0067	0.007	0.0066	0.0066	0.0049	0.0055	0.0049	0.0055			
01042	COPPER- TOTAL	0.7221	4	0.083	0.082	0.059	0.092	0.079	0.089	0.047	0.089	0.047			
00720	CYANIDE- TOTAL	0.1482	4	<0.005	0.009	0.006	0.009	<0.005	<0.005	<0.005	<0.005	<0.005			
32101	DICHLOROBROMOMETHANE	0.0363	1	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
34371	ETHYLBENZENE	209.0519	4	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
01051	LEAD- TOTAL	0.757	4	0.0068	0.0085	0.0054	0.0047	0.0054	0.0052	0.0061	0.0052	0.0061			
71900	MERCURY- TOTAL	0.0055	4	<0.0001	<0.0001	<0.0001	0.00012	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
01062	MOLYBDENUM- TOTAL	No Goal	0	0.0029	0.0069	0.0049	0.0045	<0.0049	0.0054	0.0061	0.0054	0.0061			
34696	NAPHTHALENE	20.418	1	<0.0014	<0.0014	<0.0014	<0.0016	<0.0014	<0.0014	<0.0014	<0.0014	<0.0014			
01067	NICKEL- TOTAL	2.2337	4	0.0091	0.017	0.0098	0.011	0.012	0.013	0.012	0.013	0.012			
00610	NITROGEN- AMMONIA	570.139	0	19.45	19.1	21.25	23.05	13.2	15.9	20.8	15.9	20.8			
04166	PCB- TOTAL	0.0000004	4	<0.0032	<0.0033	<0.0032	<0.0035	<0.0032	<0.0033	<0.0033	<0.0033	<0.0033			
46000	PHENOLS- TOTAL	196.7619	4	0.244	0.008	0.024	0.048	0.029	<0.016	0.031	<0.016	0.031			
01147	SELENIUM- TOTAL	0.22	4	0.0083	0.0036	<0.002	<0.002	<0.002	0.0028	0.0052	0.0028	0.0052			
01077	SILVER- TOTAL	0.1097	4	<0.0005	<0.0005	<0.0005	0.00084	0.0011	<0.0005	<0.0005	<0.0005	<0.0005			
00530	SOLIDS- TOTAL SUSPENDED	350.0702	0	311	283	242	258	304	298	337	298	337			
01059	THALLIUM- TOTAL	0.0106	1	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			
34010	TOLUENE	205.7402	4	<0.005	0.0167	0.0132	0.0085	<0.005	0.0777	0.0438	0.0777	0.0438			
81551	XYLENE	1035.3077	4	<0.015	0.0871	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015			
01092	ZINC- TOTAL	3.034	4	0.16	0.15	0.11	0.16	0.13	0.14	0.094	0.14	0.094			
	PCB - Weather Event														
	PCB - Rinsate Blank	0.00000004													

Facility Name:	DELCORA										
Facility ID:	PAP027103										
Location:	INFLUENT										
		Pollutant									
01097	ANTIMONY- TOTAL	8/2/2018	9/5/2018	10/2/2018	10/2/2018	10/2/2018	10/12/2018	11/1/2018	12/6/2018	DTI	
01002	ARSENIC- TOTAL	0.054	0.043	0.0065				<0.001	0.0044		
01007	BARIUM- TOTAL	0.0041	0.0025	0.0046				<0.0015	0.0034		
34030	BENZENE	0.19	0.12	0.12				0.048	0.11		
01012	BERYLLIUM- TOTAL	<0.005	<0.005	<0.005				<0.005	<0.005		
00310	BOD- 5-DAY	<0.0005	<0.0005	<0.0005				<0.0005	<0.0005		
01027	CADMIUM- TOTAL	243	232	263				207	301		
34306	CHLORODIBROMOMETHANE	0.00046	0.00035	0.00042				<0.0002	0.00031		
01032	CHROMIUM- HEXAVALENT	<0.005	<0.005	<0.005				<0.005	<0.005		
01034	CHROMIUM- TOTAL	0.0085	0.0057	0.0086				<0.001	0.0058		
01042	COPPER- TOTAL	0.14	0.092	0.089				0.0075	0.095		
00720	CYANIDE- TOTAL	<0.005	<0.005	<0.0136				0.0328	0.011		
32101	DICHLOROBROMOMETHANE	<0.005	<0.005	<0.005				<0.005	<0.005		
34371	ETHYLBENZENE	<0.005	<0.005	<0.005				<0.005	<0.005		
01051	LEAD- TOTAL	0.016	0.017	0.0065				<0.001	0.0081		
71900	MERCURY- TOTAL	0.00015	<0.0001	0.00011				<0.0001	0.00011		
01062	MOLYBDENUM- TOTAL	0.012	0.0071	0.0048				0.0048	0.0061		
34696	NAPHTHALENE	<0.0014	<0.0014	<0.0014				<0.0014	<0.0028		
01067	NICKEL- TOTAL	0.031	0.017	0.01				0.0041	0.014		
00610	NITROGEN- AMMONIA	15.2	16.25	27.2				15.55	24.95		
04166	PCB- TOTAL	<0.0033	<0.0033	<0.0034				0.0000476	<0.0032		
46000	PHENOLS- TOTAL	0.036	0.009	0.125				0.331	0.037		
01147	SELENIUM- TOTAL	0.0027	<0.002	<0.002				<0.002	0.0028		
01077	SILVER- TOTAL	0.00065	0.00062	0.00068				<0.0005	<0.0005		
00530	SOLIDS- TOTAL SUSPENDED	340	303	291				228	284		
01059	THALLIUM- TOTAL	<0.0005	<0.0005	<0.0005				<0.0005	<0.0005		
34010	TOLUENE	0.0053	<0.005	0.0143				0.0197	0.0063		
81551	XYLENE	<0.015	<0.015	<0.015				<0.015	<0.015		
01092	ZINC- TOTAL	0.25	0.16	0.14				0.039	0.15		
	PCB - Weather Event				DRY		WET				
	PCB - Rinsate Blank				0.000000068		1.01E-07				



Facility Name:	DELCORA	
Facility ID:	PAP027103	
Location:	INFLUENT	Entry Count
	Pollutant	342 Total
01097	ANTIMONY- TOTAL	12
01002	ARSENIC- TOTAL	12
01007	BARIUM- TOTAL	12
34030	BENZENE	12
01012	BERYLLIUM- TOTAL	12
00310	BOD- 5-DAY	12
01027	CADMIUM- TOTAL	12
34306	CHLORODIBROMOMETHANE	12
01032	CHROMIUM- HEXAVALENT	0
01034	CHROMIUM- TOTAL	12
01042	COPPER- TOTAL	12
00720	CYANIDE- TOTAL	12
32101	DICHLOROBROMOMETHANE	12
34371	ETHYLBENZENE	12
01051	LEAD- TOTAL	12
71900	MERCURY- TOTAL	12
01062	MOLYBDENUM- TOTAL	12
34696	NAPHTHALENE	12
01067	NICKEL- TOTAL	12
00610	NITROGEN- AMMONIA	12
04166	PCB- TOTAL	14
46000	PHENOLS- TOTAL	12
01147	SELENIUM- TOTAL	12
01077	SILVER- TOTAL	12
00530	SOLIDS- TOTAL SUSPENDED	12
01059	THALLIUM- TOTAL	12
34010	TOLUENE	12
81551	XYLENE	12
01092	ZINC- TOTAL	12
		0
	PCB - Weather Event	2
	PCB - Rinsate Blank	2

[illegible]

Facility Name:	DELCORA										
Facility ID:	PAP027103										
Location:	EFFLUENT										
	Pollutant	6/4/2018	6/6/2018	7/10/2018	8/2/2018	9/5/2018	10/2/2018	10/3/2018	Date		
01097	ANTIMONY- TOTAL		0.005	0.034	0.037	0.034	0.0022		10/12/2018		
01002	ARSENIC- TOTAL		0.0016	0.0017	0.0026	0.002	0.0026				
01007	BARIUM- TOTAL		0.038	0.039	0.035	0.038	0.034				
34030	BENZENE		<0.001	<0.001	<0.001	<0.001	<0.001				
01012	BERYLLIUM- TOTAL		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				
00310	BOD- 5-DAY										
01027	CADMIUM- TOTAL		<0.0002	<0.0002	<0.0002	0.00026	<0.0002				
34306	CHLORODIBROMOMETHANE		0.0011	0.0015	0.0067	0.0036	0.0017				
01032	CHROMIUM- HEXAVALENT										
01034	CHROMIUM- TOTAL		0.0013	0.0013	0.0014	0.0015	0.0019				
01042	COPPER- TOTAL		0.0074	0.011	0.0045	0.011	0.0053				
00720	CYANIDE- TOTAL		0.032	0.027	0.014	0.007	0.0225				
32101	DICHLOROBROMOMETHANE		0.0014	0.0018	0.0072	0.0038	0.002				
34371	ETHYLBENZENE		<0.001	<0.001	<0.001	<0.001	<0.001				
01051	LEAD- TOTAL		<0.001	<0.001	<0.001	0.003	<0.001				
71900	MERCURY- TOTAL		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001				
01062	MOLYBDENUM- TOTAL		0.0084	0.0064	0.008	0.0057	0.0041				
34696	NAPHTHALENE		<0.0014	<0.0014	<0.0014	<0.0014	<0.0014				
01067	NICKEL- TOTAL		0.0061	0.0059	0.0067	0.0053	0.0058				
00610	NITROGEN- AMMONIA										
04166	PCB- TOTAL	0.000000138	<0.0032	<0.0034	<0.0033	<0.0032	<0.0033	0.000000116	0.000000859		
46000	PHENOLS- TOTAL		<0.005	<0.005	<0.005	<0.005	<0.005				
01147	SELENIUM- TOTAL		0.002	0.0059	0.002	0.002	0.002				
01077	SILVER- TOTAL		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				
00530	SOLIDS- TOTAL SUSPENDED										
01059	THALLIUM- TOTAL		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005				
34010	TOLUENE		<0.001	<0.001	<0.001	<0.001	<0.001				
81551	XYLENE		<0.003	<0.003	<0.003	<0.003	<0.003				
01092	ZINC- TOTAL		0.025	0.031	0.024	0.058	0.028				
	PCB - Weather event	WET						DRY		WET	
	PCB - Rinsate Blank	1.05E-07						0.000000068	0.000000101		

Facility Name:	DELCORA	DTfl	Entry Count
Facility ID:	PAP027103		
Location:	EFFLUENT		
	Pollutant	Date	Date
		11/1/2018	12/6/2018
01097	ANTIMONY- TOTAL	<0.001	0.034
01002	ARSENIC- TOTAL	0.0022	0.003
01007	BARIIUM- TOTAL	0.036	0.036
34030	BENZENE	<0.001	<0.001
01012	BERYLLIUM- TOTAL	<0.0005	<0.0005
00310	BOD- 5-DAY		
01027	CADIUM- TOTAL	<0.0002	0.00026
34306	CHLORODIBROMOMETHANE	<0.001	<0.001
01032	CHROMIUM- HEXAVALENT		
01034	CHROMIUM- TOTAL	0.0015	0.002
01042	COPPER- TOTAL	0.0044	0.0095
00720	CYANIDE- TOTAL	0.0279	<0.002
32101	DICHLOROBROMOMETHANE	0.0016	0.0013
34371	ETHYLBENZENE	<0.001	<0.001
01051	LEAD- TOTAL	<0.001	0.0013
71900	MERCURY- TOTAL	<0.0001	<0.0001
01062	MOLYBDENUM- TOTAL	0.0045	0.004
34696	NAPHTHALENE	<0.0014	<0.0014
01067	NICKEL- TOTAL	0.0045	0.006
00610	NITROGEN- AMMONIA		
04166	PCB- TOTAL	<0.0034	<0.0033
46000	PHENOLS- TOTAL	<0.005	<0.005
01147	SELENIUM- TOTAL	0.002	0.0026
01077	SILVER- TOTAL	<0.0005	<0.0005
00530	SOLIDS- TOTAL SUSPENDED		
01059	THALLIUM- TOTAL	<0.0005	<0.0005
34010	TOLUENE	<0.001	<0.001
81551	XYLENE	<0.003	<0.003
01092	ZINC- TOTAL	0.029	0.035
	PCB - Weather event		
	PCB - Rinsate Blank		



[illegible]

Facility Name:	DELCORA				
Facility ID:	PAP027103				
Location:	SLUDGE				
		Pollutant			
01097	ANTIMONY- TOTAL				
01002	ARSENIC- TOTAL				
01007	BARIUM- TOTAL				
34030	BENZENE				
01012	BERYLLIUM- TOTAL				
00310	BOD- 5-DAY				
01027	CADMIUM- TOTAL				
34306	CHLORODIBROMOMETHANE				
01032	CHROMIUM- HEXAVALENT				
01034	CHROMIUM- TOTAL				
01042	COPPER- TOTAL				
00720	CYANIDE- TOTAL				
32101	DICHLOROBROMOMETHANE				
34371	ETHYLBENZENE				
01051	LEAD- TOTAL				
71900	MERCURY- TOTAL				
01062	MOLYBDENUM- TOTAL				
34696	NAPHTHALENE				
01067	NICKEL- TOTAL				
00610	NITROGEN- AMMONIA				
04166	PCB- TOTAL				
46000	PHENOLS- TOTAL				
01147	SELENIUM- TOTAL				
01077	SILVER- TOTAL				
00530	SOLIDS- TOTAL SUSPENDED				
01059	THALLIUM- TOTAL				
34010	TOLUENE				
81551	XYLENE				
01092	ZINC- TOTAL				

Entry Count 300 Total

DTfl

## **Attachment 8**

### **Compliance Report for Dental Dischargers DRAFT**



DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY  
P.O. BOX 999 · CHESTER, PA 19016-0999

**ONE-TIME COMPLIANCE REPORT FOR DENTAL DISCHARGERS**

*In accordance with federal and local law (Title 40 of the Code of Federal Regulations Part 441 and DELCORA Resolution No. 2011-04), this form must be completed.*

**INSTRUCTIONS:**

- For any new dental discharger or for any existing dental discharger that has a transfer of ownership, the report must be submitted within 45 days after: the opening date of the new dental facility; or the effective date of the transfer of ownership, respectively. Dental dischargers operating under the same ownership since 06/14/2017 should submit this report within 30 days.
- Unless stated otherwise, all applicable sections are to be filled out completely. Your compliance report will not be considered complete unless every question is answered on this form.
- Depending upon the adequacy of the information submitted in this compliance report, additional information may be required. Please read all questions and attach information prior to submission.
- For any section of this report, attach additional sheets as necessary.
- You can fill out this form electronically, using the mouse and keyboard. Simply click inside of the first form field to begin, and advance to the next fields using the "tab" key on your keyboard, or by clicking in the fields with your mouse. Print the completed form, and submit it to DELCORA, Pretreatment Department with any necessary attachments.
- Mail report to

DELCORA  
Pretreatment Department  
100 E. 5<sup>th</sup> Street  
Chester, PA

**APPLICATION CLASSIFICATION**

Dental Dischargers that have been in business at the current address on or before July 14, 2017 are considered an Existing Source Dental Discharger (PSES 40 CFR 441.30). This ONE-TIME COMPLIANCE REPORT must be completed and submitted to the Pretreatment Department on or before October 12, 2020.

☐ Existing Source Dental Discharger

Dental Dischargers whose first discharge to the sewer system occurs after July 14, 2017 are considered a New Source Dental Discharger (PSES 40 CFR 441.40) This ONE-TIME COMPLIANCE REPORT must be completed and submitted to the Pretreatment Department no later than 90 days following the introduction of wastewater into the sewer system.

☐ New Source Dental Discharger

**SECTION A: GENERAL INFORMATION**

1. Facility/ Company Name:

2. Facility Physical Address:

City:

State:

Zip Code:

3. Facility Phone Number:

4. Facility Mailing Address:

City:

State:

Zip Code:

5. Facility Owner Name:

6. Facility Operator Name, if different from Owner:

7. Contact Phone Number:

8. Email Address:

9. Operating at this location since:

10. Most recent date of Ownership Transfer:

## ONE-TIME COMPLIANCE REPORT FOR DENTAL DISCHARGERS

### SECTION B. EXEMPTIONS CLAIMED

11. Based on any of the following criteria, dental business may qualify for an exemption from: amalgam separator installation and maintenance requirements; and implementation of prescribed best management practices. Mark the check box and include your initials to certify each exemption claimed. If claiming an exemption, proceed to SECTION D: CERTIFICATIONS. If no exemptions apply to the facility, check "No exemptions apply" and proceed to SECTION C. AMALGAM SEPARATOR INSTALLATION & MAINTENANCE

☐ 441.10 (c) The dental facility identified in SECTION A exclusively practices one or more of the following dental specialties: oral pathology, oral and maxillofacial radiology, oral and maxillofacial surgery, orthodontics, periodontics, or prosthodontics. Initials \_\_\_\_\_

☐ 441.10 (d) The dental facility identified in SECTION A conducts all dental services from one or more mobile units (defined as a specialized mobile self-contained van, trailer or other equipment used in providing dentistry services at multiple locations). Initials \_\_\_\_\_

☐ 441.10 (e) The dental facility identified in SECTION A collects all dental amalgam process wastewater for transfer and hauling to a Centralized Waste Treatment facility as defined in 40 CFR 437." Initials \_\_\_\_\_

☐ 441.10 (f) The dental facility identified in SECTION A does not place or remove dental amalgam, except in limited emergency or unplanned, unanticipated circumstances (according to the rules this means that, on average, less than 5% of the removal procedures involve dental amalgam, and that the business does not stock amalgam capsules or accept new patients with amalgam fillings). Initials \_\_\_\_\_

☐ No exemptions apply

### SECTION C. AMALGAM SEPARATOR INSTALLATION & MAINTENANCE

12. Total number of chairs:

13. Total number of chairs at which amalgam may be present in the resulting wastewater (i.e. chairs where amalgam may be placed or removed):

14. List all the following information for all amalgam separators:

Manufacturer Name	Model	Month/Year Installed	Number of chairs served	ISO 11143 or ANSI/ADA108-2009 Certified?*
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No
				<input type="checkbox"/> Yes <input type="checkbox"/> No

## ONE-TIME COMPLIANCE REPORT FOR DENTAL DISCHARGERS

15. List all the following information for all equivalent devices that capture amalgam waste:				
Manufacturer Name	Model	Month/Year Installed	Number of chairs served	Removal Efficiency*

\*Amalgam separator(s) or equivalent device(s) must be compliant with either the American National Standards (ANSI) American National Standard/American Dental Association (ADA) Specification 108 for Amalgam Separators (2009) with Technical Addendum (2011) or the International Organization for Standardization (ISO) 11143 Standard (2008) or subsequent versions so long as that version requires amalgam separators to achieve at least a 95% removal efficiency

16. Has the dental facility installed any amalgam separators that do not meet the requirements of § 441.30(a)(1)(i) and (ii) prior to June 14, 2017 ☐ Yes ☐ No

If yes,

a. Please indicate the affected number of chairs at which amalgam placement or removal occurs: \_\_\_\_\_

b. I understand that such separators must be replaced with one or more amalgam separators (or equivalent devices) that meet the requirements of § 441.30(a)(1) or § 441.30(a)(2), after their useful life has ended, and no later than June 14, 2027, whichever is sooner. Initials \_\_\_\_\_

17. Is a 3rd party service provider used in maintaining amalgam separators or equivalent devices? ☐ Yes ☐ No

a. If yes, provide the following information of third-party service provider (e.g. Company Name) that maintains the amalgam separator or equivalent device (if applicable):

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Contact Person Name: \_\_\_\_\_

Contact Phone Number: \_\_\_\_\_ Email Address: \_\_\_\_\_

b. If no, provide a description of the practices employed by the facility to ensure proper operation and maintenance in accordance with § 441.30 or § 441.40.

## ONE-TIME COMPLIANCE REPORT FOR DENTAL DISCHARGERS

### SECTION D: CERTIFICATIONS

18. I certify that the amalgam separator(s) or equivalent device(s) is designed and will be operated and maintained to meet the requirements in § 441.30 or § 441.40. Initials \_\_\_\_\_

☐ Not applicable per SECTION B: EXEMPTIONS

19. I certify that the facility identified in Section A is implementing Best Management Practices specified in 441.30 (b) or 441.40 (b) and will continue to do so. Initials \_\_\_\_\_

- Waste amalgam including, but not limited to, dental amalgam from chair-side traps, screens, vacuum pump filters, dental tools, cuspidors, or collection devices, must not be discharged to a publicly owned treatment works (e.g., municipal sewage system).
- Dental unit water lines, chair-side traps, and vacuum lines that discharge amalgam process wastewater to a publicly owned treatment works (e.g., municipal sewage system) must not be cleaned with oxidizing or acidic cleaners, including but not limited to bleach, chlorine, iodine and peroxide that have a pH lower than 6 or greater than 8 (i.e. cleaners that may increase the dissolution of mercury).

☐ Not applicable per SECTION B: EXEMPTIONS

### SECTION E: CERTIFICATION STATEMENT

20. Per § 441.50(a)(2), the One-Time Compliance Report must be signed and certified by a responsible corporate officer, a general partner or proprietor if the dental facility is a partnership or sole proprietorship, or a duly authorized representative in accordance with the requirements of § 403.12(l).

*I am a responsible corporate officer, a general partner or proprietor (if the facility is a partnership or sole proprietorship), or a duly authorized representative in accordance with the requirements of § 403.12(l) of the above named dental facility. 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 a fine and/or imprisonment for knowing violations.*

\_\_\_\_\_  
Name of Authorized Representative (Print)

\_\_\_\_\_  
Title (Print)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### SECTION F: RETENTION PERIOD

As long as a Dental facility subject to this part is in operation, or until ownership is transferred, the Dental facility or an agent or representative of the dental facility must maintain this One Time Compliance Report and make it available for inspection in either physical or electronic form.

### OFFICE USE ONLY

Date Received:	Entered by:
Total Number of Separators/Equivalent Devices:	Report Complete? <input type="checkbox"/> Yes <input type="checkbox"/> No
Exempt from Regulations? <input type="checkbox"/> Yes <input type="checkbox"/> No	Inspection Required? <input type="checkbox"/> Yes <input type="checkbox"/> No
Were Amalgam Separator(s) / Amalgam Removal Device(s) installed before June 14, 2017? <input type="checkbox"/> Yes <input type="checkbox"/> No	

## **Attachment 9**

### **Miscellaneous Developments**



Industry Name	Number of Years without a Violation	Award Level
Braskem America, Inc	7	Gold
Chelton House Products	1	Bronze
Container Research Corporation	1	Bronze
Liberty Electric Power, LLC	8	Gold
Marcus Hook Energy L.P.	4	Silver
Olympic Tool and Machine	3	Silver
Salem County Improvement Authority	3	Silver
Sunoco Partners Marketing & Terminals	1	Bronze
Sustainable Decarbonization Services LLC	3	Silver



# COMPLIANCE AWARDS PROGRAM

**Tiered awards based on 100% compliance evaluated annually**

- ♦ **Bronze Award for 1-2 consecutive calendar years**
- ♦ **Silver Award for 2-4 consecutive calendar years**
- ♦ **Gold Award for 5-9 consecutive calendar years**
- ♦ **Platinum Award for 10+ consecutive calendar years**

Eligibility:

- ♦ Permitted & actively discharging for the entire calendar year
- ♦ Meet all sample requirements
- ♦ Submit all reports on time
- ♦ NO violations
- ♦ No active Administrative Orders
- ♦ Not in Significant Non-compliance

*For more information or questions, please email [pretreatment@delcora.org](mailto:pretreatment@delcora.org)*

THE DELCORA STANDARDS, RULES,  
AND REGULATIONS OF 2011

RESOLUTION NO. 2011-04

AS FIRST ADOPTED

APRIL 19, 2011

DELAWARE COUNTY REGIONAL  
WATER QUALITY CONTROL AUTHORITY  
DELAWARE COUNTY, PENNSYLVANIA

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DELAWARE COUNTY REGIONAL  
WATER QUALITY CONTROL AUTHORITY  
DELAWARE COUNTY, PENNSYLVANIA

RESOLUTION NO. 2011-04

ADOPTED

APRIL 19, 2011

ADOPTING STANDARDS, RULES AND REGULATIONS GOVERNING THE PROPER DISPOSITION OF ALL MANNER OF WASTEWATERS INTRODUCED INTO THE DELCORA WASTEWATER MANAGEMENT SYSTEM, INCLUDING THE ACCEPTANCE OF THESE WASTEWATERS AND THE CONNECTION TO AND THE CONTINUED USAGE OF DELCORA FACILITIES; ESTABLISHING THE PROCEDURES, ENFORCEMENT PROVISIONS AND FEE SYSTEM TO ADMINISTER THE REGULATIONS; AND OTHER MISCELLANEOUS MATTERS.

BE IT RESOLVED BY THE DELAWARE COUNTY REGIONAL WATER QUALITY CONTROL AUTHORITY (hereinafter referred to as DELCORA) as follows:

**ARTICLE 100**

**GENERAL PROVISIONS**

**SECTION 101 - SHORT TITLE.**

These Standards, Rules and Regulations shall be known as and may be cited as "The DELCORA Standards, Rules and Regulations of 2011."

**SECTION 102 - DELCORA'S RESPONSIBILITY AND SERVICE AREAS.**

(A) DELCORA was established by the Delaware County Commissioners on October 20, 1971, and organized in accordance with the Municipality Authorities Act of 1945 (P.L. 382, 53 P.S. 301 et seq. as amended and supplemented). DELCORA was authorized to exercise all powers granted under the Act to implement the county-wide wastewater management plan recommended by the November 1972 "Delaware County Regional Sewerage Project" report prepared by the Albright and Friel Division of Betz Environmental Engineers, Inc. DELCORA's role as implementation agency for the Delaware County Wastewater Management Plan involves the acquisition, holding, construction, improvement, maintenance, operation, owning and leasing of sewers, sewer systems, and sewerage treatment works (including works for the treatment and disposal of industrial wastewaters), and the contracting with individuals, corporations, municipal corporations, authorities, and other governmental bodies and regulatory agencies both

within and outside Delaware County as may be authorized and necessary in fulfilling the objectives of the regional plan.

(B) DELCORA shall define its service areas and establish the local limits for each by separate resolution, which resolution may be amended from time to time without affecting the validity of these Standards, Rules and Regulations.

SECTION 103 – PURPOSE.

(A) Wastewaters to be received, conveyed and treated by DELCORA will be discharged into waters of the Commonwealth of Pennsylvania, either from DELCORA owned facilities or through the City of Philadelphia's Southwest Water Pollution Control Plant. In order to effectively manage such wastewater facilities, it is essential that DELCORA set forth Standards, Rules and Regulations governing all manner of usage of its facilities and all attendant terms and conditions.

(B) Therefore, these Standards, Rules, and Regulations are necessary in order to ensure the following purposes:

(1) That all discharges comply with the provisions of the Clean Water Act of 1977, as amended, the Clean Streams Law of Pennsylvania, as amended, the Delaware River Basin Compact, and any other legislation which has been or may be enacted to govern such matters, and the corresponding rules and regulations, and permits which have been or may be duly adopted or issued pursuant to the above by United States Environmental Protection Agency (USEPA), Pennsylvania Department of Environmental Protection (PADEP), Delaware River Basin Commission (DRBC), or any other agency duly empowered to exercise such control;

(2) That DELCORA's wastewater collection, conveyance, and treatment facilities achieve their design operational performance and are efficiently and economically maintained;

(3) That pollutants are prevented from introduction into the system which may interfere with the treatment plant processes resulting in reduced performance, violation of permit conditions, degradation of receiving water quality, air quality or otherwise cause "Interference" as defined herein and in USEPA's pretreatment regulations, 40 CFR Part 403;

(4) That pollutants are prevented from introduction into the system which may Pass Through the system inadequately treated, causing violation of permit conditions, degradation of receiving water quality, air quality, or which otherwise may be incompatible with proper system function or cause "Pass Through" as defined herein and in USEPA's pretreatment regulations, 40 CFR Part 403;



- (5) That pollutants are prevented from introduction into the system which may result in the contamination of sludge or resultant ash which minimizes available disposal options or limits the opportunity to recycle, reclaim or reuse wastewaters, sludges, or resultant ash from the system;
  - (6) That the structural integrity of all conveyance facilities, collection facilities, components facilities, and equipment comprising the DELCORA Wastewater Management System is maintained;
  - (7) That the health, safety and welfare of personnel and the general populace and the non-endangerment of the environment is fostered and promoted;
  - (8) That the cost associated with administering, operating and maintaining the DELCORA Wastewater Management System is equitably distributed in accordance with the benefit enjoyed in its existence and use; and
  - (9) That DELCORA's system is in compliance with Environmental Protection Agency Pretreatment Standards, 40 CFR Part 401 et seq., as amended, at present and hereinafter, establishing the responsibility of local governmental entities, industry and the public to implement National Pretreatment Standards.
- (C) In order that the aforementioned purposes can be achieved, it is deemed necessary and proper to adopt Standards, Rules and Regulations governing discharges into the DELCORA system.

#### SECTION 104 - APPLICABILITY.

The DELCORA Standards, Rules and Regulations are applicable to all persons, municipalities, authorities, or industries, both within and outside Delaware County who are by contract, permit, or agreement Users of or discharge into the DELCORA Wastewater Management System. Users subject to this Resolution include both current Users and persons, municipalities, authorities, or industries which may hereafter become Users of the DELCORA Wastewater Management System. DELCORA's Standards, Rules and Regulations shall be applicable to all types of wastewater and all classes of Users whether by primary connection into a system administered by DELCORA or by secondary connection following collection and/or conveyance by any intermediate tributary User system into a DELCORA administered system and/or by discharge of trucked or hauled wastes to a designated point.

#### SECTION 105 - DECLARATION OF POLICIES AND GENERAL REQUIREMENTS.

- (A) It is DELCORA's policy to establish hereby, by Resolution of its Board of Directors, Standards, Rules and Regulations governing the proper disposition of all manner of wastewaters introduced into the DELCORA Wastewater Management System. This Resolution is specifically directed toward acceptance of wastewaters, the connection to

and continued usage of DELCORA facilities comprising the system, establishment of procedures and enforcement provisions applicable to system usage, and the setting of fees for equitably distributing the costs to administer the regulations.

(B) It is also established that the following general policies and requirements shall prevail throughout:

(1) Uniformity of Standards. These Standards, Rules and Regulations shall be uniform and apply equally to all types of Users in the same class, in the same service area.

(2) Consistency With Other Programs. It shall be DELCORA's policy to be consistent with any regulations governing such matters as those addressed within these Standards, Rules and Regulations as may be duly established by any regulatory agency duly authorized and empowered to exercise such control. Agency regulations shall be deemed to constitute minimum standards of performance and DELCORA's intent to comply in satisfaction thereof may assume the form of either adherence to the Agency regulations, or the promulgation, alteration, or amendment of DELCORA regulations in affording administration of either an equivalent or more stringent standard. All dischargers tributary to DELCORA facilities in the Eastern Delaware County Service Area must also comply with all applicable standards of the Philadelphia Water Department so long as the user's discharge is conveyed to the City's Wastewater Collection System and where such standards are more stringent than the standards herein, the Philadelphia standards shall take precedence for the dischargers in the Eastern Service Area.

(3) Equivalent Municipal and Municipal Authority Requirements. All governmental entities discharging to the DELCORA Wastewater Management System shall enact suitable regulations or ordinances which at a minimum, offer equivalency with DELCORA's Standards, Rules and Regulations. The governmental entity shall also adopt an Ordinance or Resolution which imposes civil liability for the violation of DELCORA's Standards, Rules and Regulations. The maximum civil penalty liability shall equal a sum of at least one thousand dollars (\$1,000.00) per day per violation and up to the maximum penalty or fine allowed by law. Such enactment is not intended to supersede codes or ordinances dealing with local preferences or prerogatives but to assure the capability to cooperatively and comprehensively support DELCORA's administrative responsibilities. When DELCORA wishes to seek civil penalties against a User, DELCORA shall notify the appropriate governmental entity, in writing, requesting that the governmental entity institute proceedings or delegate its authority to do so to DELCORA, provided however, that if proceedings are not instituted by the governmental entity or DELCORA is not notified of their intent to do so within fifteen (15) days, then such delegation automatically is granted to DELCORA, and

DELCORA may proceed to institute suit for civil penalties in accordance with these Standards, Rules and Regulations.

(4) User Compliance. It shall be each User's responsibility to comply with all applicable Agency and DELCORA regulations in a time and manner as stipulated by the issuing Agency(s) or DELCORA.

(5) Variances.

(a) Each user must comply with the standards set forth herein unless the user first requests and secures a variance from DELCORA. DELCORA will not grant a variance unless the user provides information by which DELCORA conclusively determines:

(i) DELCORA's local limitations shall be based on the USEPA approved headworks analysis. The limitations shall be set forth by DELCORA resolution.

(ii) That the variance will not adversely impact the operation of DELCORA's system in any other manner.

(iii) In no event shall any variance allow the total loading allocated to all industrial users for any pollutant to exceed the maximum allowable industrial loading set forth in the most recent headworks analysis submitted by the Authority and approved by the USEPA as part of DELCORA's Pretreatment Program.

(iv) In no event shall any variance permit the violation of a categorical standard (as defined in Section 107(A)(10) or any pretreatment standard or requirement found in 40 CFR 403.

(b) Such variances must be requested and supported by technical information substantiating the variance requested and the lack of impact on DELCORA operations. Approval of a variance must also be given by the City of Philadelphia for users in the Eastern Service Area. Variance approvals shall only be valid if granted in writing.

(c) DELCORA prohibits changes or variances of any categorical standard and/or federal pretreatment requirements.

#### SECTION 106 - INDUSTRIAL WASTE CONTROL PROGRAM.

It is the intent of this Resolution to establish a system of legal authority, procedures and resources to control the introduction of wastewater discharges into the DELCORA system

which is consistent with Title III of the Clean Water Act and regulations promulgated pursuant to the same, as published in 40 CFR Parts 401-471.

SECTION 107 - DEFINITIONS AND ABBREVIATIONS.

(A) The following terms shall be construed to have the following meanings in these Standards, Rules and Regulations except in those instances where the context clearly indicates otherwise.

(1) Act (the Clean Water Act). The Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. §1251 et seq.

(2) Agency (Regulatory Agency). Any Local, Municipal, State, Regional or Federal entity with jurisdiction over wastewater disposal or environmental matters in the POTW's service area.

(3) Approval Authority. The Director in a NPDES State with an approved State pretreatment program and the appropriate Regional Administrator of the USEPA in a non-NPDES State without an approved State pretreatment program.

(4) Authority (DELCORA). The Delaware County Regional Water Quality Control Authority, including agents or persons authorized to act on its behalf.

(5) Authorized Representative of Industrial User.

(a) If the User is a corporation:

(i) The president, secretary, treasurer, or a vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) The manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions that govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term compliance with environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for individual wastewater discharge permit or general permit requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

- (b) If the User is a partnership or sole proprietorship: a general partner or proprietor, respectively.
- (c) If the User is a Federal, State, or local governmental facility: a director or highest official appointed or designated to oversee the operation and performance of the activities of the government facility, or their designee.
- (d) The individuals described in paragraphs a through c, above, may designate a Duly Authorized Representative if the authorization is in writing, the authorization specifies the individual or position responsible for the overall operation of the facility from which the discharge originates or having overall responsibility for environmental matters for the company, and the written authorization is submitted to DELCORA.
- (6) Best Management Practices (BMPs). BMPs are management and operational procedures that are intended to prevent pollutants from entering a facility's wastestream or from reaching a discharge point. BMPs are defined in Title 40 of the Code of Federal Regulations (CFR) 403.3(e) as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to implement the general and specific prohibitions listed in sections 403.5(a)(1) and (b). BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw materials storage.
- (7) Biochemical Oxygen Demand (BOD<sub>5</sub>). The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure for five (5) days at twenty (20) degrees centigrade expressed in terms of concentration or loading.
- (8) Building Lateral. A private sewer conveying wastewater from the premises of a User to the DELCORA Wastewater Management System or the City's Wastewater Collection System.
- (9) Bypass. The intentional diversion of wastestreams from any portion of an Industrial User's pre-treatment facility.
- (10) Categorical Pretreatment Standard or Categorical Standard. Any regulation containing pollutant discharge limits promulgated by USEPA in accordance with sections 307(b) and (c) of the Act (33 U.S.C. section 1317) that apply to a specific category of Users and that appear in 40 CFR Chapter I, Subchapter N, Parts 405-471.
- (11) Categorical Industrial User. An Industrial User subject to a Categorical Pretreatment Standard or Categorical Standard.

- (12) Chain of Custody. Written documentation such as receipts and record book entries to show the history of possession, custody and/or control of a sample from collection through analysis.
- (13) City – the City of Philadelphia or the Philadelphia Water Department.
- (14) Chemical Oxygen Demand or COD. A measure of the oxygen required to oxidize all compounds, both organic and inorganic, in water.
- (15) Collection Facilities. The sewers, lift stations, pumping stations, force mains, and other POTW equipment, structures, and facilities used to collect wastewaters from individual Users within specific tributary districts and transport them to conveyance facilities for transmission to the treatment plant for processing.
- (16) Combined Sewer (Combined Collector). A pipe or conduit intended to carry varying proportions of sanitary wastewater, industrial wastewater, stormwater, and/or non-contact cooling water.
- (17) Commercial User. A source of discharge of sanitary wastewater to a public sewer system from premises used partially or entirely for commercial purposes with wastewater varying in composition, quantity, or quality from the characteristics or proportions exhibited by sanitary wastewater generated from typical domestic activities but such term does not include non-domestic source(s) of wastewater or industrial wastewater from commercial premises.
- (18) Composite Sample. A sample prepared by combining discrete samples collected from the wastestream either at periodic time intervals or in proportion to the wastestream flow. The frequency of discrete sample collection is a function of variability of pollutant(s) concentration(s) and/or wastestream flow.
- (19) Control Authority. DELCORA.
- (20) Conventional Wastewater Pollutants. Pollutants so designated in accordance with Section 304(a)(4) of the Act as being effectively managed by secondary treatment as defined by 40 CFR Part 133.
- (21) Conveyance Facilities. The interceptor, sewers, pumping stations, force mains, and other POTW equipment, structures, and facilities used to transport wastewater from tributary districts to centralized areas for wastewater treatment.
- (22) Daily Maximum Limit. The maximum allowable discharge limit of a pollutant during a calendar day or 24-hour period. Where Daily Maximum Limits are expressed in units of mass, the daily discharge is the total mass discharged over the course of a day. Where Daily Maximum Limits are expressed in terms of

concentration, the daily discharge is the arithmetic average measurement of the pollutant concentration derived from all measurements taken that day.

(23) DELCORA Wastewater Management System. All components, piping, valving, equipment, structures, conveyance facilities, collection facilities and other sewerage facilities administered by DELCORA for purposes of wastewater collection, conveyance, and/or treatment.

(24) Direct Discharge. The discharge of treated or untreated wastewater directly to the waters of the Commonwealth of Pennsylvania which may occur through DELCORA's or the City's stormwater conduits or combined sewer outfall structures.

(25) Domestic Source. Source of sanitary wastewater from a residential user.

(26) Environmental Protection Agency (USEPA). The United States Environmental Protection Agency (USEPA), or where appropriate the term may also be used as a designation for the Regional Water Management Division Director, the Regional Administrator or other duly authorized official of said agency.

(27) Existing Source. Any source of discharge that is not a "New Source".

(28) Flashpoint. The temperature at which a liquid or volatile solid gives off vapor sufficient to form an ignitable mixture with the air near the surface of the liquid or within the test vessel. Flashpoint is determined by the test methods set forth in 40 CFR §261.21.

(29) Grab Sample. A sample that is taken from a wastestream without regard to the flow in the wastestream and over a period of time not to exceed fifteen (15) minutes.

(30) Hauled Wastewater. Wastewater of a domestic or non-domestic nature from a User, which is delivered via truck or tanker and discharged into an approved discharge point at the POTW.

(31) Hazardous Pollutants. Substances so defined pursuant to criteria established within Section 311 of the Act.

(32) Holding Tank Waste. Any waste from holding tanks such as vessels, chemical toilets, campers, trailers, septic tanks, vacuum-pump tank trucks or trucked or hauled pollutants and/or sludge.

(33) Indirect Discharge or Discharge. Introduction of pollutants into a POTW from any non-domestic source regulated under Section 307(b)(c) or (d) of the Act.

- (34) Industrial User. A source of indirect discharge to a POTW.
- (35) Industrial Wastewater. The liquid or water-borne wastes from industrial or manufacturing processes. Unless specifically stated otherwise, this term shall not include sanitary sewage or sanitary wastewater components.
- (36) Instantaneous Limit. The maximum concentration of a pollutant allowed to be discharged at any time, determined from the analysis of any discrete or composited sample collected, independent of the industrial flow rate and the duration of the sampling event.
- (37) Interference. A discharge, alone or in conjunction with a discharge or discharges from other sources, which:
- (a) inhibits or disrupts the POTW, its treatment processes, operations or maintenance activities, or its sludge and resultant ash processes, use, reuse, recycling or disposal; or
  - (b) causes a violation of any requirement of the POTW's operating permits (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use, recycling or reuse or disposal (including the resultant ash) in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent state or local statutes and/or regulations): including but not limited to NPDES; Title V; solid waste processing permit; Section 405 of the Clean Water Act; the Solid Waste Disposal Act (SWDA); [including Title II more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA]; the Clean Air Act; the Toxic Substances Control Act; and the Marine Protection, Research and Sanctuaries Act.
- (38) Intermediate Conveyors (Intermediate Transmission). Any person(s) under express or implied contract or agreement with a POTW to accept secondary wastewater contributions through secondary system connection for subsequent conveyance or transmission into the POTW.
- (39) Local Limit. Specific discharge limits developed and enforced by DELCORA or the City of Philadelphia upon industrial or commercial facilities to implement the general and specific discharge prohibitions listed in 40 CFR 403.5(a)(1) and (b).
- (40) Mass Loading. The mass of pollutant(s) discharged from a user's connection with respect to either time, or in cases of certain Industrial Users, in terms of characteristic production units.



(41) Medical Waste. Isolation wastes, infectious agents, human blood and blood products, pathological wastes, sharps, body parts, contaminated bedding, surgical wastes, potentially contaminated laboratory wastes, and dialysis wastes.

(42) Monthly Average. The sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

(43) Monthly Average Limit. The highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measure during a calendar month divided by the number of "daily discharges" measured during that month.

(44) National Prohibitive Discharge Standards (Prohibitive Discharge Standards, General Pretreatment Regulations). Any regulation containing pollutant discharge limits promulgated by the USEPA under the authority of Section 307(b) of the Act and as published in 40 CFR Part 403.

(45) New Source.

(a) Any building, structure, facility or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the publication of proposed Pretreatment Standards under Section 307 (c) of the Act which will be applicable to such source if such Standards are thereafter promulgated in accordance with that section, provided that:

(i) The building, structure, facility or installation is constructed at a site which no other source is located; or

(ii) The building, structure, facility or installation totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

(iii) The production or wastewater generating processes of the building, structure, facility or installation are substantially independent of an existing source at the same site. In determining whether these are substantially independent, factors such as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the existing source should be considered.

(b) Construction on a site at which an Existing Source is located results in a modification rather than a new source if the construction does not create a new building, structure, facility or installation meeting the criteria of

paragraphs (a)(ii) and (a)(iii) of this subsection but otherwise alters, replaces, or adds to existing process or production equipment.

(c) Construction of a new source as defined under this subsection has commenced if the owner or operator has:

(i) Begun, or caused to begin as a continuous on site construction program:

(1) Any placement, assembly, or installation of facilities or equipment; or

(2) Significant site preparation work including clearing, excavation, or removals of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or

(ii) Entered into a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under this paragraph.

(46) National Pollution Discharge Elimination System Permit (NPDES Permit). A permit issued to the POTW pursuant to Section 402 of the Act (33 U.S.C. §1342).

(47) Non-Contact Cooling Water (NCCW). Water used for cooling that does not come into direct contact with any raw material, intermediate product, waste product, or finished product.

(48) Non-domestic source. A source of wastewater which contains pollutants other than sanitary wastewater.

(49) Pass Through. A discharge which exits the POTW into waters or the atmosphere of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or a violation of any air emission standards set pursuant to the Clean Air Act.

(50) Person. Any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate, governmental entity or any other legal entity, or their legal representatives, agents or assigns, whether

Users or not. The masculine gender shall include the feminine and the singular shall include the plural where indicated by the context.

(51) pH. The logarithm (base 10) of the reciprocal of the hydrogen ion concentration in grams per liter of solution.

(52) Pollutant. Any liquid, solid or gaseous material including, but not limited to any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, Medical Wastes, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt, and industrial, municipal, non-domestic sewage waste and agricultural waste discharged into water including conventional wastewater pollutants (e.g., pH, temperature, TSS, turbidity, color, BOD, COD, toxicity, or odor).

(53) Pollution. The man-made or man-induced alteration of the chemical, physical, biological, and/or radiological integrity of water.

(54) POTW (Publicly Owned Treatment Works). A treatment works as defined by Section 212, 33 S.S.C. §1292 of the Act, which is owned by a State or municipality [as defined by Section 502(4) of the Act, 33 U.S.C. §1362(4)]. This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyance facilities only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, 33 U.S.C. §1362(4), or the Authority which has jurisdiction over the indirect discharges to and the discharges from such a treatment works. For the purposes of these Standards, Rules and Regulations, "POTW" shall also include any sewers, pipes and other conveyances that convey wastewaters to the DELCORA Wastewater Management System and/or the city's Wastewater Collection System from persons outside the City in the Eastern Service Area.

(55) Pretreatment or Treatment. The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration may be obtained by physical, chemical or biological processes, process changes, or other means except as prohibited by 40 CFR §403.6(d). Pretreatment technology includes control equipment, such as equalization tanks or facilities, or protection against surges or slug loadings that might interfere with or otherwise be incompatible with the POTW. However, where wastewater from a regulated process is mixed in an equalization facility with unregulated wastewater or with wastewater from another regulated process, the effluent from the equalization facility must meet an adjusted pretreatment limit calculated in accordance with USEPA regulations, 40 CFR §403.6(e).

(56) Pretreatment Requirements. Any substantive or procedural requirement related to pretreatment, other than a Pretreatment Standard.

(57) Pretreatment Standards or Standards. Pretreatment Standards shall mean Prohibited Discharge Standards (both National and State), Categorical Pretreatment Standards, and Local Limits.

(58) Process Wastewater. Any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of: any raw material, intermediate product, finished product, by-product, or waste product, either discharged continuously, intermittently or as a batch discharge.

(59) Prohibited Discharge Standards or Prohibited Discharges. Absolute prohibitions against the discharge of certain substances; as set forth in Sections 200 and 201 of this ordinance.

(60) Representative Sample. A sample extracted from the wastestream whose characteristics are completely indicative of overall wastestream quantity, quality, variations in same, and of the process generating the wastestream.

(61) Residential User/Domestic Source. A source of discharge of sanitary wastewater and/or domestic sewage to a public sewer system from premises used for residential purposes only.

(62) Residuals (Sludge, Resultant Ash). The solid or semi-solid by-product remaining after the processing of raw wastewater within physical, chemical and/or biological treatment units of the POTW into a condition suitable for release to the environment.

(63) Sanitary Sewer (Sanitary Collector). A pipe or conduit intended for carrying sanitary wastewater together with minor incidental quantities of storm, surface, and groundwaters which are not intentionally admitted.

(64) Sanitary Wastewater (Sewage). The liquid or water-borne wastes from residential, commercial or industrial establishments containing only waste of a domestic nature; that is, waste products, excrement, or other discharge from the bodies of humans or animals in addition to wastes from residential or incidental culinary and laundry activities.

(65) Shall is mandatory; May is permissive.

(66) Significant Industrial User.

(a) Except as provided in subsection (b) of this paragraph, this term means:

(i) All Industrial Users subject to Categorical Pretreatment Standards under 40 CFR §403.6 and 40 CFR Chapter I, subchapter N; and

(ii) Any other Industrial User that:

(1) discharges an average of twenty-five thousand (25,000) gallons per day or more of process wastewater to the POTW (excluding sanitary, non-contact cooling water and boiler blowdown wastewater);

(2) contributes a process wastestream which makes up 5 percent or more of the average dry weather hydraulic organic capacity or inorganic capacity of the POTW treatment plant; or

(3) is designated as such by DELCORA on the basis that the Industrial User has a potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement.

(b) Upon a finding that an Industrial User meeting the criteria in (a)(ii) of this paragraph has no potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the POTW may at any time, in its sole discretion in accordance with 40 CFR 403.8(f)(6), and Section 309 herein, determine that such Industrial User is not a Significant Industrial User.

(67) Slug Load or Slug Discharge. Any discharge at a flow rate or concentration, which could cause a violation of the prohibited discharge standards set forth in Sections 201 and 202 of these regulations. A Slug Discharge is any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge, which has a reasonable potential to cause Interference or Pass Through, or in any other way violates the POTW's regulations, Local Limits or Permit conditions.

(68) Split Sample. A technique whereby a sample is divided into multiple aliquots for multiple analytical investigations.

(69) State. The Commonwealth of Pennsylvania.

(70) Standard Industrial Classification (S.I.C.). A classification pursuant to the latest edition of the Standard Industrial Classification Manual issued by U.S.G.P.O. or the North American Industry Classification System (NAICS) pursuant to the

latest edition of US NAICS Manual as published by the U.S. Office of Management and Budget.

(71) Stormwater. Any flow occurring during or following any form of natural precipitation, and resulting from such precipitation, including snowmelt.

(72) Stormwater Sewer (Storm Sewer, Storm Drain). A pipe or conduit intended for carrying stormwater.

(73) Total Suspended Solids (TSS). The total matter in water, wastewater or other liquids, and which is retained by laboratory filtering, expressed in terms of weight and concentration [milligrams per liter (mg/L)].

(74) Toxic (Priority) Pollutants. Any pollutant or combination of pollutants which have been so declared in regulations promulgated pursuant to Section 307(a) of the Act, or pursuant to Pennsylvania Statutes and rules, or as otherwise may be so discerned and classified by responsible agencies due to toxic health effects to the general populace and surrounding environs.

(75) User(s). Any person, municipality, municipal authority, industry, or other legal entity which contributes, causes or permits the contribution of wastewater into the DELCORA Wastewater Management System or the City's Wastewater Collection System. User categories defined herein include Residential Users, Commercial Users, Industrial Users, Municipal Authority Users, Significant Industrial Users and Intermediate Conveyors. Any User class may be a Primary User or a Secondary User pursuant to these regulations.

(76) Unpolluted Water. Water which does not contain a level of contaminants or pollutants detectably higher than that of the source of the water such as precipitation, surfacewater, groundwater, or other nonpolluted waters. However, in no case shall leachate be considered unpolluted water.

(77) Wastewater. The liquid and water-borne wastes from dwellings, commercial buildings, industrial facilities, and institutions, together with any groundwater, surface water, and stormwater that may be present, whether treated or untreated, which is discharged into or permitted to enter the POTW collection facilities.

(78) Wastewater Treatment Plant (WWTP) or Treatment Plant. That portion of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial wastewater. Unless the context clearly indicates otherwise, this term is inclusive of both DELCORA's Treatment Plant and the City's Treatment Plant.

(79) Waters of the Commonwealth. All streams, lakes, ponds, marshes, water-courses, waterways, wells, springs, reservoirs, aquifers, irrigation systems,

drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the Commonwealth or any portion thereof.

(80) Wastewater Discharge Permit (Permit). A document of expressed authorization setting forth the terms and conditions for connecting to and subsequently contributing wastewaters to the POTW.

(B) The following abbreviations shall have the designated meanings:

<u>BMP</u>	-	Best Management Practice
<u>BMR</u>	-	Baseline Monitoring Report
<u>BOD</u>	-	Biochemical Oxygen Demand
<u>CERCLA</u>	-	Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §9601 <u>et seq.</u>
<u>CIU</u>	-	Categorical Industrial User
<u>CFR</u>	-	Code of Federal Regulations
<u>COD</u>	-	Chemical Oxygen Demand
<u>CWA</u>	-	"Clean Water Act", also known as the Federal Water Pollution Control Act
<u>DELCORA</u>	-	Delaware County Regional Water Quality Control Authority
<u>DRBC</u>	-	Delaware River Basin Commission
<u>EDTA</u>	-	Ethylenediaminetetracetic Acid
<u>GPD</u>	-	Gallons Per Day
<u>IU</u>	-	Industrial User
<u>L</u>	-	Liter
<u>mg</u>	-	Milligrams
<u>mg/L</u>	-	Milligrams per liter
<u>MGD</u>	-	Millions of Gallons per Day

<u>NCCW</u>	-	Non-Contact Cooling Water
<u>NELAC</u>	-	National Environmental Laboratory Accreditation Conference
<u>NPDES</u>	-	National Pollutant Discharge Elimination System
<u>NTA</u>	-	Nitrilotriacetic Acid
<u>PADEP</u>	-	Pennsylvania Department of Environmental Protection
<u>POTW</u>	-	Publicly Owned Treatment Works
<u>PWD</u>	-	Philadelphia Water Department
<u>RCRA</u>	-	Resource Conservation and Recovery Act, 42 U.S.C. §6901, <u>et seq.</u>
<u>SIC</u>	-	Standard Industrial Classification
<u>SIU</u>	-	Significant Industrial User
<u>SNC</u>	-	Significant Non-Compliance
<u>SWDA</u>	-	Solid Waste Disposal Act, 42 U.S.C. 6901, <u>et seq.</u> , as amended by RCRA
<u>TPH</u>	-	Total Petroleum Hydrocarbons
<u>TSS</u>	-	Total Suspended Solids
<u>TTO</u>	-	Total Toxic Organics
<u>U.S.C.</u>	-	United States Code
<u>USEPA</u>	-	United States Environmental Protection Agency
<u>WWTP</u>	-	Waste Water Treatment Plant



**ARTICLE 200**

**REGULATIONS**

**SECTION 201 - GENERAL.**

(A) No User shall discharge or cause to be discharged, into a POTW, primarily or secondarily, directly or indirectly, through any tributary, conveyance facility, collection facility or other intermediate means of transmission, any pollutant, substance, material, waste, wastewater or any other solid, liquid or gaseous matter which:

(1) Causes Interference or Pass Through; or

(2) Impairs the operation or performance of any element of the DELCORA Wastewater Management System and/or the City's Wastewater Collection System. Such impairment includes, but is not limited to, reduced effectiveness of the system's collectors, structures, equipment and treatment process, degradation of receiving waters, endangerment of the health, safety and welfare of DELCORA and/or City personnel, the general populace and surrounding environs, or a discharge which otherwise constitutes a nuisance.

(B) All Users are subject to these Standards, Rules and Regulations whether or not the User is subject to any other national, state, or local pretreatment standard(s) of requirement(s).

(C) The sections which follow set forth the criteria for establishing whether or not a wastewater is suitable for introduction into the DELCORA Wastewater Management System and/or the City's Wastewater Collection System. It shall be the POTW's determination as to whether any aspect of a User's discharge qualifies the discharge as acceptable, prohibited or rejected, or whether certain conditions or restrictions such as pretreatment, quantity/quality/mass loading control, or cost recovery considerations render the discharge acceptable.

(D) In the event that the USEPA hereafter promulgates National Pretreatment Standards which are more stringent than those herein, then all Users shall be subject to those more stringent standards. Further, the POTW may incorporate such new standards in any permit issued or modified after the effective date of the USEPA National Pretreatment Standards without the need to revise this Resolution.

(E) In the event that the City hereafter adopts regulations, ordinances or key elements which are more stringent than those herein, then all Industrial Users in the Eastern Service Area shall be subject to those more stringent standards so long as the discharge from the industrial user is treated by the City's POTW Treatment Plant. Further, the POTW may incorporate such new standards in any permit issued or modified after the effective date of the City's regulations, ordinances or key elements.

SECTION 202 - SPECIFIC PROHIBITIONS.

(A) No User shall discharge or cause to be discharged the following substances to a POTW:

- (1) Any liquid, solid or gaseous pollutants which by reasons of the nature of quantity are, or may be, sufficient either alone or in interaction with other substances, to cause fire, explosion, or fire or explosion hazard in the POTW, including but not limited to wastestreams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR §261.21, as more fully set forth in Section 216 herein;
- (2) Pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.5 or higher than 10.0, as more fully set forth in Section 217 herein.
- (3) Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference as more fully set forth in Sections 204, 213, 214 & 218 herein;
- (4) Any pollutant, including oxygen demanding pollutants (BOD, COD, etc.) and suspended solids released in a discharge at a flow rate and/or pollutant concentration which will cause Interference or Pass Through with the POTW, as more fully set forth in Section 221 herein;
- (5) Heat in amounts which will inhibit biological activity in the POTW resulting in Interference or Pass Through, but in no case heat in such quantities that the temperature at the POTW Treatment Plant exceeds 40°C/104°F, as more fully set forth in Section 215 herein;
- (6) Vegetable oil, fats, lard, biodegradable oils, petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through, as more fully set forth in Section 218 herein;
- (7) Pollutants which result in the presence of toxic gases, vapors or fumes within the POTW in a quantity that may cause acute worker health and safety problems, as more fully set forth in Sections 207 and 219 herein;
- (8) Any trucked or hauled pollutants, or holding tank waste except at discharge points designated by the POTW, as more fully set forth in Sections 220 and 311 herein;

- (9) Unpolluted waters such as stormwater, surfacewater, groundwater, roof runoff, subsurface drainage, non-contact cooling water or other unpolluted waters unless a variance has been granted, as more fully set forth in Section 203 herein;
- (10) Any toxic or hazardous pollutants as more fully set forth in Section 207 herein;
- (11) Any radioactive material as more fully set forth in Section 210 herein;
- (12) Any pollutants in excess of local limitations as set forth in the User's permit and as more fully set forth in Sections 218, 219, 221 and 222 herein;
- (13) Any pollutant, noxious or malodorous liquids, gases or solids which either alone or in interaction with other wastes are sufficient to create a public nuisance or hazard to life or are sufficient to prevent entry into the sewers or treatment plant facilities for maintenance and repair without respiratory protection or other personal safety equipment as more fully set forth in Section 207 herein;
- (14) Any substance which may cause the POTW's effluent or any other product of the POTW such as residues, sludges, resultant ash or scums, to be unsuitable for reclamation, recycling or reuse, or to interfere with the reclamation process. In no case shall a substance discharged to the POTW cause the POTW to be in non-compliance with sludge or resultant ash use, reuse, recycling or disposal criteria, guidelines or regulations developed under Section 405 of the Act, to the Solid Waste Disposal Act (RCRA), the Clean Air Act, the Toxic Substances Control Act, or State law applicable to the sludge and resultant ash management methods being used by DELCORA and/or the City as more fully set forth in Section 208 herein;
- (15) Any substance which will cause the POTW to violate its NPDES and/or State Disposal System Permit or the receiving water quality standards as more fully set forth in Section 209 herein;
- (16) Any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions as more fully set forth in Section 211 herein;
- (17) Any wastewater where there is a significant likelihood of producing toxic effects to biota in the influent, biological system or effluent of the POTW as more fully set forth in Section 207 herein; or
- (18) Sludges, screenings, or other residues from the pretreatment of industrial wastes;

- (19) Wastewater causing, alone or in conjunction with other sources, the treatment plant's effluent to fail toxicity test;
- (20) Detergents, surface-active agents, or other substances which might cause excessive foaming in the POTW;
- (21) Medical Wastes, except as specifically authorized by DELCORA in an individual wastewater discharge permit.
- (22) Any other materials or pollutants prohibited or limited in specific sections of this Article.

Pollutants, substances, or wastewater by this Section shall not be processed or stored in such a manner that they could be discharged to the POTW.

(B) In addition, the following activities are prohibited:

- (1) No person shall discharge pollutants and/or wastewater into street inlets or through sewer manholes;
- (2) No person who generates wastewater at one property shall discharge it at another property without approval from the POTW;
- (3) No person shall discharge wastewater in quantities or at rates of flow which may have an adverse or harmful effect on or overload the POTW conveyance, collection facilities or wastewater treatment plant(s) or cause excessive additional treatment costs;
- (4) No person shall discharge a wastewater flow contributing greater than 2,500 pounds per day of the five day Biochemical Oxygen Demand (BOD<sub>5</sub>), or contributing greater than 1,750 pounds per day of total suspended solids or having a volume in excess of one (1) million gallons per day without specific approval in a permit issued by the POTW; and
- (5) No person shall store or handle any material including hazardous substances defined by CERCLA, in any area draining to the POTW's collection facilities because discharge or leakage from such storage or handling may create an explosion hazard, may constitute a hazard to human beings, or animals or the receiving stream, or may have a deleterious effect in any other way upon the wastewater treatment facilities. Storage or handling of materials shall be subject to review by the POTW and the POTW may require a spill control plan with reasonable safeguards to prevent discharge or leakage of such materials into the DELCORA Wastewater Management System and/or the City's Wastewater Collection System.

(C) When the Authority determines that a User is contributing to the POTW amounts of wastewater described in paragraphs (A) (1 through 22) or is involved in activities described in paragraphs (B) (1 through 5) so as to cause Interference or Pass Through with the operation of the POTW, the Authority shall advise the User(s) of the impact of the contribution on the POTW and:

(1) may develop effluent limitation(s) for such User to correct the Interference or Pass Through with the POTW without the need to amend these Standards, Rules and Regulations; and

(2) may proceed with enforcement activities.

#### SECTION 203 - UNPOLLUTED WATERS.

(A) Unpolluted waters shall not be discharged into the POTW collection facilities unless allowed by paragraph (C) herein.

(B) With the exception of existing combined sewers in service prior to July 17, 1984, combined sewers are prohibited and all Users shall have separate conduits for collecting and conveying sanitary wastewater and unpolluted waters. No User shall intentionally discharge or allow to be discharged unpolluted waters to any DELCORA facility, but shall direct them to a stormwater drainage system, to a natural outlet, or as otherwise may be acceptable to the Regulatory Agencies.

(C) Unpolluted waters may be admitted by separate connection to an existing combined collector if:

(1) a release in accordance with paragraph (A) herein cannot be achieved;

(2) the practice is not in conflict with any applicable Agency policies or regulations; and

(3) DELCORA authorization is expressly sought and received.

Notwithstanding the above, the User shall immediately direct all unpolluted waters to a more appropriate point of disposal as soon as the same becomes available.

(D) In the event that a User must secure a NPDES permit from the PADEP or USEPA for its stormwater discharges, a copy of said permit shall be submitted to DELCORA.

#### SECTION 204 - OPERATIONAL IMPAIRMENT.

(A) No User shall discharge any pollutant which limits the POTW's ability to effectively operate its system to the fullest extent and capability.

(B) No User shall discharge solid or viscous materials which cause obstruction to the flow in the POTW resulting in Interference.

(C) No User shall discharge or allow a discharge(s) which would reduce collector hydraulic capacity, obstruct flow, cause premature failure and/or loss of integrity of any component of the POTW or prevent the various equipment from functioning as intended. Such materials include but are not limited to: grease, garbage, or other bulk solids with particles greater than one-half inch (1/2") in any dimension, guts or tissues, paunch, manure, bones, hair, hides or fleshings, entrails, whole blood, blood products, feathers, ashes, cinders, sand, spent lime, paint, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper, wood, rubber, plastics, gas, tar, asphalt, asphalt residues, residues from refining or processing of fuel or lubricating oil, mud, or glass or metal grinding or polishing wastes or any material which can be disposed of as solid waste.

#### SECTION 205 - MAINTENANCE IMPAIRMENT.

No User shall discharge any material which either alone or in interaction with other materials prevents or impairs system maintenance and repair. Conditions, unsuitable for proper system maintenance include, but are not limited to, presence of a fire or explosion hazard, presence or creation of noxious or malodorous solids, liquids, or gases, or any other material which the Authority believes to be hazardous to human health, safety, welfare, or constitutes a public nuisance.

#### SECTION 206 - PERFORMANCE IMPAIRMENT.

No User shall discharge material of a type or amount which causes Interference or Pass Through or which impairs sludge or resultant ash use, reuse, recycling or disposal practices. Upon determination that such impairment is occurring, the Authority shall institute measures to prohibit or control the introduction of the materials to a level consistent with proper facility performance.

#### SECTION 207 - TOXIC/HAZARDOUS POLLUTANTS.

(A) No User shall discharge any toxic or hazardous pollutant which, by virtue of its presence, source, volume, quantity, quality, concentration, or other physical, chemical, or biological criteria, either alone or in interaction with other substances, results in the discharge having an adverse effect upon any element of the POTW, constitute a hazard to humans and their environs, cause the POTW to violate applicable standards, exceed any limitation set forth in any National Pretreatment Standard, create a toxic effect on the influent, biological system or effluent of the POTW, violate the Clean Air Act, cause or contribute to a violation of water quality criteria or otherwise be considered toxic or hazardous and subject to regulation and disposal under other regulatory programs.

(B) No User shall discharge any pollutant which by virtue of its presence, source, volume, quantity, quality, concentration or other physical, chemical or biological criteria, either alone or in interaction with other substances, which results in the presence of toxic gases, vapors or fumes within DELCORA's Wastewater Management System and/or the City's Wastewater Collection System, in a quantity that may cause acute worker health and safety problems.

(C) No User shall discharge any pollutant, noxious or malodorous liquids, gases or solids which either alone or by interaction with other wastes are sufficient to create a public nuisance or hazard to life or are sufficient or prevent entry into the sewers or treatment plant facilities for maintenance and repair without respiratory protection or other personal safety equipment.

(D) DELCORA may establish local limits and/or include more stringent standards in a User's permit without the need to revise this Resolution, to prevent aquatic toxicity of its discharge, Interference, Pass Through, violations of the Clean Air Act, violation(s) of water quality criteria or to prevent the presence of toxic gases, fumes or vapors within the system in a quantity that may cause acute worker health or safety problems, or create a public nuisance or hazard to life.

#### SECTION 208 - SLUDGE MANAGEMENT.

No User shall discharge any material which may cause the POTW's effluent or any other product of the POTW such as residues, sludges, resultant ash or scums to be unsuitable for reclamation and reuse or interfere with the reclamation process. In no case shall a material discharged to the POTW cause the POTW to be in noncompliance with sludge or resultant ash use, residue, recycling or disposal criteria, guidelines, or regulations developed under Section 405 of the Clean Water Act, the Solid Waste Disposal Act, the Clean Air Act, the Toxic Substances Control Act, or state law applicable to the sludge or resultant ash management method being used.

#### SECTION 209 - REGULATORY CONSTRAINTS.

Any material, either alone or in interaction with other materials, which causes the POTW to violate its operating permits, the receiving water quality standards, or any other Agency constrictions governing wastewater and sludge management as may be imposed by USEPA, PADEP, DRBC, or other Agencies having jurisdiction in such matters, shall be either prohibited or controlled to an extent necessary to ensure compliance with all Agency mandates.

#### SECTION 210 - RADIOACTIVE WASTES.

No radioactive material wastes or isotopes shall be discharged to the DELCORA Wastewater Management System unless its characteristics are governed by and in compliance with all applicable Local, State and Federal regulations, and such discharge is

expressly approved by DELCORA. In no case shall a User discharge or allow to be discharged a wastewater containing any radioactive wastes or isotopes of such half life or conditions as may exceed limits established in the most stringent of the applicable State, Local or Federal regulations.

#### SECTION 211 - COLOR.

No User shall discharge material(s) either singly or in interaction with other material(s) which imparts color within its wastewater which cannot be removed by POTW treatment facilities and consequently imparts color to the receiving waters, violating applicable water quality standards.

#### SECTION 212 - CHELATING AGENTS.

No User shall discharge any material containing ammonia, ammonia salts, NTA or derivatives, EDTA or derivatives, or other materials producing metallic complexes or chelating agents of such amount that in DELCORA's determination is detrimental to the treatment process or facilities.

#### SECTION 213 - GARBAGE SHREDDERS.

No User shall discharge improperly shredded domestic refuse to the system. The installation and operation of any garbage grinder equaling or exceeding three quarters horsepower (3/4 HP) rating shall be subject to DELCORA's review and express, written approval.

#### SECTION 214 - USUAL SYSTEM DEMANDS.

(A) All wastewaters other than those exhibiting typical domestic sanitary sewage volume and strength characteristics shall be considered an unusual system demand which requires express, written DELCORA authorization. Any wastewater which contributes in excess of 10% of any measure of system utilization for any component of the system shall likewise be considered an unusual system demand which requires express, written DELCORA authorization.

(B) No User shall release a slug load, have a flow rate or a discharge that contains a concentration or quantity of pollutants that exceed for any time period longer than fifteen (15) minutes, more than two (2) times the average twenty-four (24) hour permitted concentration, quantities or flow during normal operation. Notwithstanding the above, no User shall discharge any pollutants, at flow rates, concentrations or mass loading which the User knows or has reason to know will cause an adverse effect within the DELCORA Wastewater Management System or the City's Wastewater Collection System, or cause Interference or Pass Through.



SECTION 215 - TEMPERATURE.

No user shall discharge a wastewater whose temperature inhibits or unduly accelerates the POTW treatment plant processes resulting in Interference, but in any case, no User shall discharge a wastewater whose temperature exceeds 120°F or which shall cause the wastewater entering the POTW to exceed 104°F.

SECTION 216 - FIRE OR EXPLOSION HAZARD.

(A) No User shall discharge any liquid, solid or gaseous pollutants which by reason of their nature or quantity are or may be sufficient either alone or in interaction with other substances to cause fire, explosion, or fire or explosion hazard in the POTW. Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides and sulfides and any other substances which can create a fire or explosion hazard to the POTW.

(B) No User shall discharge wastewater which at anytime causes two successive explosion hazard meter reading exceeding five percent (5%) of the meter's lower explosive limit (L.E.L.) nor any single reading exceeding ten percent (10%) L.E.L. at either its point of introduction into the system or at any point within the system. Notwithstanding the above, no wastewater shall be introduced into the system whose Pensky Martens closed cup flash point is less than 140°F.

SECTION 217 - pH.

(A) No User shall discharge a wastewater with a pH less than 5.5 or greater than 10.0 as measured by a grab sample or wastewater which otherwise exhibits any other corrosive property capable of resulting in hazard or damage to collection facilities, conveyance facilities, structures, equipment and/or personnel or the POTW.

(B) No Industrial User measuring pH continuously at the point of discharge shall discharge wastes having a pH lower than 5.5 or higher than 10.0 at any time except for a period not to exceed a total of five (5) minutes in any one hour period. In the event that a periodic discharge of a pH lower than 5.5 or higher than 10.0 for a period exceeding five (5) minutes occurs, the Industrial User must notify DELCORA. The POTW may require that the Industrial User demonstrate that the pH will not exceed the range of 5.5 to 10.0 at a downstream point designated by the POTW. In no case may the Industrial User's discharge contain a pH less than 5.0 at the point of discharge into the POTW.

(C) In the event that the influent wastewater flow arriving at a treatment plant is outside the pH range of 6.5 to 8.5, POTW may limit the Industrial Users to that treatment plant to a pH range of 6.0 to 9.0, upon oral or written notice, for as long as POTW deems necessary.

(D) Hauled sludges and septic wastes shall not have a pH of less than 5.0 or greater than 11.0 or cause interference with the POTW.

SECTION 218 - OILS, GREASES.

No User shall discharge a wastewater whose total content of oils, waxes, and greases of mineral, petroleum, or unknown origin exceeds 100 p.p.m. at any time as shown by grab sample, or undergoes any form of phase separation due to temperature differentials which evolve solid or viscous substances which could impair the DELCORA Wastewater Management System and/or the City's Wastewater Collection System performance. The above concentration may be reduced by the POTW where it is demonstrated that the concentration is causing chronic or repeated adverse effects to the POTW.

SECTION 219 - FUMES AND GASES.

No User shall discharge any wastewater which because of its chemical nature or composition causes the sewer atmosphere to contain airborne chemical concentrations in exceedance of concentrations established by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) under 29 CFR Part 1910, regardless of duration of exposure experienced by any individual, whether an OSHA, DELCORA, or contractor's employee, unless specific authorization is granted by DELCORA.

SECTION 220 - TRUCKED OR HAULED POLLUTANTS.

(A) No person shall discharge any trucked or hauled pollutants into the DELCORA Wastewater Management System except at discharge points designated by the POTW.

(B) Prior to any discharge of trucked or hauled pollutants into the DELCORA Wastewater Management System, written approval must be obtained from the POTW pursuant to Section 311 herein.

SECTION 221 - CONVENTIONAL POLLUTANTS.

No User shall discharge any conventional pollutant in a discharge at a flow rate and/or pollutant concentration which will cause Interference or Pass Through with the POTW or which is in excess of the daily maximum level set for such pollutant in this Article or in a User's permit.

SECTION 222 - SPECIFIC POLLUTANT LIMITATIONS.

(A) Unless otherwise provided in these regulations, no User shall discharge wastewater with pollutant levels exceeding local limitations as set by DELCORA in separate resolution(s). DELCORA may revise, amend or alter the separate resolution(s) setting forth local limitations without the need to revise this Resolution.

(B) No person shall discharge wastewater containing any of the USEPA Priority Pollutants in excess of standard background or domestic sanitary concentrations into POTW facilities or shall have any connection to the POTW without obtaining written permission from DELCORA.

(C) Chlorine and Ammonia. Limits on free chlorine and/or free ammonia content of the wastewater shall be set on a case by case basis to protect the POTW. In particular instances where a mist-free atmosphere is needed during inspection and maintenance of a sewer, or to protect the POTW, and is otherwise not attainable, DELCORA may direct the User to further reduce its discharge of chlorine and ammonia, either on a temporary or permanent basis in order to permit such inspection and maintenance and protect the POTW.

(D) State requirements and limitations on discharges shall apply in any case where they are more stringent than Federal requirements and limitations or those in these regulations.

(E) DELCORA reserves the right to establish by permit more stringent limitations or requirements on discharges to the DELCORA Wastewater Management System and/or the City's Wastewater Collection System, if deemed necessary to comply with the objectives presented in Section 103 of this Resolution.

(F) Any current or future federal Categorical Pretreatment Standard published in 40 CFR Chapter I, Subchapter N, Parts 401-471, as amended, including standards promulgated for new sources, more stringent than limitations imposed under these regulations or by permit for sources in that category, shall supersede the limitations imposed under these Standards, Rules and Regulations. DELCORA may impose these more stringent limitations in permits without the need to revise this Resolution.

#### SECTION 223 - BEST MANAGEMENT PRACTICES.

(A) DELCORA may develop Best Management Practices (BMPs), by resolution or in individual wastewater discharge permits, to implement Local Limits and the requirements of Sections 201 and 202.

(B) Best Management Practices shall be used in addition to a state or national prohibition or categorical standard.

#### SECTION 224 - ACCIDENTAL DISCHARGE/SLUG DISCHARGE CONTROL PLANS.

(A) Each User shall provide protection from an uncontrolled release or accidental discharge of prohibited materials or other substances which may interfere with the POTW by developing a Spill Prevention Plan. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the owner or User's own cost

and expense. Detailed plans showing facilities and operating procedures to provide this protection shall be submitted to DELCORA for review, and shall be approved by DELCORA before construction of the facility. Alternatively, DELCORA, at its option, may develop such a plan for any User and charge said User for its development.

An accidental discharge/slug discharge control plan shall address, at a minimum, the following:

- (1) Description of discharge practices, including non-routine batch discharge;
- (2) Description of stored chemicals;
- (3) Procedures for immediately notifying DELCORA of any accidental or Slug Discharge, as required by Section 224 of this resolution; and
- (4) Procedures to prevent adverse impact from any accidental or Slug Discharge. Such procedures include, but are not limited to, inspection and maintenance of storage areas, handling and transfer of materials, loading and unloading operations, control of plant site runoff, worker training, building of containment structures or equipment, measures for containing toxic organic pollutants, including solvents, and/or measures and equipment for emergency response.

All existing Users shall complete such a plan within 3 months of notice to do so by DELCORA. No User who commences a new discharge to the POTW after the effective date of this Resolution shall be permitted to introduce pollutants into the system until accidental discharge procedures have been approved by DELCORA. Review and approval of such plans and operating procedures shall not relieve the Industrial User from the responsibility to comply with these Standards, Rules and Regulations.

(B) Notification

- (1) In the case of an uncontrolled release or accidental discharge of prohibited materials or substances, it is the responsibility of the User to immediately notify DELCORA of the incident by telephone. The notification shall include date, time, and location of discharge, type of waste including concentration and volume, duration of discharge, and any corrective actions taken by the User. If the User is within the Eastern Service Area, this notification shall also be given to the Philadelphia Water Department. A representative sample of the uncontrolled release or accidental discharge shall be properly retained by the User for DELCORA's inspection and/or analysis.
- (2) Written Notice. Within five (5) days following an uncontrolled release or accidental discharge, the User shall submit to DELCORA a detailed written report of the incident. The report shall summarize all information concerning the

uncontrolled release as well as cite measures to be instituted by User in order to prevent similar future occurrences and a proposed compliance schedule. User's notifications shall not relieve the User of any expense, loss, damage to person or property or other financial liability which may be incurred by the Authority or owners of any tributary or receiving municipal systems as a result of the release, nor does it relieve the User of any fines, civil penalties, damages or liabilities imposed by these Standards, Rules and Regulations or other applicable law.

(C) Notice to Employees. A notice shall be permanently posted on the User's bulletin board(s) or other prominent places advising employees who to call in the event of an uncontrolled release or accidental discharge. Employers shall advise all employees, who may cause or be injured by such a discharge, of the emergency notification procedure.

(D) Each user is required to notify DELCORA immediately of any changes at its facility affecting the potential for a Slug Discharge.

#### SECTION 225 - EXCESSIVE DISCHARGE/DILUTION.

No User shall ever increase the use of process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in any National Pretreatment Standard, or in any other pollutant-specific limitation or pretreatment requirement developed by DELCORA or any federal, state or local Agency.

#### SECTION 226 - SERVICE SEVERANCE PROVISIONS.

All connections to the DELCORA Wastewater Management System, except residential connections for sanitary wastewater, shall incorporate means to sever the User's access to the system that are satisfactory to DELCORA prior to the acceptance of any discharge. Service severance may be instituted in such instances as violation of these Standards, Rules and Regulations, failure to satisfy service charge obligations, site abandonment or demolition, or other similar acts of commission or omission. Installation of means of severance shall be deemed to complement and supplement any local codes governing connection fixtures and discontinuance of service and shall not be construed as a substitute for said codes.

#### SECTION 227 - INDUSTRIAL CONNECTIONS.

All Users authorized to discharge industrial wastewater shall do so by means of separate sanitary and industrial connections from the premises or to the POTW. All industrial connections shall be provided with service severance provisions and control structure provisions as set forth in Section 226 and 228.

SECTION 228 - CONTROL STRUCTURE.

(A) Each Industrial User shall provide a control structure which includes monitoring facilities for the purpose of inspection, observation, sampling and flow measurement of the User's industrial contribution prior to the acceptance of the discharge by the POTW. The control structure shall be furnished with such equipment as is acceptable to DELCORA and which it considers to be suitable for required volume and strength determinations. The control structure shall incorporate a lockable isolation device in satisfaction of the service severance provisions required in Section 226. The Industrial User's control structure shall be planned, designed and constructed to be safe, accessible at all times, and secure from unauthorized tampering, and continuously operated and maintained at the User's expense in a manner acceptable to DELCORA. This control structure shall also be suitable for use by the POTW to conduct its own monitoring of User's effluent. The control structure shall be installed at location(s) in its process wastewater discharge line(s) as may be necessary in satisfying all Federal, State and Local monitoring requirements, or as may otherwise be acceptable to DELCORA.

(B) Whether constructed on public or private property, the control structure shall be constructed in accordance with the Authority's requirements and all applicable local construction standards and specifications.

SECTION 229 - PRETREATMENT/EQUALIZATION FACILITIES.

(A) Each User shall be responsible for instituting such measures as may be necessary in ensuring that their discharge complies with these Standards, Rules and Regulations and the National Pretreatment Standards. These provisions may include pretreatment/equalization facilities to eliminate or control the loading, the amount, or rate of introduction of regulated substances into the system.

(B) Certain User(s) shall be deemed to contribute wastes which exhibit an inherent tendency toward system operations and maintenance impairment based solely upon the type of activity conducted on the premises. These Users shall provide pretreatment facilities to correct conditions deemed to cause impairment regardless of the actual volume and strength involved unless their omission is explicitly sought and authorized by DELCORA. Pretreatment facilities installed for this purpose address principally flammable and obstructing materials. Typical control devices may include oil and grease interceptors, separators, traps, sumps, baskets, screens, strainers or other baffled, piped or valved systems which rely upon physical phase separation in order to effect selective removal of waste components by physical properties such as size, shape, weight, volume relationship, and texture. Representative locations for such facilities and conditions requiring correction are cited herein or as may otherwise be specified within applicable local codes.

(C) Users falling within the following categories are required to install and utilize control devices as follows:

- (1) Flammables, Oil, Grease Control. Control devices shall be provided and maintained at User's expense at the following locations: vehicle service stations, repair shops and washdown areas, maintenance facilities, food preparation operations, commercial garages, or facilities using such materials as feedstock.
  - (2) Sediment Control. Control devices shall be provided and maintained at User's expense at the following locations: vehicle washdown areas, quarries, and building and construction supply facilities.
  - (3) Hair and Lint Control. Control devices shall be provided and maintained at User's expense at the following locations: commercial hair treatment shops and commercial laundries.
- (D) Notwithstanding the above, it shall be each User's responsibility to provide the pretreatment/equalization facilities necessary to assure compliance with applicable regulations and any permits issued to the User. Any facilities required to pretreat wastewater to a level acceptable to the POTW shall be planned, designed, constructed, provided, owned, operated, and maintained by the User at User's expense and shall be located so as to be accessible to inspection and cleaning. Detailed reports and drawings indicating the location, type, and capacity of all pretreatment facilities as well as associated operating procedures shall be submitted to DELCORA for review. DELCORA must expressly approve said facilities and procedures in writing prior to construction of the facilities. However, such review and acceptance of plans and procedures shall not relieve the User from the responsibility of modifying the facilities as necessary to produce an effluent acceptable to the POTW in a time and manner as directed by the Authority. Any subsequent changes in the pretreatment facilities or method of operation shall be reported to the Authority and be subject to the Authority's express, written, approval prior to User's initiation of the changes.

#### SECTION 230 - CONSTRUCTION STANDARDS.

DELCORA's "Standard Specifications for the Construction of Sanitary Sewers and Appurtenances", October 2000, as amended, shall serve as the basis of performance required in the construction of all sewerage works within its jurisdiction. This shall not preclude their being superseded or supplemented by additional DELCORA guidelines, DELCORA contract documents, or other more stringent Federal, State, or local performance criteria governing such considerations as health, plumbing, and building construction.

#### SECTION 231 - USER RESIDUALS MANAGEMENT.

All Users shall plan, design, construct, operate, maintain, or otherwise implement measures to ensure that the transport, treatment, storage, or disposal of all waste products or residuals (other than approved wastewaters) generated by a User's

manufacturing or treatment processes is done in a manner which excludes introduction of such materials into DELCORA's Wastewater Management System. These measures shall also include records fully demonstrating the proper disposition of these materials in full accordance with applicable law and regulations and shall be made available for DELCORA's inspection and photocopying upon request. Records required by USEPA and/or PADEP for such activities will generally satisfy this.

#### SECTION 232 - STRINGENCY/RIGHT OF REVISION.

DELCORA'S Standards, Rules, and Regulations shall be considered to conform with minimum standards of performance relative to sewer system usage regulations as may be duly established by any governmental unit duly authorized and empowered to exercise such regulatory control. DELCORA reserves the right to cause adherence to these Standards, Rules and Regulations or to otherwise promulgate, alter, or amend this Resolution in affording administration of an equivalent or more stringent nature by adoption of a Resolution setting forth same. Regulatory compliance shall be achieved within the time therein stipulated. Alternatively, DELCORA may effect changes to applicable permits to individual Users or classes of Users as occasioned by new regulations or to otherwise comply with objectives set forth in Section 103.

#### SECTION 233 – BYPASS.

(A) For the purposes of this Section,

(1) Bypass means the intentional diversion of wastestreams from any portion of a User's treatment facility.

(2) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes 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) A User may allow any bypass to occur which does not cause Pretreatment Standards or Requirements to be violated, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provision of paragraphs (C) and (D) of this Section.

(C) Bypass Notifications

(1) If a User knows in advance of the need for bypass, it shall submit prior notice to DELCORA, at least (10) days before the date of the bypass, if possible.

(2) A User shall submit oral notice to DELCORA of an unanticipated bypass that exceeds applicable Pretreatment Standards within twenty-four (24) hours from



the time it becomes aware of the bypass. A written submission shall also be provided within five (5) days of the time the User becomes aware of the bypass. The written submission shall contain a description of the bypass and its cause; the duration of the bypass, including exact dates and times, and, if the bypass has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass. DELCORA may waive the written report on a case-by-case basis if the oral report has been received within twenty-four (24) hours.

(D) Bypass

(1) Bypass is prohibited, and DELCORA may take an enforcement action against a User for a bypass, unless

(a) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(b) 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 which occurred during normal periods of equipment downtime or preventive maintenance; and

(c) The user submitted notices as required under paragraph (C) of this section.

(2) DELCORA may approve an anticipated bypass, after considering its adverse effects, if DELCORA determines that it will meet the three conditions listed in paragraph (D)(1) of this Section.

**ARTICLE 300**

**ADMINISTRATION**

**SECTION 301 - ALL WASTEWATER DISCHARGE REGULATED.**

It shall be unlawful for any person, industry, municipality, User or authority to install a connection to or discharge any wastewater into the DELCORA Wastewater Management System except as authorized in accordance with the provisions of this Resolution.

**SECTION 302 - EXISTING RESIDENTIAL AND COMMERCIAL USERS.**

All Residential and Commercial Users of any sewer system prior to July 17, 1984, are deemed to possess a Wastewater Connection Permit authorizing such connection/discharge. However, this shall not preclude either DELCORA, an authority, a municipality, or other agency having jurisdiction over such matters from reconditioning such a permit requiring additional regulation of wastewater quantity or quality if such reconditioning is deemed necessary by DELCORA to ensure compliance with these Standards, Rules and Regulations.

**SECTION 303 - NEW PRIMARY RESIDENTIAL USERS.**

After July 17, 1984, no connections or reconnections of residential premises directly to the DELCORA system can be made without first obtaining a DELCORA Connection Permit as prescribed herein prior to effectuating such connection and/or discharge. Residential Users shall follow the procedures for permitting in Section 307.

**SECTION 304 - NEW SECONDARY RESIDENTIAL USERS.**

After July 17, 1984, no connections or reconnections of residential premises to any system intermediate to DELCORA can be made without first obtaining a functionally equivalent authorization from the appropriate municipality and/or authority certifying compliance with their regulations and the service agreement between DELCORA, the municipality and/or the authority prior to effectuating such connection and/or discharge.

**SECTION 305 - NEW PRIMARY COMMERCIAL USERS.**

After July 17, 1984, no connection or reconnections of commercial facilities to the DELCORA system can be made without first obtaining a DELCORA Connection Permit as prescribed herein prior to effectuating such connection and/or discharge. Commercial Users shall follow the procedures for permitting in Section 307.

SECTION 306 - NEW SECONDARY COMMERCIAL USERS.

After July 17, 1984, no connections or reconnections of commercial facilities to any system intermediate to DELCORA can be made without first obtaining a functionally equivalent authorization from the appropriate municipality/authority certifying compliance with their regulations and the service agreement between DELCORA, the authority and/or the municipality prior to effectuating such connection and/or discharge.

SECTION 307 - PERMIT APPLICATION - RESIDENTIAL AND COMMERCIAL DISCHARGES.

(A) Persons required to obtain a DELCORA Connection Permit for residential and commercial discharge(s) shall complete and file with DELCORA an application in the form prescribed by DELCORA and accompanied by the applicable permit processing fee.

(B) In support of the application, the applicant shall submit the following information:

- (1) Applicant (owner) name, address, and telephone number;
- (2) Site location/address;
- (3) Applicant's self-determination of applicable User class;
- (4) Site classification (the contribution shall be classified as being either residential or commercial and shall be further classified by the number of units involved, using types and terms characteristic of the class of usage indicated);
- (5) Wastewater volume and strength characteristics indicating average characteristics as well as any variations in same; if other than domestic in origin;
- (6) Pertinent details concerning any pretreatment facilities required for applicant's contribution including pollutants to be controlled, method of control, and relevant design criteria (loading rates, volumes, etc.) (Not required for residential discharges);
- (7) Two sets of location plans depicting all site structures, size and location of drainage piping, valving, and other appurtenances involved including any pretreatment facilities and points of connection to public facilities; and
- (8) Name, address, and telephone number of the contractor/plumber executing the connection.

(C) DELCORA will evaluate the data and information furnished by the applicant and may require additional information. After evaluation and acceptance of the data furnished, DELCORA may issue a connection permit subject to the terms and conditions provided

herein. DELCORA may require the submission of an industrial discharge permit in accordance with Section 310 if the wastewater is of non-domestic origin.

#### SECTION 308 - INDUSTRIAL USERS.

All persons discharging industrial wastewater, whether direct to the DELCORA system or through intermediate system(s), must obtain a DELCORA Wastewater Discharge Permit pursuant to Section 310. Secondary Industrial Users must also obtain any connection(s) or discharge(s) permit(s) required by the owner of the tributary sewer system. Industrial Users connected to the DELCORA Wastewater Management System or to a tributary system who do not have a DELCORA Wastewater Discharge Permit must file an application immediately.

#### SECTION 309 - SIGNIFICANT INDUSTRIAL USERS.

(A) An Industrial User that:

- (1) Is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; or
- (2)
  - (i) Discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, non-contact cooling and boiler blowdown wastewater);
  - (ii) Contributes a process wastestream which makes up 5 percent (5%) or more of the average dry weather hydraulic organic capacity or inorganic capacity of the POTW treatment plant; or
  - (iii) Is determined by the POTW to have a potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement;

shall be designated by the POTW as a Significant Industrial User unless the POTW, in its sole discretion, makes a finding that the Industrial User meeting the criteria of Paragraph (A)(2) above, has no potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement. Designation as a Significant Industrial User shall be sufficient to require the Significant Industrial User to comply with the provisions herein regarding this class of Users.

(B) DELCORA shall notify each Significant Industrial User of its status within thirty (30) days of DELCORA's designation of a User as such.

(C) Notwithstanding the above, DELCORA may list or delist an Industrial User as a Significant Industrial User, on DELCORA's own initiative based on the criteria in

paragraph (A) herein. DELCORA shall notify said User of DELCORA's determination within thirty (30) days of DELCORA's re-designation of a User.

(D) Within thirty (30) days of the date of the notice of designation as a Significant Industrial user, the User so designated may file a petition with DELCORA requesting that the User be delisted as a Significant Industrial User. Such petition shall contain sufficient data and information to demonstrate to DELCORA's satisfaction that the User has no potential to adversely affect the POTW's operation or for violating any pretreatment standard or requirement. Within sixty (60) days of receipt of a petition, the POTW may grant or deny said petition.

(E) Significant Industrial Users shall follow the procedures for permitting in Section 310.

#### SECTION 310 - PERMIT APPLICATION - INDUSTRIAL WASTEWATER.

(A) Persons required to obtain a DELCORA Wastewater Discharge Permit for industrial wastewater pursuant to Sections 308 and 309, shall complete and file with DELCORA an application in the form prescribed by DELCORA and accompanied by the applicable permit processing fee.

(B) In support of the application, the applicant shall submit the following information in units and terms appropriate for evaluation:

- (1) Applicant/owner's name, address, and location, (if different from the address);
- (2) Applicant's self-determination of applicable User class;
- (3) SIC number according to the Standard Industrial Classification Manual;
- (4) Description of activities, facilities and plant processes on the premises including all materials which are or could be discharged;
- (5) Each product produced by type, amount, process or processes and rate of production;
- (6) Type and amount of raw materials processed (average and maximum per day);
- (7) Number and type of employees, and hours of operations of plant and proposed or actual hours of operation of pretreatment system;
- (8) Time and duration of contribution;

- (9) Plant water balance including average daily, instantaneous and 30 minute peak wastewater flow rates, and including daily, monthly and seasonal variations, if any;
- (10) Wastewater constituents and characteristics including but not limited to those mentioned in Section 201 and 202 of this Resolution as determined by a reliable analytical laboratory; sampling and analysis shall be performed in accordance with procedures established by the USEPA pursuant to Section 304(g) of the Act and contained in 40 CFR Part 136, as amended;
- (11) Process schematics, site plans, floor plans, mechanical and plumbing plans and details to show size, location and elevation of all sewers, sewer connections, and appurtenances including piping and valving configuration, meter(s), sampler(s), lockable isolator(s) from origin of wastewater generation through pretreatment (if applicable) to point of connection(s) to municipal system;
- (12) Where known, the nature and concentration of any pollutants in the discharge which are limited by any municipal, authority, state, or federal pretreatment standards, and a statement regarding whether or not the applicable regulations are being met on a consistent basis and, if not, whether additional operation and maintenance (O&M) and/or additional pretreatment is required for the User to meet applicable requirements;
- (13) (a) If additional pretreatment and/or O&M will be required to meet the pretreatment standards, the shortest schedule by which the User will provide such additional pretreatment. The completion date in this schedule shall not be later than the compliance date established for the applicable pretreatment standard.
- (b) The following conditions shall apply to this schedule:
- (i) The schedule shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the User to meet the applicable pretreatment standards which shall include such elements as concept design, treatment system design, operations manual development, system(s) construction, system(s) startup, system(s) optimization, and confirmation of compliance. No increment referenced in this paragraph shall exceed nine (9) months.
- (ii) Not later than seven (7) days following each date in the schedule and the final date for compliance, the User shall submit a progress report to DELCORA including, as a minimum, whether or not it complied with the increment of progress to be met on such

date and, if not, the date on which it expects to comply with this increment of progress, the reason for delay, and the steps being taken by the User to return the construction to the schedule established. In no event shall more than nine (9) months elapse between such progress reports to DELCORA.

(14) A statement of Pretreatment considerations including the purpose (i.e. pollutants to be removed), control method employed, proposed loading rates, unit volumes, design capacities and including reports and drawings as available;

(15) Any other information as may be deemed by DELCORA to be necessary to evaluate the permit application; and

(16) Signature of the authorized representative of the Industrial User.

(C) DELCORA will evaluate the data furnished by the applicant and may require additional information. After evaluation and acceptance of the data furnished, DELCORA may issue a wastewater discharge permit subject to the terms and conditions provided herein.

#### SECTION 311 - HOLDING TANK AND HAULED WASTES.

(A) No person shall discharge holding tank wastes, trucked or hauled pollutants, sludge, scums or other residuals to the POTW except at a discharge point designated by the POTW and then only after prior written approval by the POTW.

(B) To obtain written approval by the POTW to discharge holding tank wastes, trucked or hauled pollutants, the person must submit the following information to the POTW:

(1) Name and address of person generating the waste, including any identification numbers such as USEPA generator numbers and/or the identification numbers;

(2) Name and address of transporter of waste, including any identification numbers such as an USEPA transporter number and/or tax identification number;

(3) Description of the type, volume and characteristics of the waste;

(4) Description of the process which generated the waste;

(5) The results of the current RCRA chemical analysis of the waste to determine if it exhibits hazardous characteristics or chemicals;

(6) Any other information requested by the POTW;

- (7) Signature and certification under Sections 334 and 335 herein.

Upon receipt of these materials, the POTW may accept or deny the application to discharge holding tank waste, hauled or trucked pollutants, sludge, scum or other residuals.

(C) The POTW may place any of the conditions noted in Section 316 herein on its approval to accept holding tank waste, trucked or hauled pollutants and may issue a permit.

(D) Trucked and hauled wastes and pollutants are subject to all of the provisions in these Standards, Rules and Regulations.

#### SECTION 312 - COMMUNICATIONS.

(A) All communications involving permit acquisition, duration, renewal, modification, termination, suspension, revocation, notifications, or any other type of activity where confirmation of transmittal, receipt, and referral to responsible individuals is of the essence, including applications for written approvals, shall be conducted in writing, using U.S. Postal Service, Certified Mail, Return Receipt Requested, or by hand delivery, or any other system affording equivalent protection.

(B) Where enforcement action is involved, the notice shall cite the nature of the alleged violation, the enforcement action required by the Authority as the result of the violations and the actions being undertaken by the User in response.

#### SECTION 313 - APPLICATION SUBMISSION AND REVIEW PROCEDURES.

(A) All persons required to obtain a DELCORA Wastewater Discharge Permit shall make application to DELCORA in a form acceptable to DELCORA accompanied by the appropriate fees. Upon receipt of a Wastewater Discharge Permit application, DELCORA shall evaluate the application for its completeness and advise the applicant that the application is complete or that the application is incomplete and cite the deficiencies to be rectified by submission of additional documentation.

(B) Upon acceptance of data furnished, DELCORA shall declare the application complete and initiate evaluation of its technical merits. Where secondary industrial Wastewater Discharge Permits are involved, DELCORA shall either transmit a copy of the complete application to all Intermediate Conveyors or alternatively notify them of the availability of application documents for inspection at DELCORA's offices. Affected parties must transmit any comments relative to their ability to service the applicant's wastewater disposal needs to DELCORA within thirty (30) days of receipt of the application or the public notice. Failure to receive comments shall be construed as lack of objection with conditions presented within the permit application.



SECTION 314 - PUBLIC NOTICE OF PERMIT ISSUANCE.

(A) Public notice of a proposed wastewater discharge permit ("permit") may be published by the POTW in a newspaper of daily circulation within the geographical area of the discharge. The notice shall include at least the following:

- (1) Name and address of each permittee;
- (2) Each permittee's activity or operation which results in the discharge described in the wastewater discharge permit;
- (3) Address and phone number of premises where a copy of the proposed permit may be requested;
- (4) Notice of the thirty (30) day comment period required by this Section.

(B) There shall be a thirty (30) day period following publication of notice during which written comments may be submitted by the permittee or interested persons located within the POTW's wastewater processing service area. The POTW will make its final determination on a proposed permit following the comment period. The period for comment may be extended at the discretion of DELCORA for up to thirty (30) additional days.

SECTION 315 - PERMIT ISSUANCE PROCEDURES.

(A) Upon consideration of comments received relative to the permit application and criteria enumerated within Sections 309 and 310, DELCORA shall advise the applicant that his application for a Wastewater Discharge Permit has been either:

- (1) Approved subject to the terms and conditions recited within its permit as outlined within Section 316 and including but not limited to necessary quantity or quality control or incremental cost assessments (surcharge); or
- (2) Denied due to either the inability of an Intermediate Conveyor to properly manage the applicant's waste, the prohibition from accepting the applicant's waste or, in DELCORA's discretion, its inability to ensure the proper management of the applicant's waste in conjunction with applicable criteria for waste acceptability.

(B) Upon a determination relative to issuance of a Wastewater Discharge Permit, DELCORA shall notify the applicant and, where appropriate, Intermediate Conveyors of DELCORA's intended action. This notification shall set forth the permit terms and conditions (including its effective date) or shall cite the basis for denying issuance of the permit.

(C) Interested parties shall have thirty (30) days to object or respond to DELCORA's intended action by requesting an Administrative Hearing pursuant to Section 325 herein. Failure to request an Administrative Hearing within the time prescribed, renders the permit terms and conditions final and binding.

#### SECTION 316 - PERMIT CONDITIONS.

(A) Wastewater Discharge Permits shall be expressly subject to all provisions of this Resolution and all other applicable regulations, user charges and fees established by the Authority.

(B) Industrial permits may contain the following:

- (1) Statement of purpose, term, regulated effluent(s), applicable regulations and causes for withdrawal of authorization to discharge.
- (2) Limits on the average and maximum wastewater constituents and characteristics.
- (3) Limits on the average and maximum rate and time of discharge or requirements for flow regulation and equalization
- (4) Any variance from the typical requirements that the Authority is empowered with the discretion to modify and has considered substantial justification to warrant such a modification.
- (5) Requirements for installation and maintenance of monitoring facilities, including provision for observing, measuring, sampling and stopping industrial effluent.
- (6) Specifications for monitoring programs which may include sampling locations, frequency of sampling, number, types and standards for tests, institution of quality assurance/quality control measures, and reporting schedule.
- (7) Site access provisions.
- (8) Authority's option to monitor the effluent, the results of which prevail in case of discrepancy or dispute.
- (9) Available enforcement mechanisms.
- (10) Requirements for notification of slug discharges.
- (11) Requirements for notification of the Authority for any new introduction of wastewater constituents or any substantial change in the volume or character of

the wastewater constituents being introduced into DELCORA's Wastewater Management System and/or the City's Wastewater Collection System.

(12) Requirements for maintaining and retaining plant records relating to wastewater discharge as specified by the Authority and affording the Authority to access and photocopy them.

(13) Requirements for notification of the authority or facility changes that affect the potential of slug discharge and requirements for submission of technical reports, discharge reports, the development and implementation of slug control measures, or other notifications.

(14) Requirements for notification of applicability of regulations promulgated by any Agency having jurisdiction in such matters after the effective date of the permit.

(15) Provisions allowing for the reopening of a permit when Agency regulations cause changed or additional requirements than those covered by these Standards, Rules and Regulations or permits issued pursuant thereto.

(16) Requirements for access to and photocopying of records developed for other Agency programs which involve matters of wastewater management.

(17) The unit charge, incremental cost assessment/surcharge, or schedule of User charges and fees currently in effect for the wastewater to be discharged to a public sewer.

(18) Compliance schedules.

(19) Best Management Plans. (BMPs)

(20) Requirement of specific performance of the terms and conditions of any permit or contract and/or payment of liquidated damages by the User.

(21) Signature and certification requirements.

(22) Other conditions as deemed appropriate by DELCORA to ensure compliance with this Resolution.

#### SECTION 317 - PERMIT ADMINISTRATION.

(A) The permit becomes effective when signed by DELCORA. Upon its issuance, a User's Wastewater Discharge Permit shall be considered its authorization to use the DELCORA Wastewater Management System, including all contributing components,

provided that the User complies with the terms and conditions of the permit and these Standards, Rules and Regulations.

(B) Except as noted in Section 320, said authorization shall be of fixed duration, shall be non-transferable, and shall be subject to periodic review and subsequent modification, termination, suspension, or revocation as stipulated elsewhere within this Article.

(C) The permittee shall be subject to enforcement action prescribed within Article 400 or as may otherwise be appropriate for improper use of the DELCORA system and for violation(s) of the permit.

#### SECTION 318 - PERMIT DURATION.

(A) Industrial wastewater permits authorizing industrial use shall be issued for specific time period with provision to expire on a specific date but in any event, shall expire within five (5) years of the date of issuance.

(B) DELCORA Wastewater Discharge Permits authorizing primary Residential or Commercial User contributions shall be in full force and effect for the duration that the permitted premises exhibits a specified material occupancy, producing wastewater of specified type, class, quantity, and quality, and is otherwise in conformance with all applicable regulations and excepting an enforcement action which may negate it.

#### SECTION 319 - PERMIT RENEWAL.

(A) Permittees which have demonstrated satisfactory past performance and wish to continue system usage shall apply to DELCORA for permit renewal a minimum of one hundred and eighty (180) days prior to expiration of the User's existing permit. DELCORA may either grant the renewal, modify and reissue the permit or deny the renewal or the permit in accordance with this Resolution. The User shall be notified of any proposed changes in the permit at least thirty (30) days prior to the effective date of the change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

(B) All permit renewal communications shall be conducted in writing via the U.S. Postal Service using Certified Mail, Return Receipt Requested.

(C) Failure to acquire renewal shall not relieve the User from compliance with all conditions accompanying the permit's expiration, including the cessation of system usage.

(D) Where a permit has been appealed, the appeal shall only stay the disputed provision, not the entire permit unless the stay of the disputed provision would pose an immediate threat to the POTW or the public health safety and welfare. The remainder of the permit is enforceable.

SECTION 320 - PERMIT TRANSFER.

(A) Wastewater Discharge Permits are issued to a specific Industrial User at a specific premises for specific conditions and are non-transferable except as stated herein. A Wastewater Discharge Permit issued for Industrial Users shall not be reassigned or transferred or sold to a new owner, new User, different premises, or new or changed conditions without the approval of the Authority. The User must give the Authority at least thirty (30) days notice of a proposed transfer. If expressly sought and approved, any succeeding owner or user shall also comply with the terms and conditions of the existing permit until a new permit is issued by DELCORA. This section shall not prevent the Authority from requiring the submission of Wastewater Discharge Permit application documents from any succeeding owner or User for the conditions referenced above.

(B) A Wastewater Discharge Permit authorizing Residential or Commercial Users of the system may be transferred with title providing that previous material occupancy and wastewater characteristics will be maintained.

SECTION 321 - PERMIT MODIFICATION.

(A) Wastewater Discharge Permits are subject to modification at the User's initiative due to desired changes in site activities which would result in wastewater contribution characteristics differing from those which may have been previously authorized. Application for the modified conditions must be made in accordance with provisions governing issuance of any original permit. Any changes in site activities which would cause the wastewaters to exceed the requirements of the Wastewater Discharge Permit, Service Agreement, or this Resolution shall not be undertaken unless they are approved and duly incorporated into a modified permit by DELCORA.

(B) Wastewater Discharge Permits are subject to modification at the Authority's initiative in order to ensure compliance with new regulations or to otherwise ensure attainment of goals established within Section 103. Modified permits will be prepared subject to the same issuance provisions as set forth within Section 315 with effective dates consistent with either those established within the new regulations or those established within a schedule of compliance intended to expeditiously resolve any conditions preventing attainment of Section 103 goals.

(C) (1) Within one hundred and eighty (180) days of the promulgation of a National Categorical Pretreatment Standard, the wastewater discharge permit of any User subject to such standards shall be revised to require compliance with such standard within the time frame prescribed by such standard. In addition, the User with an existing wastewater discharge permit shall submit to the POTW, within ninety (90) days after the promulgation of an applicable Federal Categorical Pretreatment Standard, the information required by Section 310.

(2) Where a person, newly subject to a National Categorical Pretreatment Standard, was not previously required to submit an application for a wastewater discharge permit pursuant to Section 310, the person shall apply for a wastewater discharge permit within ninety (90) days after the promulgation of the applicable National Categorical Pretreatment Standard.

#### SECTION 322 - PERMIT TERMINATION.

A permittee's authorization to discharge wastewater to the DELCORA system shall be deemed to have terminated when the subject premises undergoes complete closure or changes in ownership, nature or business conducted, or type and characteristics of wastewater generated. No resumption of discharge of wastewater from the premises shall occur unless sought and authorized consistent with provisions for permit application, submission, review, transfer and issuance recited elsewhere within Article 300.

#### SECTION 323 - SERVICE AND PERMIT SUSPENSION.

(A) DELCORA may suspend the wastewater treatment service and/or a Wastewater Discharge Permit by issuing a Suspension Order when such suspension is necessary, in the opinion of DELCORA, to stop an actual or threatened discharge which:

- (1) Presents or may present an imminent or substantial endangerment to the health or welfare of persons;
- (2) Presents or may present an imminent or substantial endangerment to the environment;
- (3) May cause or actually causes Interference or Pass Through with the DELCORA Wastewater Management System, and/or the City's Wastewater Collection System; or
- (4) Causes DELCORA or the City to violate any condition of their NPDES Permits.

(B) Any User issued a Suspension Order shall immediately stop or eliminate its discharge to the POTW.

(C) In the event of a failure of the User to immediately comply voluntarily with the Suspension Order, DELCORA shall take such steps as deemed necessary including, but not limited to immediate severance of the sewer connection to prevent or minimize damage to the DELCORA Wastewater Management System, the City Wastewater Collection System or endangerment to any individuals and/or revocation of the permit.

(D) DELCORA may reinstate the Wastewater Discharge Permit and/or the wastewater treatment service upon proof of the elimination of the non-complying discharge. Such

proof may be presented to DELCORA at a Pre-Hearing Conference to be held within twenty-four hours after the issuance of a Suspension, if requested by the User.

(E) Any User issued a Suspension Order is entitled to an Administrative Hearing pursuant to Section 325 of this Resolution; however, the Suspension Order shall remain in effect until otherwise determined as a result of the Administrative Hearing or Pre-Hearing Conference.

(F) A detailed written statement submitted by the User describing the causes of the harmful contribution and the measures taken to prevent any future occurrence shall be submitted to DELCORA within ten (10) working days of the date of occurrence which gave rise to the issuance of the Suspension Order.

#### SECTION 324 - PERMIT REVOCATION.

(A) Any User who violates the conditions of this Resolution, or applicable State, Federal or local law, including but not limited to the conditions noted below, is subject to having his wastewater discharge permit revoked in accordance with the procedures of this Resolution:

- (1) Presents or may present an imminent or substantial hazard to life and property;
- (2) Presents or may present a threat of impairment of any element of the POTW's system to the extent that it fails to fulfill its intended function;
- (3) Presents or may present a general endangerment to the environment;
- (4) Violation of any permit provisions or otherwise applicable regulations;
- (5) Falsification of User-supplied information such as a permit application, various reports, records, and the like;
- (6) Failure to comply with the terms and provisions of any enforcement action, notice or order(s).
- (7) Denial of site access, failure to provide information or other failure to cooperate with the Authority or obstruct other necessary Authority functions pursuant to this Resolution; or
- (8) Failure to pay service charges.

(B) Revocation of a User's Permit requires the User to immediately cease all wastewater contributions.

(C) Any User receiving a Notice of Permit Revocation shall have the same rights to a Pre-Hearing Conference and an Administrative Hearing as described in Section 325 and Section 326.

SECTION 325 - ADMINISTRATIVE HEARING.

(A) A person determined by DELCORA to have violated any permit condition or regulation promulgated by DELCORA shall be given written notice of the violation which shall be sent by Certified Mail, Return Receipt Requested. The Notice of Violation shall also state that such person has the right to a hearing pursuant to the Local Agency Law, 2 Pa.C.S.A. §§101-106 and 551-555. Such person must request such a hearing within twenty (20) days of the date of receipt of the Notice of Violation, order, notice or other action.

(B) DELCORA may order any User who causes or allows an unauthorized discharge to enter the DELCORA Wastewater Management System to show cause before the duly appointed Hearing Officer why enforcement action should not be taken. A notice shall be served on the User specifying the time and place of a hearing to be held by the duly appointed Hearing Officer regarding the violations, the reasons why the action is to be taken, the proposed enforcement action, and directing the User to show cause before the duly appointed Hearing Officer why the proposed enforcement action should not be taken. The notice of the hearing shall be served personally or by registered or certified mail (return receipt requested) at least ten (10) days before the hearing. Service may be made on any agent or officer of a corporation.

(C) The Board of Directors of DELCORA hereby appoints the Chairman of the Board or his designee as Hearing Officer with full power and authority to:

- (1) Issue in the name of DELCORA, Notice(s) of Hearing(s) requesting the attendance and testimony of witnesses and the production of evidence relevant to any matter involved in such hearings;
- (2) Take evidence; and
- (3) Adjudicate any matter under appeal.

(D) At any hearing held pursuant to this Section, all testimony will be taken under oath and may be stenographically recorded and a full and complete record may be kept of the proceedings. In the event all testimony is not stenographically recorded and a full and complete record of the proceedings is not deemed necessary by DELCORA, such testimony shall be stenographically recorded and a full and complete record of the proceeding shall be kept at the request of any party agreeing to pay the costs thereof.



(E) After the duly appointed Hearing Officer has reviewed the evidence, he or she shall issue an adjudication in writing, which shall contain findings and the reasons for the adjudication, and shall be served upon all parties or their counsel personally, or by mail.

(F) Any party may request a Pre-Hearing Conference in order to attempt to resolve any dispute. The request should be made in writing to the Executive Director of DELCORA.

(G) Ongoing Disputes. It is the intent of this Board that the change to the Standards, Rules and Regulations set forth in this Resolution shall govern any appeals ongoing as of its effective date, and that the Chairman or his designee replace the Executive Director as Hearing Officer for such ongoing appeals. The foregoing notwithstanding, nothing shall prohibit the Chairman from appointing the Executive Director as his designee to remain as Hearing Officer to preside over any such ongoing dispute. This Resolution shall not be interpreted to invalidate any action taken by the Executive Director in his capacity as Hearing Officer prior to its effective date in any ongoing or previously adjudicated appeal.

#### SECTION 326 - JUDICIAL REVIEW.

Any party may appeal the decision of the DELCORA Administrative Hearing Officer pursuant to the Pennsylvania Local Agency Law, 2 Pa.C.S.A. §§751-754 within the time prescribed. Failure to appeal within the prescribed time renders the determination of the Hearing Officer final and binding.

#### SECTION 327 - STANDARD OF PERFORMANCE FOR WASTEWATER MEASUREMENT AND ANALYTICAL TESTING

(A) All measurements, tests, and analyses of the characteristics of wastewaters shall be determined in accordance with the latest version of 40 CFR Part 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants".

(B) Unless otherwise noted or required by any other regulations, all samples shall be obtained from an appropriate monitoring facility or control structure and must be representative of the conditions occurring at that time. The particular constituents involved shall determine such variables as sample type and sample collection, preservation and holding techniques. The permittee shall observe appropriate chain of custody procedures to ensure sample integrity from collection through analysis.

(C) All analytical procedures shall incorporate quality assurance and quality control provisions in order to ensure the reliability and validity of laboratory data. Permittees should consult the latest edition of U.S. EPA Publication USEPA-600/4-79-019, "Handbook for Analytical Quality Control in Water and Wastewater Laboratories".

(D) All analyses shall be conducted at an accredited PADEP or NELAC – accredited laboratory with demonstrated competency in water and wastewater testing and which is acceptable to DELCORA.

(E) DELCORA reserves the right to conduct split sample verification in support of permittee-furnished data. DELCORA's results shall be considered conclusive.

#### SECTION 328 - CONFIDENTIALITY.

(A) Information and data on a User obtained from reports, questionnaires, permits, permit applications and monitoring programs and from inspections shall be available to the public or other governmental agency without restriction unless the User specifically requests that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the User.

(B) Any information or other submission (exclusive of User effluent data) may be stamped with the words "CONFIDENTIAL BUSINESS INFORMATION" on each page containing such information as the means for making such request. DELCORA will not consider any data on the User's wastewater discharge to the DELCORA wastewater management system as confidential, and such information will remain available to the public or other governmental agency without restriction regardless of any claim for confidentiality or granting of confidential status for any other User information. Confidential business information shall be kept by DELCORA in a secure location with only limited, authorized access.

(C) When requested by the person furnishing a report, the portions of a report which might disclose trade secrets/or secret processes shall not be made available for inspection by the public but shall be made available upon written request to governmental agencies for uses related to this Resolution, the National Pollutant Discharge Elimination System (NPDES) Permit, State Disposal System permit and/or the Pretreatment Program; provided however, that such portions of a report shall be available for use by the State, Local and Federal government(s) or any State or Federal agency, DELCORA and/or the City of Philadelphia, in judicial review or enforcement proceedings involving the person furnishing the report. Wastewater constituents, characteristics and effluent data will not be recognized as confidential information.

#### SECTION 329 - INTERMEDIATE CONVEYOR REPORTS (CHAPTER 94).

Each municipality or municipal authority contributing wastewater to the DELCORA Wastewater Management System and/or the City's Wastewater Collection System either by connection to DELCORA facilities or by connection to other system(s) ultimately tributary to DELCORA facilities, shall prepare and submit to DELCORA an annual report summarizing significant developments in the management of wastewater within its jurisdiction. The content of this report shall be consistent with information required by PADEP's Chapter 94 Municipal Wasteload Management Report. In general, the annual

report shall summarize all permit activity, all changes (increases and reductions) in wastewater contribution to the User's system, current and future hydraulic and organic loadings, the current system wastewater facilities location plan, and sewer use regulations. This report shall be forwarded to DELCORA no later than March 1st following the calendar year covered by the report.

#### SECTION 330 - SELF MONITORING REPORTS.

(A) Any User, including Significant Industrial Users shall demonstrate compliance with terms and conditions of its Wastewater Discharge Permit, as well as regulations underlying this permit, by periodically monitoring its effluent and reporting the results of this monitoring to DELCORA. The reporting periods shall run from January 1 to June 30 and from July 1 to December 31 unless otherwise noted in the permit. Users shall submit their reports within thirty (30) days after the end of each reporting period. Users shall submit their reports at least semi-annually regardless of whether or not a permit has been issued.

(B) Effluent monitoring and reporting requirements will be established by the POTW upon consideration of such factors as wastewater complexity, variability, volume and strength.

(C) The permittee will be required to adhere to the specific sample type, sample frequency, parametric coverage, flow measurement and report form, contact, frequency and submission requirements set forth in its permit. In addition, the User shall comply with all general requirements for sampling and analysis as set forth in Section 327 herein.

(D) Failure to provide the required report within thirty (30) days after the due date shall be deemed significant noncompliance.

(E) This report, at a minimum, shall contain:

- (1) Name of permittee;
- (2) Identity of the facility;
- (3) The Reference to User's permit number;
- (4) Flow monitoring data, volume, rates, as prescribed in the permit;
- (5) All data from the sampling event during the reporting period which conforms to Section 327 of these Regulations. All data must be representative of conditions occurring during the reporting period and reflect each parameter specified in the permit including the sample results, the sample frequency, sample type, and chain of custody records;

- (6) A summary of any and all violations of these Standards, Rules and Regulations and/or permit violations occurring within the reporting period, including the date, the nature of the violation, the cause of the violation, if known, and actions taken to correct the violation;
  - (7) Certification as required by Section 334 herein;
  - (8) Signature(s) as required by Section 335 herein; and
  - (9) Any other information required by the POTW.
- (F) DELCORA, at its option, may perform the sampling and analysis required by this section in lieu of the noncategorical Significant Industrial User. In the event that DELCORA chooses to exercise this option, the noncategorical Significant Industrial User will not be required to submit this report.
- (G) In cases where the Pretreatment Standard requires compliance with a Best Management Practice (BMP) or pollution prevention alternative, the User must submit documentation required by DELCORA or the Pretreatment Standard necessary to determine the compliance status of the User.
- (H) Exemptions to the requirements herein shall be provided by DELCORA in writing.

#### SECTION 331 - SAMPLING REQUIREMENTS.

(A) The reports required by DELCORA must be based upon data obtained through appropriate sampling and analysis performed during the period covered by the report, which data are representative of conditions occurring during the reporting period. DELCORA requires that frequency of monitoring necessary to assess and assure compliance by Industrial Users with applicable Pretreatment Standards and Requirements. Grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide, and volatile organic compounds. For all other pollutants, 24-hour composite samples must be obtained through flow-proportional composite sampling techniques, unless time proportional composite sampling or grab sampling is authorized by DELCORA. Where time-proportional composite sampling or grab sampling is authorized by DELCORA, the samples must be representative of the Discharge and the decision to allow the alternative sampling must be documented in the Industrial User file for that facility or facilities. Using protocols (including appropriate preservation) specified in 40 CFR part 136 and appropriate USEPA guidance, multiple grab samples collected during a 24-hour period may be composited prior to the analysis as follows: For cyanide, total phenols, and sulfides, the samples may be composited in the laboratory or in the field; for volatile organics and oil & grease, the samples may be composited in the laboratory. Composite samples for other parameters unaffected by the compositing procedures as documented in approved USEPA methodologies may be authorized by DELCORA, as appropriate.

(B) For sampling required in support of baseline monitoring and 90-day compliance reports required by Section 332(A), a minimum of four (4) grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide and volatile organic compounds for facilities for which historical sampling data do not exist; for facilities for which historical sampling data are available, the Control Authority may authorize a lower minimum. For the reports required by paragraphs (D) and (E) of this Section, DELCORA shall require the number of grab samples necessary to assess and assure compliance by Industrial Users with Applicable Pretreatment Standards and Requirements.

(C) All analyses shall be performed in accordance with procedures established by the USEPA pursuant to section 304(h) of the Act and contained in 40 CFR part 136 and amendments thereto or with any other test procedures approved by the USEPA.

(D) Periodic reports on continued compliance.

(1) Any Industrial User subject to a categorical Pretreatment Standard after the compliance date of such Pretreatment Standard, or, in the case of a New Source, after commencement of the discharge into POTW, shall submit to DELCORA during the months of June and December, unless required more frequently in the Pretreatment Standard or by DELCORA or the USEPA, a report indicating the nature and concentration of pollutants in the effluent which are limited by such categorical Pretreatment Standards. In addition, this report shall include a record of measured or estimated average and maximum daily flows for the required reporting period. DELCORA may require more detailed reporting of flows. In cases where the Pretreatment Standard requires compliance with a Best Management Practice (or pollution prevention alternative), the User shall submit documentation required by DELCORA or the Pretreatment Standard necessary to determine the compliance status of the User. At the discretion of DELCORA and in consideration of such factors as local high or low flow rates, holidays, budget cycles, etc., DELCORA may modify the months during which the above reports are to be submitted.

(E) Reporting requirements for Industrial Users not subject to categorical Pretreatment Standards.

(1) DELCORA must require appropriate reporting from those Industrial Users with Discharges that are not subject to categorical Pretreatment Standards. Significant Non-categorical Industrial Users must submit to DELCORA at least once every six months (on dates specified by DELCORA) a description of the nature, concentration, and flow of the pollutants required to be reported by DELCORA. In cases where a local limit requires compliance with a Best Management Practice or pollution prevention alternative, the User must submit documentation required by DELCORA to determine the compliance status of the User. These reports must be based on sampling and analysis performed in the

period covered by the report, and in accordance with the techniques described in 40 CFR 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants and amendments thereto. This sampling and analysis may be performed by DELCORA in lieu of the significant non-categorical Industrial User.

#### SECTION 332 - REPORTING REQUIREMENTS.

##### (A) Baseline Monitoring Reports

(1) Within either one hundred eighty (180) days after the effective date of a categorical Pretreatment Standard, or the final administrative decision on category determination under 40 CFR 403.6(a)(4), whichever is later, existing Categorical Industrial Users currently discharging to or scheduled to discharge to DELCORA shall submit to DELCORA a report which contains the information listed in paragraph (2), below. At least ninety (90) days prior to commencement of their discharge, New Sources, and sources that become Categorical Industrial Users subsequent to the promulgation of an applicable categorical Standard, shall submit to DELCORA a report which contains the information listed in paragraph (2), below. A New Source shall report the method of pretreatment it intends to use to meet applicable Standards. A New Source also shall give estimates of its anticipated flow and quantity of pollutants to be discharged.

(2) Users described above shall submit the information set forth below.

(a) Identifying information. The User shall submit the name and address of the facility including the name of the operator and owners;

(b) Permits. The User shall submit a list of any environmental control permits held by or for the facility;

(c) Description of operations. The User shall submit a brief description of the nature, average rate of production, and Standard Industrial Classification of the operations(s) carried out by such Industrial User. This description should include a schematic process diagram which indicates points of discharge to DELCORA from the regulated processes.

(d) Flow measurement. The User shall submit information showing the measured average daily and maximum daily flow, in gallons per day, to DELCORA from each of the following:

(i) Regulated process streams; and

(ii) Other streams as necessary to allow use of the combined wastestream formula of 40 CFR 403.6(e). DELCORA may

allow for verifiable estimates of these flows where justified by cost or feasibility considerations.

(e) Measurement of pollutants.

(i) The User shall provide the following information required regarding the measurement of pollutants.

a. The categorical Pretreatment Standards applicable to each regulated process and any new categorically regulated processes for Existing Sources.

b. The results of sampling and analysis identifying the nature and concentration, and/or mass, where required by the Standard or by DELCORA, of regulated pollutants in the discharge from each regulated process.

c. Instantaneous, Daily Maximum, and long-term average concentrations, or mass, where required, shall be reported.

d. The sample shall be representative of daily operations and shall be analyzed in accordance with procedures set out in Section 331 of this ordinance. Where the Standard requires compliance with a BMP or pollution prevention alternative, the User shall submit documentation as required by DELCORA or the applicable Standards to determine compliance with the Standard.

(ii) The User shall take a minimum of one representative sample to compile that data necessary to comply with the requirements of this paragraph.

(iii) Samples should be taken immediately downstream from pretreatment facilities if such exist or immediately downstream from the regulated process if no pretreatment exists. If other wastewaters are mixed with the regulated wastewater prior to pretreatment, the User should measure the flows and concentrations necessary to allow use of the combined wastestream formula in 40 CFR 403.6(e) to evaluate compliance with the Pretreatment Standards. Where an alternative concentration or mass limit has been calculated in accordance with 40 CFR 403.6(e), this adjusted limit along with supporting data shall be submitted to DELCORA.

(iv) Sampling and analysis shall be performed in accordance with Section 331.

(v) DELCORA may allow the submission of a baseline report which utilizes only historical data so long as the data provides

information sufficient to determine the need for industrial pretreatment measures;

(vi) The baseline report shall indicate the time, date and place of sampling and methods of analysis, and shall certify that such sampling and analysis is representative of normal work cycles and expected pollutant Discharges to DELCORA.

(f) Compliance Certification. A statement, reviewed by the User's Authorized Representative as defined in Section 107 (A) (5) and certified by a qualified professional, indicating whether Pretreatment Standards are being met on a consistent basis, and, if not, whether additional operation and maintenance (O&M) and/or additional pretreatment is required to meet the Pretreatment Standards and Requirements.

(g) Compliance Schedule. If additional pretreatment and/or O&M will be required to meet the Pretreatment Standards, the shortest schedule by which the User will provide such additional pretreatment and/or O&M must be provided. The completion date in this schedule shall not be later than the compliance date established for the applicable Pretreatment Standard. A compliance schedule pursuant to this Section must meet the requirements set forth in Section 332 (B) of this ordinance

(h) Signature and Report Certification. All baseline monitoring reports must be certified in accordance with Section 332 (A) and signed by an Authorized Representative as defined in Section 107 (A) (5).

(B) Compliance Schedule Progress Reports

The following conditions shall apply to the compliance schedule required by Section 332 (A) (2) (g).

(1) The schedule shall contain progress in increments in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the User to meet the applicable Pretreatment Standards (such events include, but are not limited to, hiring an engineer, completing preliminary and final plans, executing contracts for major components, commencing and completing construction, and beginning and conducting routine operation);

(2) No increment referred to above shall exceed nine (9) months;

(3) The User shall submit a progress report to DELCORA no later than fourteen (14) days following each date in the schedule and the final date of compliance including as a minimum, whether or not it complied with the increment of progress,



the reason for any delay, and, if appropriate, the steps being taken by the User to return to the established schedule; and

(4) In no event shall more than nine (9) months elapse between such progress reports to DELCORA.

(C) Reports on Compliance with Categorical Pretreatment Standard Deadline

Within ninety (90) days following the date for final compliance with applicable categorical Pretreatment Standards, or in the case of a New Source following commencement of the introduction of wastewater into the POTW, any User subject to such Pretreatment Standards and Requirements shall submit to DELCORA a report containing the information described in Section 330 and Section 332(A)(2)(d)(e) and (f). For Users subject to equivalent mass or concentration limits established in accordance with the procedures in Section 602 per **40 CFR 403.6(c)**, this report shall contain a reasonable measure of the User's long-term production rate. For all other Users subject to categorical Pretreatment Standards expressed in terms of allowable pollutant discharge per unit of production (or other measure of operation), this report shall include the User's actual production during the appropriate sampling period. All compliance reports must be signed and certified in accordance with Sections 334 and 335. All sampling will be done in conformance with Section 331.

SECTION 333 - PREPARATION/SUBMISSION OF OTHER REPORTS.

The passage of legislation and subsequent promulgation of regulations involving the management of wastewater and its residuals by agencies empowered to function in this regard may necessitate preparation of reports, drawings, or other forms of documentation. Should DELCORA be accorded the responsibility of implementing those regulations, then any new or additional requirements shall be considered as conditions whose compliance will be sought as part of a User's permit. Should DELCORA not be delegated responsibility for the implementation of those regulations, the permittee shall comply with the regulations with the responsible agency in a time and manner consistent with the regulations. All documentation prepared for this purpose shall also be submitted to DELCORA as a condition of the User's permit with DELCORA.

SECTION 334 - CERTIFICATION REQUIREMENT.

(A) All reports submitted pursuant to these Standards, Rules and Regulations, including baseline monitoring reports, reports on compliance with categorical pretreatment standards, Significant Industrial User reports and periodic reports on continued compliance, shall include the certification statement set forth in 40 CFR 403.6(a)(2)(ii) which states:

"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."

(B) All Significant Industrial Users subject to categorical pretreatment standards shall include in any report submitted pursuant to these Standards, Rules and Regulations, any applicable certifications as required in the categorical pretreatment standards.

SECTION 335 - SIGNATORY REQUIREMENT.

Baseline monitoring reports, reports on compliance with categorical pretreatment standards, Significant Industrial User reports and periodic reports on continued compliance shall be signed as specified in 40 CFR §403.12(l) and shall be subject to the provisions of Sections 334, 335, and 413 herein.

SECTION 336 - RECORD KEEPING REQUIREMENTS.

(A) All Users subject to the reporting requirements established herein or in the National Pretreatment Standards shall maintain records of all information resulting from any required monitoring activities, any additional records of information obtained pursuant to monitoring activities undertaken by the User independent of such requirements, and documentation associated with Best Management Practices established under Section 223. Such records shall include for all samples:

- (1) The date, exact place, method and time of sampling and the name(s) of the person(s) taking the samples;
- (2) The dates analyses were performed;
- (3) The identity of a laboratory and/or persons who performed the analysis;

(4) The analytical techniques/methods used; and

(5) The results of such analyses.

(B) Records required to be maintained in this section shall be retained for a minimum of three (3) years. This period of retention shall be extended during the course of any unresolved litigation regarding the User or the POTW or when requested by the POTW, the PADEP, or the USEPA.

(C) Records required to be maintained by the User shall be made available for inspection and copying by the POTW, the PADEP, and the USEPA.

#### SECTION 337 - NOTIFICATION OF CHANGED DISCHARGE.

All Industrial Users shall notify DELCORA as soon as possible, in writing, in advance, of any substantial change in the volume or character of pollutants in their discharge, including the listed or characteristic hazardous wastes for which the Industrial User has submitted initial notification under Section 338 herein and/or as required by 40 CFR 403.12(p).

#### SECTION 338 - NOTIFICATION OF DISCHARGE OF LISTED OR CHARACTERISTIC WASTES.

(A) All Industrial Users shall notify DELCORA, the USEPA Region III Director of the Waste Management Division, and the PADEP, in writing of any discharge into the POTW, of a substance, which, if otherwise disposed of, would be a hazardous waste under 40 CFR Part 261. Such notification must include:

(1) The name of the hazardous waste as set forth in 40 CFR Part 261;

(2) The USEPA hazardous waste number;

(3) The type of discharge (continuous, batch or other); and

(4) If the User discharges more than one hundred (100) kilograms of such waste per calendar month to the POTW, the notification shall also contain the following information to the extent that such information is known and readily available to the Industrial User:

(a) An identification of the hazardous constituents contained in the wastes;

(b) An estimation of the mass and concentration of such constituents in the wastestream discharged during that calendar month; and

- (c) An estimation of the mass of constituents in the wastestream expected to be discharged during the following twelve (12) months.
- (B) (1) Initial notification(s) under this section by Industrial Users permitted as of August 23, 1990, shall be made before March 1, 1991.
- (2) Industrial Users who commence discharging after August 23, 1990, shall provide notification no later than one hundred eighty (180) days after the discharge of any listed or characteristic hazardous waste under 40 CFR Part 261.
- (C) Only one notification shall be submitted for each hazardous waste discharged. However, notwithstanding the preceding sentence, all Industrial Users shall also comply with Section 337 herein.
- (D) This notification does not apply to pollutants already reported under self-monitoring reports under Sections 329, 330 and/or 331 herein.
- (E) Users are exempt from the requirements of paragraphs (A), (B), (C) and (D) above, during a calendar month in which they discharge no more than fifteen (15) kilograms of hazardous wastes unless the wastes are acute hazardous wastes as specified in 40 CFR 261.30(d) and 261(e). Discharge of more than fifteen (15) kilograms of non-acute hazardous wastes in a calendar month or of any quantity of actual hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e), requires a one-time notification. Subsequent months during which the Industrial User discharges more than such quantities of any hazardous waste do not require additional notification except that all Users shall also comply with Section 337 herein.
- (F) In the case of any new regulations under Section 3001 of RCRA identifying additional characteristics of hazardous waste, the User must comply with paragraph (A) above, with regards to the discharge of such substance within ninety (90) days of the effective date of such regulations.
- (G) In the case of any notification made under paragraph (A) above, the Industrial User shall certify that it has a program in place to reduce the volume and toxicity of hazardous wastes generated, to the degree determined to be economically practical.

#### SECTION 339 - NOTIFICATION OF POTENTIAL PROBLEMS.

All Users shall notify DELCORA immediately of all discharges that could cause problems to the POTW, including any slug loadings, uncontrolled releases or accidental discharges, in conformance with Section 224 herein.

SECTION 340 - NOTIFICATION OF VIOLATIONS.

(A) If sampling by an Industrial User indicates a violation of its permit or these Standards, Rules and Regulations, the User shall notify DELCORA within 24 hours of becoming aware of the violation.

(B) If sampling by an Industrial User indicates a violation, the User shall repeat the sampling and analysis, and submit the results of the repeated analysis to DELCORA within thirty (30) days after becoming aware of the violation, except that the User is not required to resample if:

(1) DELCORA or the City performs sampling at the Industrial User at a frequency of at least once per month; or

(2) DELCORA or the City performs sampling at the Industrial User between the time when the User performs its initial sampling and the time when the User receives the results of this sampling.

(C) All sampling shall be performed in conformance with Section 327 and 331 herein.

SECTION 341 - SITE ACCESS AND INSPECTION.

POTW personnel shall be admitted to any site which is connected to the DELCORA Wastewater Management System for the purpose of inspection, record examination, monitoring, enforcement or any other form of surveillance deemed necessary in determining a User's compliance with these Standards, Rules and Regulations. The User shall allow the POTW to secure copies of any documents and production of such other information relevant to determining compliance with this Resolution. The POTW shall exert every effort to be reasonable in the exercise of this provision including, where feasible, scheduling such access in advance during times when the site is normally occupied. However, this shall not preclude the POTW from securing entrance upon minimal or with no notification at unusual times regardless of site occupancy if there is urgent cause for such admittance, or if reasons for access are not consistent with advance notice. In either case, whether scheduled or unannounced, site access shall not be unduly withheld; the presentation of suitable credentials shall entitle the bearer prompt site admittance. It shall be the User's responsibility to incorporate this requirement in any applicable security procedures employed so that prompt admittance for the performance of these specific responsibilities will not be impeded. Site personnel shall conduct POTW personnel to the necessary site locations and accompany them throughout the duration of the visit until they are conducted from the premises. Site access shall include provisions for the installation, operation and maintenance of sampling and monitoring devices and/or equipment by the POTW.

SECTION 342 - DELCORA DETERMINATIONS FINAL.

DELCORA detection and notification to any User concerning deficiencies involving compliance with any aspect of these Standards, Rules and Regulations shall be considered final and binding.

**ARTICLE 400**

**ENFORCEMENT AND PENALTIES**

**SECTION 401 - VIOLATIONS.**

(A) Any violation of these Standards, Rules and Regulations is an instance of noncompliance. Any person or permit holder or User shall be in violation of these regulations and subject to any and all penalties and remedies as set forth herein, if any of the following events occur:

- (1) Failure to supply the POTW with accurate information of the type, format, frequency and content as the POTW may request;
- (2) Failure to notify the POTW immediately after User becomes aware or should have become aware by exercise of reasonable diligence, of any release or discharge of any substances, pollutants, materials, wastes, wastewaters or any other solid, liquid or gaseous matter which may impair the operation or performance of any element of the DELCORA Wastewater Management System or the City's Wastewater Collection System;
- (3) Failure to meet any compliance schedule issued by the POTW;
- (4) Exceeding the effluent limits set by the POTW;
- (5) Failure to comply with the monitoring requirements established by the POTW;
- (6) Tampering, altering or in any way changing the information and data collected on the monitoring systems required by the POTW;
- (7) Failure or refusal to provide the POTW access to any site or facility as required by this Resolution;
- (8) Failure or refusal to provide the POTW access, review and photocopies, if requested, of documents or records maintained by the User or under the direction of the User as required by this Resolution;
- (9) Failure to pay service charges and any special billings when due;
- (10) Any other violation of applicable statute(s) or regulation(s); or
- (11) Any other violation of the User's permit or this Resolution.

(B) Violations may be minor violations or major violations. Major violations are those that exceed the limits frequently and/or by a large quantity; impede the determination of compliance status; have the potential to cause or may have actually caused adverse environmental effects, health problems; or cause interference with POTW treatment plant's capability.

(C) Whenever DELCORA finds that any User has violated or is violating these Standards, Rules and Regulations, or any prohibition, limitation, or requirements contained herein or in a User's permit, DELCORA may serve by regular or certified mail upon such person a written Notice stating the nature of the violation. Notice by regular mail shall be deemed sufficient notice. The Notice provided by DELCORA shall set forth the findings of DELCORA, the section of the regulations or other law which has been violated, and the action required to correct the violation within a specified period of time.

#### SECTION 402 - SIGNIFICANT NONCOMPLIANCE.

(A) An Industrial User is in significant noncompliance if the violation meets one or more of the following criteria:

(1) Chronic violations of wastewater discharge limits, defined here as those in which sixty-six percent (66%) or more of all of the measurements for the same pollutant parameter taken during a six (6) month period exceed (by any magnitude) a numeric Pretreatment Standard or Requirement, including Instantaneous Limits as defined in Article 200 and Section 201;

(2) Technical Review Criteria (TRC) violations, defined here as those in which thirty-three percent (33%) or more of all of the measurements for each pollutant parameter taken during a six (6) month period equals or exceeds the product of the numeric Pretreatment Standard or Requirement, including Instantaneous Limits as defined in Article 200 and Section 201 multiplied by the applicable TRC value. The TRC values are:

(a)  $TRC = 1.4$  for BOD, TSS, fats, oils and grease;

(b)  $TRC = 1.2$  for all other pollutants except pH

(3) Any other violation of a Pretreatment Standard or Requirement as defined in Article 200, Section 201, and Section 401 (Daily, Maximum or long-term average, Instantaneous Limit, or narrative standard) that DELCORA determines has caused, alone or in combination with other discharges, Interference or Pass Through (including endangering the health of POTW personnel or the general public);



- (4) Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or to the environment, or has resulted in the POTW's exercise of its emergency authority to halt or prevent such a discharge;
  - (5) Failure to meet, within ninety (90) days after the scheduled date, a compliance schedule milestone contained in a User permit, control mechanism or enforcement order for starting construction, completing construction, or attaining final compliance;
  - (6) Failure to provide, within thirty (30) days after the due date, required reports including but not limited to baseline monitoring reports, ninety (90) day compliance reports, periodic self-monitoring reports, Significant Industrial User reports and reports on compliance with compliance schedules;
  - (7) Failure to accurately report noncompliance; and/or
  - (8) Any other violation or group of violations, which may include violation of Best Management Practices (BMPs), which DELCORA determines will adversely affect the operation or implementation of the local Pretreatment program.
- (B) Any violation that meets the criteria of paragraph (A) above shall be considered a major violation.
- (C) At least once a year, DELCORA shall publish in the largest daily newspaper published in Delaware County, a notice to the public of Industrial Users which were in significant noncompliance. This notice shall include the name(s) and address(es) of the User and may also include additional information such as the duration of the violation, nature of the violation, compliance action taken (if any), whether the User is currently complying with a compliance schedule and whether the User has returned to compliance. At the discretion of DELCORA, the type of enforcement action undertaken may also be reported. This provision does not prohibit the publication of this notice in more frequent intervals or by the City for Users in the Eastern Service Area.
- (D) DELCORA may also take such other enforcement response actions it deems necessary to bring the User into compliance with these Standards, Rules and Regulations.

#### SECTION 403 - ENFORCEMENT RESPONSE ACTIONS.

- (A) If any person, User or other party is determined to be in noncompliance with these or any other regulations or ordinances promulgated by DELCORA or any other governmental agency with jurisdiction, any or all of the following enforcement response action(s) may be imposed:

- (1) The suspension or revocation of any permit issued or the refusal to issue a permit;
  - (2) The reimbursement of any fines levied against DELCORA by any other agency as a result of said violation;
  - (3) The termination of wastewater treatment service;
  - (4) The payment of all monetary damages including system reconstruction damages incurred by the POTW as a result of said violation;
  - (5) The payment of damages, liquidated or otherwise, or extra service fees as set forth in the DELCORA Enforcement Response Guide and/or other resolutions;
  - (6) Payment of the cost of any additional monitoring or personnel required by the POTW in its sole discretion in determining that the violation has been satisfactorily corrected;
  - (7) The payment of all administrative, legal and other fees incurred as a result of the violation;
  - (8) Public notification of the violation;
  - (9) Inspection(s), telephonic, or written communications, and/or a notice of violation;
  - (10) The issuance of compliance orders or other administrative orders;
  - (11) Specific performance of the terms and conditions of any permit or contract shall be enforced;
  - (12) Injunctive or other equitable relief;
  - (13) Referral of the matter for criminal enforcement and/or the imposition of fines and/or penalties; or
  - (14) Any other legal remedy available to DELCORA.
- (B) DELCORA shall consider the following factors in determining whether noncompliance is a minor violation or a major violation:
- (1) Type of violation;
  - (2) Duration of the violation;

- (3) Compliance history of the violator;
- (4) Good faith of the violator; and
- (5) Harm caused by the violation.

These factors shall be utilized to select an appropriate enforcement response action.

(C) Appropriate enforcement response actions may range from no action, an informal response action or formal response action dependent upon the nature of the violation (minor or major) as determined by DELCORA. Pursuit of one enforcement action by the POTW does not preclude other enforcement activities.

(D) Formal enforcement response actions may include:

- (1) Administrative orders and compliance schedules;
- (2) Civil suit for injunctive relief, civil penalties, fines and/or damages;
- (3) Criminal proceedings; and/or
- (4) Termination of service and/or revocation of a permit.

(E) DELCORA shall investigate instances of noncompliance by one or more of the following methods:

- (1) Inspections including monitoring, sampling, document review (including as-built and as-designed plans and specifications), record review and interviews;
- (2) Communications, written and/or oral;
- (3) Review of past and current reports submitted by the User;
- (4) Review of laboratory practices, procedures, protocols and/or quality assurance/quality control procedures;
- (5) Requests for information;
- (6) Interviews, meetings, statements; and/or
- (7) Civil litigation discovery practices.

Investigations may be conducted by DELCORA staff, DELCORA's consultants or in the alternative, DELCORA's Solicitor.

(F) DELCORA shall issue an "Enforcement Response Guide" detailing its policy on enforcement. The Enforcement Response Guide may be updated or revised at any time without the need of amending this Resolution. The Enforcement Response Guide does not limit the range of enforcement response actions which DELCORA may undertake but rather it describes ranges of responses which may be appropriate for specific instances of noncompliance.

(G) Users in the Eastern Service Area, for as long as discharges of such Users are treated by the City, shall also be subject to the enforcement policies of the City as set forth in the City's Enforcement Response Guide.

#### SECTION 404 - PROCEDURE FOR REVOCATION OF PERMIT.

(A) Whenever DELCORA finds that any User has violated or is violating these regulations, the wastewater discharge permit, or any prohibition, limitation, or requirement contained herein, DELCORA shall serve by certified mail upon such person a written notice stating the nature of the violation.

(B) Within thirty (30) days of the date of the Notice of Violation the User must respond in writing. The response must state why the violation occurred, the steps taken to prevent its reoccurrence, and whether the violation has been corrected. If the User is unable to correct the violation within thirty (30) days, his response must include a plan for the satisfactory correction thereof.

(C) DELCORA shall consider the User's response, if any, before rendering its final determination Order. DELCORA's final determination Order may direct that:

- (1) The User's Permit be immediately revoked;
- (2) The User's Permit be revoked on a specific future date unless adequate treatment facilities, devices or other related appurtenances shall have been installed and existing treatment facilities, devices or other related appurtenances are properly operated; or
- (3) The User's Permit shall continue in effect.

(D) Further orders and directives may be issued as are necessary and appropriate.

(E) If a User fails to immediately comply with DELCORA's final determination order, DELCORA may enforce the order by taking any or all of the actions stated in Section 403 and 405. In addition, DELCORA may seek any other administrative, legal, or equitable relief available.

(F) After termination, the User may apply to DELCORA to once again contribute wastewater into the DELCORA system. DELCORA may accept, deny, or condition acceptance of the application pursuant to Section 406.

#### SECTION 405 - ENFORCEMENT OF PERMIT REVOCATION.

If the User fails to immediately cease all wastewater discharges upon revocation of his wastewater discharge permit, DELCORA may order any of the following actions to be taken:

- (A) Immediate severance of the User's sewer connection; or
- (B) Any other action designed to immediately terminate the User's wastewater discharge.

#### SECTION 406 - REISSUANCE OF PERMIT AFTER REVOCATION.

(A) Where a User has failed to comply with the provisions of these Standards, Rules and Regulations or any order or previous permit issued hereunder, DELCORA may decline to reissue a Permit.

(B) A User must submit to DELCORA a plan to comply with the provisions of these regulations or any order or previous permit issued hereunder. At the very least, the plan must outline: (1) what will be done to comply; (2) what has been done to comply, and (3) what time frame will be required to comply.

(C) Prior to re-issuing a permit, DELCORA may require the User to:

- (1) File with DELCORA a performance bond payable to DELCORA, in a sum not to exceed a value determined by DELCORA to be necessary to achieve consistent compliance; or
- (2) Submit proof that it has obtained liability insurance acceptable to DELCORA, sufficient to restore or repair the POTW for damages that may be caused by the User's discharge.

#### SECTION 407 - LEGAL ACTION.

If any person discharges sewage, industrial wastes, or other wastes into DELCORA's Wastewater Management system or commits non-discharge violations including, but not limited to failure to submit reports, failure to allow on site inspections contrary to the provisions of these regulations, Federal or State Pretreatment Requirements, the permit, or any order of DELCORA, DELCORA may commence an action for appropriate legal and/or equitable relief in the appropriate court. DELCORA may delegate its authority to

pursue legal and/or equitable relief against the Users in the Eastern Service Area to the City of Philadelphia.

SECTION 408 - INJUNCTIVE RELIEF.

Whenever a User has violated or continues to violate the provisions of these regulations or permit or order issued hereunder, DELCORA may petition the court for the issuance of a temporary restraining order, a preliminary or permanent injunction (as may be appropriate) which restrains or compels the activities on the part of the Industrial User.

SECTION 409 - CEASE AND DESIST ORDERS.

When DELCORA finds that a User has violated or continues to violate these Standards, Rules and Regulations or any permit or order issued hereunder, DELCORA may issue an order to cease and desist all such violations and direct those persons in non-compliance to:

- (A) Comply forthwith; or
- (B) Take such appropriate remedial or preventive action as may be needed to properly address a continuing or threatened violation, including halting operations and terminating the discharge.

SECTION 410 - SERVICE SEVERANCE.

(A) Whenever a User has violated or continues to violate the provisions of these Standards, Rules and Regulations or an order or permit issued hereunder, wastewater discharge service to the Industrial User may be severed after notice of the violation and an opportunity to respond, and service will only recommence, in DELCORA's sole discretion, at the User's expense, after it has satisfactorily demonstrated its ability to comply and remain in compliance with these Standards, Rules and Regulations.

(B) In order to halt or prevent any discharge or pollutants to the POTW which reasonably appears to present an imminent or substantial endangerment to the health or the welfare of persons, wastewater discharge service to the Industrial User may be severed immediately after informal notice to the discharger and service will only recommence, at the User's expense, after the User has satisfactorily demonstrated its ability to comply.

(C) In order to halt or prevent any discharge to the POTW which presents or may present an endangerment to the environment or which threatens to interfere with the operation of the POTW, after notice to the discharger and an opportunity to respond, wastewater discharge service may be severed and service will only recommence, at the User's expense, after it has satisfactorily demonstrated its ability to comply.

SECTION 411 - CRIMINAL SANCTIONS.

DELCORA may institute criminal proceedings against any person or User who violates these or any other regulations promulgated by DELCORA or any other governmental unit or Agency including but not limited to the U.S. Environmental Protection Agency and the Pennsylvania Department of Environmental Protection provided, however, that such action constitutes a violation of any State or Federal criminal statute as may be in effect at the time of the violation.

SECTION 412 - CIVIL AND EQUITABLE RELIEF.

If any person discharges wastewater, industrial wastewater, or other materials into the DELCORA Wastewater Management System contrary to the provisions of this Resolution, Federal or State requirements, or a permit, order, or regulation of DELCORA, DELCORA or the municipality in which the User is located, may commence an action for appropriate legal and/or equitable relief in courts of the Commonwealth of Pennsylvania or any other court having jurisdiction to grant the requested civil or equitable relief.

SECTION 413 - ADMINISTRATIVE PENALTIES.

(A) Assessment. In addition to proceeding under any other remedy available at law or equity for violation of pretreatment standards and/or requirements, DELCORA may assess a civil penalty upon an industrial user for the violation. The penalty may be assessed whether or not the violation was willful or negligent. The civil penalty shall not exceed \$25,000 per day for each violation regardless of jurisdictional boundaries. Each violation for each separate day shall constitute a separate and distinct offense under this section.

(B) Operational Upsets. For purposes of this section, a User's single operational upset which leads to simultaneous violations of more than one pretreatment standard or requirement shall be treated as a single violation as required by the Federal Water Pollution Control Act, 33 U.S.C. §1319(g)(3). In addition to any civil penalty imposed under this section, DELCORA may also recover its costs for re-establishing the operation of its affected facilities.

(C) Appeal. The Industrial User charged with the penalty shall have thirty (30) days to pay the proposed penalty in full, or, if the Industrial User wishes to contest either the amount of the penalty or the fact of the violation, the Industrial User must, within thirty (30) days, file with DELCORA an appeal of the action and request a hearing pursuant to The Local Agency Law, §§101-106 and 551-555. Failure to appeal within this period shall result in a waiver of all legal rights to contest the violation or the amount of the penalty.

SECTION 414 - FALSE STATEMENTS.

DELCORA may also institute enforcement proceedings of any type provided for in these Regulations against any person or User who knowingly makes any false statement(s), representation(s) or certification(s) in any application, record, report, plan or other document filed or required to be maintained pursuant to these regulations, or any wastewater discharge permit, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required under these regulations.

SECTION 415 – LEGAL FEES.

The Hearing Officer shall have the authority to award DELCORA its attorney fees actually incurred in connection with the underlying violation of these Standards, Rules and Regulations.



**ARTICLE 500**

**CHARGES AND FEES**

**SECTION 501 - PROGRAM ADMINISTRATION FEES.**

(A) It is the intent of DELCORA to recover all costs of service through fees and User charges, and to properly assess all costs in relation to the service provided.

(B) DELCORA will periodically establish a fee schedule for administration of the permit program and these regulations. Fees will include Wastewater Discharge Permit fees, Administrative Hearing Fees, and such other fees which may be further prescribed to conduct the function established by this Resolution or by other applicable enactments. The fees will be included in separate resolutions describing DELCORA service charges which are enacted on an annual basis.

(C) DELCORA reserves the right to impose additional charges for processing permits which are unusually complex, or where testing, analyses and evaluation required of the applicant must be duplicated. In such situations, DELCORA will notify the applicant in advance of the additional fee due.

(D) All fees are due upon application for a permit and are not refundable should the permit not be issued.

**SECTION 502 - USER SERVICE CHARGE.**

(A) Separate resolutions describe DELCORA Service Charges imposed upon all Users of its facilities to produce the revenues required annually to cover system expenses.

(B) It is the responsibility of Municipal and Municipal Authority Users to levy sewer rents upon and collect revenues from Commercial, Industrial, Institutional and Residential Users in their service areas in amounts sufficient to generate the revenues required annually to meet their obligations to DELCORA under their Service Agreements.

**ARTICLE 600**

**LOCAL LIMITATIONS AND NATIONAL CATEGORICAL STANDARDS**

**SECTION 601 – AUTHORITY.**

DELCORA is authorized to establish Local Limits pursuant to 40 CFR 403.5(c). Local limits will be approved by the USEPA and adopted by the DELCORA Board of Directors by Authority resolution.

**SECTION 602 – NATIONAL CATEGORIAL PRETREATMENT STANDARDS.**

Users must comply with the categorical Pretreatment Standards found at 40 CFR Chapter I, Subchapter N, Parts 405 - 471.

(A) Where a categorical Pretreatment Standard is expressed only in terms of either the mass or the concentration of a pollutant in wastewater, DELCORA may impose equivalent concentration or mass limits in accordance with Section 602 E.

(B) When the limits in a categorical Pretreatment Standard are expressed only in terms of mass of pollutant per unit of production, DELCORA may convert the limits to equivalent limitations expressed either as mass of pollutant discharged per day or effluent concentration for purposes of calculating effluent limitations applicable to individual Industrial Users.

(C) When wastewater subject to a categorical Pretreatment Standard is mixed with wastewater not regulated by the same Standard, DELCORA shall impose an alternate limit in accordance with 40 CFR 403.6(e).

(D) A categorical Industrial User may obtain a net/gross adjustment to a categorical Pretreatment Standard in accordance with the following paragraphs of this Section.

(1) Categorical Pretreatment Standards may be adjusted to reflect the presence of pollutants in the Industrial User's intake water in accordance with this Section. Any Industrial User wishing to obtain credit for intake pollutants must make application to DELCORA. Upon request of the Industrial User, the applicable Standard will be calculated on a "net" basis (i.e., adjusted to reflect credit for pollutants in the intake water) if the requirements of paragraph (2) of this Section are met.

(2) Criteria

(a) Either (i) The applicable categorical Pretreatment Standards contained in 40 CFR subchapter N specifically provide that they shall be

applied on a net basis; or (ii) The Industrial User demonstrates that the control system it proposes or uses to meet applicable categorical Pretreatment Standards would, if properly installed and operated, meet the Standards in the absence of pollutants in the intake waters.

(b) Credit for generic pollutants such as biochemical oxygen demand (BOD), total suspended solids (TSS), and oil and grease should not be granted unless the Industrial User demonstrates that the constituents of the generic measure in the User's effluent are substantially similar to the constituents of the generic measure in the intake water or unless appropriate additional limits are placed on process water pollutants either at the outfall or elsewhere.

(c) Credit shall be granted only to the extent necessary to meet the applicable categorical Pretreatment Standard(s), up to a maximum value equal to the influent value. Additional monitoring may be necessary to determine eligibility for credits and compliance with Standard(s) adjusted under this Section.

(d) Credit shall be granted only if the User demonstrates that the intake water is drawn from the same body of water as that into which the POTW discharges. DELCORA may waive this requirement if it finds that no environmental degradation will result.

(E) When a categorical Pretreatment Standard is expressed only in terms of pollutant concentrations, an Industrial User may request that DELCORA convert the limits to equivalent mass limits. The determination to convert concentration limits to mass limits is within the discretion of DELCORA. DELCORA may establish equivalent mass limits only if the Industrial User meets all the conditions set forth in Sections 602 (E)(1)(a) through 602 (E)(1)(e) below.

(1) To be eligible for mass limits, the Industrial User must:

(a) Employ, or demonstrate that it will employ, water conservation methods and technologies that substantially reduce water use during the term of its individual wastewater discharge permit;

(b) Currently use control and treatment technologies adequate to achieve compliance with the applicable categorical Pretreatment Standard, and not have used dilution as a substitute for treatment;

(c) Provide sufficient information to establish the facility's actual average daily flow rate for all wastestreams, based on data from a continuous effluent flow monitoring device, as well as the facility's long-term average production. Both the actual average daily flow rate and the long term

average production rate must be representative of current operating conditions;

(d) Not have daily flow rates, production levels, or pollutant levels that vary so significantly that equivalent mass limits are not appropriate to control the Discharge; and

(e) Have consistently complied with all applicable categorical Pretreatment Standards during the period prior to the Industrial User's request for equivalent mass limits.

(2) An Industrial User subject to equivalent mass limits must:

(a) Maintain and effectively operate control and treatment technologies adequate to achieve compliance with the equivalent mass limits;

(b) Continue to record the facility's flow rates through the use of a continuous effluent flow monitoring device;

(c) Continue to record the facility's production rates and notify DELCORA whenever production rates are expected to vary by more than 20 percent from its baseline production rates determined in Section 602 E(1)(c). Upon notification of a revised production rate, DELCORA will reassess the equivalent mass limit and revise the limit as necessary to reflect changed conditions at the facility; and

(d) Continue to employ the same or comparable water conservation methods and technologies as those implemented pursuant to paragraphs 602 (E)(1)(a) of this Section so long as it discharges under an equivalent mass limit.

(3) When developing equivalent mass limits, DELCORA:

(a) Will calculate the equivalent mass limit by multiplying the actual average daily flow rate of the regulated process(es) of the Industrial User by the concentration-based Daily Maximum and Monthly Average Standard for the applicable categorical Pretreatment Standard and the appropriate unit conversion factor;

(b) Upon notification of a revised production rate, will reassess the equivalent mass limit and recalculate the limit as necessary to reflect changed conditions at the facility; and

(c) May retain the same equivalent mass limit in subsequent individual wastewater discharger permit terms if the Industrial User's actual average

daily flow rate was reduced solely as a result of the implementation of water conservation methods and technologies, and the actual average daily flow rates used in the original calculation of the equivalent mass limit were not based on the use of dilution as a substitute for treatment pursuant to Section 225. The Industrial User must also be in compliance with Section 233 regarding the prohibition of bypass.

(F) DELCORA may convert the mass limits of categorical Pretreatment Standards of 40 CFR Parts 414, 419, and 455 to concentration limits for purposes of calculating limitations applicable to individual Industrial Users. The conversion is at the discretion of DELCORA.

(G) Once included in its permit, the Industrial User must comply with the equivalent limitations developed in this Section in lieu of the promulgated categorical Standards from which the equivalent limitations were derived.

(H) Many categorical Pretreatment Standards specify one limit for calculating maximum daily discharge limitations and a second limit for calculating maximum Monthly Average, or 4-day average, limitations. Where such Standards are being applied, the same production or flow figure shall be used in calculating both the average and the maximum equivalent limitation.

(I) Any Industrial User operating under a permit incorporating equivalent mass or concentration limits calculated from a production-based Standard shall notify DELCORA within five (5) business days after the User has a reasonable basis to know that the production level will significantly change within the next calendar month. Any User not notifying DELCORA of such anticipated change will be required to meet the mass or concentration limits in its permit that were based on the original estimate of the long term average production rate.

**ARTICLE 700**

**MISCELLANEOUS PROVISIONS**

**SECTION 701 - SEVERABILITY STATEMENT.**

If any provision, paragraph, word, or article of this Resolution is invalidated by any court of competent jurisdiction, the remaining provisions, paragraphs, words, sections, and articles shall not be affected and shall continue in full force and effect.

**SECTION 702 - CONFLICT STATEMENT.**

All other resolutions and parts of other resolutions which are inconsistent or conflicting with any part of this Resolution are hereby repealed to the extent of such inconsistency or conflict.

**SECTION 703 - ESTABLISHMENT OF EFFECTIVE DATE.**

This Resolution shall have force and effect immediately upon its adoption.

**SECTION 704 - REPEALER.**


All resolutions or parts of resolutions inconsistent herewith are repealed to the extent of such inconsistencies. Resolution No. 91-03, as amended and codified by Resolutions No. 95-06 and No. 95-12, are hereby repealed in their entirety.

RESOLVED this 19th day of APRIL, 2011.

[SEAL]

DELAWARE COUNTY REGIONAL WATER  
QUALITY CONTROL AUTHORITY

BY:   
Stanley Kester, Chairman

ATTEST:   
David Gorbey, Secretary

**DELAWARE COUNTY REGIONAL  
WATER QUALITY CONTROL AUTHORITY**

**RESOLUTION NO. 2013-12  
ADOPTED JULY 16, 2013**

**ESTABLISHING LOCAL LIMITS FOR  
DISCHARGE TO DELCORA FACILITIES  
UNDER THE INDUSTRIAL PRETREATMENT  
PROGRAM**

**BE IT RESOLVED** by the Delaware County Regional Water Quality Control Authority ("DELCORA") that in accordance with Resolution 2013-12, that Local Limits for discharge to DELCORA facilities shall be as follows:

**SECTION 101 – Short Title**

This resolution shall be known and may be cited as The DELCORA Local Limitations.

**SECTION 102 – Purpose**

A. In order to effectively administer its Pretreatment Program, comply with the provisions of the Clean Water Act, 33 USC §§1251 et seq., as amended, to fulfill the purposes set forth in DELCORA Standards, Rules, and Regulations, it is essential and necessary to impose local limitations upon all classes of non-domestic users.

B. In order that the aforementioned purposed can be achieved, it is deemed necessary and proper to adopt Local Limitations.

**SECTION 103 - Authority**

DELCORA is authorized to establish Local Limits pursuant to 40 CFR Part 403.5 C.

**SECTION 104 - Applicability**

A. DELCORA is comprised of an Eastern and Western Service Areas. Limits for the Western Service Area are established to protect against Pass-through and Interference at the DELCORA Western Regional Treatment Plant. Limits for the Eastern Service Area are established to protect against Pass-through and Interference at the City of Philadelphia Southwest Water Pollution Control Plant.

B. The municipalities of the Eastern and Western Service Areas are defined in Attachment 1. The local limits where the discharge occurs will be applied. For discharges to the Central Delaware County Authority, the most stringent limit will apply.

## SECTION 105 – Local Limitations for the Eastern Service Area

A. For the Eastern Service Area, no person shall discharge wastewater containing in excess of the following:

### **Eastern Service Area & Philadelphia Limits**

<b><u>Pollutant</u></b>	<b><u>Daily Maximum (mg/L)</u></b>	<b><u>Monthly Average (mg/L)</u></b>
Arsenic	0.15	0.10
Cadmium	0.2	0.1
Chromium, Total	7.0	4.0
Copper	4.5	2.7
Cyanide, Total	10.0	
Lead	0.69	0.43
Mercury	0.01	0.005
Nickel	4.1	2.6
Selenium	0.2	0.1
Silver	0.43	0.24
Zinc	4.2	2.6

B. No person shall discharge any of the substances listed below to the Publicly Owned Treatment Work “POTW”, without obtaining prior written approval of the City of Philadelphia.

Acrylonitrile  
Aldrin  
Alpha BHC  
Aluminum  
Benzene  
Benzo (a) pyrene  
Benzotrichloride  
Beryllium  
Bis (2-ethylhexyl) phthalate (DEHP)  
Bromobenzene  
Bromodichloromethane  
Bromoform  
Carbon tetrachloride  
Chlordane  
Chlorobenzene  
Chlorodibromomethane  
Chloroethane  
Chloroform  
2-Chlorophenol  
Cumene (Isopropylbenzene)  
DDT/DDE/DDD  
Dibutylphthalate  
Dichlorobromomethane



bis (2-chloroethyl) ether  
Dieldrin  
Dioxins  
Dimethyl Sulfoxide (DMSO)  
Dimethylnitrosamine  
Ethylbenzene  
Heptachlor  
Hexachlorobutadiene  
Hexachlorobenzene  
Iron  
Lindane  
Dichlorobenzene  
Methyl chloride (Chloromethane)  
Methyl Ethyl Ketone  
Methyl Isobutyl Ketone  
Molybdenum  
Xylenes  
o-Chlorotoluene  
o-Dichlorobenzene  
p-Dichlorobenzene  
p-Chlorotoluene  
Phenanthrene  
Phenols  
Pyrene  
Styrene  
Tetrachloroethylene (Perchloroethylene)  
Titanium  
Toluene  
Toxaphene (chlorinated camphene)  
Trichloroethylene  
Vinyl chloride  
Tetrachloroethane  
1,1,2-Trichloroethane  
Dichloroethane  
1,1-Dichloroethylene  
1,1-Dichloropropene  
trans-1,2-Dichloroethylene  
1,2,3-Trichloropropane  
cis-1,2-Dichloroethylene  
1,2-Dibromo-3-Chloropropane  
1,2-Dichloropropane  
1,3-Dichloropropane  
1,3-Dichloropropene  
2,2-Dichloropropane  
2,4-Dinitrophenol  
2,4-Dinitrotoluene  
3,3-Dichlorobenzidine  
Volatile Organic Sulfides

C. The City reserves the right to modify this list of materials prohibited from entering the POTW.

D. Polychlorinated Biphenyls (PCBs): The PCB content of waste shall be nondetectable by EPA method 608.

**SECTION 106 – Local Limitations for the Western Service Area**

A. For the Western Service Area, no person shall discharge wastewater containing in excess of the following:

**Western Regional Treatment Plant Proposed**

<b><u>Pollutant</u></b>	<b><u>Maximum Day Limit, mg/L</u></b>
Antimony	0.71
Arsenic	0.166
Cadmium	0.07
Chromium, Total	10.8
Copper	1.33
Cyanide, Total	0.30
Lead	1.54
Mercury	0.011
Nickel	4.64
Selenium	0.45
Silver	0.22
Zinc	5.82
Phenols (24hr)	16
PCB 1016	ND <sup>(1)</sup>
PCB 1221	ND <sup>(1)</sup>
PCB 1232	ND <sup>(1)</sup>
PCB 1242	ND <sup>(1)</sup>
PCB 1248	ND <sup>(1)</sup>
PCB 1254	ND <sup>(1)</sup>
PCB 1260	ND <sup>(1)</sup>
Benzene	1.5
Ethylbenzene	1.5
Toluene	1.5
Xylenes	1.5
Total CWA Section 307 toxic pollutants unless controlled otherwise elsewhere within these regulations	30
All other CWA Priority Pollutants not elsewhere regulated	No discharge without prior written approval of the Authority.

Notes:

1. Polychlorinated Biphenyls (PCBs): The PCB content of waste shall be nondetectable by EPA method 608. DELCORA reserves the right to require any User reporting a detection level above 5 ug/l to demonstrate that a lower detection limit is not achievable.

## B. PROHIBITED POLLUTANTS

No person shall discharge wastewater containing any of the EPA Priority Pollutants listed herein into DELCORA's facilities without first obtaining written permission from DELCORA.

Acetone  
Aluminum  
Barium  
Bromobenzene  
Bromochloromethane  
Carbazole  
Carbon Disulfide  
p-Chloroaniline  
o-Chlorotoluene  
p-Chlorotoluene  
Cobalt  
Cumene  
Dibenzofuran  
Dichlorobromomethane  
Diisobutylenes  
Endrin Ketone  
2-Hexanone  
Isopropylbenzene  
2-Methylnaphthalene  
2-Methylphenol (o-Cresol)  
4-Methylphenol (p-Cresol)  
Methoxychlor  
MEK (Methyl Ethyl Ketone) (2-Butanone)  
MIBK (Methyl Isobutyl Ketone)  
Molybdenum  
o-Nitroaniline  
m-Nitroaniline  
p-Nitroaniline  
Styrene  
Tin  
Titanium  
Vanadium  
Xylenes (Total)  
1,1,1,2 – Tetrachloroethane  
1,1 – Dichloropropane

1,2,3 – Trichloropropane  
1,2 – Dibromoethane  
1,2 – Dibromo-3-Chloropropane  
1,3 – Dichloropropane  
2,2 – Dichloropropane  
2,4,5 – Trichlorophenol

DELCORA reserves the right to modify this list of prohibited pollutants at any time as may become necessary by virtue of new State or Federal regulations.

SECTION 107 – Repealer

All resolutions or parts of resolutions inconsistent herewith are repealed to the extent of such inconsistencies. This resolution repeals Resolution 2011-01.

SECTION 109 – Effective Date

This Resolution shall be effective October 1, 2013.


RESOLVED this 16<sup>th</sup> day of July, 2013.

DELAWARE COUNTY REGIONAL  
WATER QUALITY CONTROL AUTHORITY

[SEAL]

BY   
Stanley R. Kester, Chairman

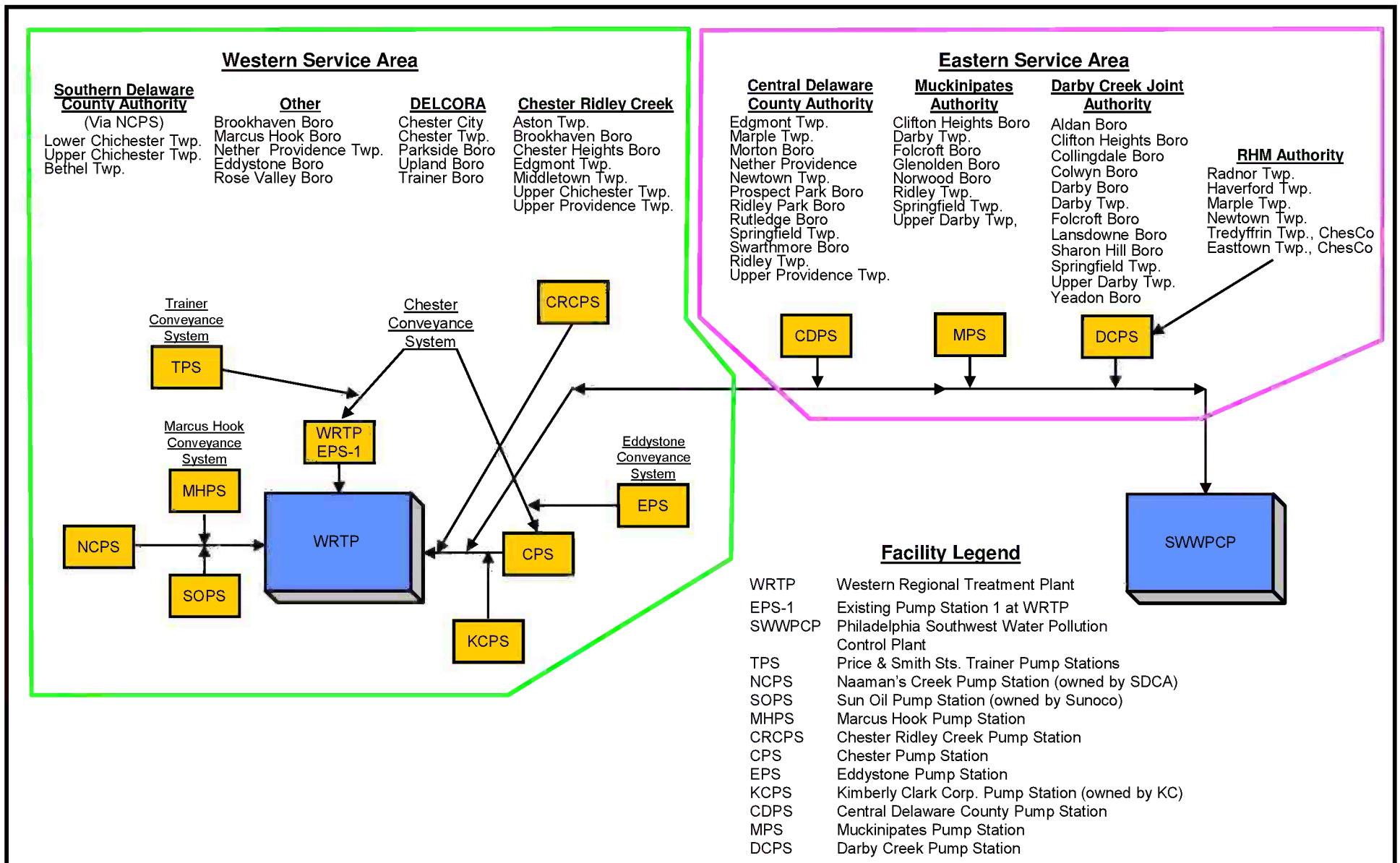
ATTEST:

  
David G. Gorbey, Secretary

# **ATTACHMENT 1**

## **EASTERN & WESTERN SERVICE AREAS**





Delaware County Regional Water  
Quality Control Authority



**FIGURE 2**  
**DELCORA's CONVEYANCE SYSTEM**





## **DELCORA ENFORCEMENT RESPONSE PLAN**

### **INTRODUCTION AND PURPOSE**

Delaware County Regional Water Quality Control Authority (DELCORA), as the owner and operator of the publicly owned treatment works, has the primary responsibility for enforcing all pretreatment requirements found in the Clean Water Act, the regulations enacted thereto, DELCORA's Wastewater Control Regulations and the DELCORA wastewater discharge permit. (Hereinafter, all requirements and obligations found in these documents shall be referred to as "pretreatment requirements"). The purpose of this Enforcement Response Plan is to ensure that DELCORA's responsibility is carried out in a consistent, systematic, and timely fashion. The goals of this Enforcement Response Plan are as follows:

1. to identify all instances of non-compliance with the pretreatment requirements;  
and
2. to ensure that the industrial user returns to compliance as quickly as possible  
and to ensure its continuing compliance thereafter; and
3. to penalize industrial users for their violations of the pretreatment requirements;  
and
4. to deter future violations of the pretreatment requirements; and
5. to recover any expenses incurred by DELCORA attributable to an industrial  
user's non-compliance.

This Enforcement Response Plan consists of six (6) sections.

## TABLE OF CONTENTS

### 1. SECTION I - IDENTIFYING NON-COMPLIANCE

This section will discuss how non-compliance will be investigated and identified. It will identify those individuals responsible for determining non-compliance and specify time frames for making non-compliance determinations.

### 2. SECTION II - ENFORCEMENT RESPONSES

This section will discuss the appropriate enforcement response for all anticipated types of industrial user pretreatment requirement violations. Individuals responsible for implementing the enforcement response will be identified and time frames for the initiation and completion of the enforcement response established.

### 3. SECTION III - CALCULATION OF FINES

This section will identify those instances of non-compliance which require DELCORA to seek fines against the industrial user (IU). Also, the method used to calculate these fines will be addressed. Mitigating factors, which may be considered by DELCORA in reducing the fine amount, will then be addressed.

### 4. SECTION IV - COMPLIANCE SCHEDULES

Compliance Agreements will be the standard method of bringing an IU back into compliance. The content of the document will be discussed in this section.

### 5. SECTION V - AMENDMENTS TO ENFORCEMENT RESPONSE PLAN

### 6. SECTION VI - SUMMARY OF ENFORCEMENT RESPONSE PLAN OBLIGATIONS OF DELCORA PERSONNEL

## SECTION I - IDENTIFYING NON-COMPLIANCE

The pretreatment technician (PT), along with the Manager of the Pretreatment Unit (Manager) or his designee, have the responsibility of determining non-compliance with all pretreatment requirements. The PT will determine if violations of any pretreatment requirements have occurred by taking the following action:

- A. Review of Baseline Monitoring Reports (BMR), 90 Day Compliance Reports (90DCR), Periodic Compliance Reports (PCR), Spill or Slug Discharge Reports (oral and written), Responses to NOV's, Compliance Schedule Reports, and other Reporting Obligations as Contained in the IU's Permit

The Manager will determine when all reports are due. Failure to make timely reports should be discovered within 10 days after the report's due date and the appropriate enforcement response discussed in Section II should be initiated.

All reports should be reviewed within 30 days upon receipt to determine if they are complete and whether they indicate any violation of the pretreatment requirements.

- B. Independent Sampling Verification

The PT will independently sample all significant industrial users (SIU) at least twice per year and all industrial users (IU) at least once per year. The PT may sample an IU as many times per year as the Manager deems necessary in order to determine: 1) the potential for pretreatment violations; 2) the frequency, duration, and magnitude of the violations; 3) whether the IU is taking remedial actions to correct his violations of the pretreatment requirements; and 4) to ensure that the industrial user returns as quickly as possible to full compliance.

All samples shall be taken using standard chain of custody forms.

The DELCORA Central Laboratory or a designated contract laboratory will then analyze the sample for all parameters as designated by the PT and transmit its laboratory analysis to the Pretreatment Unit as follows: (1) for organics analysis: within 60 days of sample date; (2) for inorganics and conventional pollutants: within 30 days of sample date. Within 10 days thereafter, the laboratory's report will be reviewed by the PT for discharge violations. All lab results must be reproduced as a file copy to be attached to the chain of custody forms which will be placed in the IU's verification monitoring report (VMR) files. All IU's will be sent a copy of the lab results.

- C. Inspections

All SIU's shall undergo a formal (comprehensive) inspection at least once per calendar year. All IU's shall undergo an informal inspection by the pretreatment technician at least once per year. The Manager and/or PT may conduct as many inspections of an IU as the Manager deems necessary to determine: 1) the potential for pretreatment violations, 2) the frequency, duration, and magnitude of the violations, 3) whether the IU is taking the corrective action as promised or as agreed to in his permit agreement or consent order, and 4) to ensure to the Manager's satisfaction that the industrial user is using its best efforts to return to compliance or prevent future non-compliance.

Formal pretreatment inspection forms shall be completed for the annual inspection and may be utilized for each subsequent inspection occurring that year. All completed inspection forms shall be placed in the IU's correspondence file. All IU's will be sent a copy of the completed formal inspection form.

D. Screening Process for Identifying SIU's

The formalized screening process for identifying SIU's is carried out on a continuing basis by the pretreatment unit within the process group and the Manager or his designee. This process determines whether industries and/or other non-domestic dischargers should be considered SIU's. This is accomplished through the use of annually-generated industrial directories, water company sales records, sewer sales records, business license listings or any other information which may become available.

Where information indicates that an IU could be classified as an SIU, then that industry shall undergo a formal inspection prior to a final determination by the Manager. A copy of the formal inspection shall be kept on file in the Pretreatment Unit. From this information, a permit shall be drafted and publicly noticed. A final permit shall then be issued. Upon issuance, the Manager or his designee shall assign a PT to monitor the permit.

E. Compliance Schedules

Certain industries will be operating under compliance schedules. These compliance schedules will establish milestone dates for actions to ensure compliance with pretreatment requirements (for example, hire an expert, purchase equipment, have equipment on line, etc.). The compliance schedule will also require the industry to notify the PT at each step as to whether the action has been completed. Compliance schedules may be contained in compliance agreements, administrative orders, consent decrees or the permit.

The PT must carefully monitor these compliance schedules to determine if the action has been completed on a timely basis and whether the proper notifications have been submitted. Violation of any compliance schedule deadline or notification requirement should be identified within 15 days after the milestone or reporting date has passed and the appropriate enforcement response discussed in Section II.A. should be initiated.

F. Records

The PT shall maintain all supporting documentation regarding all pretreatment violations and enforcement activities in the IU's active file for three (3) years. After three (3) years, the records shall be placed in storage.

## SECTION II – ENFORCEMENT RESPONSES

### A. Enforcement Response Options and Selection

All violations of the pretreatment requirements are instances of non-compliance and will receive a specific enforcement response. Pretreatment requirements are a matter of strict liability. Hence, good faith or lack of negligence on the industrial user's part is no defense to a violation of the pretreatment requirements.

The enforcement responses will range from notices of violation to formal civil litigation and/or termination of service, depending on the severity of the violation. A list of the enforcement responses, along with the personnel who will be implementing these responses, are described in Section II.E.

While similar violations will receive similar enforcement responses, as outlined in Section II. F, there is some inherent discretion within each enforcement response selection. For example, some violations will trigger either administrative action, formal civil litigation or permit revocation. The selection of the specific enforcement response option shall be at DELCORA's sole discretion.

### B. Significant Non-Compliance (SNC)

An Industrial User is in significant non-compliance if the violation meets one or more of the following criteria:

1. Chronic violations of wastewater discharge limits, defined here as those in which sixty-six percent (66%) or more of all of the measurements for the same pollutant parameter taken during a six (6) month period exceed (by any magnitude) a numeric Pretreatment Standard or Requirement, including Instantaneous Limits as defined in Article 200 and Section 201 of DELCORA's Sewer Use Ordinance;
2. Technical Review Criteria (TRC) violations, defined here as those in which thirty-three percent (33%) or more of all of the measurements for each pollutant parameter taken during a six (6) month period equals or exceeds the product of the numeric Pretreatment Standard or Requirement, including Instantaneous Limits as defined in Article 200 and Section 201 of DELCORA's Sewer Use Ordinance, multiplied by the applicable TRC value. The TRC values are:

- a) TRC = 1.4 for BOD, TSS, fats, oils and grease;
- b) TRC = 1.2 for all other pollutants except pH;

*Note: The City of Philadelphia uses different criteria and their criteria will apply in the Eastern Service Area.*

3. Any other violation of a Pretreatment Standard or Requirement as defined in Article 200, Section 201, and Section 401 of DELCORA's Sewer Use Ordinance (Daily, maximum or long-term average, Instantaneous limit, or narrative standard) that DELCORA determines has caused, alone or in combination with

other discharges, Interference or Pass Through (including endangering the health of POTW personnel or the general public);

4. Any discharge of a pollutant that has caused imminent endangerment to human health, welfare or to the environment, or has resulted in the POTW's exercise of its emergency authority to halt or prevent such a discharge;
5. Failure to meet, within ninety (90) days after the scheduled date, a compliance schedule milestone contained in a User permit, control mechanism or enforcement order for starting construction, completing construction, or attaining final compliance;
6. Failure to provide, within thirty (30) days after the due date, required reports including but not limited to baseline monitoring reports, ninety (90) day compliance reports, periodic self-monitoring reports, Significant Industrial User reports, and reports on compliance with compliance schedules;
7. Failure to accurately report non-compliance; and/or
8. Any other violation or group of violations, which may include a violation of Best Management Practices (BMPs), which DELCORA determines will adversely affect the operation or implementation of the local Pretreatment program.

C. Enforcement Response to SNC

Violations of the pretreatment requirements which constitute significant non-compliance are considered to be the most serious violations and therefore require a strong and immediate enforcement response. The enforcement response to any instance of significant non-compliance will be as follows:

1. All instances of significant non-compliance will be immediately called to the attention of the Manager or his designee.
2. If the SNC is such that imminent harm occurs to the DELCORA treatment plant, its employees or the environment, the Manager and, if required, the pretreatment attorney, will take immediate steps to cease the violation. This action may be either an immediate permit revocation, civil action with injunction or any other steps necessary to prevent the harm from continuing including the immediate termination of sewer service.
3. If the SNC is such that it will not cause imminent harm to the DELCORA treatment plant, its employees or the environment, then the Manager will promptly send the offending IU a Notice of Violation (as attached in Exhibit A) informing him that he is in significant non-compliance and that formal civil litigation and/or administrative action (which may include the revocation of the IU's wastewater discharge permit or termination of service) will be commenced if the matter cannot be resolved within 30 days from the date of that notice. DELCORA's Executive Director, at his discretion, should he decide to pursue civil litigation, may attach to this Notice of Violation a copy of a complaint in

equity which will be filed if a resolution does not occur within 30 days. The filing of this complaint or the initiation of administrative action may be delayed at the Executive Director's discretion and only in the following situations: (1) additional information needs to be gathered by DELCORA in order to frame the proper allegations and corrective measures asked for in the complaint or administrative order or; (2) where effluent violations result in SNC and the IU has agreed in writing to retain the services of a licensed, professional engineer specializing in wastewater pretreatment to design a pretreatment system. Additional time may be allowed for the engineer to prepare his report so that a compliance schedule can be formulated.

4. The pretreatment attorney, the Manager or his designee, and/or PT shall be available to meet with the offending industrial user during this 30 day period following the Notice of SNC.
5. If an agreement is reached involving the implementation of a compliance schedule, that compliance schedule shall be attached to, and become part of, the IU's Wastewater Discharge Permit.
6. SNC fines will be based on severity and/or duration.
7. If the SNC results in DELCORA being fined, damages to DELCORA or additional treatment costs being incurred by DELCORA, then the offending IU shall pay these costs to DELCORA.
8. At least once a year, DELCORA shall publish in the largest daily newspaper published in Delaware County, a notice to the public Industrial Users which were in significant non-compliance. This notice shall include the name(s) and address(es) of the User and may also include additional information such as the duration of the violation, nature of the violation, compliance action taken (if any), whether the User is currently complying with a compliance schedule and whether the User has returned to compliance. At the discretion of DELCORA, the type of enforcement action undertaken may also be reported. This provision does not prohibit the publication of the notice in more frequent intervals or by the City for Users in the Eastern Service Area.
9. In addition to utilizing the actions contained in numbers 1-8 immediately above, nothing shall preclude the pretreatment attorney, Executive Director or the Manager or his designee from taking additional actions to ensure an immediate return to compliance.

D. Enforcement Response Options

<u>Abbreviation</u>	<u>Response</u>
AO	Administrative Order
ATC	Additional Treatment Costs (Payment for all additional treatment costs incurred by DELCORA as a result of an IU's non-compliance with pretreatment requirements)
CL	Civil Litigation (which may include injunctive relief, if appropriate)
CR	Cost Recovery (Payment for all damages incurred by DELCORA as a result of an IU's non-compliance with pretreatment requirements)
CRIM	Referral for Criminal Prosecution
CS	Compliance Schedule
FD	Fine Discretionary
FM	Fine Mandatory
FR	Fine Recovery (The reimbursement of any fines levied against DELCORA by any other agency as a result of an IU's non-compliance with pretreatment requirements)
M	Meeting with IU to resolve non-compliance
NOV	Notice of Violation (Attached as Exhibit A)
R	Revocation of Wastewater Discharge Permit
SNC	Enforcement Response to Significant Non-Compliance (Section II.C)
T	Termination of Sewer Service



E. Enforcement Response Personnel

<u>Abbreviation</u>	<u>Personnel</u>
ATT	DELCORA's Pretreatment Attorney
M	Manager, Pretreatment Unit or Designee
L	Laboratory Personnel
PT	Pretreatment Technicians
ED	Executive Director or Director of Engineering (Designee)

F. Enforcement Responses

1. Effluent Limit Violation – by SIU

<u>Nature of Violation</u>	<u>Enforcement Response</u>	<u>Personnel</u>
a) Infrequent, no harm to DELCORA or environment	NOV	PT, M
b) Recurring, no harm to DELCORA or environment	level 1: NOV, M, FD level 2: CS, FM	PT, M M, ED
c) Violation causes harm to DELCORA or environment	SNC	M, ATT, ED
d) Chronic violations (see Section II. B.1)	SNC	M, ATT, ED
e) Accidental or slug discharge, isolated no harm	level 1: NOV, ATC level 2: CS, FD	PT, M M, ED
f) Accidental or slug discharge, recurring no harm	level 1: NOV, M, FD, ATC level 2: CS, FM, AO	PT, M M, ATT, ED
g) Accidental or slug discharge, harm to DELCORA	SNC	M, ATT, ED
h) Interference or pass through	SNC	M, ATT, ED
i) Any intentional violation without prior notice to and approval by DELCORA	level 1: CRIM, FM, AO, CL, FR, CR, ATC level 2: T	M, ATT, ED ED, ATT

## 2. POTW Verification Sampling Violation

<u>Nature of Violation</u>	<u>Enforcement Response</u>	<u>Personnel</u>
a) Effluent limit violation for any parameter	NOV, FD	PT, M
b) Resample, violations continue to be detected	level 1: NOV, M, CS, FD level 2: CL, AO, FM	PT, M M, ATT, ED

## 3. Self Monitoring (Sampling) Violation

<u>Nature of Violation</u>	<u>Enforcement Response</u>	<u>Personnel</u>
a) Failure to monitor as frequently as required in permit (1st violation)	NOV	PT, M
b) Recurring failure to monitor as required in permit after notification by DELCORA	level 1: NOV, M, FD level 2: AO, CL, FM	PT, M M, ATT, ED
c) Incomplete monitoring, monitoring fails to test for all permit parameters, 1st violation	NOV	PT, M
d) Incomplete monitoring, monitoring fails to test for all permit parameters, recurring violations	level 1: NOV, FD, M level 2: AO, CL, FM	PT, M M, ATT, ED
e) Failure to monitor in accordance with the procedures contained in the permit, 1st violation	NOV	PT, M
f) Failure to monitor in accordance with procedures contained in the permit, recurring	level 1: NOV, FD, M level 2: AO, CL, FM	PT, M M, ATT, ED

## 4. Reporting Violations

<u>Nature of Violation</u>	<u>Enforcement Response</u>	<u>Personnel</u>
a) Report is between 5 and 30 days late, isolated event	NOV, FD	PT, M

b) Report is between 5 and 30 days late, recurring events	NOV, M, FM	PT, M
c) Report is over 30 days late	SNC	M, ATT, ED
d) Report is improperly signed or certified (1st violation)	NOV	PT, M
e) Report is improperly signed or certified after notice by DELCORA	NOV, M, FD	PT, M
f) Failure to give one hour telephone notice to report accidental discharge, (spill or slug load) no harm (1st violation)	NOV	PT, M
g) Failure to give one hour telephone notice to report accidental discharge, (spill or slug load) no harm, recurring	level 1: NOV, M, FD level 2: AO, FM	PT, M M, ED
h) Failure to give one hour telephone notice to report accidental discharge, (spill or slug load), results in harm	SNC	M, ATT, ED
i) Failure to submit written report within five (5) days after accidental discharge (no harm) 1st violation	NOV	PT, M
j) Failure to submit written report within five (5) days after accidental discharge (recurring)	level 1: NOV, M, FD level 2: AO, FM	PT, M M, ED
k) Failure to notify DELCORA within 24 hours of becoming aware of a sample which violates the industrial user's effluent limits and to report the next sample that shows a return to compliance (1st violation)	NOV, FD	PT, M

l) Failure to notify DELCORA within 24 hours of becoming aware of a sample which violates the industrial user's effluent limits and to report the next sample that shows a return to compliance (recurring)	level 1: NOV, M, FD level 2: AO, CL, FM	PT, M M, ATT, ED
m) Failure to report non-compliance accurately	SNC, CRIM, T	M, ATT, ED

#### 5. Compliance Schedule Violations <sup>(1)</sup>

<u>Nature of Violation</u>	<u>Enforcement Response</u>	<u>Personnel</u>
a) Missed milestone date by less than 45 days	NOV, FD	PT, M
b) Missed milestone date by 45 days or more <sup>(2)</sup>	SNC, T	M, ATT, ED
c) Failure to give notice as required in the compliance schedule (initial violation)	NOV, FD	PT, M
d) Failure to give notice as required in the compliance schedule, recurring	level 1: NOV, M, FD level 2: AO, FM	PT, M M, ED

<sup>(1)</sup> Penalties for violation of compliance schedule milestone dates may be contained in the compliance schedule itself, administrative order or consent decree. Where these penalty provisions exist, penalties for those violations will be levied in accordance with those terms and conditions. If no such provisions exist then the penalties will be levied in accordance with the above enforcement responses.

<sup>(2)</sup> If an IU wishes to avoid being in SNC, it must notify DELCORA in writing prior to being 45 days late and must explain its reasons for the delay. If DELCORA believes that the delay is caused by factors completely outside of the control of the industrial user then DELCORA may extend the milestone deadline. Such extension would therefore prevent the IU from violating its milestone date and therefore the IU would not be in SNC. DELCORA will not grant extensions unless the IU clearly establishes its entitlement in a timely manner.

## 6. Unauthorized Discharges (No Permit)

<u>Nature of Violation</u>	<u>Enforcement Response</u>	<u>Personnel</u>
a) IU unaware of requirement, no harm to DELCORA or environment	NOV, FD	PT, M
b) IU unaware of requirement, harm to DELCORA or environment	NOV, FM, AD	M, ATT, ED
c) Failure to apply for a permit continues after notice by DELCORA	level 1: NOV, FD level 2: AO, FM, T	PT, M M, ED
d) IU has failed to renew its wastewater discharge permit	level 1: NOV, FD level 2: AO, FM, T	PT, M M, ED

## 7. Other Permit Violations

<u>Nature of Violation</u>	<u>Enforcement Response</u>	<u>Personnel</u>
a) Waste streams are diluted in lieu of treatment, unintentional	level 1: NOV, FD, M level 2: CS, AO, CL, FD	PT, M M, ATT, ED
b) Waste streams are diluted in lieu of treatment, intentional	NOV, FM, CL, CRIM, T	M, ATT, ED
c) Inadequate record keeping, initial	NOV	PT, M
d) Inadequate record keeping, recurring, after notice by DELCORA	level 1: NOV, FD, M level 2: AO, FM	PT, M M, ATT, ED
e) Failure to mitigate non-compliance, initial	NOV, FD, ATC, CR	PT, M, ED
f) Failure to mitigate non-compliance after notice by DELCORA	level 1: NOV, FM, M, ATC, CR level 2: AO, CL, R, T	PT, M M, ATT, ED
g) Failure to allow inspector to inspect premises or to provide records as requested	level 1: NOV, FD, M level 2: AO, CL, FM, CRIM	PT, M M, ATT, ED

h) Failure to notify DELCORA in advance of any substantial change in volume or character of pollutants including any change in its hazardous waste notification	NOV, FD	PT, M
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#### 8. Violations of Best Management Practices (BMP)

<u>Nature of Violation</u>	<u>Enforcement Response</u>	<u>Personnel</u>
a) Violations of BMPs	NOV, FD depending on the circumstances	PT, M

#### G. Time Frame for Responses

##### 1. Initial Enforcement Response (level 1)

- |                                   |   |
|-----------------------------------|---|
| a) Late Reports -                 | Enforcement response should be initiated within 5 days after determination that report is late.                                   |
| b) Report Review -                | After a report has been reviewed and any non-SNC violation determined, the appropriate response shall be initiated within 5 days. |
| c) All other non-SNC - violations | Enforcement response of the pretreatment standards should be initiated within 10 days of discovery by DELCORA of the violation.   |

##### 2. Escalating Enforcement Response (level 2)

The level 2 enforcement response should be initiated within 30 days after it is judged by DELCORA personnel that the level 1 response is ineffective in correcting the violation.

##### 3. Significant Non-Compliance

Enforcement responses should be initiated according to the time frames established in Section II. C.

#### H. Additional Responses

The enforcement responses contained in Section II.F. are general guidelines and do not limit or restrict DELCORA's ability to take any other or more severe enforcement actions where DELCORA, in its sole discretion, deems it appropriate.

### SECTION III – CALCULATION OF FINES

- A. Section II. F., Enforcement Response, states those violations for which fines are mandatory or discretionary.
- B. For those violations for which fines are discretionary, DELCORA will consider the following factors in determining whether fines should be assessed:
  - 1. Reasons for non-compliance
  - 2. Compliance History - DELCORA will examine the IU's history of compliance for the specific violation as well as for all other permit terms and conditions
  - 3. Good faith compliance efforts - Good faith compliance efforts consist of the following actions:
    - a) whether the IU has responded to the NOV within 30 days
    - b) the actions the IU has taken or will take to ensure a return to compliance
    - c) the timeliness of these corrective actions
- C. Where the violation of a pretreatment standard requires a fine, either where a fine is mandatory or DELCORA has determined that a fine is appropriate pursuant to Section II. F. and III. B., the fine shall be \$1,000 per violation per day. The \$1,000 per violation per day fine is subject to increase to the maximum amount as allowed by law.
- D. Calculation of Maximum Fines

The maximum amount of fines for pretreatment violations will be calculated as follows:

  - 1. Fines for violations of the daily maximum effluent limit shall be \$1,000 per day, up to the maximum allowed by law, for each and every parameter violated.
  - 2. Violations of the monthly average effluent for any parameter shall be considered as violations for each and every day within that month and therefore a \$1,000 per day fine, up to the maximum allowed by law, for all days in that month will be assessed.
  - 3. For each day any report is late, a \$100 fine will be assessed.
  - 4. If an IU fails to self monitor then a fine of \$1,000, up to the maximum allowed by law, will be assessed for each parameter that the IU fails to monitor.
  - 5. Accidental Spill. A \$1,000 fine will be assessed for each of the following: 1) the accidental spill, 2) the failure to give DELCORA one hour notice, if appropriate, and 3) the failure to follow-up with a five day notice of the spill, if appropriate.
  - 6. All other violations will be assessed a penalty of \$1,000 per day, up to the maximum allowed by law, for each day that the violation continues.

E. Reduction of Maximum Fines

The calculations in Section III. D. 1. through 6. are the maximum fines which can be assessed against an IU for violating the pretreatment requirements.

DELCORA has the discretion to reduce the maximum fine in accordance with the general guidelines listed immediately below and contained in this section. In determining whether a fine reduction is warranted, DELCORA will consider the following factors ("factors"):

1. Reasons for violation
2. Magnitude of violation
3. Duration of violation
4. Effect of violation on receiving water or sludge
5. Effect of violation on the treatment plant or its employees
6. Compliance history of industrial user
7. IU's response to violation. How quickly IU has responded to NOV and timeliness of its remedial actions.

Where DELCORA has determined that a reduction in the maximum fine is warranted, DELCORA shall use the following general guidelines in reducing the fine:

1. First, the maximum fine shall always be calculated. The maximum fine is calculated in accordance with Section III. D. 1. through 6.
2. A "reduced fine amount" is next calculated. The reduced fine shall be the fine which the IU must pay to DELCORA within thirty (30) days, unless an appeal is properly filed. The reduced fine is calculated as follows:
  - a. All daily effluent violations are totaled and multiplied by \$1,000 per violation per day. A reduction in the amount per violation per day may be allowed based on the factors previously outlined in this section.
  - b. Each monthly average violation, which normally would be calculated as 30 days of violations, may be treated as low as one day of violation if DELCORA determines that such reduction is warranted given the factors previously outlined in this section.
  - c. Similarly, reporting violations are fined at \$100 per day for each day late. However, this may be reduced based on the factors previously outlined in this section
  - d. All violations of self-monitoring are assessed at \$1,000 per parameter not monitored. A reduction in the amount per violation per day may be allowed based on the factors previously outlined in this section.
  - e. The reduced fine will be the sum of a. through d.



- f. In certain situations, the reduced fine may be further reduced by up to 30% if all of the following conditions are met:
  - 1) DELCORA is convinced that the IU is using its very best efforts to immediately return to compliance; and 2) DELCORA is convinced that the violation will not recur; and 3) DELCORA determines that this additional reduction is warranted under the factors previously discussed in this section.

## SECTION IV - COMPLIANCE SCHEDULES

### A. Introduction

Some violations of the pretreatment requirements will require that a Compliance Schedule be entered into. The Compliance Schedule will have as its major goal the establishment of milestone dates for the completion of certain specified events leading the IU to full compliance with all pretreatment requirements as quickly as possible.

### B. Compliance Schedules

1. While compliance schedules may be appropriate in other instances of non-compliance, they will most often be used to correct effluent limit violations. While precise milestone events may differ from case to case, as a general rule they should, at a minimum, contain the following events with a corresponding milestone completion date:
  - a. Hire a licensed professional engineer specializing in wastewater pretreatment to evaluate the industrial user's processes and to develop a pretreatment system designed to bring the IU into full compliance with all pretreatment requirements.
  - b. Licensed professional engineer must submit a detailed plan of the proposed pretreatment system to DELCORA for its review. The plan must state in detail all steps necessary for the IU to achieve full compliance with all pretreatment requirements.
  - c. Purchase all necessary pretreatment equipment. Along with the IU's standard compliance notification, the IU must attach copies of the purchase orders for the equipment.
  - d. Install all necessary pretreatment equipment.
  - e. Debug and test the pretreatment equipment and have it on line and in operation.
  - f. Test period - maintain a 95% compliance rate for a period of 90 consecutive days as to all pretreatment requirements.

2. Within ten (10) working days after the completion date for each milestone event, the IU must notify DELCORA in writing as to whether the event has been completed. If the event was not completed, the notice must state the reasons for the failure, the expected completion date of the event, and the steps to be taken to avoid further delays. This notice does not excuse the IU for its failure to meet the milestone dates.

## SECTION V - AMENDMENTS TO ENFORCEMENT RESPONSE PLAN

The Enforcement Response Plan may be amended at any time and for any reason at the sole discretion of DELCORA.

## SECTION VI - SUMMARY OF ENFORCEMENT RESPONSE PLAN OBLIGATIONS OF DELCORA PERSONNEL

This section briefly summarizes the obligations of the Pretreatment Group personnel found in Section I through V of the Enforcement Response Plan.

<u>Obligation</u>	<u>Time Frame</u>	<u>Personnel</u>
<u>I. Reports</u>		
A. determine timeliness of all reports	w/in 10 working days of due dates	PT
B. review all reports	w/in 10 working days of receipt	PT, M
C. initiate appropriate enforcement response for all non-SNC violations	a) w/in 10 working days after timeliness determination has been made	PT, M
	b) w/in 10 working days after report has been reviewed	PT, M
D. initiate level 2 enforcement if necessary	w/in 30 days after level 1 has failed	M, ATT, ED
E. initiate appropriate enforcement response for any SNC violation	w/in 30 days after discovery of violation in accordance w/ Section II.C. of the Enforcement Response Plan	M, ATT, ED
<u>II. Independent Sampling</u>		
A. sample all SIU's	at least twice per year	PT
B. sample all IU's	at least once per year	PT

### III. Analyze Samples

A. organics	w/in 60 days of sample event	Lab
B. inorganics & conventional pollutants	w/in 30 days of sample event	Lab
C. review lab results	w/in 10 working days of receipt from lab	PT, M

### IV. Effluent Limits

A. initiate appropriate enforcement response for any effluent limit violation	a) w/in 10 working days of receipt of lab results b) if SNC, in accordance with Section II.C.	PT, M M, ATT, ED
B. initiate level 2 enforcement if necessary	w/in 30 days after level 1 enforcement has failed	M, ATT, ED

### V. IU Self-Monitoring

A. initiate appropriate enforcement response for any self-monitoring violation	w/in 10 working days of discovery of violation	PT, M
B. initiate level 2 enforcement if necessary	w/in 30 days after level 1 has failed	M, ATT, ED

### VI. Inspections

A. formal inspection of all SIU's	at least once per calendar year	M
B. informal inspection of all IU's	at least once per year	PT
C. initiate enforcement response	w/in 10 working days after discovery of violation through inspection	M

## VII. Compliance Schedule

- |  |   |            |
|--|---|------------|
| A. initiate appropriate enforcement response for any missed milestone dates    | w/in 10 working days of any missed milestone date | M          |
| B. initiate SNC enforcement if necessary for continuing missed milestone dates | w/in 60 days after any missed milestone date      | M, ATT, ED |

## VIII. All Other Permit Violations

- |   |   |            |
|---|---|------------|
| A. initiate appropriate enforcement response  | a) w/in 10 working days of discovery of violation | M          |
|   | b) if SNC, in accordance with Section II.C.       | M, ATT, ED |
| B. initiate level 2 enforcement, if necessary | w/in 30 days after level 1 enforcement has failed | M, ATT, ED |

\\Delcoraserver\Public\Administration\Masters\Enforcement Response Plan - Rev 8-11-2011.Doc  
\\Delcoraserver\Public\Dept Of Engineering\Pretreatment Program\Rules And Regulations\Enforcement Response Plans\2011 Enforcement Response Plan.Doc  
Approved edits 8/16/2011 at Board of Directors meeting  
First Approved 4/19/2011 at Board of Directors meeting  
rev. 4/15/2011  
rev. 8/11/2011

**EXHIBIT A**  
**NOTICE OF VIOLATION**  
**SAMPLE LETTER**

DATE

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

NAME  
COMPANY  
ADDRESS  
CITY, STATE, ZIP CODE

Re: Notice of Violation

Dear \_\_\_\_\_:

In accordance with the Enforcement Response Guide, DELCORA is officially serving notice of the following violations of DELCORA's Standards, Rules and Regulations of 1991.

<u>DATE</u>	<u>VIOLATION</u>	<u>REFERENCE</u>
April 21, 2010	Failure To Monitor (BOD 5, TSS)	Permit #1DE-01-04 Part II A
April 29, 2010	Failure To Monitor (BOD 5, TSS)	Permit #1DE-01-04 Part II A
April 30, 2010	Failure To Monitor ( TSS)	Permit #1DE-01-04 Part II A

The above information is based on composite and/or grab samples not taken by (PERMIT COMPANY NAME) personnel at (ADDRESS OF LOCATION).

This letter does not waive, either expressly or by implication, the power or authority of DELCORA to further prosecute for any and all violations arising prior to or after the issuance of this letter or the conditions upon which this letter is based.

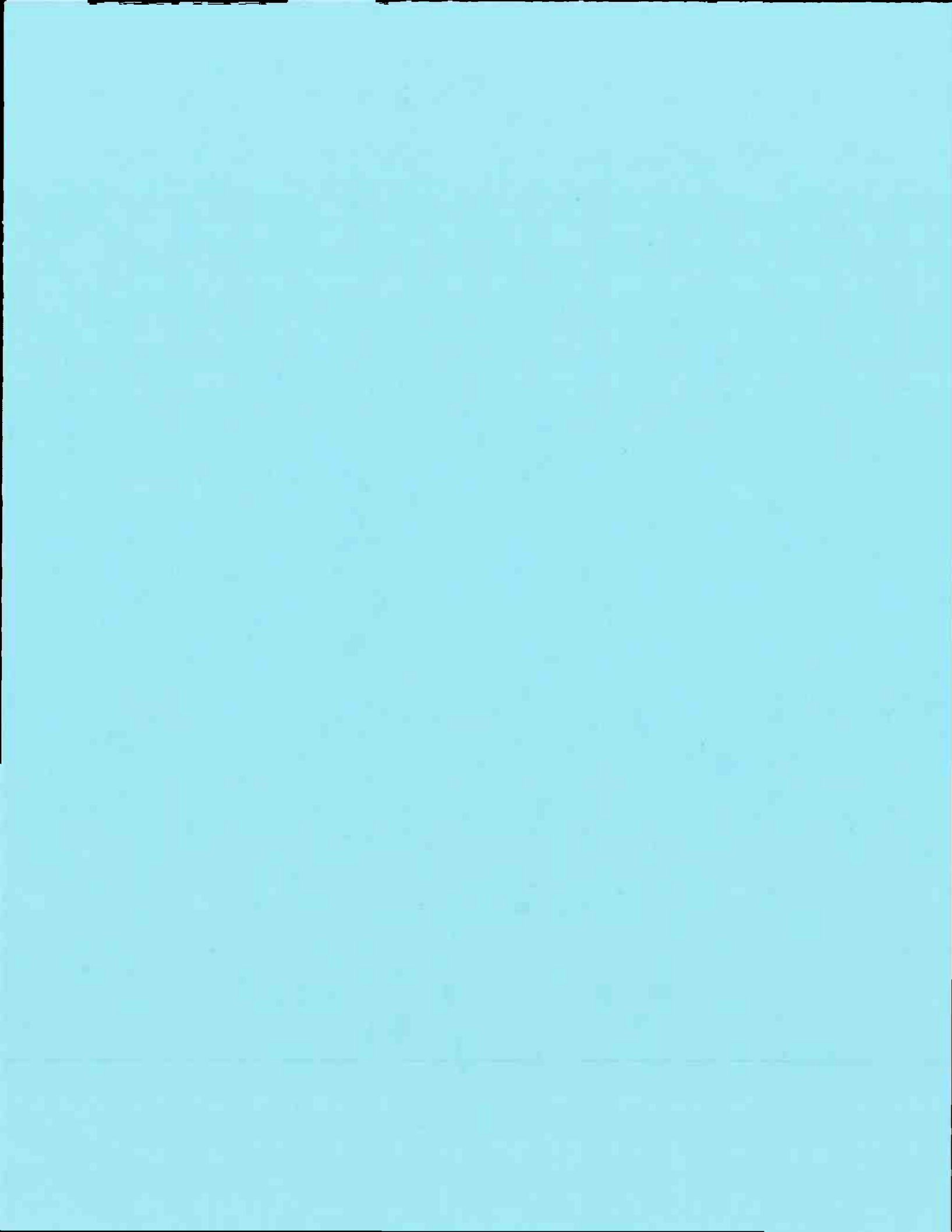
If additional information regarding this matter is required, feel free to contact me at (610) 876-5523, extension 213.

Sincerely,

Laboratory & Pretreatment Manager

cc: Director of Engineering, DELCORA  
File Copy









**DELAWARE COUNTY REGIONAL  
WATER QUALITY CONTROL AUTHORITY**

**RESOLUTION NO. 2014-10**

**ADOPTED SEPTEMBER 16, 2014**

**REPEALING RESOLUTION 2008-03 AND ESTABLISHING PERMIT  
FEES FOR CONNECTION AND DISCHARGE TO DELCORA OWNED  
SEWER SYSTEMS, FOR REPAIRS OR RECONSTRUCTION OF  
SUCH CONNECTIONS**

**BE IT RESOLVED** by the Delaware County Regional Water Quality Control Authority ("DELCORA") that in accordance with Resolution No. 2011-04; Sections 301, 303, 305, 307, 308, 309, 310, 313, 314, and 501, fees for connection and discharge to DELCORA owned sewer systems, for repairs or reconstruction of such connections shall be as follows:

**Section 1.** Primary Residential and Commercial Users Sewer Connection Permits

**A. New Lateral Connections, 6 Inches in Diameter or Less:**

Single Connections:       \$250  
Multiple Connections:     \$250 for the first connection  
                                      \$100 for each additional connection

**B. New Lateral Connections, Over 6 Inches in Diameter:**

Single Connections:       \$340  
Multiple Connections:     \$340 for the first connection  
                                      \$100 for each additional connection

**C. Repair, Capping or Reconstruction of Lateral Connections:**

Single Connections:       \$190  
Multiple Connections:     \$190 for the first connection  
                                      \$125 for each additional connection

**D. For new developments, where the owner will install new sewer mains and transfer ownership of the mains to DELCORA:**

DELCORA will require the developer to enter into a Developer's Agreement to escrow funds for engineering review, sewer capacity determinations, construction inspection, as-built plans, geographic information system plan conversions, sewer televising and testing, and sewer connection permits.

For in-fill developments and building conversions:

Where existing sewer lines will be used, DELCORA reserves the right to bill the developer for sewer capacity studies to ensure that the sewer lines will handle increased flows.

Section 2. All terms used herein shall be consistent with the definitions in Resolution No. 2011-04, DELCORA Standards, Rules & Regulations.

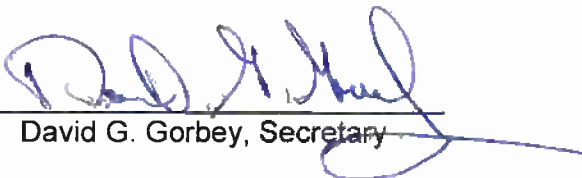
Section 3. The fees stated in the Resolution are effective January 1, 2015, and shall remain in effect until modified by DELCORA.

Section 4. Resolution 2008-03 and all other resolutions or parts of resolutions inconsistent herewith are hereby repealed to the extent of such inconsistency.

RESOLVED this 16<sup>th</sup> day of **September, 2014.**

[SEAL]

ATTEST:

  
\_\_\_\_\_  
David G. Gorbey, Secretary

**DELAWARE COUNTY REGIONAL  
WATER QUALITY CONTROL AUTHORITY**

BY:   
\_\_\_\_\_  
Stanley R. Kester, Chairman

**DELAWARE COUNTY REGIONAL  
WATER QUALITY CONTROL AUTHORITY**

**RESOLUTION NO. 2014-11**

**ADOPTED SEPTEMBER 16, 2014**

REPEALING RESOLUTION 2008-03 AND ESTABLISHING PERMIT  
FEES FOR INTRODUCTION OF INDUSTRIAL WASTEWATERS INTO  
ANY SEWER SYSTEMS WHERE SUCH WASTEWATERS WILL  
ULTIMATELY FLOW INTO DELCORA OWNED FACILITIES.

**BE IT RESOLVED** by the Delaware County Regional Water Quality Control Authority ("DELCORA") that in accordance with Resolution No. 2011-04, Sections 301, 303, 305, 307, 308, 309, 310, 313, 314, and 501, fees for wastewater discharge permits for the discharge of industrial wastewaters into DELCORA owned or tributary sewer systems shall be as follows:

**Section 1.** Pretreatment Program Fees

A. Non-refundable application processing fee for wastewater discharge permit for the discharge of non-domestic wastewater to a DELCORA owned or tributary sewer system applicable to new and renewing industrial users:

1. Categorical Industrial User (CIU)

- |                               |           |
|-------------------------------|-----------|
| a) Zero Discharge             | \$ 200.00 |
| b) 1 – 24,999 gallons per day | \$ 450.00 |

2. Significant Industrial User (SIU) and CIU

- |   |           |
|---|-----------|
| a) 25,000 – 99,999 gallons per day      | \$ 450.00 |
| b) 100,000 – 999,999 gallons per day    | \$ 700.00 |
| c) 1,000,000 or greater gallons per day | \$ 950.00 |

3. Non-Significant Industrial User (NSIU) – any industrial user or non-domestic user discharging <25,000 gallons per day, exempt from Federal Limitations but required by DELCORA to maintain an industrial user permit:

- |                               |           |
|-------------------------------|-----------|
| a) 0 – 24,999 gallons per day | \$ 200.00 |
|-------------------------------|-----------|

4. Temporary Discharge Permit – permitted discharge period shall not exceed 90 days in duration:

- |         |           |
|---------|-----------|
| a) NSIU | \$ 250.00 |
|---------|-----------|

5. Fee for modification of wastewater discharge permit

- |               |           |
|---------------|-----------|
| a) SIU or CIU | \$ 500.00 |
| b) NSIU       | \$ 250.00 |

B. Non-refundable pretreatment maintenance fee for all industrial users issued a wastewater discharge permit:

1. Applicable to Categorical Industrial User (CIU), Significant Industrial User (SIU), and Non-Significant Industrial User (NSIU)

a) Annual Fee	\$ 300.00
---------------	-----------

2. Not applicable to industrial users issued a Temporary Discharge Permit

The application processing fees are based off of permitted flows. In addition to the above fees, industrial users may be charged the cost of any special consultants, laboratory tests, or special evaluations required by DELCORA to evaluate the discharge from new or existing users. DELCORA may bill for analytical services required in the administration of the pretreatment program.

Section 2. All terms used herein shall be consistent with the definitions in Resolution No. 2011-04, DELCORA Standards, Rules & Regulations.

**Section 3.** The fees stated in the Resolution are effective January 1, 2015, and shall remain in effect until modified by DELCORA.

**Section 4.** Resolution 2008-03 and all other resolutions or parts of resolutions inconsistent herewith are hereby repealed to the extent of such inconsistency.

RESOLVED this **16<sup>th</sup>** day of **September, 2014**.


**DELAWARE COUNTY REGIONAL  
WATER QUALITY CONTROL AUTHORITY**

1954

ATTEST:

~~BY:~~

Stanley R. Kester, Chairman

  
David G. Gorbey, Secretary

# Calibration Report



**ICEA**

Instrument Contracting  
and Engineering Association

Smith Instrument Company, Inc.  
P.O. Box 404  
Downingtown, PA 19335  
Phone: 610-594-6650  
Fax: 610-594-6658  
e-mail: bdoleski@smithservice.com

## Effluent Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Effluent Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 541057  
Calibrated Range: 0-125 MGD  
Description: Effluent Flow From Plant  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 04/05/18  
Next Due: 06/05/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	1.0862%	1.0862%
Max. Error	1.0862%	1.0862%
Min. Error	0.0000%	0.0000%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	125.0000	MGD	Krohne GS8	881896
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
10%	13.0000	13.1000	5.6640	5.6680	0.1050%
21%	26.0000	26.2000	7.3280	7.3570	0.3412%
42%	52.0000	52.4000	10.6560	10.7190	0.7137%
83%	104.0000	104.6000	17.3120	17.4090	1.0862%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
10%	13.0000	13.1000	5.6640	5.6680	0.1050%
21%	26.0000	26.2000	7.3280	7.3570	0.3412%
42%	52.0000	52.4000	10.6560	10.7190	0.7137%
83%	104.0000	104.6000	17.3120	17.4090	1.0862%

### Tag Notes

No adjustments required, Verified programming.  
GK = 6.387  
This converter head was previously on the Influent Flow Meter

### SCADA Readings

4 mA = 0.0 MGD  
8 mA = 31.3 MGD  
12 mA = 62.5 MGD  
16 mA = 93.8 MGD  
20 mA = 125.0 MGD

**William Doleski**

Digitally signed by: William Doleski  
DN: CN = William Doleski email = bdoleski@smithservice.com  
= US O = Smith Instrument Company INC. OU = Service  
Division  
Date: 2018.04.16 10:19:59 -05'00'  
Reason: I have reviewed this document

Technician ISA Level III  
Certification

Technician Signature

# Calibration Report



**ICEA**

Instrument Contracting  
and Engineering Association

Smith Instrument Company, Inc.  
P.O. Box 404  
Downingtown, PA 19335  
Phone: 610-594-6650  
Fax: 610-594-6658  
e-mail: bdoleski@smithservice.com

## Effluent Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Effluent Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 541057  
Calibrated Range: 0-125 MGD  
Description: Effluent Flow From Plant  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 06/14/18  
Next Due: 09/14/18

	As Found	As Left
Zero Error	-0.0062%	-0.0062%
Span Error	0.7687%	0.7687%
Max. Error	0.7750%	0.7750%
Min. Error	-0.0062%	-0.0062%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	125.0000	MGD	Krohne GS8	881896
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9990	-0.0062%
10%	13.0000	13.1000	5.6640	5.6700	0.1175%
21%	26.0000	26.1000	7.3280	7.3440	0.1800%
42%	52.0000	52.2000	10.6560	10.6970	0.4162%
83%	104.0000	104.5000	17.3120	17.3720	0.7750%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9990	-0.0062%
10%	13.0000	13.1000	5.6640	5.6700	0.1175%
21%	26.0000	26.1000	7.3280	7.3440	0.1800%
42%	52.0000	52.2000	10.6560	10.6970	0.4162%
83%	104.0000	104.5000	17.3120	17.3720	0.7750%

### Tag Notes

No adjustments required, Verified programming.  
GK = 6.387  
This converter head was previously on the Influent Flow Meter

### SCADA Readings

4 mA = 0.0 MGD  
8 mA = 31.3 MGD  
12 mA = 62.5 MGD  
16 mA = 93.8 MGD  
20 mA = 125.0 MGD

**William Doleski**

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DN: CN = William Doleski email = bdoleski@smithservice.com C  
= US O = Smith Instrument Company INC. OU = Service Division  
Date: 2018.07.03 13:46:09 -0500  
Reason: I have reviewed this document

Technician ISA Level III  
Certification

Technician Signature

# Calibration Report



**ICEA**

Instrument Contracting  
and Engineering Association

Smith Instrument Company, Inc.  
P.O. Box 404  
Downingtown, PA 19335  
Phone: 610-594-6650  
Fax: 610-594-6658  
e-mail: bdoleski@smithservice.com

## Effluent Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Effluent Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 541057  
Calibrated Range: 0-125 MGD  
Description: Effluent Flow From Plant  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 09/20/18  
Next Due: 12/20/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	0.0000%	0.0000%
Max. Error	0.3362%	0.3362%
Min. Error	0.0000%	0.0000%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	125.0000	MGD	Krohne GS8B	U1227700018808
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
25%	31.8000	31.9000	8.0700	8.0930	0.2237%
51%	63.6000	63.7000	12.1400	12.1810	0.3362%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
25%	31.8000	31.9000	8.0700	8.0930	0.2237%
51%	63.6000	63.7000	12.1400	12.1810	0.3362%

### Tag Notes

No adjustments required, Verified programming.  
GK = 6.387  
This converter head was previously on the Influent Flow Meter

### SCADA Readings

4 mA = 0.0 MGD  
8 mA = 31.3 MGD  
12 mA = 62.5 MGD  
16 mA = 93.8 MGD  
20 mA = 125.0 MGD

**William Doleski**

Digitally signed by: William Doleski  
DN: CN = William Doleski email = bdoleski@smithservice.com, C = US, O = Smith Instrument Company INC, OU = Service Division  
Date: 2018.10.08 10:01:22 -05'00'  
Reason: I have reviewed this document

Technician ISA Level III  
Certification

Technician Signature

# Calibration Report



**ICEA**

Instrument Contracting  
and Engineering Association

Smith Instrument Company, Inc.  
P.O. Box 404  
Downingtown, PA 19335  
Phone: 610-594-6650  
Fax: 610-594-6658  
e-mail: bdoleski@smithservice.com

## Effluent Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Effluent Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 541057  
Calibrated Range: 0-125 MGD  
Description: Effluent Flow From Plant  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 12/10/18  
Next Due: 03/10/19

	As Found	As Left
Zero Error	0.0125%	0.0125%
Span Error	0.0125%	0.0125%
Max. Error	0.1312%	0.1312%
Min. Error	0.0125%	0.0125%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	125.0000	MGD	Krohne GS8B	U1227700018808
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0020	0.0125%
25%	31.8000	31.8000	8.0700	8.0770	0.0437%
51%	63.6000	63.6000	12.1400	12.1610	0.1312%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0020	0.0125%
25%	31.8000	31.8000	8.0700	8.0770	0.0437%
51%	63.6000	63.6000	12.1400	12.1610	0.1312%

### Tag Notes

No adjustments required, Verified programming.  
GK = 6.387  
This converter head was previously on the Influent Flow Meter

### SCADA Readings

4 mA = 0.0 MGD  
8 mA = 31.3 MGD  
12 mA = 62.5 MGD  
16 mA = 93.8 MGD  
20 mA = 125.0 MGD

William Doleski

Digitally signed by: William Doleski  
DN: CN = William Doleski email = bdoleski@smithservice.com C  
= US O = Smith Instrument Company INC. OU = Service Division  
Date: 2019.01.04 09:36:48 -05'00'  
Reason: I have reviewed this document

Technician ISA Level III  
Certification

Technician Signature



# Calibration Report



**ICEA**

Instrument Contracting  
and Engineering Association

Smith Instrument Company, Inc.  
P.O. Box 404  
Downingtown, PA 19335  
Phone: 610-594-6650  
Fax: 610-594-6658  
e-mail: bdoleski@smithservice.com

## Influent Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Influent Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 541046  
Calibrated Range: 0-125 MGD  
Description: Influent Flow to Plant  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 04/05/18  
Next Due: 06/05/18

	As Found	As Left
Zero Error	0.0063%	0.0063%
Span Error	0.2202%	0.2202%
Max. Error	0.2140%	0.2140%
Min. Error	0.0063%	0.0063%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	125.0000	MGD	Krohne GS8	881896
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0010	0.0063%
10%	13.0000	13.0000	5.6640	5.6670	0.0188%
21%	26.0000	26.0200	7.3280	7.3330	0.0472%
42%	52.0000	52.1300	10.6560	10.6720	0.2040%
83%	104.0000	104.0800	17.3120	17.3360	0.2140%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0010	0.0063%
10%	13.0000	13.0000	5.6640	5.6670	0.0188%
21%	26.0000	26.0200	7.3280	7.3330	0.0472%
42%	52.0000	52.1300	10.6560	10.6720	0.2040%
83%	104.0000	104.0800	17.3120	17.3360	0.2140%

### Tag Notes

No adjustments required, Verified programming.

Dampning as found setting was 30 seconds

SCADA Readings Follow: Not Available

4 mA =  
8 mA =  
12 mA =  
16 mA =  
20 mA =

**William Doleski**

Digitally signed by: William Doleski  
DN: CN = William Doleski email = bdoleski@smithservice.com C  
= US O = Smith Instrument Company INC. OU = Service Division  
Date: 2018.04.16 10:28:02 -0500  
Reason: I have reviewed this document

Technician ISA Level III  
Certification

Technician Signature

# Calibration Report



**ICEA**

Instrument Contracting  
and Engineering Association

Smith Instrument Company, Inc.  
P.O. Box 404  
Downingtown, PA 19335  
Phone: 610-594-6650  
Fax: 610-594-6658  
e-mail: bdoleski@smithservice.com

## Influent Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Influent Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 541046  
Calibrated Range: 0-125 MGD  
Description: Influent Flow to Plant  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 06/14/18  
Next Due: 09/14/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	-0.0035%	-0.0035%
Max. Error	0.1023%	0.1023%
Min. Error	-0.0553%	-0.0553%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	125.0000	MGD	Krohne GS8	881896
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
10%	13.0000	13.1200	5.6640	5.6650	0.1023%
21%	26.0000	25.9700	7.3280	7.3300	-0.0115%
42%	52.0000	51.9700	10.6560	10.6510	-0.0553%
83%	104.0000	103.9800	17.3120	17.3140	-0.0035%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
10%	13.0000	13.1200	5.6640	5.6650	0.1023%
21%	26.0000	25.9700	7.3280	7.3300	-0.0115%
42%	52.0000	51.9700	10.6560	10.6510	-0.0553%
83%	104.0000	103.9800	17.3120	17.3140	-0.0035%

### Tag Notes

No adjustments required, Verified programming.

Dampening as found setting was 30 seconds

SCADA Readings Follow: Not Available

4 mA = 0  
8 mA = 31.3  
12 mA = 62.3  
16 mA = 93.4  
20 mA = 124.5

**William Doleski**

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Technician ISA Level III  
Certification

Technician Signature

# Calibration Report



**ICEA**

Instrument Contracting  
and Engineering Association

Smith Instrument Company, Inc.  
P.O. Box 404  
Downingtown, PA 19335  
Phone: 610-594-6650  
Fax: 610-594-6658  
e-mail: bdoleski@smithservice.com

## Influent Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Influent Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 541046  
Calibrated Range: 0-125 MGD  
Description: Influent Flow to Plant  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 09/20/18  
Next Due: 12/20/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	0.0000%	0.0000%
Max. Error	0.1535%	0.1535%
Min. Error	0.0000%	0.0000%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	125.0000	MGD	Krohne GS8B	U1127700018808
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
25%	31.6800	31.7000	8.0550	8.0770	0.1535%
51%	63.3600	63.4000	12.1100	12.1290	0.1508%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
25%	31.6800	31.7000	8.0550	8.0770	0.1535%
51%	63.3600	63.4000	12.1100	12.1290	0.1508%

### Tag Notes

No adjustments required, Verified programming.

Dampning as found setting was 30 seconds

SCADA Readings Follow: Not Available

4 mA = 0  
8 mA = 31.2  
12 mA = 62.4  
16 mA = 93.5  
20 mA = 124.7

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## Influent Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Influent Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 541046  
Calibrated Range: 0-125 MGD  
Description: Influent Flow to Plant  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 12/10/18  
Next Due: 03/10/19

	As Found	As Left
Zero Error	0.0063%	0.0063%
Span Error	0.0063%	0.0063%
Max. Error	0.1143%	0.1143%
Min. Error	0.0063%	0.0063%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	125.0000	MGD	Krohne GS8B	U1127700018808
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0010	0.0063%
25%	31.6800	31.6800	8.0550	8.0720	0.1062%
51%	63.3600	63.3700	12.1100	12.1270	0.1143%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0010	0.0063%
25%	31.6800	31.6800	8.0550	8.0720	0.1062%
51%	63.3600	63.3700	12.1100	12.1270	0.1143%

### Tag Notes

No adjustments required, Verified programming.

Dampning as found setting was 30 seconds

SCADA Readings Follow: Not Available

4 mA = 0  
8 mA = 31.2  
12 mA = 62.5  
16 mA = 93.6  
20 mA = 124.8

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## Truck Loading

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Truck Loading  
Manufacturer: Krohne  
Model Number: IFC 300  
Serial Number: A18030200  
Calibrated Range: 0-5000 GPM  
Description: Truck Loading Flow  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 10/18/19  
Next Due: 12/18/19

	As Found	As Left
Zero Error	-0.0062%	-0.0062%
Span Error	-0.0062%	-0.0062%
Max. Error	6.7093%	0.0818%
Min. Error	-0.0062%	-0.0062%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	5000.0000	GPM	Krohne GS8B	U1127700018808
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9990	-0.0062%
13.4272%	671.3600	712.8000	6.1483	6.2860	1.6894%
26.8546%	1342.7300	1426.8000	8.2967	8.5670	3.3708%
53.7092%	2685.4600	2852.3000	12.5934	13.1330	6.7093%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9990	-0.0062%
13.4272%	671.3600	671.8000	6.1483	6.1490	0.0132%
26.8546%	1342.7300	1344.0000	8.2967	8.2990	0.0398%
53.7092%	2685.4600	2687.8000	12.5934	12.5990	0.0818%

### Tag Notes

Meter had incorrect GK and Pipe size.  
Corrected and recalibrated

GK 3.9313

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# Calibration Report



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## Central PS W RTP Flow Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Central PS W RTP Flow Recorder  
Manufacturer: Chesell  
Model Number: New Recorder  
Serial Number: Unknown  
Calibrated Range: 4-20 Ma  
Description: W RTP Meter Flow  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 04/04/18  
Next Due: 06/04/18

	As Found	As Left
Zero Error	0.0600%	0.0600%
Span Error	0.0400%	0.0400%
Max. Error	0.0800%	0.0800%
Min. Error	-0.0200%	-0.0200%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	50.0000	MGD	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0300	0.0600%
25%	8.0000	8.0000	12.5000	12.5200	0.0400%
50%	12.0000	12.0000	25.0000	25.0400	0.0800%
75%	16.0000	16.0000	37.5000	37.5100	0.0200%
100%	20.0000	20.0000	50.0000	49.9900	-0.0200%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0300	0.0600%
25%	8.0000	8.0000	12.5000	12.5200	0.0400%
50%	12.0000	12.0000	25.0000	25.0400	0.0800%
75%	16.0000	16.0000	37.5000	37.5100	0.0200%
100%	20.0000	20.0000	50.0000	49.9900	-0.0200%

### Tag Notes

Recorder totalizers not verified

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# Calibration Report



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e-mail: bdoleski@smithservice.com

## Central W RTP Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Central W RTP Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 3882  
Calibrated Range: 0-50 MGD  
Description: W RTP Flow  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 04/04/18  
Next Due: 06/04/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	0.1987%	0.1987%
Max. Error	0.1987%	0.1987%
Min. Error	-0.1362%	-0.1362%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	50.0000	MGD	Krohne GS8	881896
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
3.7000%	1.8500	1.8100	4.5920	4.5830	-0.1362%
7.1200%	3.5600	3.5700	5.1390	5.1460	0.0637%
28.7400%	14.3700	14.3900	8.5980	8.6100	0.1150%
57.4600%	28.7300	28.7700	13.1930	13.2120	0.1987%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
3.7000%	1.8500	1.8100	4.5920	4.5830	-0.1362%
7.1200%	3.5600	3.5700	5.1390	5.1460	0.0637%
28.7400%	14.3700	14.3900	8.5980	8.6100	0.1150%
57.4600%	28.7300	28.7700	13.1930	13.2120	0.1987%

### Tag Notes

SCADA

Readings on the SCADA follow:

4.0 mA = 0.1  
8.0 mA = 12.60  
12.0 mA = 25.1  
16.0 mA = 37.5  
20.0 mA = 49.9

Shutdown:

mA = 4.001  
SCADA = 0.1  
FT = -1.31  
LOI = 0.12  
Recorder = 0.02

Technician ISA Level III  
Certification

William Doleski

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# Calibration Report



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Phone: 610-594-6650  
Fax: 610-594-6658  
e-mail: bdoleski@smithservice.com

## Central W RTP Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Central W RTP Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 3882  
Calibrated Range: 0-50 MGD  
Description: W RTP Flow  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 06/13/18  
Next Due: 09/13/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	0.0625%	0.0625%
Max. Error	0.1412%	0.1412%
Min. Error	-0.2062%	-0.2062%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	50.0000	MGD	Krohne GS8	881896
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
3.7000%	1.8500	1.8000	4.5920	4.5750	-0.2062%
7.1200%	3.5600	3.5900	5.1390	5.1520	0.1412%
28.7400%	14.3700	14.3600	8.5980	8.6050	0.0237%
57.4600%	28.7300	28.7300	13.1930	13.2030	0.0625%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
3.7000%	1.8500	1.8000	4.5920	4.5750	-0.2062%
7.1200%	3.5600	3.5900	5.1390	5.1520	0.1412%
28.7400%	14.3700	14.3600	8.5980	8.6050	0.0237%
57.4600%	28.7300	28.7300	13.1930	13.2030	0.0625%

### Tag Notes

SCADA

Readings on the SCADA follow:

4.0 mA = 0.1  
8.0 mA = 12.60  
12.0 mA = 25.0  
16.0 mA = 37.5  
20.0 mA = 49.89

Shutdown:

mA = 4.001  
SCADA = 0.1  
FT = -3.88  
LOI = 0.14  
Recorder = OOS

Technician ISA Level III  
Certification

William Doleski

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# Calibration Report



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e-mail: bdoleski@smithservice.com

## Central W RTP Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Central W RTP Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 300  
Serial Number: 104691372  
Calibrated Range: 0-50 MGD  
Description: W RTP Flow  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 09/19/18  
Next Due: 12/19/18

	As Found	As Left
Zero Error	-0.0062%	-0.0062%
Span Error	-0.7512%	-0.7512%
Max. Error	-0.0062%	-0.0062%
Min. Error	-0.7450%	-0.7450%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	50.0000	MGD	Krohne GS8B	U127700018808
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9990	-0.0062%
8.7400%	4.3700	4.3800	5.3980	5.3560	-0.2425%
17.5000%	8.7500	8.6750	6.8000	6.7730	-0.3187%
35.0000%	17.5000	17.4150	9.6000	9.5720	-0.3450%
87.5000%	43.7500	43.6650	18.0000	17.9080	-0.7450%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9990	-0.0062%
8.7400%	4.3700	4.3800	5.3980	5.3560	-0.2425%
17.5000%	8.7500	8.6750	6.8000	6.7730	-0.3187%
35.0000%	17.5000	17.4150	9.6000	9.5720	-0.3450%
87.5000%	43.7500	43.6650	18.0000	17.9080	-0.7450%

### Tag Notes

SCADA

Readings on the SCADA follow:

4.0 mA = 0.1  
8.0 mA = 12.60  
12.0 mA = 25.1  
16.0 mA = 37.5  
20.0 mA = 49.90

Shutdown:

mA = 3.998  
SCADA = 0.1  
FT = 0.0  
LOI = 0.11  
Recorder = OOS

**William Doleski**

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Technician Signature

# Calibration Report



**ICEA**

Instrument Contracting  
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P.O. Box 404  
Downingtown, PA 19335  
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e-mail: bdoleski@smithservice.com

## Central W RTP Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Central W RTP Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 300  
Serial Number: 104691372  
Calibrated Range: 0-50 MGD  
Description: W RTP Flow  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 12/06/18  
Next Due: 03/06/19

	As Found	As Left
Zero Error	-0.0125%	-0.0062%
Span Error	-0.3700%	-0.3638%
Max. Error	-0.0125%	-0.0062%
Min. Error	-0.8497%	-0.8497%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	50.0000	MGD	Krohne GS8B	U127700018808
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9980	-0.0125%
8.7400%	4.3700	4.3170	5.3980	5.2790	-0.8497%
17.5000%	8.7500	8.6090	6.8000	6.7360	-0.6820%
35.0000%	17.5000	17.4350	9.6000	9.5750	-0.2863%
87.5000%	43.7500	43.6900	18.0000	17.9620	-0.3575%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9990	-0.0062%
8.7400%	4.3700	4.3170	5.3980	5.2790	-0.8497%
17.5000%	8.7500	8.6090	6.8000	6.7360	-0.6820%
35.0000%	17.5000	17.4350	9.6000	9.5750	-0.2863%
87.5000%	43.7500	43.6900	18.0000	17.9620	-0.3575%

### Tag Notes

SCADA

Readings on the SCADA follow:

4.0 mA = 0.1  
8.0 mA = 12.60  
12.0 mA = 25.1  
16.0 mA = 37.5  
20.0 mA = 50.00

Shutdown:

mA = 3.998  
SCADA = 0.1  
FT = 0.0  
LOI = 0.12  
Recorder = OOS

Technician ISA Level III  
Certification

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Station	Start Time	Stop Time	Date	Input
Namans	11:29 AM	11:42 AM	4/5/2018	7.2 MGD
Beech Street				1000 GPM
Central Main	11:24 AM	11:37 AM	4/4/2018	25 MGD
Central W RTP	11:24 AM	11:37 AM	4/4/2018	25 MGD
Darby	9:53 AM	10:07 AM	4/3/2018	50 MGD
Folcroft				3000 GPM
Effluent	9:10 AM	9:15 AM	4/5/2018	62.5 MGD
Influent	9:56 AM	10:15 AM	4/5/2018	62.5 MGD
EPS 1	10:29 AM	10:44 AM	4/5/2018	10 MGD
Muck	9:52 AM	10:04 AM	4/4/2018	15 MGD
Eddystone	12:39 PM	12:53 PM	4/4/2018	1000 GPM
Chester				25.0 MGD
CHI Pit	9:08 AM	9:20 AM	4/5/2018	650 GPM
Marcus Hook	1:27 PM	1:41 PM	4/4/2018	5.0 MGD
Chester Ridley	11:29 AM	11:42 AM	4/3/2018	8.50 MGD
Price Street				1042 GPM
Stadium				1500 GPM
SWDCMA	1:23 PM	1:35 PM	4/3/2018	7.5 MGD
Middletown	1:45 PM	1:56 PM	4/3/2018	7.5 MGD

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Station	Start Time	Stop Time	Date	Input
Namans	1:10 PM	1:23 PM	6/14/2018	7.2 MGD
Beech Street				1000 GPM
Central Main	11:44 AM	11:56 AM	6/13/2018	25 MGD
Central WRTP	11:44 AM	11:56 AM	6/13/2018	25 MGD
Darby	9:17 AM	9:29 AM	6/13/2018	50 MGD
Folcroft				3000 GPM
Effluent	8:45 AM	8:58 AM	6/14/2018	62.5 MGD
Influent	9:22 AM	9:35 AM	6/14/2018	62.5 MGD
EPS 1				10 MGD
Muck	10:07 AM	10:21 AM	6/13/2018	15 MGD
Eddystone	1:12 PM	1:26 PM	6/13/2018	1000 GPM
Chester				25.0 MGD
CHI Pit	10:27 AM	10:39 AM	6/14/2018	650 GPM
Marcus Hook	11:24 AM	11:36 AM	6/14/2018	5.0 MGD
Chester Ridley	9:08 AM	9:20 AM	6/15/2018	12.5 MGD
Price Street				1042 GPM
Stadium				1500 GPM
SWDCMA	11:55 AM	12:08 PM	6/19/2018	7.5 MGD
Middletown	11:55 AM	12:08 PM	6/19/2018	7.5 MGD
Rose Valley	10:06 AM	10:18 AM	6/15/2018	300 GPM

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Station	Start Time	Stop Time	Date	Input
Namans	1:33 PM	1:45 PM	9/19/2018	7.2 MGD
Broomall	10:48 AM	11:01 AM	9/19/2018	3000 GPM
Beech Street				1000 GPM
Central Main	9:39 AM	9:54 AM	9/19/2018	25 MGD
Central WRTP	9:39 AM	9:54 AM	9/19/2018	25 MGD
Darby	9:36 AM	9:48 AM	9/18/2018	50 MGD
Folcroft				3000 GPM
Effluent	8:46 AM	8:59 AM	9/20/2018	62.5 MGD
Influent	9:24 AM	9:37 AM	9/20/2018	62.5 MGD
EPS 1				10 MGD
Muck	10:40 AM	10:52 AM	9/18/2018	15 MGD
Eddystone	12:01 PM	12:14 PM	9/18/2018	1000 GPM
Chester				25.0 MGD
CHI Pit	10:10 AM	10:22 AM	9/20/2018	650 GPM
Marcus Hook	12:30 PM	12:42 PM	9/19/2018	5.0 MGD
Chester Ridley	9:00 AM	9:12 AM	9/21/2018	12.5 MGD
Price Street				1042 GPM
Stadium				1500 GPM
SWDCMA	9:42 AM	9:54 AM	9/21/2018	7.5 MGD
Middletown	9:42 AM	9:54 AM	9/21/2018	7.5 MGD
Rose Valley	10:39 AM	10:51 AM	9/21/2018	300 GPM

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Station	Start Time	Stop Time	Date	Input
Namans	10:02 AM	10:14 AM	12/6/2018	7.2 MGD
Broomall				
Beech Street	10:46 AM	10:54 AM	12/6/2018	1000 GPM
Central Main	1:34 PM	1:47 PM	12/6/2018	25 MGD
Central W RTP	1:34 PM	1:47 PM	12/6/2018	25 MGD
Darby	9:08 AM	9:21 AM	12/5/2018	50 MGD
Folcroft				3000 GPM
Effluent	1:11 PM	1:23 PM	12/10/2018	62.5 MGD
Influent	1:40 PM	1:53 PM	12/10/2018	62.5 MGD
EPS 1				10 MGD
Muck	9:57 AM	10:12 AM	12/5/2018	15 MGD
Eddystone	10:57 AM	11:10 AM	12/5/2018	1000 GPM
Chester	12:37 PM	12:50 PM	12/5/2018	25.0 MGD
CHI Pit	11:13 AM	11:26 AM	12/6/2018	650 GPM
Marcus Hook	8:56 AM	9:12 AM	12/6/2018	5.0 MGD
Chester Ridley	11:22 AM	11:35 AM	12/10/2018	12.5 MGD
Price Street	1:39 PM	1:52 PM	12/5/2018	1042 GPM
Stadium				1500 GPM
SWDCMA	11:45 AM	11:58 AM	12/10/2018	7.5 MGD
Middletown	11:45 AM	11:58 AM	12/10/2018	7.5 MGD
Rose Valley	9:54 AM	10:06 AM	12/7/2018	300 GPM

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## GS 8 B On-Site Verification Record

## GS 8 B STANDARD SETTINGS

This spreadsheet is protected, thus entry is only allowed in the drop-down boxes & bright green cells.  
 To use this calculator, you will only need to input the requested information in the bright green cells from your data tags.  
 The Converter type, engineering units, diameter and frequency have drop down boxes, allowing the user to simply choose from the list.  
 This spreadsheet will automatically choose inch or metric (depending upon the converter), and state which GK(L) to use.  
 Printing of the programming results is allowed by simply choosing "Print" through your File menu.

**Important:** If there is a flowrate value present at the zero setting, you must compensate to obtain proper evaluation values.  
 You can zero your converter, but this might mean that you would have to redo a zero calibration once you reconnect with your primary head.  
 If you are unable to redo a zero calibration after reconnecting, then you should use the offset-compensated tables on the second sheet of this spreadsheet (Calculator + Zero Compensation).

Date Recorded: 4/3/2018

Serial #: A13040489

Tag #: Chester Ridley Pump Station

Flow Tube Model #: Optiflex 400

Commission #:

Tested by: W Doleski/J Mullins

DATA INPUT AREAS (in green)			
INPUT VARIABLES			
Converter	=	IFC 300(GK)	
Q Fullscale	=	17	MGal/day
Select Meter Dia.	=	Inch	mm
		18	450
DN	=	450	mm
Diameter	=	18.0	inch (ref only)
I <sub>0%</sub>	=	4	mA
I <sub>100%</sub>	=	20	mA
P <sub>100%</sub> (Hz)	=	1000	Hz
GK	=	3.5648	<use GK
GKL	=		<do not use
K	=	Value automatically chosen from K value table	

$$X = \frac{Q_{100\%} * K * F}{GK(L) * DN^2} = \frac{3111311.301}{721872} = 4.310$$

$$Y_{MAX} = \begin{matrix} 2.0 \\ C \end{matrix}$$

Max Knob Setting

Output Current

I = 11.424 mA

Output Frequency

Freq MAX = 464.031 Hz

Calibrated Flowrate

Q = 7.889 MGal/day

GS 8 B Knob Setting	Current Output (mA)	Frequency Output (Hz)	Calculated Flowrate (MGal/day)	Observed Flowrate (MGal/day)	Deviation
0	4.00	0.00	0.00	0.000	
A	5.86	116.01	1.97	1.970	-0.11%
B	7.71	232.02	3.94	3.940	-0.11%
C	11.42	464.03	7.89	7.890	0.02%
D					
E					

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Version: Rev 1.3.2-USA

# Calibration Report



**ICEA**

Instrument Contracting  
and Engineering Association

Smith Instrument Company, Inc.  
P.O. Box 404  
Downingtown, PA 19335  
Phone: 610-594-6650  
Fax: 610-594-6658  
e-mail: bdoleski@smithservice.com

## Chester Ridley Flume A SWDCMA

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Chester Ridley Flume A SWDCMA  
Manufacturer: Siemens  
Model Number: Hydromanager 200  
Serial Number: PBD/E1210029  
Calibrated Range: 0-15 MGD  
Description: SWDCMA Flow  
Instrument Accuracy: 1.0000%

### Test Results

Cal. Date: 04/03/18  
Next Due: 06/03/18  
Accuracy: 1.0150%  
**As Found**  
Zero Error: 0.0000%  
Span Error: -0.2521%  
Max. Error: 0.0000%  
Min. Error: -0.2521%  
**As Left**  
0.0000%  
-0.2521%  
0.0000%  
-0.2521%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	15.0000	MGD	Actual Flow	
Output Value	4.0000	15.0000	MGD	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual		Calculated	Actual
0%	0.0000	0.0000		0.0000	0.0000
4.00%	0.6000	0.5840		0.6000	0.5840
					% Error
					0.0000%
					-0.2521%

Output		As Left Data		Output	
% Value	Calculated	Actual		Calculated	Actual
0%	0.0000	0.0000		0.0000	0.0000
4.00%	0.6000	0.5840		0.6000	0.5840
					% Error
					0.0000%
					-0.2521%

### Tag Notes

Checked calibration using actual flowing conditions.  
Simulated signals to the SCADA, displayed MGD indication follows:  
4.00 mA = 002  
8.00 mA = 3.752  
12.00 mA = 7.502  
16.00 mA = 11.258  
20.00 mA = 14.988

Zero Flow Reading not obtained, Data Sheet Zero Point for Information Purposes only

Technician  
Certification ISA Level III Certified

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## Chester Ridley Flume B Middletown

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Chester Ridley Flume B Middletown  
Manufacturer: Siemens  
Model Number: Hydromanager 200  
Serial Number: PBD/E1210028  
Calibrated Range: 0-15 MGD  
Description: Middletown Flow  
Instrument Accuracy: 1.0000%

### Test Results

Cal. Date: 04/03/18  
Next Due: 06/03/18  
Accuracy: 1.0150%  
**As Found**  
Zero Error: 0.0000%  
Span Error: -0.0630%  
Max. Error: 0.0000%  
Min. Error: -0.0630%  
**As Left**  
Zero Error: 0.0000%  
Span Error: -0.0630%  
Max. Error: 0.0000%  
Min. Error: -0.0630%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	15.0000	MGD	Actual Flow	
Output Value	4.0000	15.0000	MGD	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual		Calculated	Actual
0%	0.0000	0.0000		0.0000	0.0000
9.00%	1.3500	1.3460		1.3500	1.3460
					% Error
					-0.0630%

Output		As Left Data		Output	
% Value	Calculated	Actual		Calculated	Actual
0%	0.0000	0.0000		0.0000	0.0000
9.00%	1.3500	1.3460		1.3500	1.3460
					% Error
					-0.0630%

### Tag Notes

Checked calibration using actual flowing conditions.  
Simulated signals to the SCADA, displayed MGD indication follows:  
4.00 mA = 00  
8.00 mA = 3.773  
12.00 mA = 7.520  
16.00 mA = 11.27  
20.00 mA = 15.0

Zero Flow Reading not obtained, Data Sheet Zero Point for Information Purposes only

Technician  
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## Chester Ridley Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Chester Ridley Recorder  
Manufacturer: Honeywell  
Model Number: Minitrend XQ  
Serial Number:  
Calibrated Range: 4-20 Ma  
Description: Chester Ridley Flow  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 04/03/18  
Next Due: 06/03/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	0.0118%	0.0118%
Max. Error	0.0118%	0.0118%
Min. Error	-0.0294%	-0.0294%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	17.0000	MGD	Visual from LOI	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	4.2500	4.2450	-0.0294%
50%	12.0000	12.0000	8.5000	8.4980	-0.0118%
75%	16.0000	16.0000	12.7500	12.7510	0.0059%
100%	20.0000	20.0000	17.0000	17.0020	0.0118%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	4.2500	4.2450	-0.0294%
50%	12.0000	12.0000	8.5000	8.4980	-0.0118%
75%	16.0000	16.0000	12.7500	12.7510	0.0059%
100%	20.0000	20.0000	17.0000	17.0020	0.0118%

### Tag Notes

SCADA:  
4.00 mA = 0.012 MGD  
8.00 mA = 4.237 MGD  
12.00 mA = 8.493 MGD  
16.00 mA = 12.731 MGD  
20.00 mA = 16.978 MGD

### Shutdown

FT = 0.0 MGD  
SCADA = 0.112  
mA = 4.001  
Recorder = 0.0

**11299**

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## CHI Pit Flow Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: CHI Pit Flow Recorder  
Manufacturer: Chesell  
Model Number: 5100V  
Serial Number: 11  
Calibrated Range: 4-20 Ma  
Description: CHI Pit Flow Recorder  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 04/04/18  
Next Due: 06/04/18

	As Found	As Left
Zero Error	#VALUE!	#VALUE!
Span Error	#VALUE!	#VALUE!
Max. Error	#VALUE!	#VALUE!
Min. Error	#VALUE!	#VALUE!

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	1300.0000	GPM	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	XXX	#VALUE!
25%	8.0000	8.0000	325.0000	XXX	#VALUE!
50%	12.0000	12.0000	650.0000	XXX	#VALUE!
75%	16.0000	16.0000	975.0000	XXX	#VALUE!
100%	20.0000	20.0000	1300.0000	XXX	#VALUE!

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	XXX	#VALUE!
25%	8.0000	8.0000	325.0000	XXX	#VALUE!
50%	12.0000	12.0000	650.0000	XXX	#VALUE!
75%	16.0000	16.0000	975.0000	XXX	#VALUE!
100%	20.0000	20.0000	1300.0000	XXX	#VALUE!

### Tag Notes

Recorder Failed, no visual display

Readings on the SCADA follow:

0 = 0  
325 = 327  
650 = 655  
975 = 983  
1300 = 1312

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## Eddystone Flow Recorder #2

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Eddystone Flow Recorder #2  
Manufacturer: Chesell  
Model Number: 392  
Serial Number: 950750713  
Calibrated Range: 4-20 Ma  
Description: Eddystone Flow Recorder  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 04/04/18  
Next Due: 06/04/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	-0.0500%	-0.0500%
Max. Error	0.0000%	0.0000%
Min. Error	-0.0500%	-0.0500%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	2000.0000	GPM	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	500.0000	499.0000	-0.0500%
50%	12.0000	12.0000	1000.0000	999.0000	-0.0500%
75%	16.0000	16.0000	1500.0000	1499.0000	-0.0500%
100%	20.0000	20.0000	2000.0000	1999.0000	-0.0500%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	500.0000	499.9990	0.0000%
50%	12.0000	12.0000	1000.0000	999.9990	-0.0500%
75%	16.0000	16.0000	1500.0000	1499.9990	-0.0500%
100%	20.0000	20.0000	2000.0000	1999.9990	-0.0500%

### Tag Notes

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e-mail: bdoleski@smithservice.com

## Eddystone Flow Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Eddystone Flow Recorder  
Manufacturer: Chesell  
Model Number:  
Serial Number:  
Calibrated Range: 4-20 Ma  
Description: Eddystone Flow Recorder  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 04/04/18  
Next Due: 06/04/18

	As Found	As Left
Zero Error	#VALUE!	#VALUE!
Span Error	#VALUE!	#VALUE!
Max. Error	#VALUE!	#VALUE!
Min. Error	#VALUE!	#VALUE!

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	2000.0000	GPM	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	XXX	#VALUE!
25%	8.0000	8.0000	500.0000	XXX	#VALUE!
50%	12.0000	12.0000	1000.0000	XXX	#VALUE!
75%	16.0000	16.0000	1500.0000	XXX	#VALUE!
100%	20.0000	20.0000	2000.0000	XXX	#VALUE!

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	XXX	#VALUE!
25%	8.0000	8.0000	500.0000	XXX	#VALUE!
50%	12.0000	12.0000	1000.0000	XXX	#VALUE!
75%	16.0000	16.0000	1500.0000	XXX	#VALUE!
100%	20.0000	20.0000	2000.0000	XXX	#VALUE!

### Tag Notes

Recorder not operational reading > Range

Readings displayed on the LOI follow in GPM:

04 mA = 0.0  
08 mA = 498  
12 mA = 1001  
16 mA = 1506  
20 mA = 2009

SCADA MGD

MGD= 0.0  
MGD= .72  
MGD= 1.45  
MGD= 2.17  
MGD= 2.89

Recorder totalizers not verified

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## Eddystone Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Eddystone Flowmeter  
Manufacturer: Krohne  
Model Number: IFC090  
Serial Number: 422226  
Calibrated Range: 0-2000 GPM  
Description: Eddystone Flowmeter  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 04/04/18  
Next Due: 06/04/18

	As Found	As Left
Zero Error	0.0250%	0.0250%
Span Error	0.3875%	0.3875%
Max. Error	0.3625%	0.3625%
Min. Error	-0.0125%	-0.0125%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	2000.0000	GPM	Martel MC1200	9474060
Output Value	4.0000	20.0000	mA	Krohne GS8	881896

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0040	0.0250%
3.6%	72.0000	71.0000	4.5670	4.5730	-0.0125%
7.1%	142.0000	143.0000	5.1360	5.1460	0.1125%
28.5%	570.0000	571.0000	8.5600	8.5820	0.1875%
57.0%	1140.0000	1142.0000	13.1200	13.1620	0.3625%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0040	0.0250%
3.6%	72.0000	71.0000	4.5670	4.5730	-0.0125%
7.1%	142.0000	143.0000	5.1360	5.1460	0.1125%
28.5%	570.0000	571.0000	8.5600	8.5820	0.1875%
57.0%	1140.0000	1142.0000	13.1200	13.1620	0.3625%

### Tag Notes

Shutdown:  
mA = 4.004  
SCADA = 0.0  
LOI = 0.0  
FT = 0 GPM

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# Calibration Report



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## EPS 1 Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: EPS 1 Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F  
Serial Number: 46057  
Calibrated Range: 0-20 MGD  
Description: EPS 1 Flowmeter  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 04/05/18  
Next Due: 06/05/18

	As Found	As Left
Zero Error	-0.0250%	-0.0250%
Span Error	0.0775%	0.0775%
Max. Error	0.1025%	0.1025%
Min. Error	-0.0250%	-0.0250%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	20.0000	MGD	Krohne GS8	881896
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9960	-0.0250%
2.830%	0.5660	0.5700	4.4530	4.4530	0.0200%
5.685%	1.1370	1.1400	4.9100	4.9090	0.0087%
11.361%	2.2722	2.2800	5.8180	5.8200	0.0515%
22.760%	4.5520	4.5600	7.6420	7.6520	0.1025%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9960	-0.0250%
2.830%	0.5660	0.5700	4.4530	4.4530	0.0200%
5.685%	1.1370	1.1400	4.9100	4.9090	0.0087%
11.361%	2.2722	2.2800	5.8180	5.8200	0.0515%
22.760%	4.5520	4.5600	7.6420	7.6520	0.1025%

### Tag Notes

GK 3.1768 Dampning set at 30 Seconds

LOI	SCADA	Desired MGD
4 MA = 0.0 MGD	MGD =	0
8 mA = 5.00 MGD	MGD =	5
12 mA = 10.0 MGD	MGD =	10
16 mA = 15.00 MGD	MGD =	15
20 mA = 19.99 MGD	MGD =	20

Shutdown:  
mA = N/A  
MGD LOI = N/A  
SCADA = N/A  
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## Marcus Hook Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Marcus Hook Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F/D/HART/6  
Serial Number: A09 62974  
Calibrated Range: 0-3472 GPM  
Description: Marcus Hook Flow  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 04/04/18  
Next Due: 06/04/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	0.1142%	0.1142%
Max. Error	0.1142%	0.1142%
Min. Error	-0.0266%	-0.0266%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	6944.0000	GPM	Krohne GS8	881896
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
4.3200%	299.9808	299.0000	4.6900	4.6880	-0.0266%
8.6400%	599.9616	601.0000	5.3820	5.3850	0.0337%
17.2800%	1199.9232	1202.0000	6.7640	6.7710	0.0737%
34.5600%	2399.8464	2403.0000	9.5290	9.5400	0.1142%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
4.3200%	299.9808	299.0000	4.6900	4.6880	-0.0266%
8.6400%	599.9616	601.0000	5.3820	5.3850	0.0337%
17.2800%	1199.9232	1202.0000	6.7640	6.7710	0.0737%
34.5600%	2399.8464	2403.0000	9.5290	9.5400	0.1142%

### Tag Notes

Shutdown:  
mA = 3.997  
SCADA = 0  
FT = 0.0  
LOI = 0

GK 4.2876

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## Marcus Hook Flow Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Marcus Hook Flow Recorder  
Manufacturer: Chesell  
Model Number: 5100V  
Serial Number: 21932001  
Calibrated Range: 4-20 Ma  
Description: Marcus Hook Flow Recorder  
Instrument Accuracy: 2.0000%

### Test Results

Cal. Date: 04/04/18  
Next Due: 06/04/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	0.0000%	0.0000%
Max. Error	0.0000%	0.0000%
Min. Error	-0.1000%	-0.1000%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	10.0000	MGD	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	2.5000	2.5000	0.0000%
50%	12.0000	12.0000	5.0000	5.0000	0.0000%
75%	16.0000	16.0000	7.5000	7.4900	-0.1000%
100%	20.0000	20.0000	10.0000	10.0000	0.0000%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	2.5000	2.5000	0.0000%
50%	12.0000	12.0000	5.0000	5.0000	0.0000%
75%	16.0000	16.0000	7.5000	7.4900	-0.1000%
100%	20.0000	20.0000	10.0000	10.0000	0.0000%

### Tag Notes

SCADA Readings in MGD follow:

0 = 0  
2.5 = 2.50  
5.0 = 5.00  
7.5 = 7.5  
10.0 = 10.01

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## Namans Creek Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Namans Creek Flowmeter  
Manufacturer: Rosemount  
Model Number: 8712C  
Serial Number: 860118078  
Calibrated Range: 0-30 fps  
Description: Namans Creek Flowmeter  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 04/05/18  
Next Due: 06/05/18

	As Found	As Left
Zero Error	0.0250%	0.0250%
Span Error	-0.0333%	-0.0333%
Max. Error	0.0250%	0.0250%
Min. Error	-0.0333%	-0.0333%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	30.0000	fps	Rosemount	86190034
Output Value	4.0000	20.0000	mA	Martel 1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0040	0.0250%
10%	3.0000	3.0000	5.6000	5.6020	0.0125%
33%	10.0000	9.9900	9.3330	9.3360	-0.0146%
100%	30.0000	29.9900	20.0000	20.0000	-0.0333%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0040	0.0250%
10%	3.0000	3.0000	5.6000	5.6020	0.0125%
33%	10.0000	9.9900	9.3330	9.3360	-0.0146%
100%	30.0000	29.9900	20.0000	20.0000	-0.0333%

### Tag Notes

Calibration Number 1119905410585005  
Range 0-14.4 MGD  
LOI  
4 mA = 0.0 GPM  
8 mA = 2498 GPM  
12 mA = 4993 GPM  
16 mA = 7500 GPM  
20 mA = 9998 GPM

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## Rose Valley Flow Recoder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Rose Valley Flow Recoder  
Manufacturer: Partlow  
Model Number: MRC 5000  
Serial Number: 11308/1197957-003  
Calibrated Range: 4-20 Ma  
Description: Rose Valley Discharge Flow  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 04/06/18  
Next Due: 06/06/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	-58.5000%	-58.5000%
Max. Error	0.0000%	0.0000%
Min. Error	-58.5000%	-58.5000%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	400.0000	GPDX1000	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	100.0000	99.0000	-0.2500%
50%	12.0000	12.0000	200.0000	166.0000	-8.5000%
75%	16.0000	16.0000	300.0000	166.0000	-33.5000%
100%	20.0000	20.0000	400.0000	166.0000	-58.5000%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	100.0000	99.0000	-0.2500%
50%	12.0000	12.0000	200.0000	166.0000	-8.5000%
75%	16.0000	16.0000	300.0000	166.0000	-33.5000%
100%	20.0000	20.0000	400.0000	166.0000	-58.5000%

### Tag Notes

Antex: Out of Service/ chlorine pumps loading down loop.  
4 mA =  
8 mA =  
12 mA =  
16 mA =  
20 mA =  
Recorder not responding properly due to loop loading issue.

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## Rose Valley Flow Transmitter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Rose Valley Flow Transmitter  
Manufacturer: Eastech  
Model Number: Vantage 2210  
Serial Number: 15729  
Calibrated Range: 0-278 GPM  
Description: Rose Valley Flow Transmitter  
Instrument Accuracy: 2.5000%

### Test Results

Cal. Date: 04/06/18  
Next Due: 06/06/18  
Accuracy: 2.5150%  
**As Found**  
Zero Error: -2.3381%  
Span Error: -4.9964%  
Max. Error: -2.3381%  
Min. Error: -2.6583%  
**As Left**

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	278.0000	GPM	Actual Flow	
Output Value	0.0000	278.0000	GPM	Visual from Display	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
35.00%	97.3000	97.3000	97.3000	90.8000	-2.3381%
65.50%	182.0900	182.0900	182.0900	174.7000	-2.6583%

		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
35.00%	97.3000	97.3000	97.3000	90.8000	-2.3381%
65.50%	182.0900	182.0900	182.0900	174.7000	-2.6583%

### Tag Notes

Checked calibration using actual flowing conditions, and bricks  
3" Parshall Flume  
 $Q = .9939 H^{1.55}$

Q=CFM  
H height ft  
 $Q \times 448.86 = \text{GPM}$

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## SWDCMA Flow Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: SWDCMA Flow Recorder  
Manufacturer: Honeywell  
Model Number: Minitrend XQ  
Serial Number:  
Calibrated Range: 4-20 Ma  
Description: SWDCMA Flow Recorder  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 04/03/18  
Next Due: 06/03/18

	As Found	As Left
Zero Error	0.0467%	0.0467%
Span Error	0.4800%	0.4800%
Max. Error	0.4333%	0.4333%
Min. Error	0.0467%	0.0467%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	15.0000	MGD	Visual from LOI	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0070	0.0467%
25%	8.0000	8.0000	3.7500	3.7710	0.1400%
50%	12.0000	12.0000	7.5000	7.5360	0.2400%
75%	16.0000	16.0000	11.2500	11.2990	0.3267%
100%	20.0000	20.0000	15.0000	15.0650	0.4333%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0070	0.0467%
25%	8.0000	8.0000	3.7500	3.7710	0.1400%
50%	12.0000	12.0000	7.5000	7.5360	0.2400%
75%	16.0000	16.0000	11.2500	11.2990	0.3267%
100%	20.0000	20.0000	15.0000	15.0650	0.4333%

### Tag Notes

SCADA:  
4.00 mA = 0.002 MGD  
8.00 mA = 3.752 MGD  
12.00 mA = 7.502 MGD  
16.00 mA = 11.258 MGD  
20.00 mA = 14.988 MGD

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## GS 8 B On-Site Verification Record

## GS 8 B STANDARD SETTINGS

This spreadsheet is protected, thus entry is only allowed in the drop-down boxes & bright green cells.  
 To use this calculator, you will only need to input the requested information in the bright green cells from your data tags.  
 The Converter type, engineering units, diameter and frequency have drop down boxes, allowing the user to simply choose from the list.  
 This spreadsheet will automatically choose inch or metric (depending upon the converter), and state which GK(L) to use.  
 Printing of the programming results is allowed by simply choosing "Print" through your File menu.

**Important:** If there is a flowrate value present at the zero setting, you must compensate to obtain proper evaluation values.  
 You can zero your converter, but this might mean that you would have to redo a zero calibration once you reconnect with your primary head.  
 If you are unable to redo a zero calibration after reconnecting, then you should use the offset-compensated tables on the second sheet of this spreadsheet (Calculator + Zero Compensation).

Date Recorded: 6/15/18

Serial #: A13040489

Tag #: Chester Ridley Pump Station

Flow Tube Model #: Optiflex 400

Commission #:

Tested by: W Doleski/J Mullins

DATA INPUT AREAS (in green)			
INPUT VARIABLES			
Converter	=	IFC 300(GK)	
Q Fullscale	=	25	MGal/day
Select Meter Dia.	=	Inch	mm
		18	450
DN	=	450	mm
Diameter	=	18.0	inch (ref only)
I <sub>0%</sub>	=	4	mA
I <sub>100%</sub>	=	20	mA
P <sub>100%</sub> (Hz)	=	1000	Hz
GK	=	3.5648	<use GK
GKL	=		<do not use
K	=	Value automatically chosen from K value table	

$$X = \frac{Q_{100\%} * K * F}{GK(L) * DN^2} = \frac{4575457.796}{721872} = 6.338$$

$$Y_{MAX} = \frac{5.0}{D}$$

Output Current

I = 16.622 mA

Output Frequency

Freq MAX = 788.852 Hz

Calibrated Flowrate

Q = 19.721 MGal/day

GS 8 B Knob Setting	Current Output (mA)	Frequency Output (Hz)	Calculated Flowrate (MGal/day)	Observed Flowrate (MGal/day)	Deviation
0	4.00	0.00	0.00	0.000	
A	5.26	78.89	1.97	1.970	-0.11%
B	6.52	157.77	3.94	3.940	-0.11%
C	9.05	315.54	7.89	7.890	0.02%
D	16.62	788.85	19.72		
E					

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# Calibration Report



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## Chester Ridley Flume A SWDCMA

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Chester Ridley Flume A SWDCMA  
Manufacturer: Siemens  
Model Number: Hydromanager 200  
Serial Number: PBD/E1210029  
Calibrated Range: 0-15 MGD  
Description: SWDCMA Flow  
Instrument Accuracy: 1.0000%

### Test Results

Cal. Date: 04/03/18  
Next Due: 06/03/18  
Accuracy: 1.0150%  
**As Found**  
Zero Error: 0.0000%  
Span Error: 0.3595%  
Max. Error: 0.3595%  
Min. Error: 0.0000%  
**As Left**  
Zero Error: 0.0000%  
Span Error: 0.3595%  
Max. Error: 0.3595%  
Min. Error: 0.0000%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	15.0000	MGD	Actual Flow	
Output Value	4.0000	15.0000	MGD	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual		Calculated	Actual
0%	0.0000	0.0000		0.0000	0.0000
20.05%	3.0069	3.0690		3.0690	3.0630
					% Error
					0.0000%
					0.3595%

Output		As Left Data		Output	
% Value	Calculated	Actual		Calculated	Actual
0%	0.0000	0.0000		0.0000	0.0000
20.05%	3.0069	3.0690		3.0690	3.0630
					% Error
					0.0000%
					0.3595%

### Tag Notes

Checked calibration using actual flowing conditions.  
Simulated signals to the SCADA, displayed MGD indication follows: SCADA Not Available  
4.00 mA =  
8.00 mA =  
12.00 mA =  
16.00 mA =  
20.00 mA =

Zero Flow Reading not obtained, Data Sheet Zero Point for Information Purposes only

Technician  
Certification ISA Level III Certified

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## Chester Ridley Flume B Middletown

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Chester Ridley Flume B Middletown  
Manufacturer: Siemens  
Model Number: Hydromanger 200  
Serial Number: PBD/E1210028  
Calibrated Range: 0-15 MGD  
Description: Middletown Flow  
Instrument Accuracy: 1.0000%

### Test Results

Cal. Date: 06/19/18  
Next Due: 09/19/18  
Accuracy: 1.0150%  
**As Found**  
Zero Error: 0.0000%  
Span Error: 0.0909%  
Max. Error: 0.0909%  
Min. Error: 0.0000%  
**As Left**  
0.0000%  
0.0909%  
0.0909%  
0.0000%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	15.0000	MGD	Actual Flow	
Output Value	4.0000	15.0000	MGD	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual		Calculated	Actual
0%	0.0000	0.0000		0.0000	0.0000
14.26%	2.1390	2.1390		2.1390	2.1490
					% Error
					0.0000%
					0.0909%

Output		As Left Data		Output	
% Value	Calculated	Actual		Calculated	Actual
0%	0.0000	0.0000		0.0000	0.0000
14.26%	2.1390	2.1390		2.1390	2.1490
					% Error
					0.0000%
					0.0909%

### Tag Notes

Checked calibration using actual flowing conditions.  
Simulated signals to the SCADA, displayed MGD indication follows: SCADA not available  
4.00 mA =  
8.00 mA =  
12.00 mA =  
16.00 mA =  
20.00 mA =

Zero Flow Reading not obtained, Data Sheet Zero Point for Information Purposes only

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# Calibration Report



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## Chester Ridley Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Chester Ridley Recorder  
Manufacturer: Honeywell  
Model Number: Minitrend XQ  
Serial Number:  
Calibrated Range: 4-20 Ma  
Description: Chester Ridley Flow  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 06/15/18  
Next Due: 09/15/18

	As Found	As Left
Zero Error	0.0800%	0.0800%
Span Error	-31.9600%	-31.9600%
Max. Error	0.0800%	0.0800%
Min. Error	-32.0400%	-32.0400%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	25.0000	MGD	Visual from LOI	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0200	0.0800%
25%	8.0000	8.0000	6.2500	4.2300	-8.0800%
50%	12.0000	12.0000	12.5000	8.4800	-16.0800%
75%	16.0000	16.0000	18.7500	12.7300	-24.0800%
100%	20.0000	20.0000	25.0000	16.9900	-32.0400%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0200	0.0800%
25%	8.0000	8.0000	6.2500	4.2800	-7.8800%
50%	12.0000	12.0000	12.5000	8.4800	-16.0800%
75%	16.0000	16.0000	18.7500	12.7300	-24.0800%
100%	20.0000	20.0000	25.0000	16.9900	-32.0400%

### Tag Notes

**Recorder Range Incorrectly**

SCADA:

4.00 mA = 0.016 MGD  
8.00 mA = 6.3 MGD  
12.00 mA = 12.525 MGD  
16.00 mA = 18.742 MGD  
20.00 mA = 15.04 MGD

### Shutdown

FT = 0.0 MGD  
SCADA = 0.117  
mA = 4.003  
Recorder = 0.048

**11299**

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## CHI Pit Flow Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: CHI Pit Flow Recorder  
Manufacturer: Chesell  
Model Number: 5100V  
Serial Number: 11  
Calibrated Range: 4-20 Ma  
Description: CHI Pit Flow Recorder  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 06/14/18  
Next Due: 09/14/18

	As Found	As Left
Zero Error	#VALUE!	#VALUE!
Span Error	#VALUE!	#VALUE!
Max. Error	#VALUE!	#VALUE!
Min. Error	#VALUE!	#VALUE!

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	1300.0000	GPM	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	XXX	#VALUE!
25%	8.0000	8.0000	325.0000	XXX	#VALUE!
50%	12.0000	12.0000	650.0000	XXX	#VALUE!
75%	16.0000	16.0000	975.0000	XXX	#VALUE!
100%	20.0000	20.0000	1300.0000	XXX	#VALUE!

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	XXX	#VALUE!
25%	8.0000	8.0000	325.0000	XXX	#VALUE!
50%	12.0000	12.0000	650.0000	XXX	#VALUE!
75%	16.0000	16.0000	975.0000	XXX	#VALUE!
100%	20.0000	20.0000	1300.0000	XXX	#VALUE!

### Tag Notes

Recorder Failed, no visual display

Readings on the SCADA follow:

0 = 0  
325 = 327  
650 = 655  
975 = 984  
1300 = 1312

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## Eddystone Flow Recorder #2

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Eddystone Flow Recorder #2  
Manufacturer: Chesell  
Model Number: 392  
Serial Number: 950750713  
Calibrated Range: 4-20 Ma  
Description: Eddystone Flow Recorder  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 06/13/18  
Next Due: 09/13/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	-0.0500%	-0.0500%
Max. Error	0.0000%	0.0000%
Min. Error	-0.0500%	-0.0500%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	2000.0000	GPM	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	500.0000	499.0000	-0.0500%
50%	12.0000	12.0000	1000.0000	999.0000	-0.0500%
75%	16.0000	16.0000	1500.0000	1499.0000	-0.0500%
100%	20.0000	20.0000	2000.0000	1999.0000	-0.0500%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	500.0000	499.9990	0.0000%
50%	12.0000	12.0000	1000.0000	999.0000	-0.0500%
75%	16.0000	16.0000	1500.0000	1499.0000	-0.0500%
100%	20.0000	20.0000	2000.0000	1999.0000	-0.0500%

### Tag Notes

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## Eddystone Flow Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Eddystone Flow Recorder  
Manufacturer: Chesell  
Model Number:  
Serial Number:  
Calibrated Range: 4-20 Ma  
Description: Eddystone Flow Recorder  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 06/13/18  
Next Due: 09/13/18

	As Found	As Left
Zero Error	#VALUE!	#VALUE!
Span Error	#VALUE!	#VALUE!
Max. Error	#VALUE!	#VALUE!
Min. Error	#VALUE!	#VALUE!

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	2000.0000	GPM	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	XXX	#VALUE!
25%	8.0000	8.0000	500.0000	XXX	#VALUE!
50%	12.0000	12.0000	1000.0000	XXX	#VALUE!
75%	16.0000	16.0000	1500.0000	XXX	#VALUE!
100%	20.0000	20.0000	2000.0000	XXX	#VALUE!

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	XXX	#VALUE!
25%	8.0000	8.0000	500.0000	XXX	#VALUE!
50%	12.0000	12.0000	1000.0000	XXX	#VALUE!
75%	16.0000	16.0000	1500.0000	XXX	#VALUE!
100%	20.0000	20.0000	2000.0000	XXX	#VALUE!

### Tag Notes

Recorder not operational reading > Range

Readings displayed on the LOI follow in GPM:

04 mA = 0.0  
08 mA = 499  
12 mA = 1000  
16 mA = 1505  
20 mA = 2007

SCADA MGD

MGD= 0.0  
MGD= .72  
MGD= 1.45  
MGD= 2.17  
MGD= 2.89

Recorder totalizers not verified

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## Eddystone Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Eddystone Flowmeter  
Manufacturer: Krohne  
Model Number: IFC090  
Serial Number: 422226  
Calibrated Range: 0-2000 GPM  
Description: Eddystone Flowmeter  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 06/13/18  
Next Due: 09/13/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	4.6438%	4.6438%
Max. Error	4.6438%	4.6438%
Min. Error	0.0000%	0.0000%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	2000.0000	GPM	Martel MC1200	9474060
Output Value	4.0000	20.0000	mA	Krohne GS8	881896

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
3.6%	72.0000	73.0000	4.5670	4.5930	0.2125%
7.1%	142.0000	148.0000	5.1360	5.1890	0.6313%
28.5%	570.0000	592.0000	8.5600	8.7530	2.3063%
57.0%	1140.0000	1185.0000	13.1200	13.5030	4.6438%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0000	0.0000%
3.6%	72.0000	73.0000	4.5670	4.5930	0.2125%
7.1%	142.0000	148.0000	5.1360	5.1890	0.6313%
28.5%	570.0000	592.0000	8.5600	8.7530	2.3063%
57.0%	1140.0000	1185.0000	13.1200	13.5030	4.6438%

### Tag Notes

Shutdown:  
mA = 4.001  
SCADA = 0.4  
LOI = 0.0  
FT = -12 GPM

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## Marcus Hook Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Marcus Hook Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 090F/D/HART/6  
Serial Number: A09 62974  
Calibrated Range: 0-3472 GPM  
Description: Marcus Hook Flow  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 06/14/18  
Next Due: 09/14/18

	As Found	As Left
Zero Error	-0.0188%	-0.0188%
Span Error	0.0954%	0.0954%
Max. Error	0.1142%	0.1142%
Min. Error	-0.0410%	-0.0410%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	6944.0000	GPM	Krohne GS8	881896
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9970	-0.0188%
4.3200%	299.9808	298.0000	4.6900	4.6880	-0.0410%
8.6400%	599.9616	600.0000	5.3820	5.3800	-0.0119%
17.2800%	1199.9232	1201.0000	6.7640	6.7680	0.0405%
34.5600%	2399.8464	2403.0000	9.5290	9.5400	0.1142%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9970	-0.0188%
4.3200%	299.9808	298.0000	4.6900	4.6880	-0.0410%
8.6400%	599.9616	600.0000	5.3820	5.3800	-0.0119%
17.2800%	1199.9232	1201.0000	6.7640	6.7680	0.0405%
34.5600%	2399.8464	2403.0000	9.5290	9.5400	0.1142%

### Tag Notes

Shutdown:  
mA = 3.997  
SCADA = 0  
FT = 0.0  
LOI = 0

GK 4.2876

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## Marcus Hook Flow Recorder

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Marcus Hook Flow Recorder  
Manufacturer: Chesell  
Model Number: 5100V  
Serial Number: 21932001  
Calibrated Range: 4-20 Ma  
Description: Marcus Hook Flow Recorder  
Instrument Accuracy: 2.0000%

### Test Results

Cal. Date: 06/14/18  
Next Due: 09/14/18

	As Found	As Left
Zero Error	0.0000%	0.0000%
Span Error	0.0000%	0.0000%
Max. Error	0.0000%	0.0000%
Min. Error	0.0000%	0.0000%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	4.0000	20.0000	mA	Martel MC1200	9474060
Output Value	0.0000	10.0000	MGD	Visual from Chart	

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	2.5000	2.5000	0.0000%
50%	12.0000	12.0000	5.0000	5.0000	0.0000%
75%	16.0000	16.0000	7.5000	7.5000	0.0000%
100%	20.0000	20.0000	10.0000	10.0000	0.0000%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	4.0000	4.0000	0.0000	0.0000	0.0000%
25%	8.0000	8.0000	2.5000	2.5000	0.0000%
50%	12.0000	12.0000	5.0000	5.0000	0.0000%
75%	16.0000	16.0000	7.5000	7.5000	0.0000%
100%	20.0000	20.0000	10.0000	10.0000	0.0000%

### Tag Notes

SCADA Readings in MGD follow:

0 = 0  
2.5 = 2.50  
5.0 = 5.00  
7.5 = 7.5  
10.0 = 10.00

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## Namans Creek Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Namans Creek Flowmeter  
Manufacturer: Rosemount  
Model Number: 8712C  
Serial Number: 860118078  
Calibrated Range: 0-30 fps  
Description: Namans Creek Flowmeter  
Instrument Accuracy: 0.5000%

### Test Results

Cal. Date: 06/14/18  
Next Due: 09/14/18

	As Found	As Left
Zero Error	0.0063%	0.0063%
Span Error	0.0396%	0.0396%
Max. Error	0.0396%	0.0396%
Min. Error	-0.0125%	-0.0125%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	30.0000	fps	Rosemount	86190034
Output Value	4.0000	20.0000	mA	Martel 1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0010	0.0063%
10%	3.0000	3.0000	5.6000	5.5980	-0.0125%
33%	10.0000	10.0000	9.3330	9.3350	0.0125%
100%	30.0000	30.0100	20.0000	20.0010	0.0396%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	4.0010	0.0063%
10%	3.0000	3.0000	5.6000	5.5980	-0.0125%
33%	10.0000	10.0000	9.3330	9.3350	0.0125%
100%	30.0000	30.0100	20.0000	20.0010	0.0396%

### Tag Notes

Calibration Number 1119905410585005  
Range 0-14.4 MGD  
LOI  
4 mA = 0.0 GPM  
8 mA = 2492 GPM  
12 mA = 4994 GPM  
16 mA = 7501 GPM  
20 mA = 10001 GPM

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## Rose Valley Flowmeter

### Instrument Data

Customer Name: Delcora  
Instrument Tag: Rose Valley Flowmeter  
Manufacturer: Krohne  
Model Number: IFC 300  
Serial Number: A17017964  
Calibrated Range: 0-600 GPM  
Description: Rose Valley Flowmeter  
Instrument Accuracy: 1.5000%

### Test Results

Cal. Date: 09/21/18  
Next Due: 12/21/18

	As Found	As Left
Zero Error	-0.0062%	-0.0062%
Span Error	0.0392%	0.0392%
Max. Error	0.1067%	0.1067%
Min. Error	-0.0062%	-0.0062%

### Calibration Data

	Low	High	Unit	Calibrator	Serial #
Input Value	0.0000	600.0000	GPM	Krohne GS8B	U1127700018808
Output Value	4.0000	20.0000	mA	Martel MC1200	9474060

Input		As Found Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9990	-0.0062%
7.8600%	47.1600	47.5000	5.2570	5.2650	0.1067%
15.7200%	94.3300	94.6000	6.5150	6.5220	0.0888%
31.4700%	188.6600	188.8000	9.0300	9.0400	0.0858%
78.6000%	471.6400	471.8000	16.5770	16.5800	0.0454%

Input		As Left Data		Output	
% Value	Calculated	Actual	Calculated	Actual	% Error
0%	0.0000	0.0000	4.0000	3.9990	-0.0062%
7.8600%	47.1600	47.5000	5.2570	5.2650	0.1067%
15.7200%	94.3300	94.6000	6.5150	6.5220	0.0888%
31.4700%	188.6600	188.8000	9.0300	9.0400	0.0858%
78.6000%	471.6400	471.8000	16.5770	16.5800	0.0454%

### Tag Notes

GK 2.486

Shutdown:  
Recorder = 0.0  
mA = 3.999  
FT = 0.0  
LOI = 0.0

**William Doleski**

Digitally signed by: William Doleski  
DN: CN = William Doleski email = bdoleski@smithservice.com C  
= US O = Smith Instrument Company INC. OU = Service Division  
Date: 2018.10.08 13:41:41 -05'00'  
Reason: I have reviewed this document

Technician ISA Level III  
Certification

Technician Signature