
EXHIBIT E

JSA CHAPTER 94 REPORT FOR 2018

1

SERO
RECEIVED

MAR 29 2019

**CHAPTER 94
MUNICIPAL WASTELOAD MANAGEMENT
ANNUAL REPORT**

**2018
EAST NORRITON-PLYMOUTH-WHITPAIN
JOINT SEWER AUTHORITY
MONTGOMERY COUNTY, PENNSYLVANIA**

Prepared by:

**ARRO CONSULTING, INC.
350 West Main Street
Suite 200
Trappe, Pennsylvania 19426
(610) 495-0303**

Prepared for:

**EAST NORRITON-PLYMOUTH-WHITPAIN JOINT SEWER AUTHORITY
200 Ross Street
Plymouth Meeting, Pennsylvania 19462
(610) 279-5759**

Preparer



Signature

**Jay R. Jackson, P.E.
ARRO Consulting, Inc.
Authority Engineer**

Permitee



Signature

**Timothy A. Boyd, P.E. Executive Director
East Norriton-Plymouth-Whitpain
Joint Sewer Authority**

**EAST NORRITON-PLYMOUTH-WHITPAIN JOINT SEWER AUTHORITY
MONTGOMERY COUNTY, PENNSYLVANIA**

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

Table of Contents

	<u>Page</u>
1.0 Introduction	1
2.0 Hydraulic and Organic Loadings	1
2.1 2018 Plant Performance Summary	1
2.2 Current Hydraulic and Organic Loadings	2
3.0 5-Year Hydraulic and Organic Loading Projections	3
4.0 Flows During Major Storm Events	4
5.0 Sewer Extensions	5
6.0 Program for Sanitary Sewer Monitoring, Maintenance, and Repair	5
7.0 Condition of the Sewer System	6
8.0 Sewage Pumping Stations	7
9.0 Industrial Wastes Pretreatment Program	8
10.0 Corrective Action Plan	8
11.0 Calibration Reports	8
12.0 Wastewater Treatment Plant Improvements	8
13.0 Conclusions and Signatures	9

APPENDICES

Appendix A – Tables and Graphs

Table 1 – 2018 Plant Performance Summary

Table 2 – Hydraulic Loading Data (2014 – 2018)

Table 3 – Organic Loading Data (2014 – 2018)

Table 4 – EDU Connection Summary (2014 – 2018)

Table 5 – Past and Projected Treatment Plant Loadings (2014 – 2023)

Table 6 – Sawmill Run Pump Station Monthly Rainfall and Flow Summary

Table 7 – 1-Inch Plus Rainfall / Flow Summary

APPENDICES (continued)

Appendix A – Tables and Graphs (continued)

Exhibit 1 – Hydraulic Loading Graph

Exhibit 2 – Organic Loading Graph

Exhibit 3 – Monthly Rainfall / Flow Graph – Wastewater Treatment Plant

Exhibit 4 – Monthly Rainfall / Flow Graph – Sawmill Run Pump Station

Exhibit 5 – 1-inch Plus Rainfall / Flow Graph – Sawmill Run Pump Station

Exhibit 6 – 1-inch Plus Rainfall / Flow Graph – Offsite Meters

Exhibit 7 – 1-inch Plus Rainfall / Flow Graph – Chemical Road Meter

Exhibit 8 – 1-inch Plus Rainfall / Flow Graph – WWTP Influent Meter

Appendix B – East Norriton-Plymouth-Whitpain Joint Sewer Authority – Major Facilities Map

Appendix C – East Norriton Township Sewer System Questionnaire

Appendix D – Plymouth Township Sewer System Questionnaire

Appendix E – Whitpain Township Sewer System Questionnaire

Appendix F – 2018 Annual Pretreatment Summary

Appendix G – Flow Meter Calibration Reports

EAST NORRITON-PLYMOUTH-WHITPAINJOINT SEWER AUTHORITY
CHAPTER 94
MUNICIPAL WASTELOAD MANAGEMENT
ANNUAL REPORT
OPERATING YEAR 2018

1.0 INTRODUCTION

As required by Chapter 94, Municipal Wasteload Management, Title 25 of the Rules and Regulations of the Pennsylvania Department of Environmental Protection (PADEP), this report summarizes the operation of the East Norriton-Plymouth-Whitpain Joint Sewer Authority (ENPWJSA) wastewater treatment plant for the past five years, and projected loading for the next five years. Data presented in the tables and graphs included in the Appendices were taken from 2018 plant operating records and from each of the member jurisdictions and Authority personnel.

This report discusses the current operating conditions at the plant and, with the information provided by the three member municipalities, East Norriton Township, Plymouth Township and Whitpain Township, provides estimates of the projected hydraulic and organic loadings at the wastewater treatment plant. Also included is an overview of the existing collection system, pump stations, and improvements to these systems.

2.0 HYDRAULIC AND ORGANIC LOADINGS

2.1 2018 Plant Performance Summary

The ENPWJSA wastewater treatment plant, operating under Water Quality Management Permit (WQM) No. 4605410-A2, last issued July 31, 2014, and National Pollutant Discharge Elimination System (NPDES) Permit No. PA0026816, last issued November 1, 2017, is located in Plymouth Township, Montgomery County, Pennsylvania. The plant provides advanced secondary treatment from two trickling filtration plants with an upgrade to an activated sludge treatment train operated as a modified Ludzack-Ettinger process along with two BioMag treatment units with polymer and magnetite chemical addition facilities added to the activated sludge train. Under the current WQM permit the sewage treatment facility has a permitted Annual Average Flow limit of 8.67 MGD, a Maximum Monthly Average Flow of 11.29 MGD and a Design Maximum Organic Capacity of 33,925 lbs/day.

A common discharge location releases treated effluent to the adjacent Schuylkill River. In accordance with the current NPDES Permit No. PA0026816, the plant has a permitted hydraulic design capacity of 11.29 MGD. The NPDES monthly effluent NPDES limits of 20 mg/l CBOD₅ from May through October and 25 mg/l from November through April along with a suspended solids average limit is 30 mg/l were determined using an effluent discharge rate of 8.67 MGD.

Table 1 of Appendix A contains the 2018 performance information for the combined ENPWJSA treatment plant. The average annual flow for 2018 was 7.54 MGD and the highest consecutive maximum three-month average was 8.98 MGD.

Effluent BOD₅ and suspended solids are tabulated in Table 1. The 2018 the average annual loading was 9,020 lbs/day and maximum loading was 10,189 lbs/day. The 2018 maximum monthly effluent BOD₅ was 10 mg/L and the maximum monthly effluent suspended solids was 17 mg/L. None of the loadings exceeded the plant's design limits. With an average removal rate of 94 percent and 93 percent for BOD₅ and suspended solids, respectively, both parameters remain below the permitted limits.

2.2 Current Hydraulic and Organic Loadings

Table 2 of Appendix A contains flow data for the years from 2014 through 2018. The average annual flows over the period were below the permit limit of 8.76 MGD. The maximum average annual flow was 7.54 MGD in 2018 and a minimum average annual flow was 4.91 MGD in 2016.

The highest maximum three-month flow for the time period was 8.98 MGD in 2018 and the minimum three-month flow was 6.24 in 2017. The maximum three-month flow remains below the maximum monthly average flow limit of 11.29 MGD. An average five-year peaking factor of 1.29 was calculated and has been used to determine projected maximum monthly flows for the next five years.

Table 3 of Appendix A contains the average annual organic loadings for the plant during the years from 2014 through 2018. Average annual BOD₅ loading has fluctuated over the last five years. These averages are below the plant's rated capacity of 33,925 lbs/day. The average five-year ratio organic peaking factor of

1.16 was calculated and has been used to determine projected maximum monthly organic loading for the next five years.

Table 4 of Appendix A contains a summary of Equivalent Dwelling Unit (EDU) connections for the three municipal systems that feed the Authority system for the years 2014 – 2018. Since July 1, 2005 one EDU has been set at 230 GPD.

3.0 5-YEAR HYDRAULIC and ORGANIC LOADING PROJECTIONS

The projected five-year loadings are determined using actual plant loadings and flows for the last five years. An average per capita flow and BOD₅ is used to project average flows and BOD₅ for the years 2019 through 2023. Population projections are based on information obtained from the tributary townships.

Table 5 of Appendix A totals the actual and projected connected populations taken from the township questionnaires. From this table a flow of 94 gpcd and BOD₅ of 0.143 lbs/capita /day are calculated as projection factors for future connected populations. The lower half of Table 5 shows the projected average flow and average BOD₅ for the years 2019 through 2023. Average annual flows and average BOD₅ loadings are projected to remain below the permitted limits of 8.67 MGD and 33,925 lbs/day, respectively.

The hydraulic data from Table 2 and Table 5 of Appendix A in conjunction with the population data supplied in the township questionnaires was used to develop the hydraulic loading graph found in Exhibit 1 of Appendix A. The projected maximum three-month flows were calculated using the peaking factor determined in Table 2. As seen in Exhibit 1, the projected average annual flows and maximum three-month average flows are below the permitted limits of 8.67 MGD and 11.29 MGD, respectively.

The organic loading data from Table 3 and Table 5 of Appendix A in conjunction with population data supplied in the township questionnaires was used to develop the organic loading graph found in Exhibit 2 of Appendix A. Exhibit 2 demonstrates the past and projected organic loadings are well below the rated capacity of 33,925 lbs/day.

As demonstrated by Exhibits 1 and 2, ENPWJSA is not projecting hydraulic or organic overloads in the near future. The Authority will continue its regularly scheduled maintenance program through the contributing townships.

4.0 FLOWS DURING MAJOR STORM EVENTS

PADEP requires Chapter 94 reports include a discussion of metered flow data for the collection and conveyance systems, specifically during major storm events (greater than 1.0 inch of rain).

Table 2 and Table 6 show a summary of the monthly rainfall and flow totals at the WWTP and the Sawmill Run Pump Station, respectively, and this monthly data is charted in Exhibit 3 and Exhibit 4. The charts show that the rains in the February and November 2018 had an affect on the monthly flow at both Sawmill Run Pump Station and the WWTP.

Table 7 is a summary of the rainfall and the metered flows at the Authority's WWTP, Sawmill Run Pump Station, and two offsite meters for the sixteen (16) days in 2018 where rain fell more than 1 inch plus in a 24-hour period. The charts in Exhibits 5, 6, 7 and 8 were developed from the data.

Exhibit 5 is a chart of Sawmill Run Pump Station inflows during the sixteen (16) rain events and the yearly average flows for the three contributing townships. As related to yearly average flow, the peaking factors for the three meters during the rain events are as follows:

	Yearly Avg. Flow	Rain Events Peaking Factor	
	<u>(MGD)</u>	<u>High</u>	<u>Average</u>
East Norriton	2.88	2.27	1.56
Whitpain	1.22	2.44	1.45
Plymouth/Whitpain	2.32	2.57	1.44

Exhibit 6 is a chart of peak rain event flows through the Sheffield Drive and Walton Road meters and the yearly average flows. The meters record flows from Whitpain Township into the Plymouth Township collection system. Both meters show elevated flows during the rain events when compared to the yearly average flows. As related to yearly average flow, the peaking factors for the two meters during the rain events are as follows:

	Yearly Avg. Flow	Rain Events Peaking Factor	
	<u>(MGD)</u>	<u>High</u>	<u>Average</u>
Sheffield	0.96	1.86	1.24
Walton	0.25	1.69	1.11

Exhibit 7 is a chart of flows through the Chemical Road meter at the WWTP. The Chemical Road meter peaks at 5.0 MGD during significant rain event. Little can be learned from this flow meter for I/I purposes. As related to yearly average flow, the peaking factors for the meter during the rain events are as follows:

	Yearly Avg. Flow	Rain Events Peaking Factor	
	<u>(MGD)</u>	<u>High</u>	<u>Average</u>
Chemical Road	0.94	2.15	1.44

Exhibit 8 is a chart of the WWTP influent meter flows during significant rain events. During 2018 the WWTP saw some increase in flow for rains of 1.0 inch and above. As related to 2018 yearly average flow and the allocated capacity of the WWTP, the peaking factors for the meter during the rain events are as follows:

	Yearly Avg. Flow	Rain Events Peaking Factor	
	<u>(MGD)</u>	<u>High</u>	<u>Average</u>
Plant Influent	7.54	1.70	1.07

	Allocated Capacity	Rain Events Peaking Factor	
	<u>(MGD)</u>	<u>High</u>	<u>Average</u>
Plant Influent	11.29	1.13	0.71

In 2018 no overflow events occurred at the WWTP facility due to significant rain events.

5.0 SEWER EXTENSIONS

A major facilities map is included in Appendix B and shows all areas tributary to the wastewater treatment plant. Detailed information on sewer extensions within East Norriton, Plymouth and Whitpain Townships served by ENPWJSA is contained in Appendices C, D, and E.

6.0 PROGRAM FOR SANITARY SEWER MONITORING, MAINTENANCE, AND REPAIR

The Authority and all three municipalities have regular maintenance programs for their respective collection and interceptor systems. Any problem areas within their systems usually receive immediate attention. In addition, the contributing municipalities are continually monitoring and correcting infiltration/inflow (I/I) situations as they occur.

6.1 East Norriton-Plymouth-Whitpain Joint Sewer Authority

The Authority monitors the condition of the flow in the interceptor between its Sawmill Run Pump Station and the wastewater treatment plant. In 2018 no overflow events occurred within the Ross Street Interceptor into the plant or any other section of the interceptor.

6.2 East Norriton Township

Refer to the East Norriton Township Sewer System Questionnaire in Appendix C for the Township's program for sanitary sewer monitoring, maintenance and repair.

6.3 Plymouth Township

Refer to the Plymouth Township Sewer System Questionnaire in Appendix D for the Township's program for sanitary sewer monitoring, maintenance and repair.

6.4 Whitpain Township

Refer to the Whitpain Township Sewer System Questionnaire in Appendix E for the Township's program for sanitary sewer monitoring, maintenance and repair.

7.0 CONDITION OF THE SEWER SYSTEM

7.1 East Norriton-Plymouth-Whitpain Joint Sewer Authority

With the upgrade to the Ross Street Interceptor during the last plant upgrade project the interceptor between the Sawmill Run Pump Station and the wastewater treatment plant is expected to have the capacity to handle all known existing and future flows.

7.2 East Norriton Township

Refer to the East Norriton Township Sewer System Questionnaire in Appendix C for the condition of the Township's sewer system.

7.3 Plymouth Township

Refer to the Plymouth Township Sewer System Questionnaire in Appendix D for the condition of the Township's sewer system.

7.4 Whitpain Township

Refer to the Whitpain Township Sewer System Questionnaire in Appendix E for the condition of the Township's sewer system.

8.0 SEWAGE PUMPING STATIONS

8.1 East Norriton-Plymouth-Whitpain Joint Sewer Authority

ENPWJSA owns and operates the Sawmill Run Pumping Station that serves East Norriton, a portion of Plymouth Township, and the lower Whitpain Township area.

The Sawmill Run Pumping Station is equipped with three pumps rated at 5.9 MGD each and three pumps rated at 6.8 MGD each. Maximum capacity of the station is 21 MGD with four of six pumps in simultaneous operation.

Table 6 contains a summary of 2014 – 2018 annual flows from the three municipal systems that feed the Sawmill Run Pump Station. The table also includes projected flows for 2019 and 2020 to the pump station. An average flow of 6.42 MGD was pumped from the Sawmill Run Pumping Station to the wastewater treatment plant during 2018.

Maintenance of the Sawmill Run Pumping Station is the responsibility of ENPWJSA and includes daily washdown of the wet well, daily wet well pump down, normal preventive maintenance and repair, and extensive clean-up.

8.2 East Norriton Township

Refer to the East Norriton Township Sewer System Questionnaire in Appendix C for the current and projected flows at each Township pumping station, and the operation and maintenance procedures for the pump stations.

8.3 Plymouth Township

Refer to the Plymouth Township Sewer System Questionnaire in Appendix D for the current and projected flows at each Township pumping station, and the operation and maintenance procedures for the pump stations.

8.4 Whitpain Township

Refer to the Whitpain Township Sewer System Questionnaire in Appendix E for the current and projected flows at each Township pumping station, and the operation and maintenance procedures for the pump stations.

9.0 INDUSTRIAL PRETREATMENT PROGRAM

ENPWJSA provides an approved Municipal Industrial Pretreatment Program (MIPP). As of February 2000, the Authority MIPP Coordinator has overseen the entire program at the wastewater treatment plant and in each of the three contributing municipalities (East Norriton, Plymouth, and Whitpain). The MIPP Coordinator is responsible for the sampling, inspections and enforcement actions of all permitted industrial users. A copy of the 2018 annual Pretreatment Performance Summary is contained in the Appendix F.

10.0 CORRECTIVE ACTION PLAN

There are no existing or projected overload conditions at the wastewater treatment plant or within the collection and conveyance system that would trigger the requirement to prepare a Corrective Action Plan or a Capacity Management Plan.

11.0 CALIBRATION REPORTS

All of the treatment plant and major tributary flow meters were calibrated during 2018. Copies of the calibration reports are included in Appendix G.

12.0 WASTEWATER TREATMENT PLANT IMPROVEMENTS

12.1 Plant Upgrade and Plant Expansion Projects

The Plant Upgrade Project, consisting of Electrical System Rehabilitation, construction of a new Headworks Screening Facility, Disinfection System Replacement and installation of a sludge centrifuge was finally completed September 7, 2010. The most recent plant expansion project consisted of a new BioMag and Vari-cant Jet Aeration System installed within the existing aeration tanks.

12.2 Incinerator and Solids Handling Facilities

Regarding the plant's sludge, new sewage sludge incinerator regulations took effect on March 21, 2016. The plant's incinerator failed HCl and SO₂ emissions testing required by the new regulations. Subsequently, the Authority completed a study to determine the best alternative for sludge disposal if incineration could not be resumed. The study recommended

removing sludge in cake form. Following the recommendation, the Authority completed the construction of a conveyor system to load sludge cake into containers for disposal at a composting facility. The Authority has not operated the incinerator since December 2017.

12.3 Plant-Wide Systems and Miscellaneous Items

Plant-wide, during 2018, improvements were:

- All settling tanks were drained, cleaned and repaired as needed.

13.0 CONCLUSIONS AND SIGNATURES

The supporting documentation and graphs demonstrate that the ENPWJSA Wastewater Treatment Plant and the facilities tributary to it are operating within the rated hydraulic and organic capacities in accordance with the plant's NPDES Permit.

ENPWJSA continues to evaluate the effects of improvements on the downstream collection system by all three member municipalities.

Although the plant is designed with ample capacity, the Authority continues its Capital Improvements Program to assure that all collection system, pump station and treatment plant facilities operate as designed.

Report Prepared By

Jay R. Jackson, P.E.
Name

Project Engineer
Title

ARRO Consulting, Inc.
Company

350 West Main Street, Suite 200
Trappe, PA 19426
Address

Jay R. Jackson 3/28/19
Signature of Preparer Date

Permittee

East Norriton-Plymouth-Whitpain
Joint Sewer Authority
Name

Timothy A. Boyd, P.E.
Responsible Official

Executive Director
Title

200 Ross Street
Plymouth Meeting, PA 19462
Address

T. Boyd 3/28/2019
Signature of Permittee Date

Appendix A
Tables and Graphs

Table 1

2018 Plant Performance Summary

Table 1
East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report

2018 PLANT PERFORMANCE SUMMARY

Month	Flow (mgd)	Inf BOD5 / Eff CBOD5				Suspended Solids		
		Daily Load (lbs/day)	Influent (mg/l)	Effluent (mg/l)	Percent Removal	Influent (mg/l)	Effluent (mg/l)	Percent Removal
January	4.86	8,431	208	10	95	230	15	93
February	9.05	10,139	135	9	93	153	15	90
March	10.79	9,089	101	10	90	115	16	86
April	7.11	8,835	149	10	93	161	17	89
May	7.50	9,883	158	10	94	201	16	92
June	6.92	9,349	162	7	96	201	13	94
July	5.80	7,885	163	8	95	222	10	95
August	6.24	8,118	156	7	96	201	10	95
September	7.56	9,142	145	6	96	194	10	95
October	6.08	8,164	161	5	97	205	7	97
November	9.85	9,201	112	7	94	144	8	94
December	8.71	9,952	137	7	95	186	11	94
Annual Average	7.54	9,020	149	8	94	184	12	93
Max. 3 Month Average	8.98							
Max. Month	10.79	10,139		10	Max (May - October)	17	Max	
				10	Max (November - April)			
Design Limits	11.29	33,925		20	(May - October)	30		
				25	(November - April)			

Table 2

Hydraulic Loading Data (2014 – 2018)

Table 2
East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report

HYDRAULIC LOADING DATA (MGD)
2014 - 2018

Month	Flow (MGD) 2014	Flow (MGD) 2015	Flow (MGD) 2016	Flow (MGD) 2017	Flow (MGD) 2018	Rainfall (inches) 2018
January	7.04	5.71	5.12	5.40	4.86	2.35
February	9.67	5.29	8.42	4.84	9.05	6.35
March	8.37	8.27	5.85	5.81	10.79	4.98
April	8.43	6.13	4.89	6.92	7.11	4.54
May	8.54	4.61	6.28	5.99	7.50	6.96
June	6.86	5.06	4.52	5.16	6.92	6.67
July	4.39	5.08	3.99	5.11	5.80	5.81
August	4.45	3.93	3.96	4.95	6.24	6.79
September	3.83	3.75	3.84	4.13	7.56	7.56
October	3.92	4.08	3.75	4.04	6.08	2.58
November	4.10	3.68	3.72	4.12	9.85	7.77
December	5.44	4.93	4.57	4.18	8.71	5.47
Average Annual Flow (MGD)	6.25	5.04	4.91	5.05	7.54	
Max. 3 Month Ave. Flow (MGD)	8.82	6.56	6.46	6.24	8.98	
PEAKING FACTOR						
Max. 3 Month Ave. Flow /						
Ave. Annual Flow	1.41	1.30	1.32	1.23	1.19	
Flow Peaking Factor:						
Average 5 Year Ratio	1.29					

Table 3

Organic Loading Data (2014-2018)

Table 3
East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report
ORGANIC LOADING DATA (lbs BOD5/day)
2014 - 2018

Month	2014	2015	2016	2017	2018
January	10,240	8,661	7,942	9,367	8,431
February	10,887	11,154	9,199	9,042	10,189
March	10,680	9,523	8,831	9,255	9,089
April	10,616	9,457	8,768	9,176	8,835
May	9,330	8,580	8,851	9,042	9,883
June	9,554	10,217	8,143	8,435	9,349
July	8,165	7,332	7,188	7,842	7,885
August	8,981	6,726	6,869	7,802	8,118
September	8,145	7,196	7,846	7,337	9,142
October	8,533	7,625	7,694	7,985	8,164
November	7,967	7,328	8,408	7,937	9,201
December	8,983	9,045	9,109	8,541	9,952
Average Annual BOD5 (lbs/Day)	9,340	8,570	8,237	8,480	9,020
Max. 1 Month BOD5 Loading (lbs/Day)	10,887	11,154	9,199	9,367	10,189
RATIO:					
Max. 1 Month BOD5 / Avg. Annual BOD5	1.17	1.30	1.12	1.10	1.13
Organic Peaking Factor:					
Average 5 Year Ratio	1.16				

Table 4

EDU Connection Summary (2014-2018)

Table 4
East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report
EDU CONNECTION SUMMARY
2014 - 2018

Equivalent Dwelling Units (EDU)

Year	ENPWJSA (Total)	East Norriton	Whitpain	Plymouth
2014	30,788	10,963	9,239	10,586
2015	30,897	10,968	9,264	10,665
2016	30,992	10,982	9,307	10,703
2017	31,020	10,982	9,334	10,704
2018	31,189	11,048	9,346	10,795

This table is a summary of actual connections from municipal systems to the Authority system. Since July 1, 2005 one Equivalent Dwelling Unit (1 EDU) has been set at 230 GPD.

Table 5

Past and Projected Treatment Plant Loadings (2014-2023)

Table 5
East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report
PAST AND PROJECTED TREATMENT PLANT LOADINGS
2014 - 2023

Year	Connected Population	Average Total Flow (mgd)	Max. 3 Month Ave. Flow (mgd)	Per Capita Flow (gpcd)	Average Total BOD5 (lbs/day)	Max. Month BOD5 (lbs/d)	Per Capita BOD5 (lbs/day)
2014	60,498	6.25	8.82	103	9,340	10,887	0.154
2015	60,796	5.04	6.56	83	8,570	11,154	0.141
2016	61,056	4.91	6.46	80	8,237	9,199	0.135
2017	61,268	5.05	6.24	82	8,480	9,367	0.138
2018	61,955	7.54	8.98	122	9,020	10,189	0.146
Average	61,114	5.76		94	8,730	10,159	0.143
Projected Loadings							
2019	62,530	5.89	7.60	94	8,933	10,394	0.143
2020	62,992	5.93	7.65	94	8,999	10,471	0.143
2021	63,221	5.95	7.68	94	9,031	10,509	0.143
2022	63,527	5.98	7.72	94	9,075	10,560	0.143
2023	63,857	6.01	7.76	94	9,122	10,615	0.143

Notes:

Plymouth population was estimated by quantity of EDU x 2.43 people per EDU.

Whitpain population was estimated by quantity of EDU x 2.75 people per EDU.

Table 6

Sawmill Run Pump Station

Monthly Rainfall and Flow Summary

And

Annual Flow Summary and Projection

Table 6
East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report

SAWMILL RUN PUMP STATION
MONTHLY RAINFALL AND FLOW SUMMARY

	East Norriton Flow (MGD)	Plymouth/Whitpain Flow (MGD)	Whitpain Flow (MGD)	Rainfall Inches
Jan-18	2.02	1.29	0.85	2.35
Feb-18	3.62	2.69	1.38	6.35
Mar-18	3.80	3.66	1.65	4.98
Apr-18	2.53	2.36	1.52	4.54
May-18	2.85	2.31	1.18	6.96
Jun-18	2.49	2.17	1.11	6.67
Jul-18	2.47	1.51	0.95	5.81
Aug-18	2.41	1.74	1.03	6.79
Sep-18	3.09	2.09	1.15	7.56
Oct-18	2.26	1.86	1.03	2.58
Nov-18	3.88	3.35	1.46	7.77
Dec-18	3.16	2.78	1.34	5.47
<i>Average:</i>	2.88	2.32	1.22	
		<i>Total Average:</i>	6.42	

ANNUAL FLOW SUMMARY AND PROJECTION

	East Norriton Flow (MGD)	Plymouth/Whitpain Flow (MGD)	Whitpain Flow (MGD)
2014	2.288	1.919	1.004
2015	2.026	1.438	0.855
2016	1.965	1.363	0.858
2017	1.985	1.438	0.851
2018	2.882	2.318	1.221
Projected Flows			
2019	2.912	2.348	1.225
2020	2.943	2.367	1.230

Table 7

1-inch Plus Rainfall / Flow Summary

**Table 7
East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report**

1 INCH PLUS RAINFALL / FLOW SUMMARY

Rain Date	Rain (in)	Saw Mill Pump Station Inflows			Offsite Meters		Chemical Road (MGD)	Plant Influent (MGD)	Plant Effluent	
		East Norriton (MGD)	Whitpain (MGD)	Plymouth/Whitpain (MGD)	Sheffield (MGD)	Walton (MGD)			AS (MGD)	Trickling (MGD)
01/01/18	1.11	3.53	1.34	2.04	0.75	0.17	1.01	4.98	3.31	5.26
02/04/18	1.14	2.88	1.04	1.71	0.66	0.15	0.97	5.11	3.00	3.89
02/11/18	1.24	6.27	2.56	4.83	1.63	0.28	1.84	11.37	7.05	8.74
03/02/18	1.19	6.20	2.98	5.96	1.73	0.40	2.03	12.25	7.89	9.46
04/16/18	2.52	5.36	2.10	4.63	1.61	0.36	1.71	9.77	6.58	6.88
05/13/18	1.04	2.42	1.07	1.76	0.79	0.21	0.81	4.23	3.24	2.76
05/27/18	1.68	4.57	1.91	3.11	1.27	0.29	1.12	7.69	5.65	5.37
06/10/18	2.49	2.51	1.16	2.17	0.88	0.23	0.98	4.73	3.46	3.37
08/13/18	2.65	5.14	1.75	3.38	1.11	0.25	1.29	8.25	4.82	6.34
08/31/18	1.02	2.04	0.90	1.48	0.62	0.17	0.81	4.51	3.11	2.18
09/09/18	1.28	5.34	1.80	3.06	1.07	0.23	1.35	8.67	4.43	6.96
09/25/18	1.43	4.24	1.56	2.62	0.98	0.24	1.24	7.04	3.94	5.57
09/28/18	1.10	6.15	2.18	4.26	1.50	0.29	1.58	10.37	5.66	8.10
11/24/18	1.96	3.43	1.54	3.29	1.17	0.34	1.28	6.89	4.82	4.46
12/21/18	1.09	6.53	2.44	5.01	1.79	0.42	1.99	12.81	6.80	9.32
12/28/18	1.14	5.24	1.94	4.16	1.50	0.37	1.67	10.46	6.47	6.60
Yearly Avg Flow (MGD)		2.88	1.22	2.32	0.96	0.25	0.94	7.54		
Meter Max (MGD)		10.00	3.41	10.00	5.00	0.58	5.00	30.00	10.00	10.00
High Peaking Factor =		2.27	2.44	2.57	1.86	1.69	2.15	1.70		
Avg Peaking Factor =		1.56	1.45	1.44	1.24	1.11	1.44	1.07		

NOTES:

- 1) Peak flow reading taken at the top of each hour in MGD.
- 2) The existing Plant Influent metering manhole configuration creates turbulence at flows above 23 MGD and may cause inaccuracies in the meter readings.

During high flows the Chemical Road bypass is closed. (The bypass allows the Authority to direct flow into the east trickling filter primary settling tank and bypass 3) the plant's headworks and primary pump station to prevent potential overflows at the headworks facility during high flow events. The flow backs up in the channel and maxes out the Chemical Road meter. The flow is not reflected in the Plant Influent meter.)
- 4) Maximum design hydraulic capacity of the Chemical Road interceptor is 7.3 MGD.
- 5) The Activated Sludge and Trickling Filter plant effluent trains are metered separately.
- 6) Avg Peaking Factor is the average peaking factor of all rain dates.

Exhibit 1

Hydraulic Loading Graph

East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report

HYDRAULIC LOADING

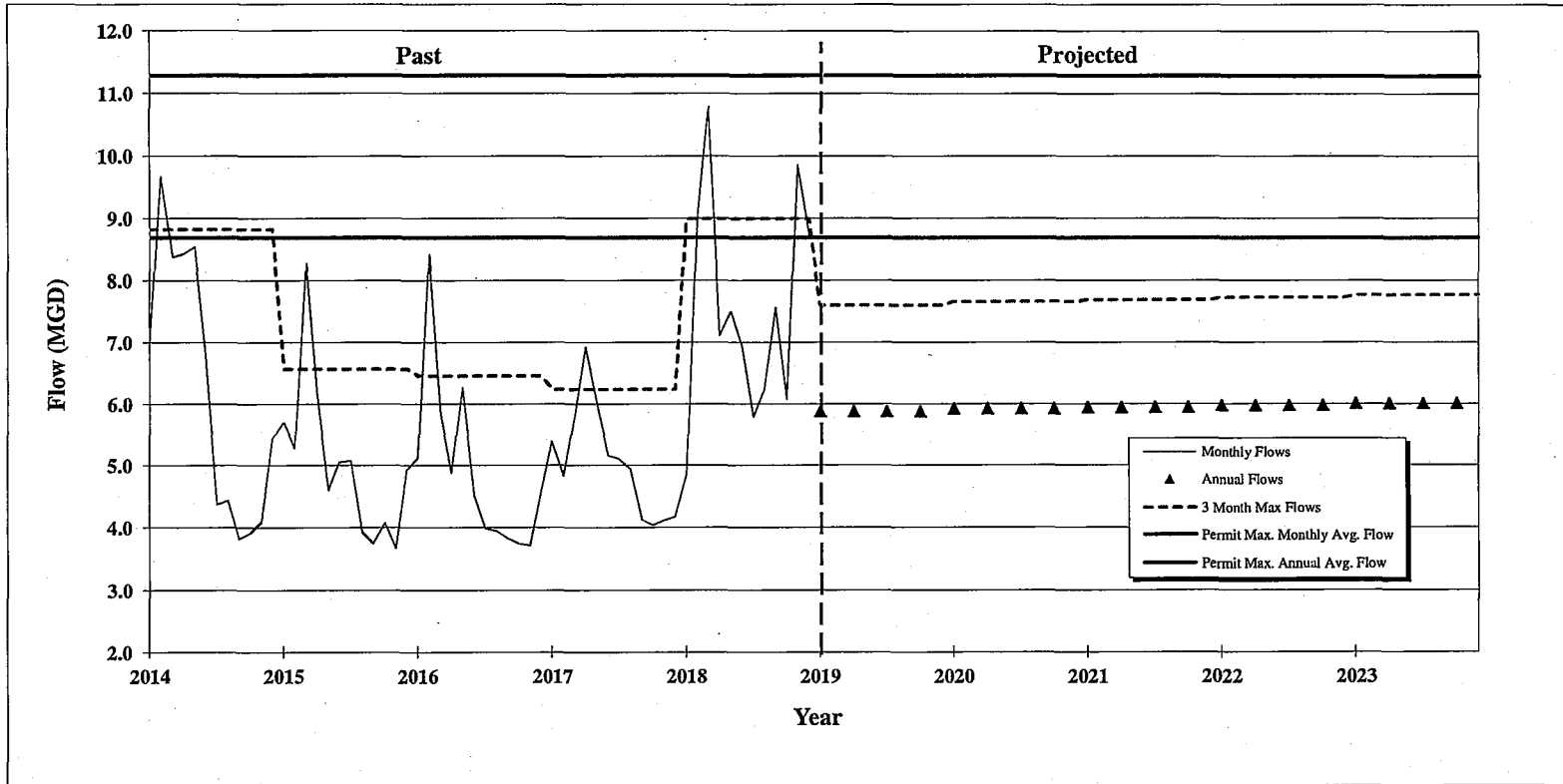


EXHIBIT 1

Exhibit 2

Organic Loading Graph

**East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report**

ORGANIC LOADING

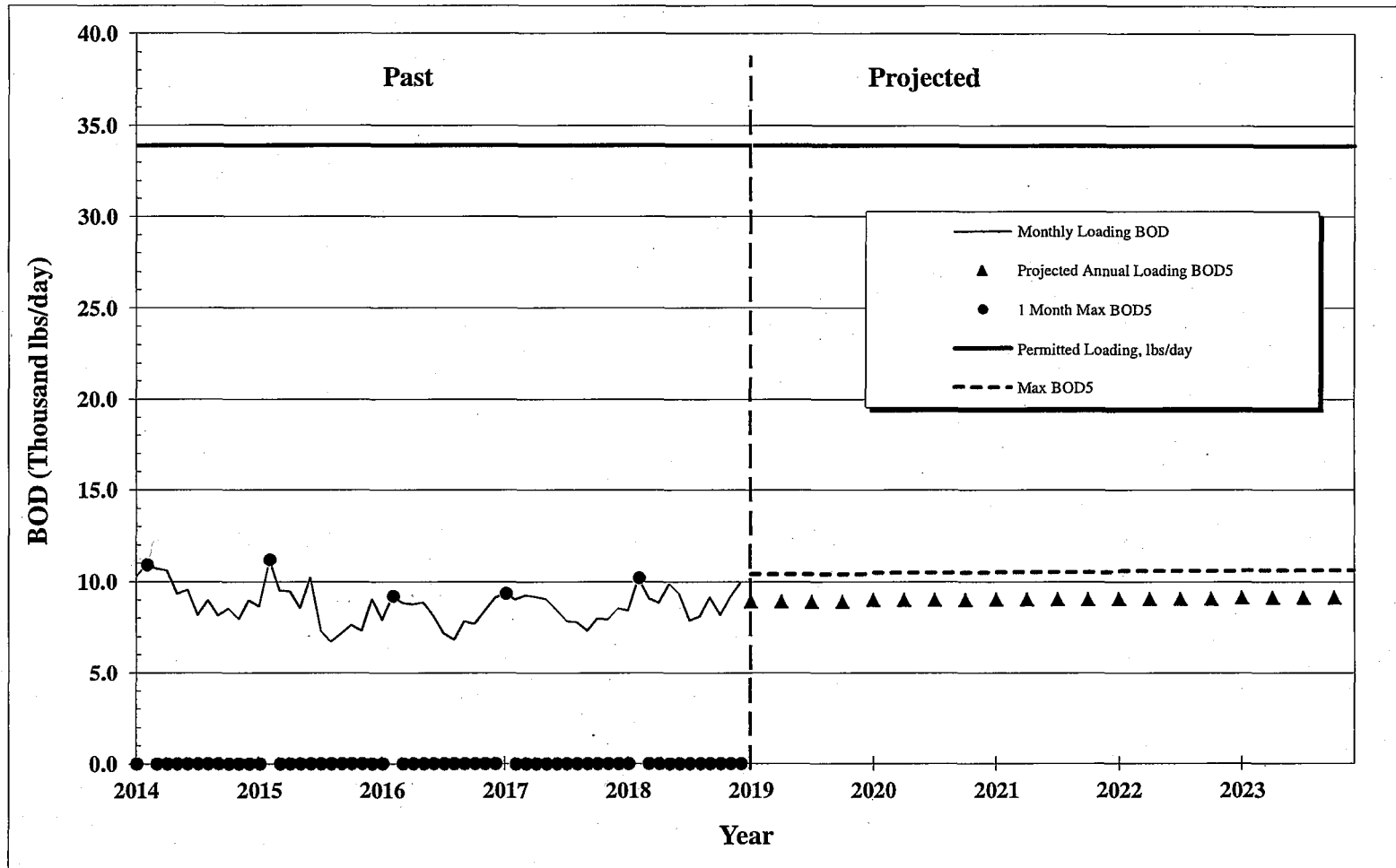


EXHIBIT 2

Exhibit 3

Monthly Rainfall / Flow Graph

Wastewater Treatment Plant

**East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report**

MONTHLY RAINFALL / FLOW - WASTEWATER TREATMENT PLANT

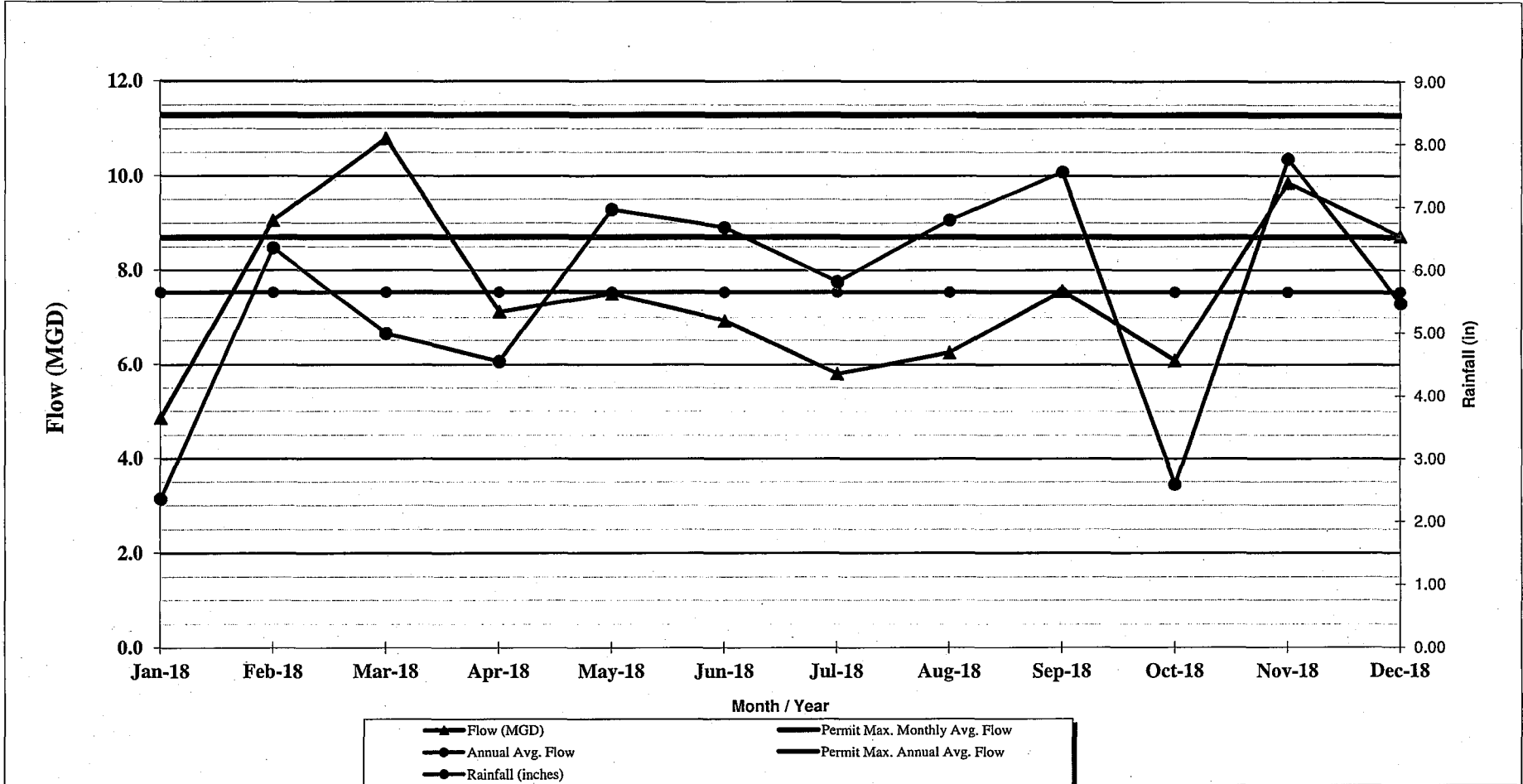


EXHIBIT 3

Exhibit 4

Monthly Rainfall / Flow Graph

Sawmill Run Pump Station

**East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report**

MONTHLY RAINFALL / FLOW - SAWMILL RUN PUMP STATION

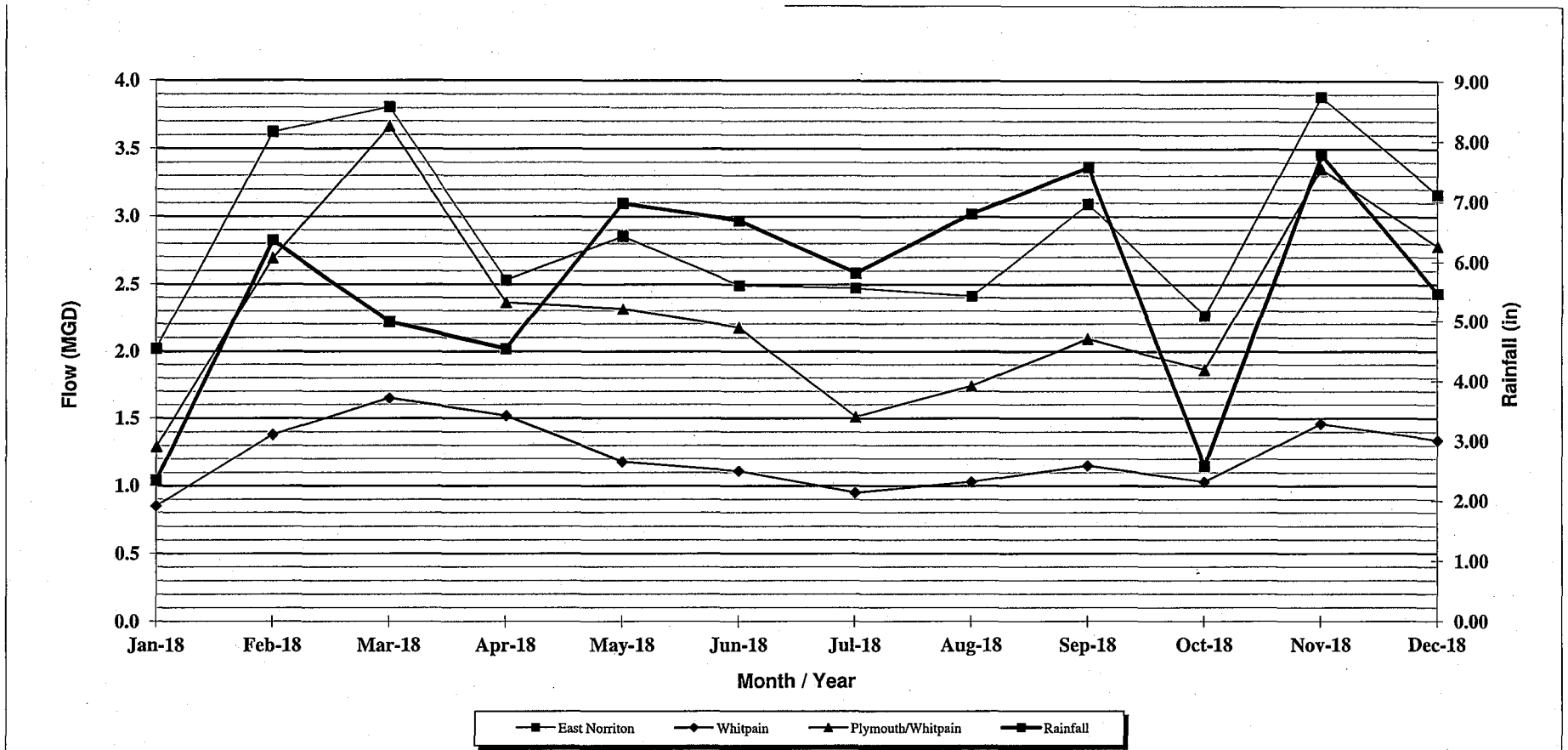


EXHIBIT 4

Exhibit 5

1-inch Plus Rainfall / Flow Graph

Sawmill Run Pump Station

**East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report**

1 INCH PLUS RAINFALL / FLOW - SAWMILL RUN PUMP STATION INFLOWS

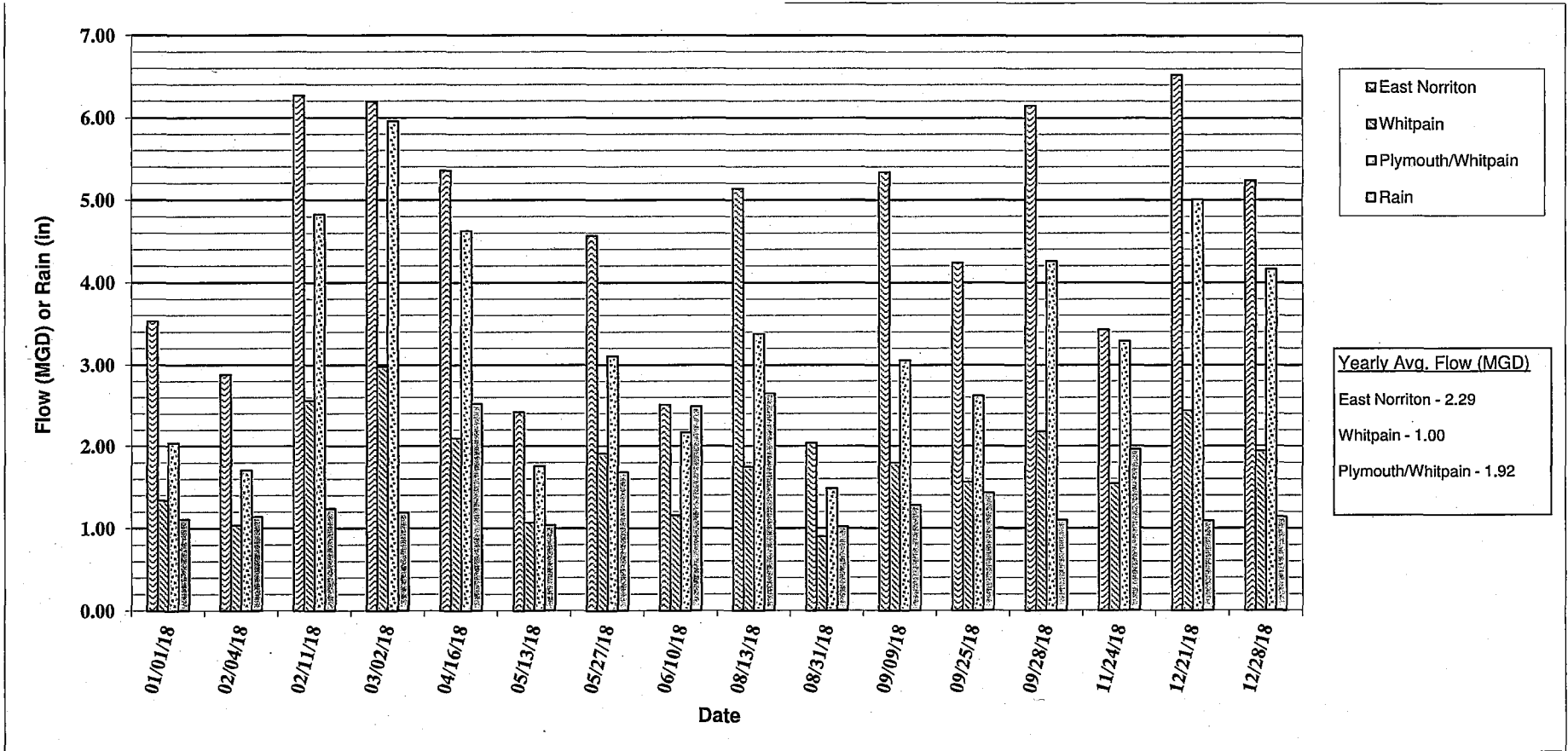


EXHIBIT 5

Exhibit 6

1-inch Plus Rainfall / Flow Graph

Offsite Meters

**East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report**

1 INCH PLUS RAINFALL / FLOW - OFFSITE METERS

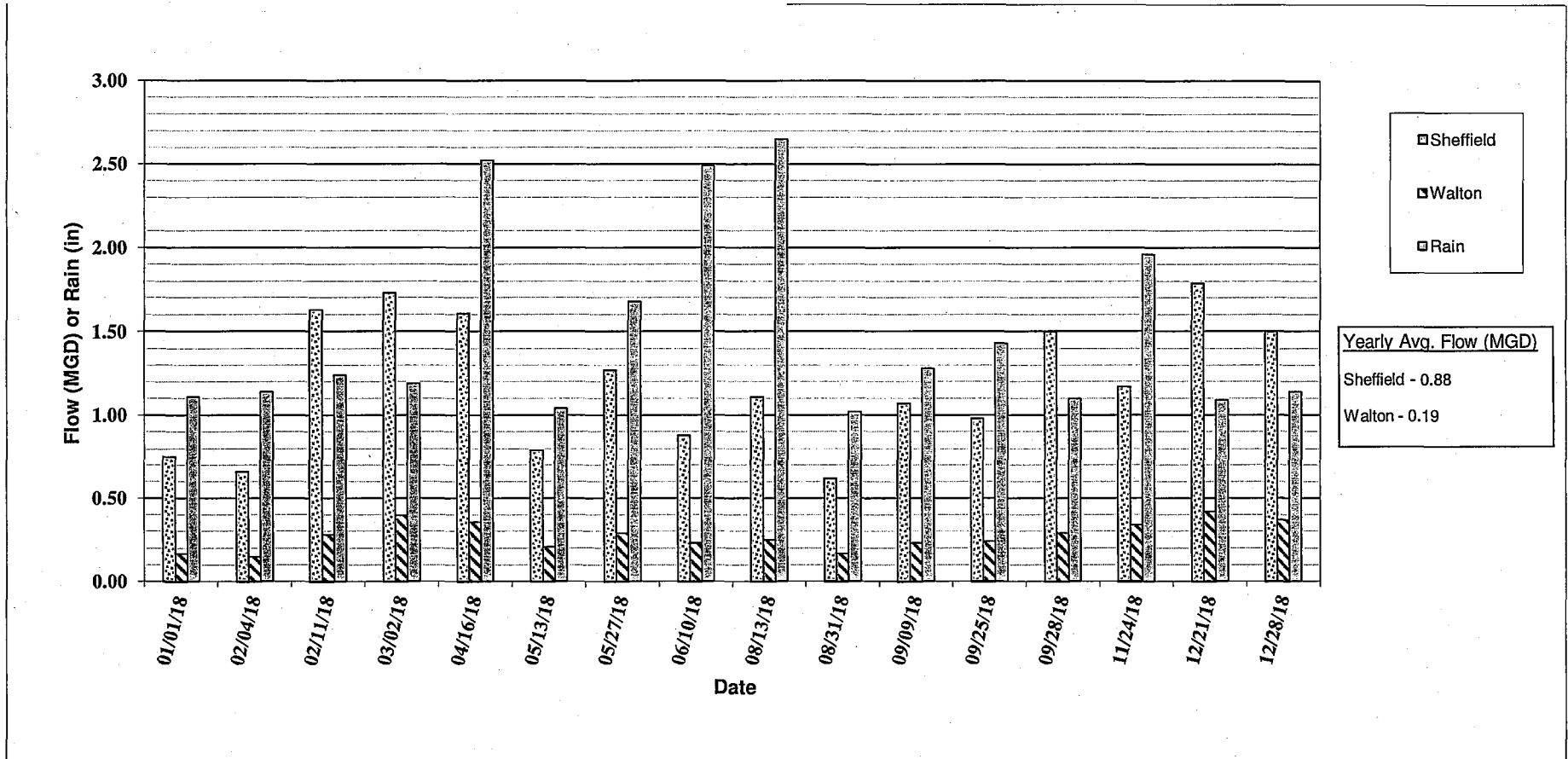


EXHIBIT 6

Exhibit 7

1-inch Plus Rainfall / Flow Graph

Chemical Road Meter

**East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report**

1 INCH PLUS RAINFALL / FLOW - CHEMICAL ROAD METER

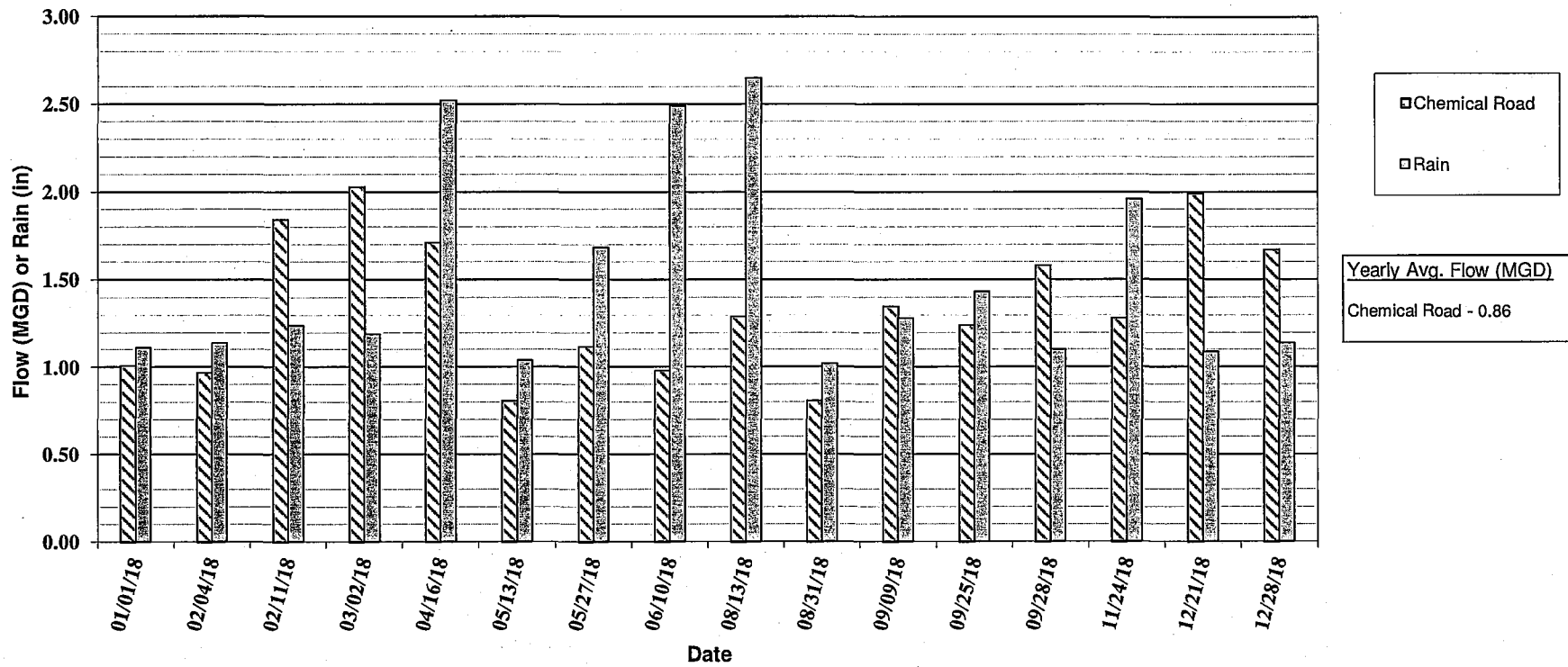


EXHIBIT 7

Exhibit 8

1-inch Plus Rainfall / Flow Graph

WWTP Influent Meter

**East Norriton-Plymouth-Whitpain Joint Sewer Authority
2018 Annual Chapter 94 Report**

1 INCH PLUS RAINFALL / FLOW - WWTP INFLUENT METER

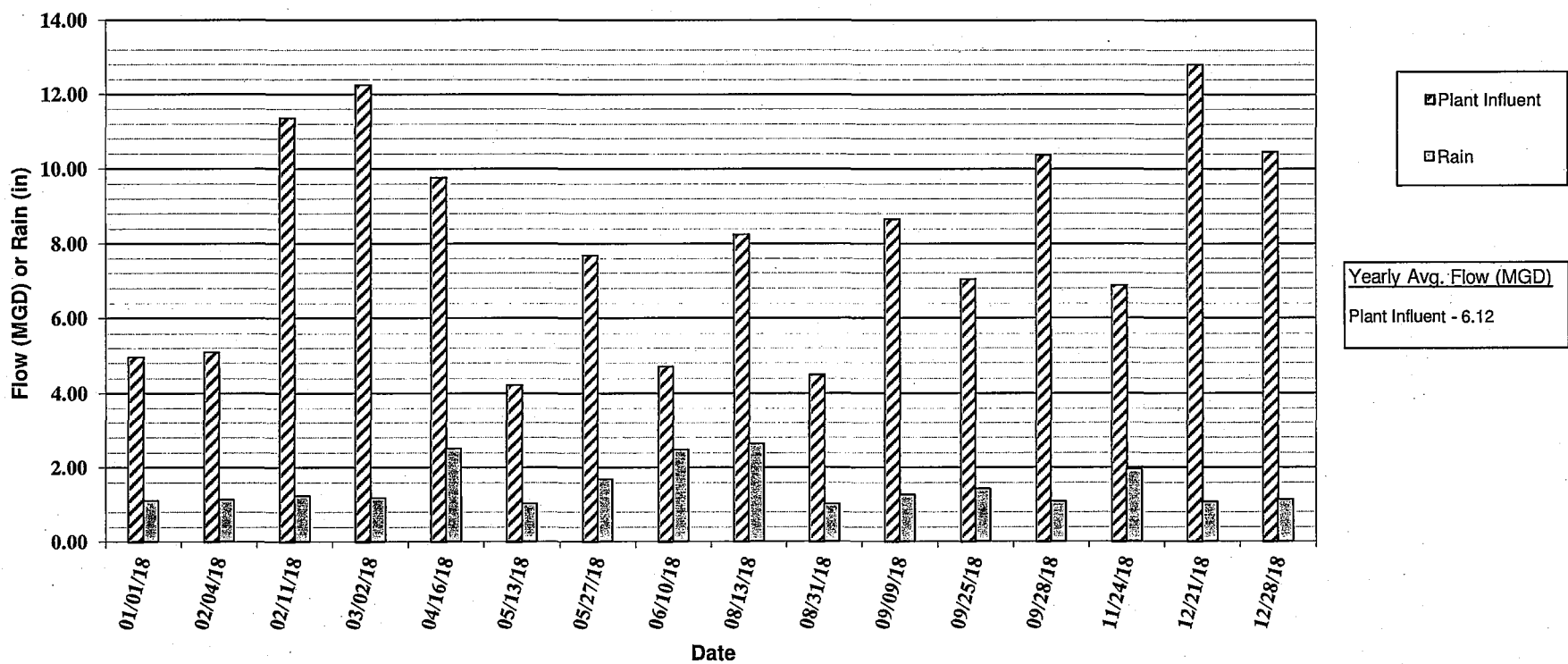



























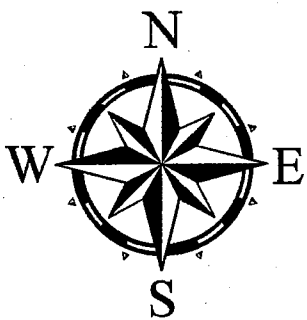
EXHIBIT 8

Appendix B

East Norriton-Plymouth-Whitpain Joint Sewer Authority

Major Facilities Map

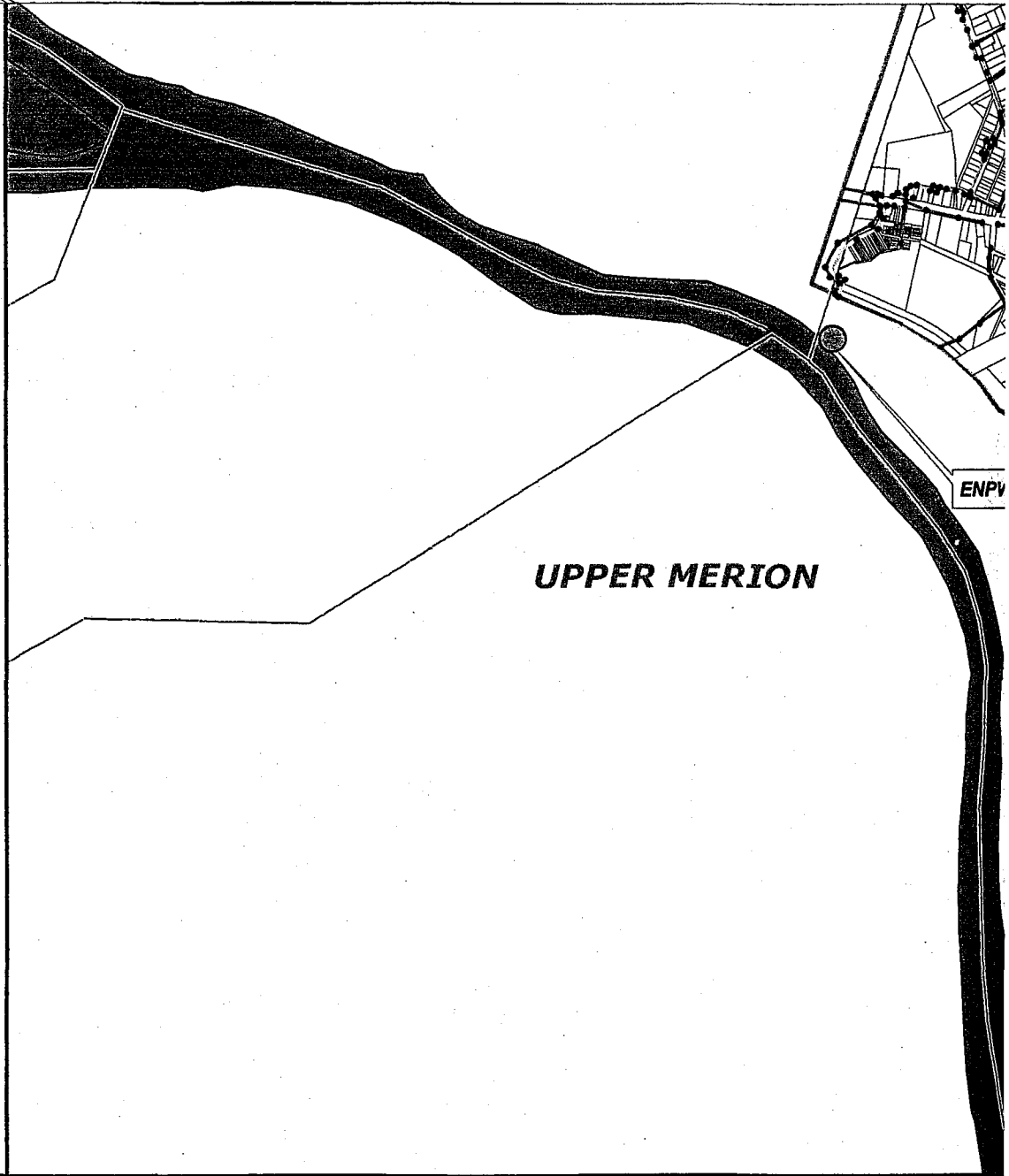
-  Marion Avenue Force Main
-  Mermaid Run Force Main - 12 inch
-  Mermaid Run Force Main - 18 inch
-  Mermaid Run Interceptor - 15 inch
-  Mermaid Run Interceptor - 18 inch
-  North Wales Road Force Main
-  Plymouth Creek Interceptor - 10 inch
-  Plymouth Creek Interceptor - 21 inch
-  Plymouth Hunt Force Main - 4 inch
-  Plymouth Road Interceptor - 10 inch
-  Plymouth Road Interceptor - 14 inch
-  Plymouth Road Interceptor - 18 inch
-  Sawmill Road Interceptor - 21 inch
-  Sawmill Run Interceptor - 30 inch
-  Stony Creek #1 Force Main
-  Stony Creek #2 Force Main - 12 inch
-  Stony Creek #3 Force Main - 12 inch
-  Stony Creek Interceptor - 12 inch
-  Stony Creek Interceptor - 18 inch
-  Township Line Force Main
-  Valley Creek Interceptor - 10 inch
-  Whitehall Force Main
-  Parcels
-  Township Boundaries
-  Service Area



1 inch = 1,000 feet



March 28, 2014



Full Sized Figure

Appendix C

East Norriton Township Sewer System Questionnaire

The East Norriton Township portion of the ENPWJSA 2018 Chapter 94 report was not received in time to include it within this submission to PADEP.

When the East Norriton portion of the report is received it will be submitted to PADEP for inclusion within the ENPWJSA report.

Appendix D

Plymouth Township Sewer System Questionnaire

2018 SEWER SYSTEM QUESTIONNAIRE

Municipality Name: Plymouth Township (ENPWJSA)

Date: March 27, 2019

A. SEWER SYSTEM DETAILS

1. Connected Population: (Estimated)

Present

2018	2019	2020	2021	2022	2023
25,814 (10,623 EDUs)	25,830 (10,630 EDUs)	26,207 (10,785 EDUs)	26,428 (10,876 EDUs)	26,453 (10,886 EDUs)	26,477 (10,896 EDUs)

2. **Total length of system:** 288,570 feet (ESTIMATED)

3. **Range of pipe sizes:**

- a. Smallest: 6 inches (ACTUAL)
- b. Largest: 24 inches (ACTUAL)

4. **Total number of manholes:** 1,260 (ESTIMATED)

5. **Construction Material:**

- a. Pipes: PVC, VCP, DIP, CIP
- b. Manholes: Pre-Cast Concrete, Brick

6. **Combined Sewer:**

- a. Location: None
- b. Percent of total system: 0%

*Append supporting documentation.

Connected Population = Number of EDUs x 2.43 persons/EDU
Assumed 10 EDUs per year for 2022 and 2023

7. **Major Interceptors:**

Name	Length (feet)	Pipe Diameter		Estimated Service Population
		Maximum	Minimum	
Sawmill Run	8,350	24	21	"not known"
Plymouth Creek	6,200	12	10	"not known"
Plymouth Road	6,000	18	10	"not known"
Chemical Road	4,625	10	10	"not known"
Diamond Run	2,800	21	21	"not known"
Valley Creek	6,800	12	10	"not known"
Church Road	4,250	24	18	"not known"

8. **Five Year Projects: Interceptors*** Projected Peak Flows (MGD)

Name/Segment	Limiting Section Capacity (MGD)	2018	2019	2020	2021	2022
Sawmill Run	4	2.8	2.8	2.8	2.8	2.8
Plymouth Creek	1	0.7	0.7	0.7	0.7	0.7
Plymouth Road	1	0.7	0.7	0.7	0.7	0.7
Chemical Road	1	0.7	0.7	0.7	0.7	0.7

***Append supporting documentation.**

9. **Mitigating Measures:**

If the projected flow exceeds the limiting section capacity at any time during the five-year period, explain proposed and on-going efforts to correct the potential overload for each instance. Estimate the probable success of these mitigating measures in eliminating the potential overload condition. Use additional sheets if necessary.

The Township does not anticipate that the limiting capacity of the interceptors will be exceeded.

10. Inflow/Infiltration Abatement Program:

Discuss ongoing and proposed inflow/infiltration programs to address sanitary sewer overflows in the service area, including sewer system monitoring, maintenance, repair and rehabilitation, routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analysis, and inflow/infiltration monitoring. Provide a detailed schedule of remedial action that will be taken during the five-year projection period. Use additional sheets if necessary.

Plymouth Township has entered into a three (3) year contract with Red Zone Robotics to televise, analyze, and prioritize the condition of all the sanitary sewers in Plymouth Township.

B. PUMPING STATIONS

1. Description:

Name/Number	Location	Capacity (MGD)			Length (feet)	Diameter (inches)	Estimated Service Population*
		Existing	Ultimate	Metered (yes/no)			
Chemical Road Pump Station	Chemical Road	3.89	3.89	Yes	4,900	16	3,514 EDUs 8,539 Persons
Narcissa Road Pump Station	Narcissa Road	0.288	0.288	Yes	4,800	6	359 EDUs 872 Persons
Turf Lane Pump Station	Turf Lane	0.115**	0.115	Yes	640	4	72 EDUs 175 Persons
Curren Terrace Pump Station	North View Road	0.115**	0.115	Yes	30	4	85 EDUs 207 Persons
Plymouth Hunt Pump Station	Fox Hunt Circle	0.115**	0.115	Yes	1,725	4	15 EDUs 36 Persons

*Persons = EDUs x 2.43 Persons/EDU (per 2010 census)

**Based upon 2 ft/sec in a four inch main. The Township will perform a drawdown test in the future to confirm the actual pumping capacity.

2. **Pumping Station Part II Permitted Flows:**

Name/Number	Part II Permitted Flow	No. of Pumps	Part II Permitted Flows (MGD)		
			Maximum Pump Rate	2018 Avg. Flow GPD)	2018 Max. Flow GPD)
Chemical Road Pump Station	0.878	3	3.88	0.790	2.130
Narcissa Road Pump Station	0.059	2	0.288	0.090	0.288
Turf Lane Pump Station	N/A	2	0.115	0.010	0.042
Curren Terrace Pump Station	N/A	2	0.115	0.027	0.070
Plymouth Hunt Pump Station	N/A	2	0.115	0.008 ¹	0.021 ¹

*See attached flow summary charges

**N/A – Plymouth Township has performed a PADEP file review and no permits were found.

3. **Five-Year Projections: Pumping Stations***

Name	Capacity (MGD)	2018	2019	2020	2021	2022	2023
Chemical Road Pump Station	3.88	0.790	0.730	0.78	0.78	0.78	0.78
Narcissa Road Pump Station	0.288	0.090	0.050	0.050	0.050	0.050	0.050
Turf Lane Pump Station	0.115	0.010	0.009	0.009	0.009	0.009	0.009
Curren Terrace Pump Station	0.115	0.027	0.020	0.020	0.020	0.020	0.020
Plymouth Hunt Pump Station	0.115	0.008	0.008	0.008	0.008	0.008	0.008

*Append supporting documentation

¹Estimated

4. **Mitigation Measures:**

If the projected peak flow exceeds the pumping station capacity at any time during the five-year period, explain proposed and on-going efforts to correct the potential overload for each instance. Estimate the probable success of these mitigation measures in eliminating the potential overload condition. Use additional sheets if necessary.

The Township does not anticipate that the pump stations capacities will be exceeded in the next five (5) years. If appropriate, draw down tests for each pump will be scheduled.

C. **METER PITS***

Name/Number	Location	Size/Type**	Sensor***	Estimated Connected Population
The only meter pits that are operated and maintained by the Township are at the Chemical Road, Narcissa Road, Turf Lane, Plymouth Hunt, and Curren Terrance Pump Stations.				

*Append meter record summaries.

**i.e., weir, flume, pipe, etc.

***i.e., float, bubbler, sonar, etc.

D. **OPERATION AND MAINTENANCE**

1. **Overall Sewer System Collection:** The overall system is in fair to good condition. The problem areas are addressed as they are identified.
2. **Describe routine operation and maintenance procedures**
 - a. **Sewer System:** The Township conducts inspections during wet weather events to identify locations that have high flows and to verify that all low lying manholes are water tight.
 - b. **Pump Stations:** The Township has contract operators that maintain the pump stations and perform the required normal and preventative maintenance.
 - c. **Meter Pits:** All flow meters are calibrated and maintained by the contract operator.

3. **Known Problem Areas:**

Location	Nature of Problem*	Corrective Measures Taken
Plymouth Road Interceptor	Segment reported to be near capacity	Piping replacement project completed in February 2019 to remove a portion of the existing bottleneck.

*i.e., surcharging, line blockage, etc.

4. **Proposed Repair/Rehabilitation Projects:**

Location	Length of Repaired/Replaced Pipe, feet	Diameter of Pipe, inches	Proposed Construction Commencement	Miscellaneous Project Information
No proposed repairs or rehabilitation projects are currently planned. There are no known problem areas.				

No proposed repairs or rehabilitation projects are currently planned. There are no known problem areas.

E. **SANITARY SEWER EXTENSIONS (2018 ONLY*)**


Name/Area Served	Sewer Size	Extension Length	DEP Permit No.	Housing Units Served (Actual/Estimated)				
				2018	2019	2020	2021	2022
No extensions in 2018								

*Append plan of sanitary sewer system detailing additions made this year.

F. PROPOSED HOUSING DEVELOPMENTS

Name/Area Served	Permits Obtained (Yes/No)	DEP Permit No.	Proposed Housing Units (EDUs)					
			2018	2019	2020	2021	2022	2023
135 Pleasant Road	N/A			1				
Colonial Middle School	Pending					4		
SMG Hotels	Pending					87		
Arbour Square					82			
Driscoll Tract	Pending			6	73			

G. CERTIFICATION

Signed: 
 Allen B. Mason, P.E.

Title: Township Sewer Engineer

Address: Carroll Engineering Corporation
949 Easton Road
Warrington, PA 18976

Phone: (215) 343-5700



— WHITEMARSH TOWNSHIP AUTHORITY,
SERVICE AREA BOUNDARY

— BOROUGH CONSHOHOCKEN AUTHORITY,
SERVICE AREA BOUNDARY

							DATE
							NO.

DATE 03-27-2019
 CADD FILE 1895100002
 JOB NO 18-1454

DSG BY ABM
 DWN BY YPC
 CKD BY ABM
 SCALE 1" = 1000'

DRAWER NUMBER -

SHEET 1 OF SHEETS

DRAWING NUMBER

GRAPHIC SCALE



(IN FEET)
 1 inch = 1000 ft.

Full sized figure

Appendix E

Whitpain Township Sewer System Questionnaire

WHITPAIN TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

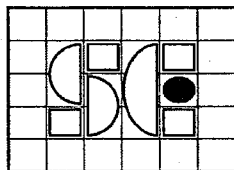


2018 ANNUAL WASTELOAD MANAGEMENT REPORT

**PREPARED IN ACCORDANCE WITH
PA.DEP CHAPTER 94**

**FOR SEWERAGE SYSTEM TRIBUTARY TO
EAST NORRITON/PLYMOUTH/WHITPAIN JOINT SEWER AUTHORITY
WASTEWATER TREATMENT PLANT**

MARCH 2019



S C Engineers, Inc.

P.O. Box 407

Fort Washington, PA 19034

(215) 836-9912

WHITPAIN TOWNSHIP
MONTGOMERY COUNTY, PENNSYLVANIA

MUNICIPAL WASTELOAD MANAGEMENT REPORT
FOR THE YEAR 2018

PREPARED IN ACCORDANCE WITH
CHAPTER 94 OF TITLE 25
PADEP RULES AND REGULATIONS

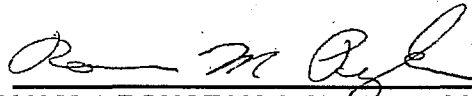
MARCH 2019

PREPARED BY



ALFRED S. CIOTTONI, P.E.
S C Engineers, Inc.
P.O. Box 407
Fort Washington, PA 19034-0407

REVIEWED BY



ROMAN M. PRONCZAK, P.E., Township Manager
WHITPAIN TOWNSHIP
960 Wentz Road, Blue Bell, PA 19422

A. SEWER CONNECTIONS

Sewer connections dating back to 1992 are presented graphically in Figure 1, and summarized as follows for the past five years:

Year	Connections			Service (EDU)
	Residential	Non-Resid.	Total	
2014	4,984	199	5,181	6,981
2015	5,011	199	5,208	7,008
2016	5,070	199	5,267	7,067
2017	5,092	199	5,289	7,089
2018	5,096	199	5,293	7,093

Accounting of connections for 1997 and prior years are based on sewer billing records. For 1998 and later years, a more detailed distribution of connections according to sewer district has been developed based on the Township GIS. There is strong agreement between these two sources. A summary of connections according to the five sewer districts tributary to the ENPWJSA for the most recent 5-year period is presented in Table 1. A comparison of connected EDU to allocated capacity in Figure 2 indicates that Whitpain is well within its allocation.

B. SEWER SYSTEM

1. **Total length of system:** The Whitpain sanitary sewer system tributary to the ENPWJSA treatment plant is summarized according to the five service areas as follows:

Sewer Basin	Sewer Length (feet), by Pipe Diameter						Total	No. MH
	8	10	12	15	18	24		
A Stony Creek	221,930	2,810	7,230	3,270	6,310	640	242,190	1,104
B Mermaid Run	109,940	2,580	1,000	8,620	4,370	0	126,510	514
C Sheffield Dr. Meter	5,890	0	0	0	1,650	0	7,540	26
D Walton Rd. Meter	25,590	0	0	0	0	0	25,590	123
E Narcissa Road PS	6,980	0	0	0	0	0	6,980	30
Totals	373,330	5,390	8,230	11,890	12,330	640	411,810	1,797

2. **Sewer Construction Materials:**

- a. **Pipes:** Original construction in 1966 consisted primarily of cast iron. Since then vitrified clay, reinforced concrete, asbestos cement and PVC pipe have been installed. More recently, PVC pipe has been used virtually exclusively for the past 30 years.
- b. **Manholes:** Precast concrete

A. SEWER CONNECTIONS

Sewer connections dating back to 1992 are presented graphically in Figure 1, and summarized as follows for the past five years:

Year	Connections			Service (EDU)
	Residential	Non-Resid.	Total	
2014	4,984	199	5,181	6,981
2015	5,011	199	5,208	7,008
2016	5,070	199	5,267	7,067
2017	5,092	199	5,289	7,089
2018	5,096	199	5,293	7,093

Accounting of connections for 1997 and prior years are based on sewer billing records. For 1998 and later years, a more detailed distribution of connections according to sewer district has been developed based on the Township GIS. There is strong agreement between these two sources. A summary of connections according to the five sewer districts tributary to the ENPWJSA for the most recent 5-year period is presented in Table 1. A comparison of connected EDU to allocated capacity in Figure 2 indicates that Whitpain is well within its allocation.

B. SEWER SYSTEM

1. **Total length of system:** The Whitpain sanitary sewer system tributary to the ENPWJSA treatment plant is summarized according to the five service areas as follows:

Sewer Basin	Sewer Length (feet), by Pipe Diameter						Total	No. MH
	8	10	12	15	18	24		
A Stony Creek	221,930	2,810	7,230	3,270	6,310	640	242,190	1,104
B Mermaid Run	109,940	2,580	1,000	8,620	4,370	0	126,510	514
C Sheffield Dr. Meter	5,890	0	0	0	1,650	0	7,540	26
D Walton Rd. Meter	25,590	0	0	0	0	0	25,590	123
E Narcissa Road PS	<u>6,980</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>6,980</u>	<u>30</u>
Totals	373,330	5,390	8,230	11,890	12,330	640	411,810	1,797

2. **Sewer Construction Materials:**

- a. **Pipes:** Original construction in 1966 consisted primarily of cast iron. Since then vitrified clay, reinforced concrete, asbestos cement and PVC pipe have been installed. More recently, PVC pipe has been used virtually exclusively for the past 30 years.
- b. **Manholes:** Precast concrete

3. **Major Interceptors:** Flows from the Whitpain collector sewer system are conveyed by three primary interceptor sewers, as shown schematically in Figure 3. Descriptive data for the interceptor sewers are presented in the following tabulation:

Interceptor Sewer Name/Location	Length (feet)	Pipe Diameter		Limiting Capacity (mgd)
		Min.	Max.	
Stony Creek	17,500	12	24	5.0
Mermaid Run	13,000	15	18	2.6
E. Branch of Sawmill Run	4,800	10	10	NA

The Stony Creek and Mermaid Run interceptor sewers drain to the Township Line and Mermaid Run pumping stations, respectively. The Sawmill Run interceptor drains through the Walton Road meter chamber. Projected flows to the interceptor sewers are not expected to increase significantly in the next five years.

4. **Condition of Sewers:** The sewer system is well maintained by Township staff and, consequently, is in good condition. The system is routinely cleaned and internally televised with Township-owned equipment. Repairs are made as problems are identified. There are no overflows of the sewer system.
5. **Sanitary Sewer Extensions (2018 only):** No sewer extensions were installed during 2018.

C. PUMPING STATIONS

There are four (4) pumping stations in the service area tributary to the ENPWJSA plant:

Pumping Station Name/Location	Peak Capacity		Metered (Yes/No)	Force Main	
	(gpm)	(mgd)		Length (feet)	Diameter (inches)
Township Line PS	3,750	5.40	@Saw Mill PS	9,530	18
Mermaid Run PS	2,800	4.03	@Sheffield meter	2,870	18
North Wales Road PS	615	0.885	No *	5,550	8
Addison Reserve PS	46	0.066	No *	625	2

* Pump operating times are recorded daily.

The first three stations would be considered major pumping stations, based on their capacities, and are shown schematically in Figure 3 in relation to the tributary sewers and the downstream meter chambers. The four stations are described in more detail as follows.

Township Line pumping station is located on Township Line Road at Erbs Mill Road, east of North Wales Road. The station was originally constructed in 1967. Upgrading of the station was

substantially completed in August 1993. The two pre-existing pumps were replaced with three new pumps. The refurbished pumping station has a capacity of 3,750 gpm with two pumps operating (two pumps are used for normal operation with one as standby).

Mermaid Run pumping station is located on Township Line Road, east of DeKalb Pike (PA Route 202). Construction for the upgrading of the Mermaid Run station began in June 1996 and was completed in July 1997. A new 18-inch force main was completed by the end of 1996. The upgraded station has a capacity of 2,800 gpm with one of the two new pumps operating.

North Wales Road pumping station is located on North Wales Road, north of Skippack Pike (PA Route 73). The station began operation in January 1995 and serves a portion of the Blue Bell Country Club and the Yorkshires development. The station has a capacity of 615 gpm. The North Wales Road station is tributary to the Township Line station. Estimated flows (based on pump operating time) from the North Wales Road pumping station are presented in Figure 4.

Addison Reserve pumping station is located on Skippack Pike (Route 73), east of North Wales Road and began operation in 2007. The small pumping station was installed in Addison Reserve (Donohue tract) by the developer and recently dedicated to the Township. The station has a capacity of 46 gpm and discharges wastewater through a 2-inch force main to a sewer in Skippack Pike. The station serves 30 townhouse units in the Addison Reserve development. The station is not metered.

The Township Line and Mermaid Run stations pump the large majority of Whitpain flows to the ENPWJSA plant, including 64% and 30% of the connected EDU, respectively.

D. FLOW METER CHAMBERS

Flows from the four major service areas of Whitpain Township tributary to the ENPWJSA system are metered at the following chambers:

Meter		Service Area	Meter Size/Type
Name	Location		
Arch Road Meter	Saw Mill Run PS	A. Twp. Line PS	12" Magmeter
Sheffield Drive Meter	Township Line Road	B. Mermaid Run PS C. Sheffield Dr. gravity	12" Magmeter
Walton Road Meter	Township Line Road	D. Walton Rd. gravity	10" Lagco flume

As shown schematically in Figure 3, the Arch Road chamber, which is located at the ENPWJSA Saw Mill Run pumping station, meters flows from the Township Line pumping station. The Sheffield Drive meter chamber measures flows predominantly from the Mermaid Run pumping station, but also from a small gravity flow service area (5% of the connected EDU) in addition.

The meter chambers are maintained by the ENPWJSA, who record and compile the flow data.

E. CURRENT FLOWS

1. **Past Year (2018).** Daily flows during 2018 for the three Whitpain meter chambers that discharge to the ENPWJSA plant are presented graphically in Figure 5. Average monthly flows for the three meter chambers during 2018 are summarized in Table 2. Total daily flows from Whitpain during 2018 are presented in Figure 6 and compared to the ENPWJSA plant flows.
2. **Historic Data.** Historic monthly records of Whitpain flows during the past 20 years (dating back to 1991) are presented in Figure 7. The data indicate that average annual flows have been generally consistent at about 2 mgd over the past 15 years. Monthly Whitpain flows are segregated according to the three meter chambers: Arch Road, Sheffield Drive and Walton Road chambers, and presented graphically in Figure 8.
3. **Unit Flows.** Flow data for the total Whitpain sewerage system over the past 5 years are converted to unit flows per EDU in Table 3. Trends in the unit flows are analyzed in Figure 9, which plots the running 5-year averages of the unit flow rates and indicates a slight downward trend. A similar analysis of unit flows for the three meter chambers and estimates for the North Wales Road pumping station is presented in Table 4.
4. **Capacity Status.** The analysis described in the preceding sections indicates that flows from Whitpain Township have not exceeded either (a) the allocated average annual capacity of 2.7 mgd or (b) the maximum 3-month capacity of 3.1 mgd in the past 15 years. There are also no indications of capacity issues with the sewers or pumping stations.

F. PROJECTED FLOWS

Projections of future Whitpain flows to the ENPWJSA plant are based on (a) projections of additional connections to be constructed in the next 5 years and (b) current 5-year average unit flows.

1. **Proposed Development.** Future flows are expected to come from (a) the full build-out of currently constructed development or (b) future known development in planning, as summarized in Table 5 and located in the attached exhibit.
2. **Projected Flows.** Projected flows are based on anticipated growth and historic unit flows per housing unit, as previously summarized in Table 4. Actual flows to the ENPWJSA plant for past years and projected flows for the next five years are calculated in Table 3 and presented graphically in Figure 10.

Pumping station flows are not projected to increase significantly in the next two years, as shown in Table 4 and the following tabulation.

Pumping Station	Pumping Capacity	Peak Flows (gpm)	
	(gpm)	Current 2018	Projected 2020
Township Line PS	3,750	2,569	2,288
Mermaid Run PS	2,800	2,133	1,978
North Wales Road PS	615	496	414

3. **Capacity Status.** The analysis described in the preceding sections indicates that projected future flows from Whitpain Township to the ENPWJSA plant should not exceed the allocated capacity in the next five years.

Similar analyses indicate that projected flows to the Whitpain Township pumping stations should not exceed the reliable capacities of the stations within the next two years. There are no capacity issues indicated by (a) metered flows or (b) pump operating times.

G. OPERATION AND MAINTENANCE

1. **Routine operation and maintenance procedures** are as follows:

- a. *Sewer system:* Whitpain Township has a five-man maintenance staff that handles routine maintenance, as well as problems as they arise.
- b. *Pump stations:* Checked daily.
- c. *Meter pits:* Checked daily by ENPWJSA staff.

2. **Equipment:** Whitpain owns (a) flushing truck for cleaning sewers and (b) television inspection truck that is used for routine examination of sewers. The television inspection truck is also equipped with a lateral camera that can inspect the individual service lines to the buildings.

3. **Infiltration/Inflow Monitoring:** A desk-top analysis of infiltration/inflow (I/I) in the Whitpain sewer system is routinely performed. The results of the I/I analysis are presented graphically in Figure 11. The analysis does not indicate an excessive I/I problem.

Whitpain internally televised sewers and made repairs to the sewers during 2005. These I/I abatement activities were reported on a quarterly basis to the ENPWJSA as part of a Corrective Action Plan that was implemented in response to a sewer connection prohibition imposed by the PADEP on the ENPWJSA.

Whitpain issued a contract in 2006 to internally televise roughly 32,000 feet of interceptor sewers ranging in size from 12-inch to 24-inch. Pursuant to that inspection contract, Whitpain issued a contract for over \$600,000 in sewer rehabilitation work that was completed in 2007 and 2008. As part of that rehabilitation contract, 4,975 feet of 8-inch collector sewers and 4,615 feet of interceptor sewers (12" to 24") were relined.

The I/I abatement program has been continued in subsequent years.

ANNUAL WASTELOAD MANAGEMENT REPORT LIST OF EXHIBITS

TABLES

Table 1	Summary of Sewer Connections according to Sewerage Service Areas
Table 2	Summary of Metered Whitpain Flows to ENPWJSA Plant during 2018
Table 3	Annual Whitpain Unit Flows to ENPWJSA Plant
Table 4	Annual Unit Flows to Pumping Stations and Meter Chambers
Table 5	Proposed Development in ENPWJSA Service Area

FIGURES

Figure 1	Past Sewer Connections
Figure 2	Capacity Analysis
Figure 3	Schematic of Pumping Stations and Meter Chambers
Figure 4	North Wales Road PS Flows
Figure 5	Whitpain Flows through Meters in 2018
Figure 6	Whitpain Daily Flows to ENPWJSA in 2018
Figure 7	Historic Whitpain Flows to ENPWJSA
Figure 8	Historic Flows through Meter Chambers
Figure 9	Trends in Unit Flow Rates
Figure 10	Past and Projected Whitpain Flows to ENPWJSA Plant
Figure 11	Infiltration/Inflow Analysis

EXHIBIT

Development Planning Map

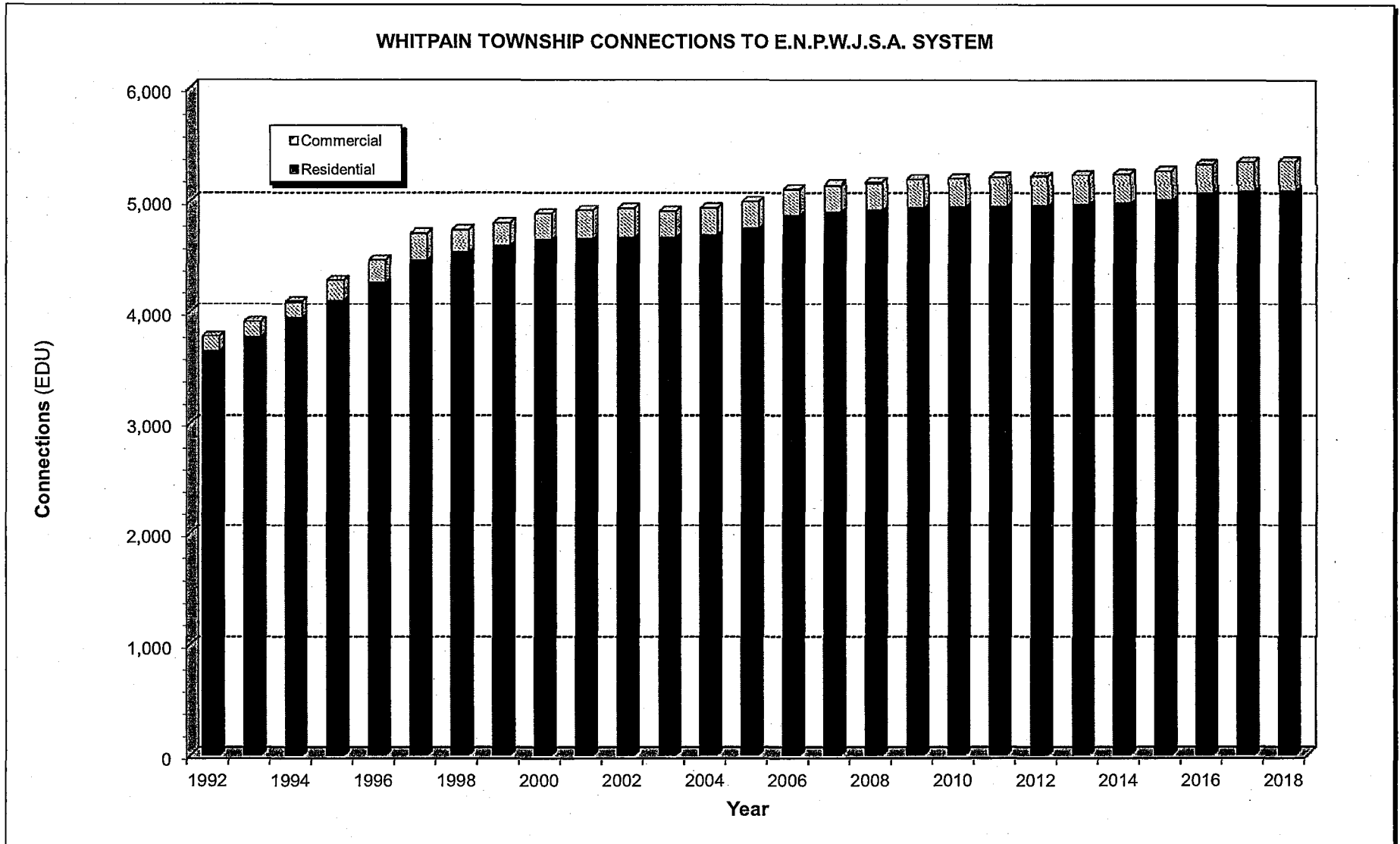


FIGURE 1: PAST SEWER CONNECTIONS

**TABLE 1
SUMMARY OF SEWER CONNECTIONS
ACCORDING TO E.N.P.W.J.S.A. SEWERAGE SERVICE AREAS**

Area No.	Sewerage Basin	No. of Units w/ Public Sewers														
		2014			2015			2016			2017			2018		
		Resid.	Comm.	Total	Resid.	Comm.	Total	Resid.	Comm.	Total	Resid.	Comm.	Total	Resid.	Comm.	Total
A	Twp. Line Road PS	3,202	93	3,293	3,229	93	3,320	3,285	93	3,376	3,306	93	3,397	3,310	93	3,401
B	Mermaid Run PS	1,512	82	1,594	1,512	82	1,594	1,512	82	1,594	1,512	82	1,594	1,512	82	1,594
C	Sheffield Dr. - Gravity	38	3	41	38	3	41	38	3	41	38	3	41	38	3	41
D	Walton Road Meter	197	21	218	197	21	218	200	21	221	200	21	221	200	21	221
E	Narcissa Road PS	35	0	35	35	0	35	35	0	35	36	0	36	36	0	36
E.N.P.W.J.S.A. TOTALS:																
	Connections	4,984	199	5,181	5,011	199	5,208	5,070	199	5,267	5,092	199	5,289	5,096	199	5,293
	EDU	4,984	1,997	6,981	5,011	1,997	7,008	5,070	1,997	7,067	5,092	1,997	7,089	5,096	1,997	7,093
	Estimated Avg. Flow (mgd) @ 300 gpd/EDU			2.094			2.102			2.120			2.127			2.128

Source: Whitpain Township GIS analysis

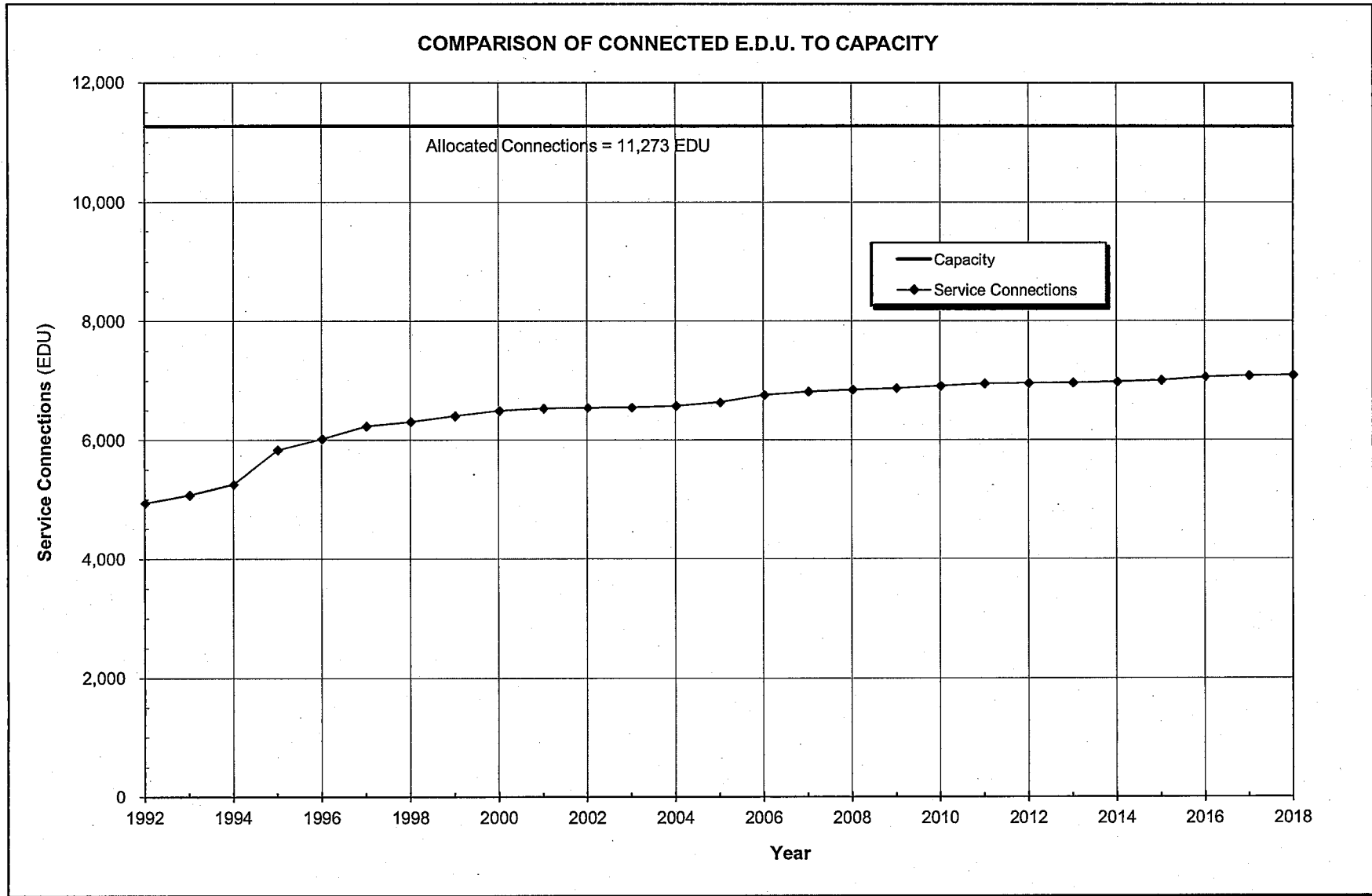


FIGURE 2: CAPACITY ANALYSIS

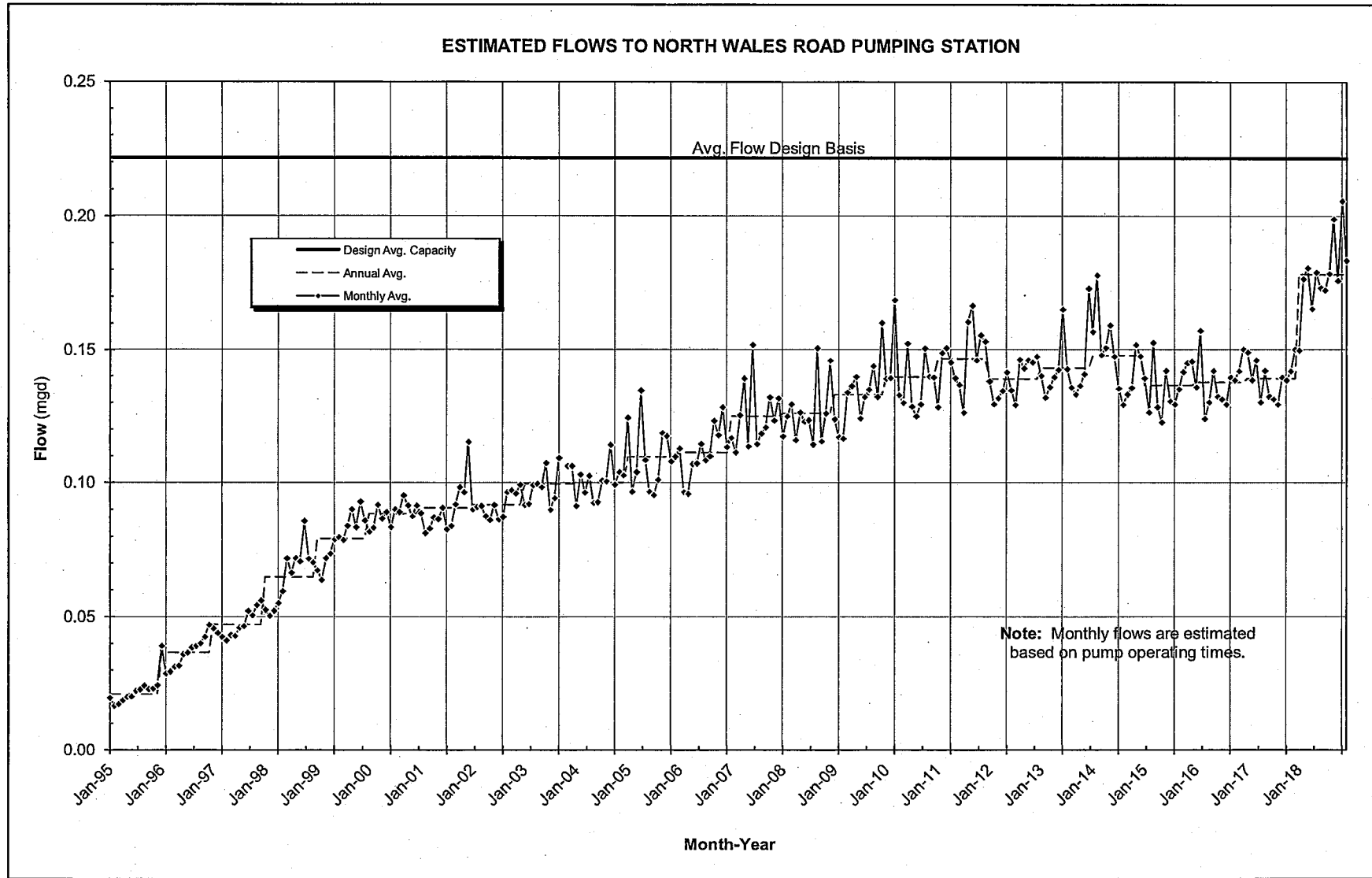


FIGURE 4: NORTH WALES ROAD P.S. FLOWS

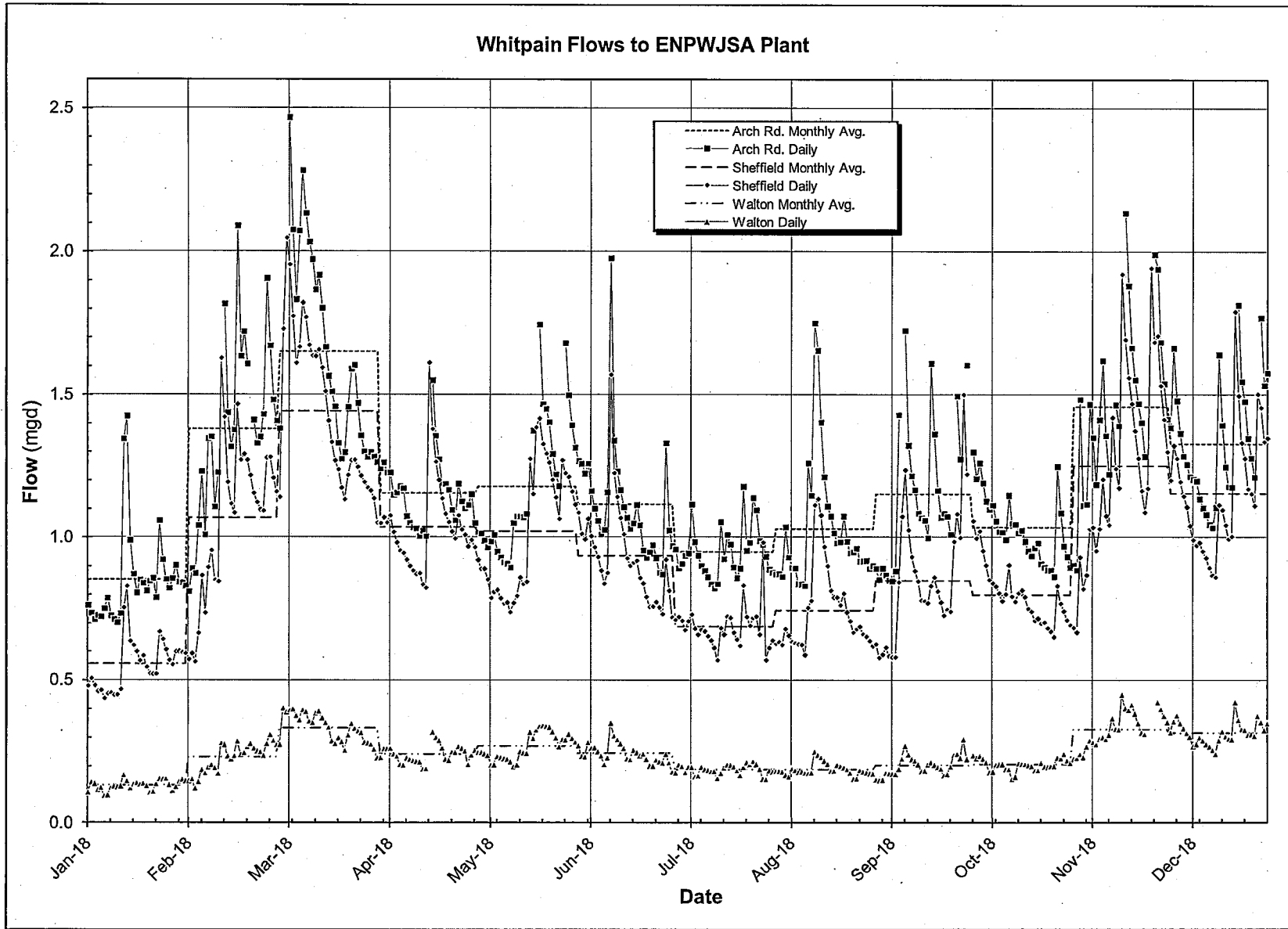


FIGURE 5: WHITPAIN FLOWS THRU METERS IN 2018

**TABLE 2
SUMMARY OF METERED WHITPAIN FLOWS
TO E.N.P.W.J.S.A. PLANT DURING 2018**

Month	Avg. Metered Flows (gpd)			
	Arch Road	Sheffield	Walton Rd	Total
Jan-18	0.853	0.556	0.133	1.541
Feb-18	1.380	1.068	0.230	2.579
Mar-18	1.649	1.442	0.332	3.317
Apr-18	1.152	1.034	0.241	2.381
May-18	1.175	1.020	0.269	2.351
Jun-18	1.114	0.934	0.244	2.292
Jul-18	0.948	0.685	0.188	1.821
Aug-18	1.028	0.743	0.188	1.959
Sep-18	1.149	0.847	0.203	2.080
Oct-18	1.033	0.798	0.205	2.036
Nov-18	1.458	1.249	0.328	2.808
Dec-18	1.327	1.153	0.316	2.707
Average	1.189	0.961	0.240	2.323
Max. Month	1.649	1.442	0.332	3.317
Ratio: Max/Avg	1.39	1.50	1.39	1.43
Max. 3-Month	1.394	1.181	0.283	2.759
Ratio: Max/Avg	1.17	1.23	1.18	1.19
Max. Daily	2.466	2.047	0.449	4.817
Ratio: Max/Avg	2.07	2.13	1.87	2.07

Source: ENPWJSA, flow meter records

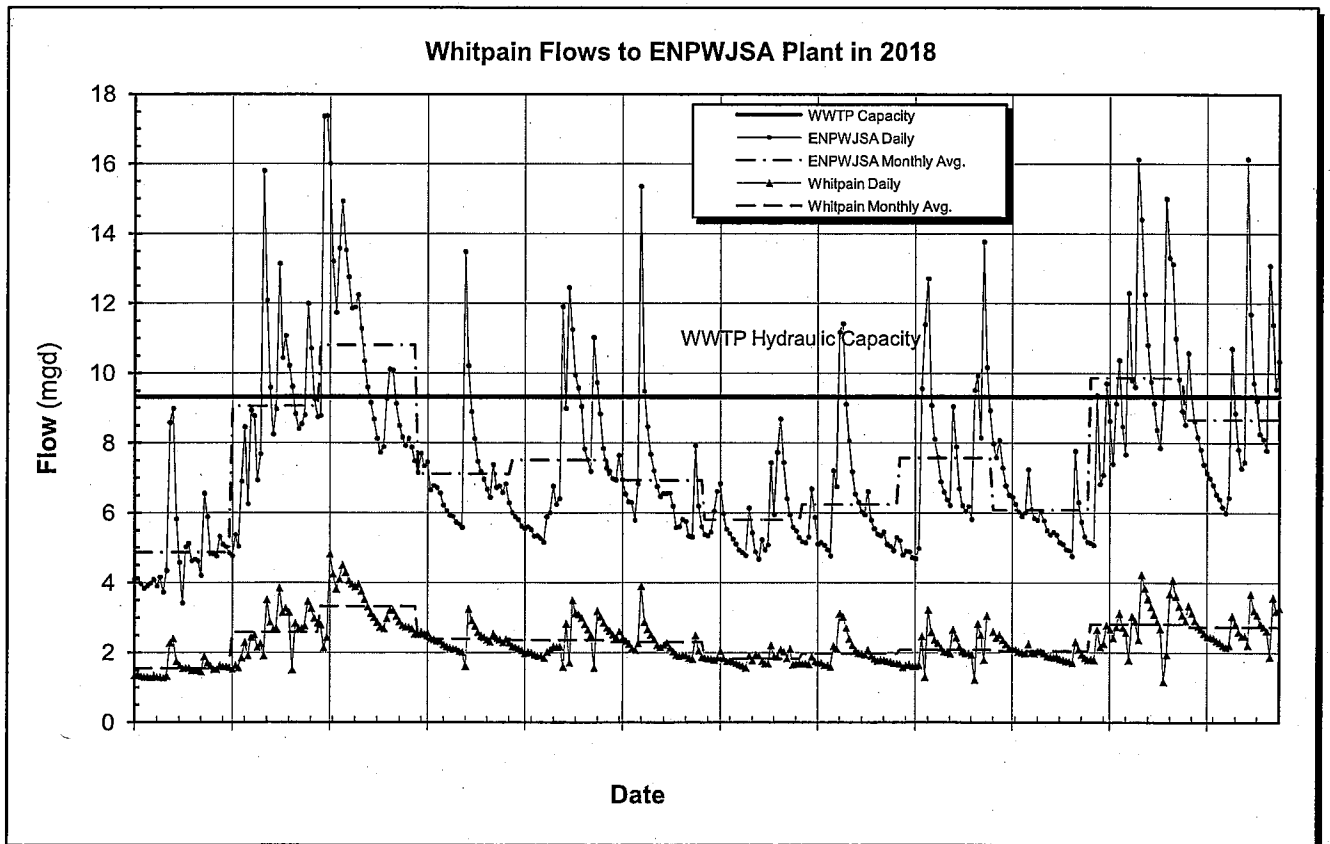
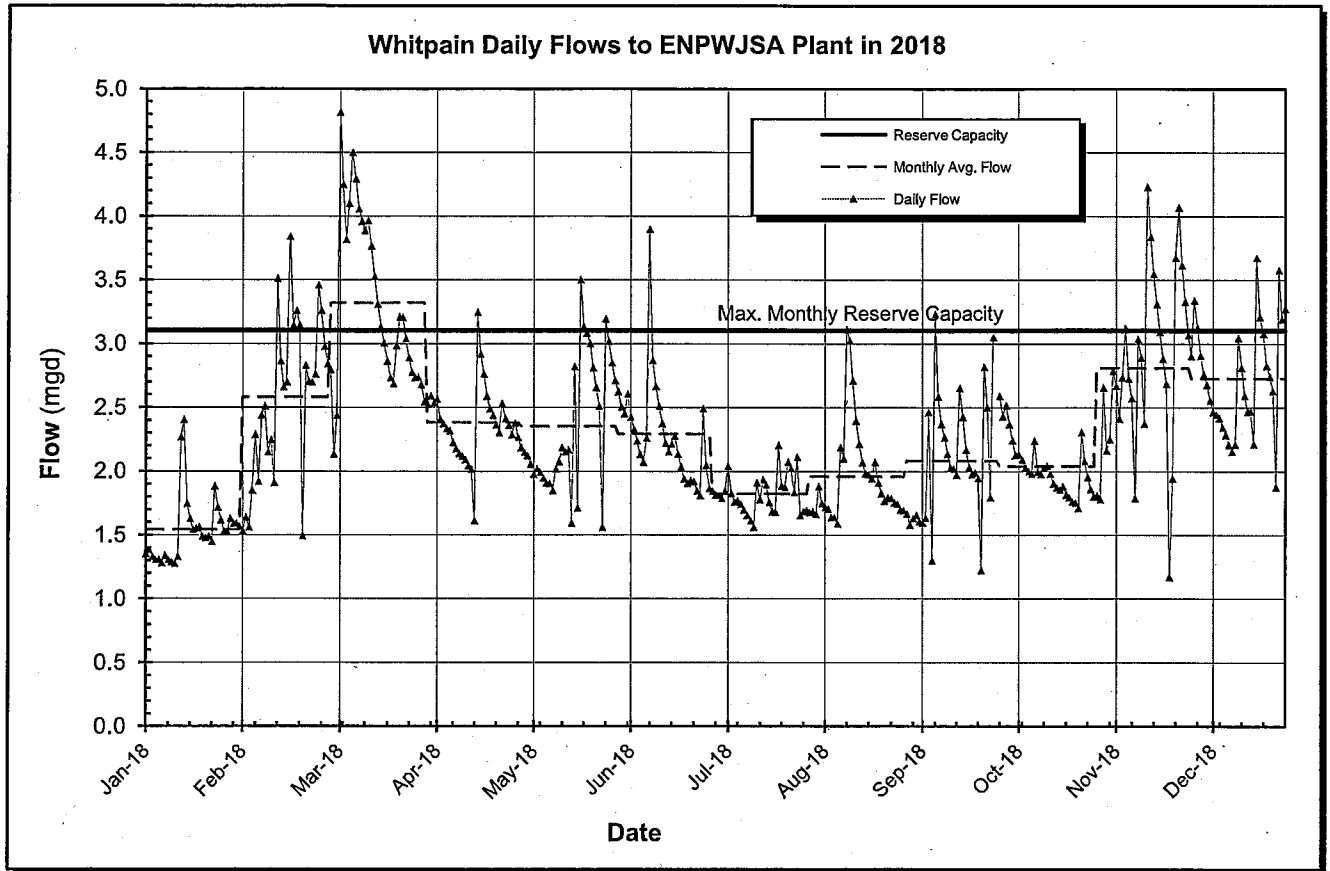


FIGURE 6: WHITPAIN DAILY FLOWS TO E.N.P.W.J.S.A. IN 2017

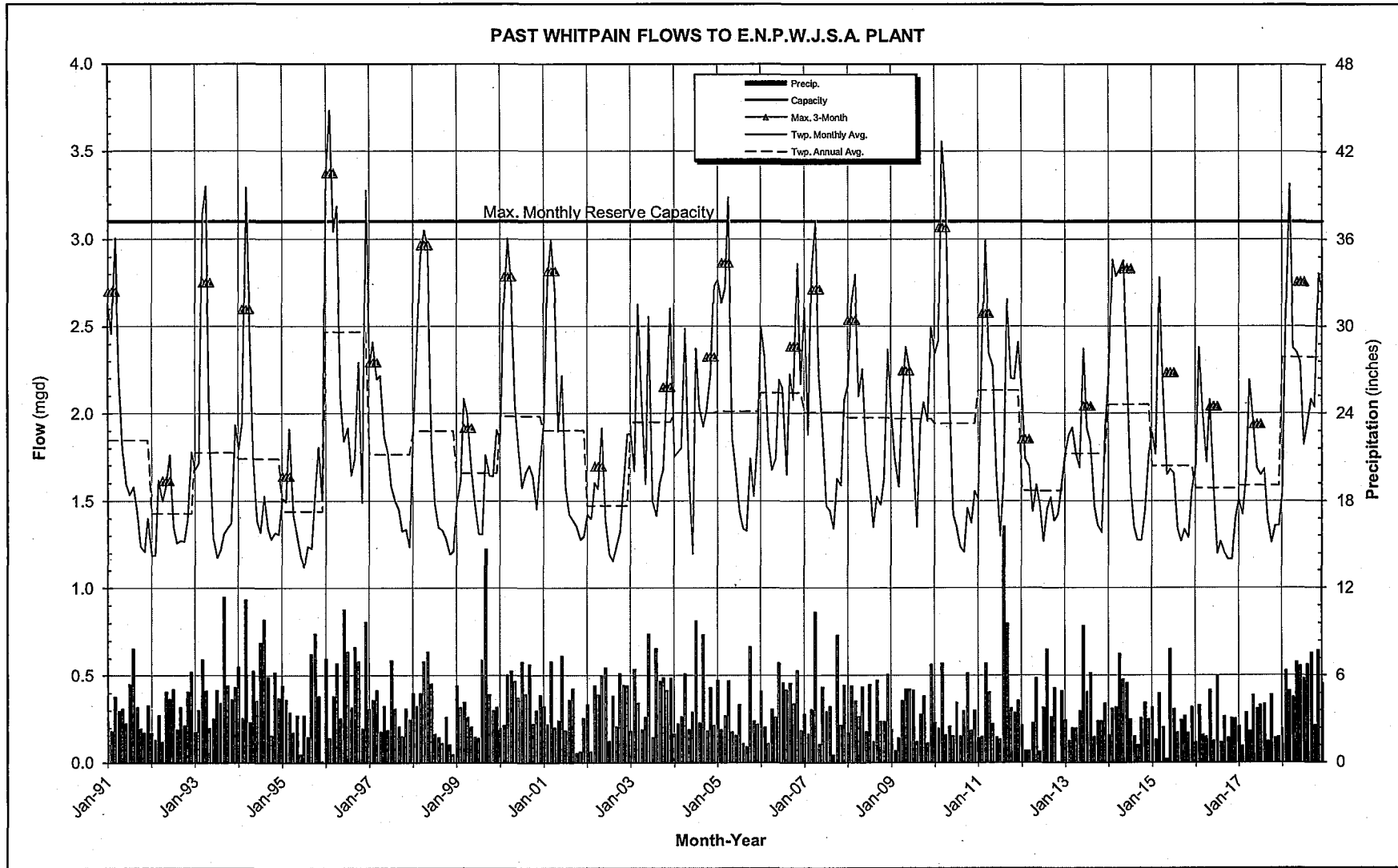


FIGURE 7: HISTORIC WHITPAIN FLOWS TO E.N.P.W.J.S.A.

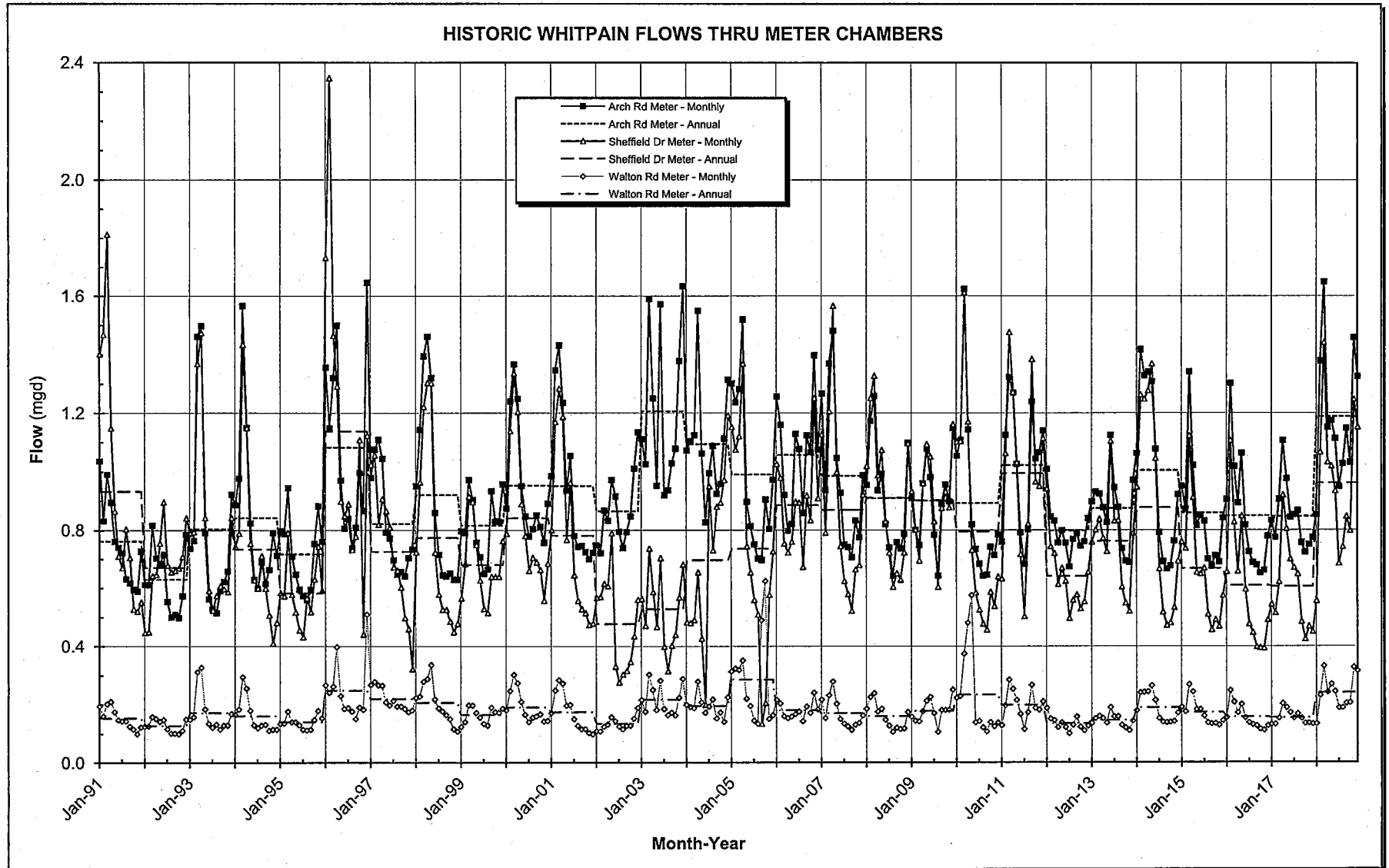


FIGURE 8: HISTORIC FLOWS THRU METER CHAMBERS

**TABLE 3
ANNUAL WHITPAIN UNIT FLOWS TO E.N.P.W.J.S.A. PLANT**

Year	Service Base (EDU)			Hydraulic Loadings					
				Average Flow			Max. 3-Month Flow		
				Total (mgd)	Unit Flow (gpd/EDU)		Total (mgd)	Unit Flow (gpd/EDU)	Peaking Factor
	Residential	Non-Resid	Total		Resid. only	Total			
Past Loadings									
2014	4,984	1,997	6,981	2,049	411	294	2,835	406	1.38
2015	5,011	1,997	7,008	1,698	339	242	2,234	319	1.32
2016	5,070	1,997	7,067	1,572	310	222	2,041	289	1.30
2017	5,092	1,997	7,089	1,591	312	224	1,939	274	1.22
2018	5,096	1,997	7,093	2,323	456	327	2,759	389	1.19
Average (1992-current)				1,859	400	287	2,409	373	1.29
Recent 5-Year Avg.				1,847	366	262	2,362	335	1.28
Projections									
2019	5,114	2,004	7,119	1,865			2,410		
2020	5,133	2,011	7,144	1,872			2,419		
2021	5,151	2,019	7,170	1,879			2,427		
2022	5,170	2,026	7,196	1,886			2,436		
2023	5,188	2,033	7,221	1,892			2,445		

- Notes:** (1) Projected Future Connections are based on growth rate of 0.4% per year based on past 5 years.
 (2) Projected future Average flows are based on the average unit flow for the past 5 years.
 (3) Projected future Maximum 3-Month flows are based on the long-term average Peaking Factor.

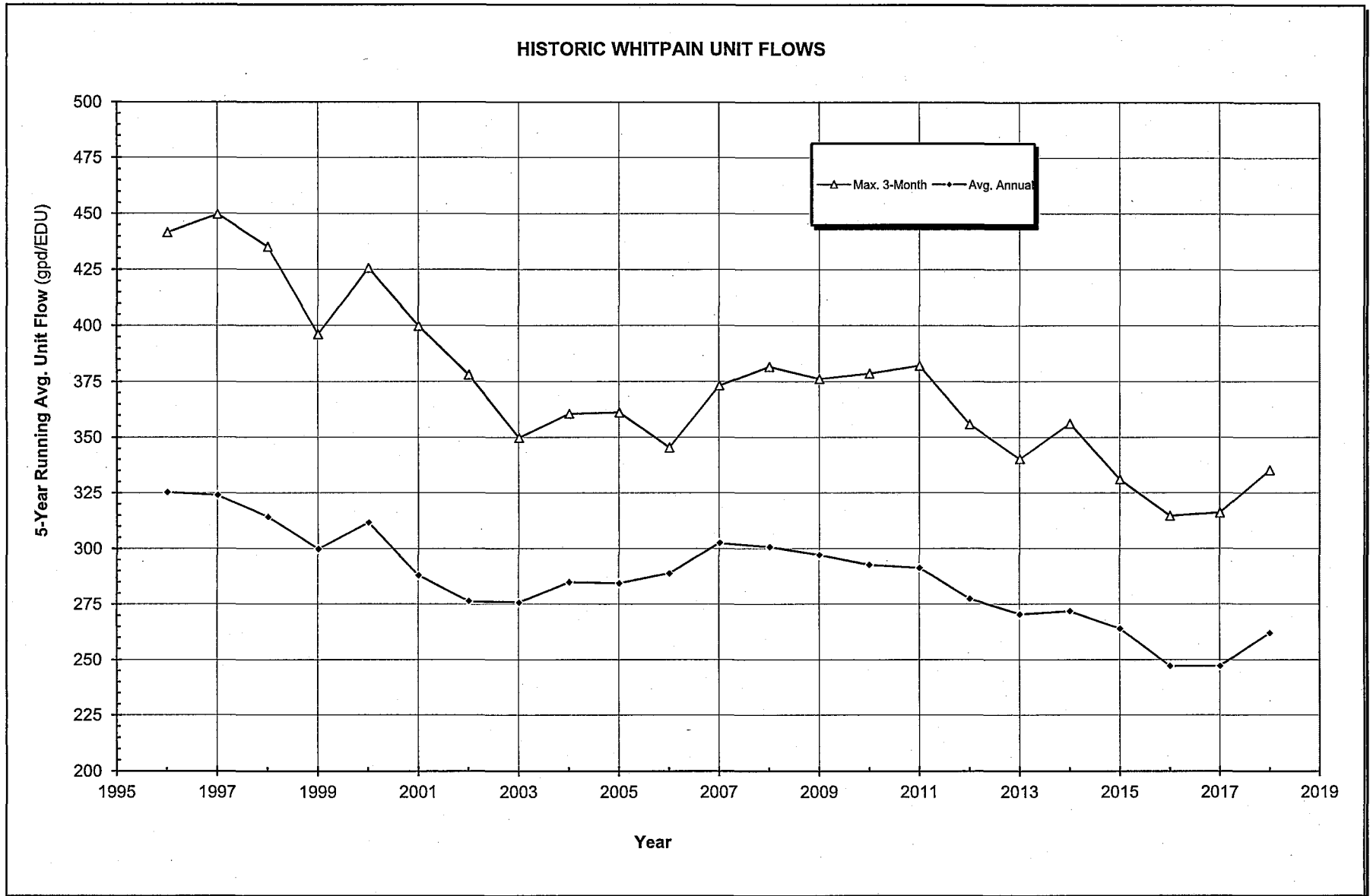


FIGURE 9: TRENDS IN UNIT FLOW RATES

**TABLE 4
ANNUAL UNIT FLOWS TO PUMPING STATIONS AND METER CHAMBERS**

Year	Service Base (EDU) Residential Total		Metered Hydraulic Loadings					Est. Peak Flow (gpm)
			Average Flow		Max. 3-Month Flow			
			Total (mgd)	Unit Flow (gpd/EDU)	Total (mgd)	Unit Flow (gpd/EDU)	Peaking Factor	
Township Line Pumping Station (Arch Road meter)								
2014	3,202	4,166	1.004	241	1.363	327	1.36	2,457
2015	3,229	4,193	0.859	205	1.079	257	1.26	2,236
2016	3,285	3,376	0.849	251	0.996	295	1.17	2,240
2017	3,306	3,397	0.847	249	0.996	293	1.18	1,835
2018	3,310	3,401	<u>1.189</u>	350	<u>1.394</u>	410	1.17	2,569
Long-term Avg. (1998-current)			0.951	247	1.175	305	1.24	
Recent 5-Year Average			0.949	259	1.165	316	1.23	2,267
2019		3,400	0.881		1.089			2,288
Design Pumping Capacity			1.460					3,750
North Wales Road Pumping Station								
2014	829	831	0.148	178	0.148	178	1.00	411
2015	841	843	0.137	162	0.137	162	1.00	380
2016	876	878	0.138	157	0.138	157	1.00	383
2017	879	881	0.139	158	0.139	158	1.00	387
2018	879	881	<u>0.179</u>	203	<u>0.179</u>	203	1.00	496
Long-term Avg. (1998-current)			0.120	155	0.127	164	1.06	
Recent 5-Year Average			0.148	171	0.148	171	1.00	411
2019		884	0.152		0.161			414
Design Pumping Capacity			0.222					615
Mermaid Run P.S. (Sheffield Drive meter)								
2014	1,550	2,242	0.876	391	1.299	579	1.48	2,805
2015	1,550	2,242	0.667	298	0.924	412	1.38	1,690
2016	1,550	2,242	0.608	271	0.865	386	1.42	1,729
2017	1,550	2,242	0.605	270	0.809	361	1.34	1,386
2018	1,550	2,242	<u>0.961</u>	429	<u>1.181</u>	527	1.23	2,133
Long-term Avg. (1998-current)			0.760	344	1.037	469	1.36	
Recent 5-Year Average			0.746	333	0.979	437	1.32	1,964
2019		2,258	0.752		1.026			1,978
Design Pumping Capacity			1.300					2,800
Walton Road meter								
2014	197	538	0.189	351	0.250	464	1.32	431
2015	197	538	0.173	322	0.231	429	1.33	351
2016	200	541	0.157	290	0.209	386	1.33	364
2017	200	541	0.154	285	0.187	346	1.21	275
2018	200	541	<u>0.240</u>	443	<u>0.283</u>	523	1.18	468
Long-term Avg. (1998-current)			0.184	349	0.240	454	1.29	
Recent 5-Year Average			0.183	338	0.232	430	1.28	378
2023		551	0.186		0.241			381

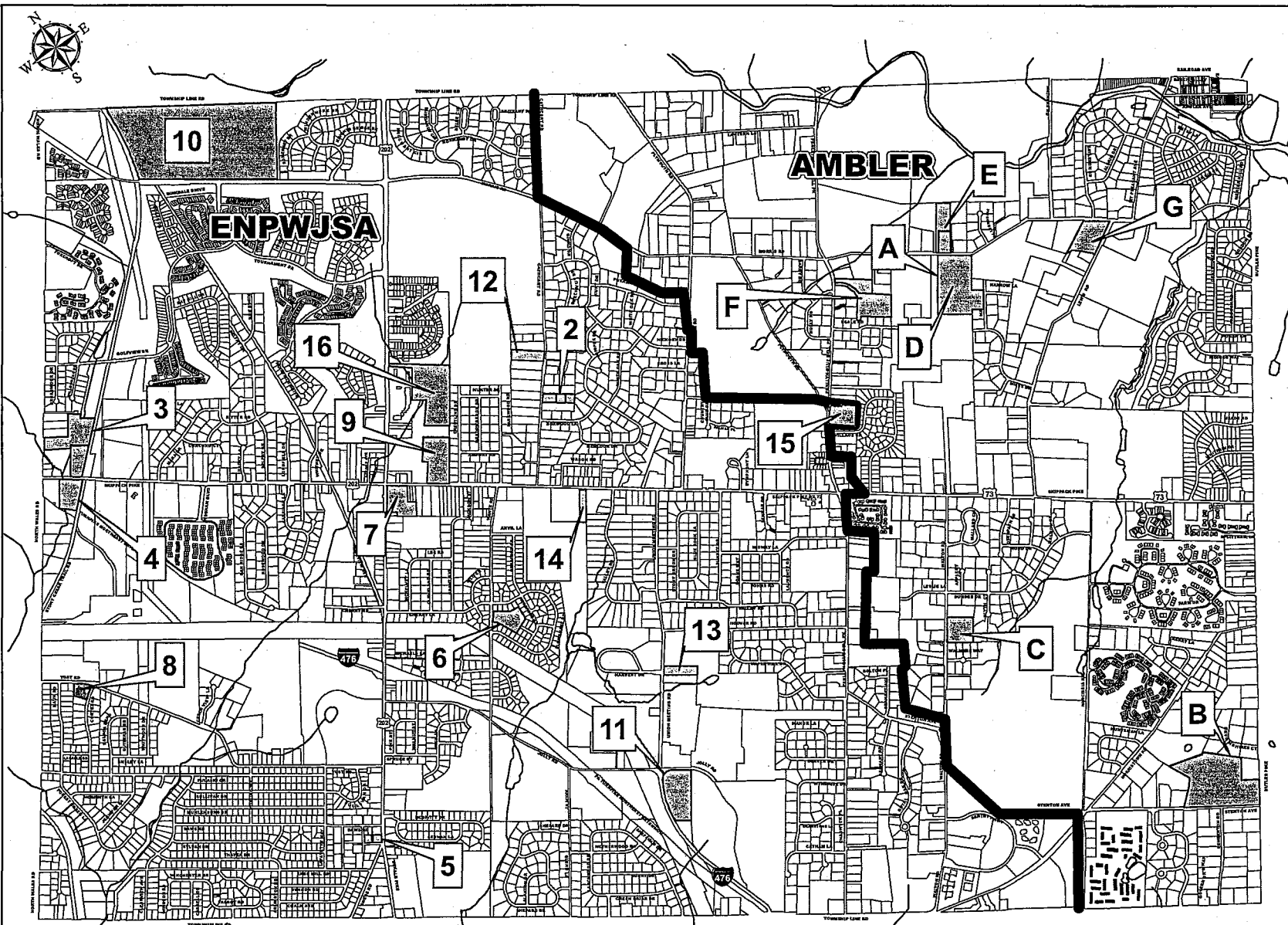
Notes: (1) Future Connections are projected on growth of 0.4% per year based on past 5 years.

**TABLE 5
PROPOSED DEVELOPMENT IN E.N.P.W.J.S.A. SERVICE AREA**

Development/Name	Location	Service Connections		Stage of Sewers
		Quant.	Type (EDU)	
2 Breen tract	688 Cathcart Road	3	single family units (1 exist. + 2 proposed)	2 Construction
3 Deer Hollow (Kowalski tract)	Skippack Pike (PA Route 73), east of North Wales Road	30	single family units	30 Construction
4 Gambone tract	1950 Skippack Pike (PA Route 73), east of North Wales Road	21,600	SF office bldg.	13 Planning (on hold)
5 Kendrick Hill	1651 DeKalb Pike (Route 202), at Swede Street	17,750	SF 3-story office building	11 Planning (on hold)
6 Silver Lake Manor	1220 Wentz Road	9	single family units (1 exist. + 8 proposed)	8 Prelim. Plan (on hold)
7 Centre Square Commons	DeKalb Pike (Route 202), and Skippack Pike (Route 73)	114,900	SF commercial buildings (7)	151 Construction
8 1902 Yost Rd.	1902 Yost Road	3	single family units (1 exist. + 2 proposed)	2 Construction
9 1301 Skippack Pike	1301 Skippack Pike		bank building	1 Planning
10 Normandy Farms Estates Phase 2	9000 Twin Silo Drive (Morris Road west of DeKalb Pike)	21	dwelling units and nursing care bldg. addn.	21 Construction
11 AVE Blue Bell	1600 Union Meeting Road	270	corporate rental suites (39 exist. + 173 new)	173 Construction
12 637 Cathcart Road	637 Cathcart Road	2	single family units (1 exist. + 1 new)	1 Construction
13 Kids Konnect Daycare	1302 Union Meeting Road	3,846	SF bldg. addition	5 Construction
14 1030 Skippack Pike	1030 Skippack Pike	3	single family units (1 exist. + 2 new)	2 Construction
15 740 Penllyn Blue Bell Pike	740 Penllyn Blue Bell Pike	7	single family units (2 exist. + 5 new)	5 Planning
16 Beachcomber Redevelopment	652 Skippack Pike		Existing swim club to 32 residential units	31 Planning
				457

Notes:

- 1 See accompanying exhibit for location of known developments.
- 2 Several developments will connect to existing sewers and will not require sewer extensions.



WHITPAIN TOWNSHIP

Proposed Land Developments

- (2) Breen Tract
- (3) Deer Hollow (Kowalski Tract)
- (4) Gambone Tract
- (5) Kendrick Hill
- (6) Silver Lake Manor
- (7) Centre Square Commons
- (8) 1902 Yost Road
- (9) 1301 Skippack Pike
- (10) Normandy Farms Estates Phase 2
- (11) AVE Blue Bell
- (12) 637 Cathcart Road
- (13) Kidz Konnect Daycare
- (14) 1030 Skippack Pike
- (15) 740 Penilyn Blue Bell Pike
- (16) Beachcomber Redevelopment

- (A) Genuardi Tract
- (B) Oak Lane Estates
- (C) 1218 Walton Road
- (D) 450 Morris Road Subdivision
- (E) 499 Morris Road Subdivision
- (F) 490 Penilyn Blue Bell Pike Subdivision
- (G) 353 Lewis Lane

APPROVED & PRELIMINARY PLANNING MAP



1:21,000

Last Revised: 3/7/19

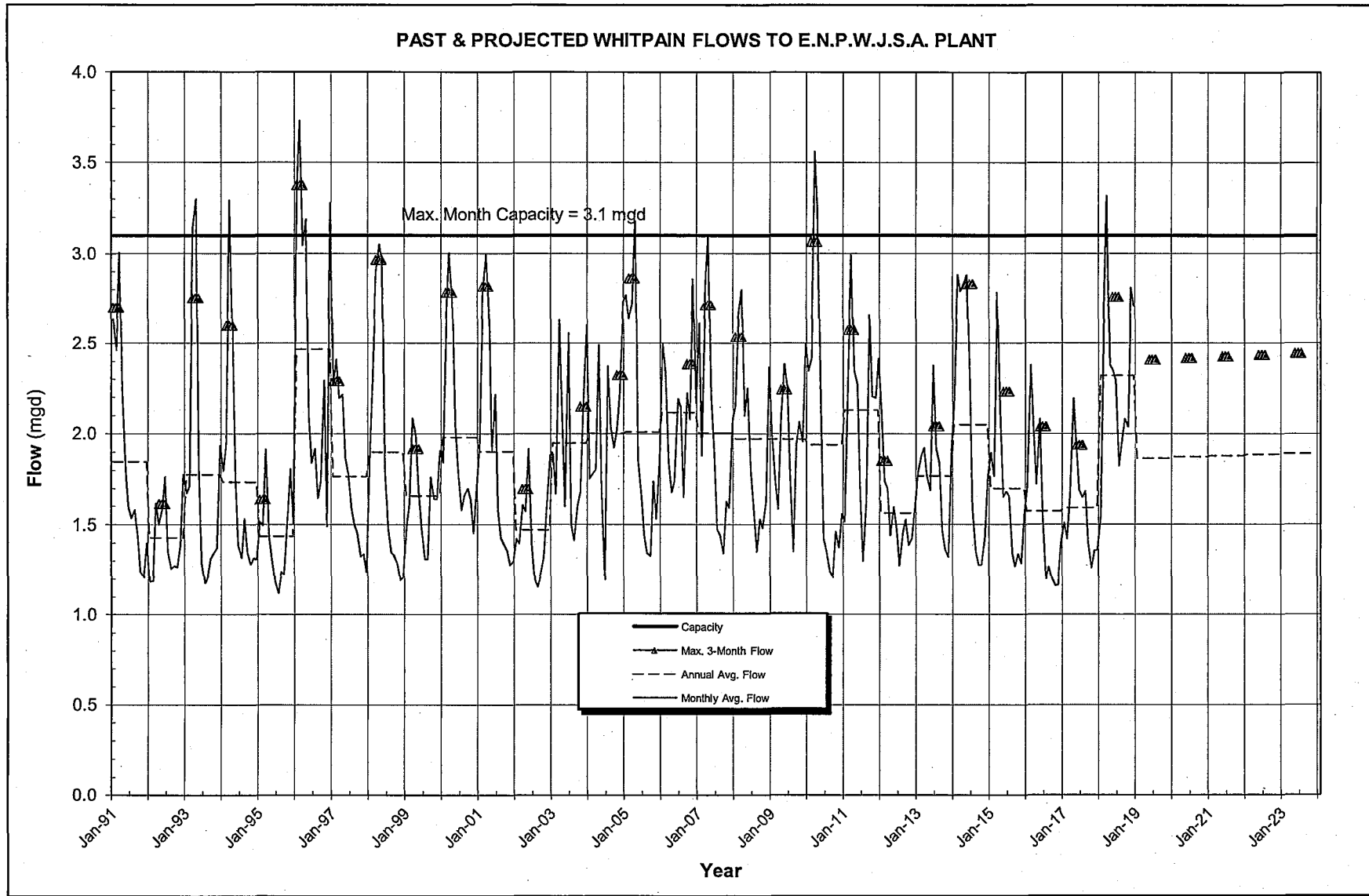


FIGURE 10: PAST AND PROJECTED WHITPAIN FLOWS TO E.N.P.W.J.S.A. PLANT

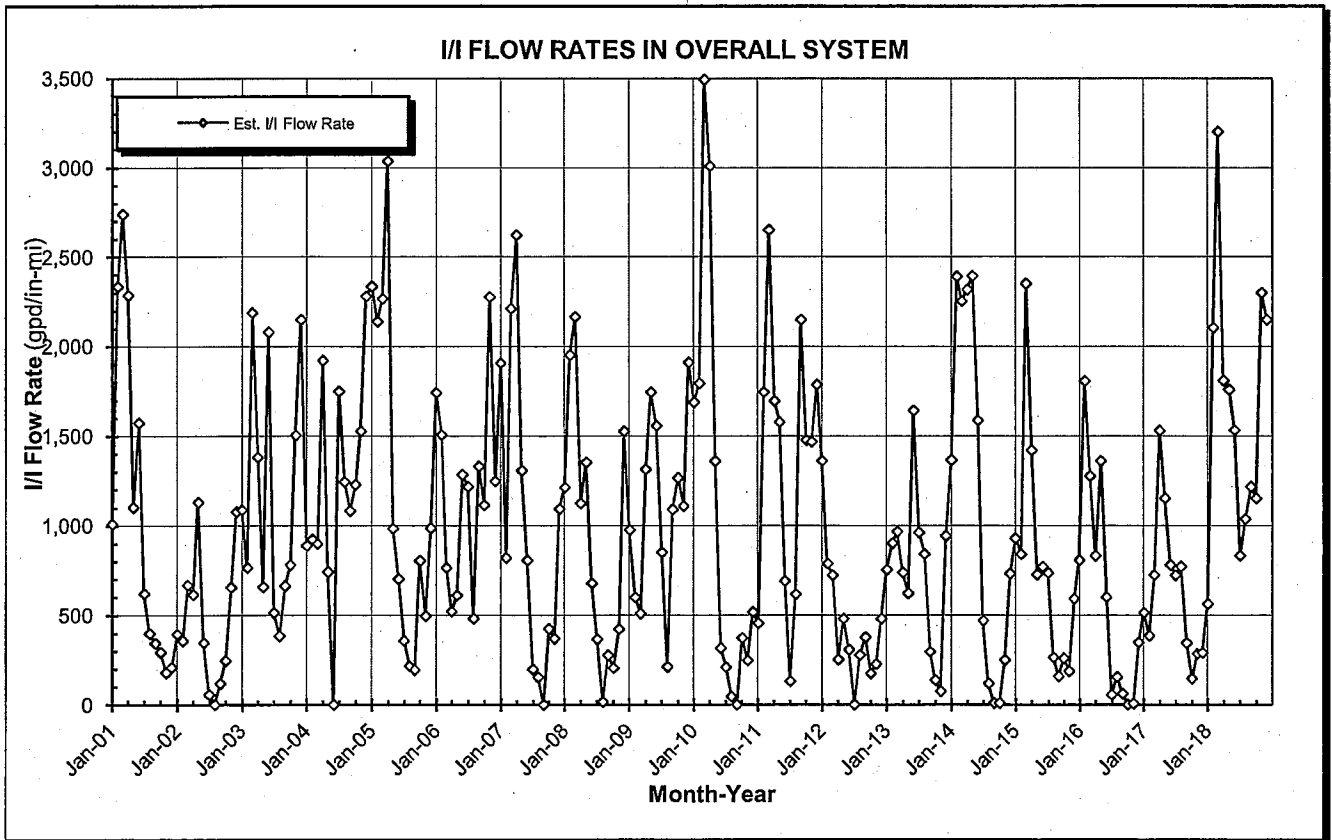
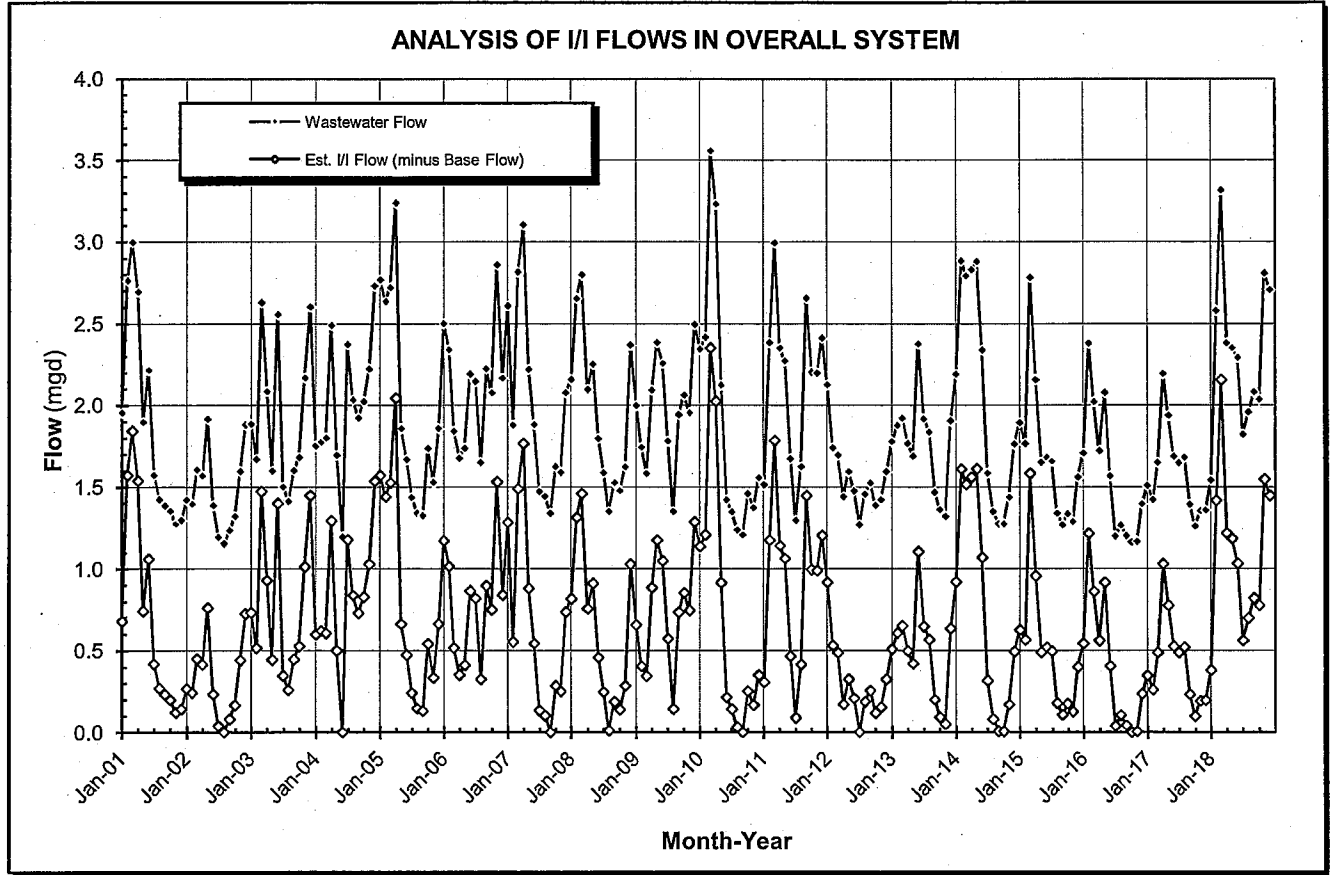


FIGURE 11: INFILTRATION/INFLOW ANALYSIS

Appendix F

2018 Annual Pretreatment Summary

Pretreatment Performance Summary

I. General Information

Control Authority Name: East Norriton-Plymouth-Whitpain Joint Sewer Authority
Address: 200 Ross Street
City: Plymouth Meeting **State:** PA **Zip:** 19462-1125
Contact Person: Glenn DeBernardi
Contact Title: Lab Manager / MIPP Coordinator
Contact Telephone Number: (610) 279-5759
E-mail address: EPWLAB@ENPWJSA.ORG
NPDES Permit Number: PA0026816
Permit Issuance Date: November 1, 2017 **Expiration Date:** October 31, 2022
Reporting Period: January 1, 2018 to December 31, 2018
Total Categorical IUs (CIUs): 0
Total "Middle Tier" CIUs (MTCIUs): 0
Total Nonsignificant CIUs (NSCIUs): 0
Total Significant NonCategorical IUs (SNIUs): 0

II. Compliance Monitoring Program

1. No. of SIUs with Current Control Documents _____ 0
2. No. of SIU Facilities Inspected _____ 0
3. No. of SIU Facilities Sampled _____ 0
4. No. of SIUs Submitting Self-Monitoring Reports _____ 0

III. Significant Industrial User Compliance

1. No. of SIUs Violating a Compliance Schedule/No. on a Schedule _____ 0/0
2. No. of SIUs in SNC for the July to December Period _____ 0
3. No. of SIUs in SNC at Any Time During Calendar Year _____ 0
4. No. of SIUs in SNC That Were Also in SNC the Previous Year _____ 0
5. No. of NSCIUs that violated any standards or requirements _____ 0

IV. Enforcement Actions

1. Notices/Letters of Violation Issued to SIUs _____ 0
2. Enforceable Compliance Schedules Issued to SIUs _____ 0
3. Civil/Criminal Suits Filed _____ 0
4. No. of SIUs From Which Penalties Have Been Collected _____ 0
5. Other Actions (sewer bans, etc.) _____ 0

I certify that the information contained in this report and attachments is complete and accurate to the best of my knowledge.

Timothy A. Boyd.
Name of Authorized Representative

[Signature]
Signature

Executive Director
Title

1/31/2019
Date

East Norriton-Plymouth-Whitpain Joint Sewer Authority
Municipal Industrial Pretreatment Program 2018 Annual Report

The East Norriton-Plymouth-Whitpain Joint Sewer Authority (ENPWJSA) Municipal Industrial Pretreatment Program (MIPP) was approved by the United States Environmental Protection Agency in July 1985. This annual report contains information concerning the administration of the MIPP from January 1 to December 31, 2018.

The 2018 report is presented in a format that provides all the required information from the Approval Authority and to include all program changes that have been approved within the last calendar year.

Attachments for Section I

Categorical Users and Applicable Category

East Norriton Township
None

Plymouth Township
None

Whitpain Township
None

Significant Non-Categorical Users

East Norriton Township
None

Plymouth Township
None

Whitpain Township
None

Changes "Additions/Deletions"

East Norriton Township
None

Plymouth Township
None

Whitpain Township
None

Attachments for Section III

Industrial Users in SNC

No industries were in SNC this reporting period. No industries were in SNC both this reporting year and last reporting year. There are no users designated as Nonsignificant CIU's. No SIU's are on a compliance schedule.

Attachments for Section IV

Enforcement Actions

No notice of violations were issued in 2018. No other enforcement actions have been taken this reporting period.

Part B - Pretreatment Developments

Section I: Summary of POTW Operations

- 1) In 2018, the plant experienced no permit violations.
- 2) During 2018 the ENPWJSA conducted monthly sampling and analysis for toxic and incompatible pollutants in the treatment plant's influent and effluent and once every two months in our sludge. Furthermore, the ENPWJSA conducted a priority pollutant scan on the treatment plant's influent, effluent and sludge as well as PCB and WET testing of our effluent. The results of the priority pollutant analyses accompany this report. We experienced no influent, effluent or sludge goal exceedances in 2018.
- 3) During 2018, the ENPWJSA did not accept any hauled wastewater or industrial wastewater.
- 4) In 2019, we will be sending out questionnaires to all the dentists in our service area who fall under the promulgated dental regulations.

Section II: Pretreatment Program Changes

As of the date of this report, there are no industrial users (either categorical or significant) discharging to the ENPWJSA however, we will be keeping our pretreatment program active.

Section III: Miscellaneous Developments

None.

Facility Name:	E NORRITON-PLYMOUTH TREATMENT														
Facility ID:	PAP026816														
Location:	INFLUENT														
	UNITS:	MG/L													
	Pollutant	Goals	Frequency	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
				1/10/2018	2/13/2018	3/6/2018	4/4/2018	5/9/2018	6/13/2018	7/11/2018	8/15/2018	9/12/2018	10/18/2018	11/14/2018	12/12/2018
01002		0.0129	4	0.0007	0.0005	0.0005	<.0002	0.0006	0.0003	0.0007	0.0009	0.0005	<.001	0.0005	0.0004
00310		308.891	0	208	135	101	149	158	162	163	156	145	161	112	137
01027		0.0083	4	<.0001	<.0001	<.0001	<.0001	<.0001	0.0001	0.0002	<.0002	<.0002	0.0002	<.0002	<.0002
01034		0.3425	4	0.0023	0.0012	0.0035	0.0014	0.0029	0.0019	0.0028	0.0018	0.0012	0.0014	0.0014	0.0015
01042		0.2	4	0.078	0.03	0.031	0.04	0.082	0.053	0.092	0.033	0.047	0.061	0.036	0.061
00720		0.0209	4	0.007	<.004	<.004	0.007	<.004	0.007	<.004	<.004	<.004	0.006	<.004	<.004
01051		0.0631	4	0.003	0.001	<.001	0.002	0.003	0.003	0.003	0.001	0.002	0.002	0.003	0.003
71900		0.0029	4	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002
01062		0.0214	4	0.002	0.002	0.001	0.001	0.002	0.002	0.002	0.001	0.001	0.002	0.001	0.002
01067		0.2907	4	0.0064	0.0063	0.0048	0.005	0.0061	0.0048	0.0059	0.0034	0.0034	0.0038	0.0032	0.0044
00610		50.3053	0	24.3	13.4	10.7	16.5							12.7	15
00611		30.7208	0					16	16.2	17.7	17.4	16.3	19.1		
01147		0.0284	4	0.002	0.001	0.001	0.001	0.002	0.001	0.002	<.001	<.001	<.001	<.001	<.001
01077		0.2197	4	0.0002	0.0003	<.0001	0.0002	0.0003	0.0003	0.0003	<.0002	<.0002	0.0004	<.0002	0.0003
00530		304.5327	0	230	153	115	161	201	201	222	201	194	205	144	186
01092		0.448	4	0.201	0.069	0.066	0.092	0.178	0.099	0.177	0.058	0.089	0.153	0.073	0.137

Facility Name:	E NORRITON-PLYMOUTH TREATMENT														
Facility ID:	PAP026816	UNITS: MG/L													
Location:	EFFLUENT														
	Pollutant	Goals	Frequency	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
				1/10/2018	2/13/2018	3/6/2018	4/4/2018	5/9/2018	6/13/2018	7/11/2018	8/15/2018	9/12/2018	10/18/2018	11/14/2018	12/12/2018
01002	ARSENIC- TOTAL	0.3589	4	0.0005	0.0007	0.0004	<.0002	0.0003	0.0005	0.0003	0.0008	0.0005	<.001	0.0004	0.0002
00310	BOD- 5-DAY	No Goal	0												
01027	CADMIUM- TOTAL	0.0162	4	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0002	<.0002	<.0002
01034	CHROMIUM- TOTAL	Monitor	4	0.0014	0.0011	0.002	0.0011	0.0015	0.0011	0.0014	0.0011	<.0010	<.0010	<.0010	<.0010
01042	COPPER- TOTAL	0.1624	4	0.023	0.012	0.017	0.02	0.022	0.021	0.018	0.013	0.016	0.013	0.013	0.017
00720	CYANIDE- TOTAL	0.133	4	<.004	<.004	<.004	0.012	<.004	0.007	<.004	<.004	<.004	0.007	0.011	<.004
01051	LEAD- TOTAL	0.276	4	<.001	<.001	<.001	<.001	<.001	0.001	<.001	<.001	<.001	<.001	<.001	<.001
71900	MERCURY- TOTAL	0.0018	4	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002	<.0002
01062	MOLYBDENUM- TOTAL	Monitor	4	0.001	0.003	0.0009	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.001	0.001
01067	NICKEL- TOTAL	3.3654	4	0.0053	0.0048	0.0048	0.0045	0.0047	0.0037	0.0045	0.0026	0.0026	0.0028	0.0023	0.003
00610	NITROGEN- AMMONIA	20.0014	0												
00611	NITROGEN- AMMONIA-SUMMER	11.9995	0												
01147	SELENIUM- TOTAL	0.1795	4	0.001	0.002	0.001	0.001	0.002	0.001	0.002	<.001	<.001	<.001	<.001	<.001
01077	SILVER- TOTAL	0.0753	4	<.0001	0.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0002	<.0002	<.0002	<.0002	<.0002
00530	SOLIDS- TOTAL SUSPENDED	No Goal	0												
01092	ZINC- TOTAL	1.3013	4	0.079	0.042	0.049	0.053	0.061	0.044	0.045	0.03	0.041	0.037	0.027	0.043

Facility Name:	E NORRITON-PLYMOUTH TREATMENT													
Facility ID:	PAP026816	UNITS: MG/KG												
Location:	SLUDGE	DRY/WT												
	Pollutant	Goals	Frequency	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Date
				1/10/2018		3/6/2018		5/9/2018		7/11/2018		9/12/2018	10/18/2018	11/14/2018
01002	ARSENIC- TOTAL	41	4	0.7		1.37		2.8		1.64		1.52	<.50	1.9
00310	BOD- 5-DAY	No Goal	0											
01027	CADMIUM- TOTAL	39	4	<1.00		0.608		2.46		1.5		0.818	2.16	1.04
01034	CHROMIUM- TOTAL	28355	4	8.32		8.63		20.7		11.4		8.55	13.4	10.7
01042	COPPER- TOTAL	1500	4	520		449		907		776		640	1050	836
00720	CYANIDE- TOTAL	Monitor	4	10		5.6		12		4.8		1.8	1.3	0.73
01051	LEAD- TOTAL	300	4	22.2		19.2		48.7		23.8		34.5	43.5	35.1
71900	MERCURY- TOTAL	17	4	0.424		0.429		2.19		0.354		0.561	0.438	0.603
01062	MOLYBDENUM- TOTAL	75	4	4.5		4.56		4.69		5.97		5.77	9.61	8.05
01067	NICKEL- TOTAL	420	4	7.79		11.9		31.1		16.3		12.2	18	13.9
00610	NITROGEN- AMMONIA	No Goal	0											
00611	NITROGEN- AMMONIA-SUMMER	No Goal	0											
01147	SELENIUM- TOTAL	100	4	2.1		1.73		2.09		2.37		1.34	0.79	2.49
01077	SILVER- TOTAL	Monitor	4	1.99		2.01		0.329		2.16		2.44	3.56	3.5
00530	SOLIDS- TOTAL SUSPENDED	No Goal	0											
01092	ZINC- TOTAL	2800	4	782		704		2110		1240		1100	1870	1230



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 8031549
Report: 11/06/18
Lab Contact: Twila Dixon

Attention: Glenn DeBernardi
Reported To: East Norriton Plymouth Whitpan Joint Sewer Auth
200 Ross Street
Plymouth Meeting, PA 19462

Project Info: 1134- Annual Priority Pollutant Scan

Lab ID: 8031549-01 **Collected By:** Client
Sample Desc: Effluent- Composite

Sampled: 10/18/18 05:20 **Received:** 10/18/18 14:35
Sample Type: Composite

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
General Chemistry							
Nitrogen, Total Kjeldahl (TKN)	5.84	mg/l	0.50	EPA 351.2	10/24/18		CPR
Organics							
4,4'-DDD	<0.06	ug/l	0.06	EPA 608	10/26/18	O-12	TWH
4,4'-DDE	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
4,4'-DDT	<0.06	ug/l	0.06	EPA 608	10/26/18	O-12	TWH
Aldrin	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Alpha-BHC	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Alpha-Chlordane	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Beta-BHC	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Chlordane (technical)	<0.56	ug/l	0.56	EPA 608	10/26/18		TWH
Delta-BHC	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Dieldrin	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endosulfan I	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endosulfan II	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endosulfan Sulfate	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endrin	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endrin Aldehyde	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Gamma-Chlordane	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Heptachlor	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Heptachlor Epoxide	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Lindane	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
PCB-1016	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1221	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1232	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1242	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1248	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1254	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1260	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-01 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Organics							
Toxaphene	<0.56	ug/l	0.56	EPA 608	10/26/18	O-13b	TWH
Semivolatiles							
1,2-Diphenylhydrazine (as Azobenzene)	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
2,2'-Oxybis(1-Chloropropene)	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
2,4,6-Trichlorophenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
2,4-Dichlorophenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
2,4-Dimethylphenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
2,4-Dinitrophenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
2,4-Dinitrotoluene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
2,6-Dinitrotoluene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
2-Chloronaphthalene	<6.0	ug/l	6.0	EPA 625	10/23/18	O-20	MEB
2-Chlorophenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
2-Nitrophenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
3,3'-Dichlorobenzidine	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
4,6-Dinitro-o-cresol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
4-Bromophenyl Phenyl Ether	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
4-Chloro-3-Methylphenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
4-Chlorophenyl phenyl ether	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
4-Nitrophenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Acenaphthene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Acenaphthylene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Anthracene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Benzidine	<60.2	ug/l	60.2	EPA 625	10/23/18		MEB
Benzo(a)anthracene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Benzo(a)pyrene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Benzo(b)fluoranthene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Benzo(ghi)perylene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Benzo(k)fluoranthene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Bis(2-chloroethoxy)methane	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Bis(2-Chloroethyl)ether	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Bis(2-Ethylhexyl)phthalate	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Butyl Benzyl Phthalate	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Chrysene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Dibenzo(a,h)anthracene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Diethyl Phthalate	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Dimethyl Phthalate	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB



107 Angelica Street • Reading, PA 19611 • www.mjreider.com • (610) 374-5129 • fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-01 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Semivolatiles							
Di-n-butyl Phthalate	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Di-n-octyl Phthalate	<6.0	ug/l	6.0	EPA 625	10/23/18	O-21	MEB
Fluoranthene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Fluorene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Hexachlorobenzene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Hexachlorocyclopentadiene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Hexachloroethane	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Indeno(1,2,3-cd)pyrene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Isophorone	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Nitrobenzene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
N-Nitrosodimethylamine	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
N-Nitrosodi-n-propylamine	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
N-Nitrosodiphenylamine	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Pentachlorophenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Phenanthrene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Phenol	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Pyrene	<3.0	ug/l	3.0	EPA 625	10/23/18		MEB
Semivolatiles - Tentatively Identified Compounds (TICs) - All results estimated							
No TICs Found	<40.0	ug/l		EPA 625	10/23/18		MEB
Total Metals							
Antimony	<0.003	mg/l	0.003	EPA 200.8 Rev 5.4	10/23/18		MPB
Arsenic	<0.001	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Beryllium	<0.0010	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Cadmium	<0.0002	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Chromium	<0.0010	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Copper	0.013	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Lead	<0.001	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Mercury	<0.0002	mg/l	0.0002	EPA 245.1 Rev 3.0	10/19/18		KED
Molybdenum	0.001	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Nickel	0.0028	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Selenium	<0.001	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Silver	<0.0002	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Thallium	<0.001	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Zinc	0.037	mg/l	0.005	EPA 200.7 Rev 4.4	10/25/18		RES



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-02 **Collected By:** Client **Sampled:** 10/18/18 05:40 **Received:** 10/18/18 14:35
Sample Desc: Effluent - Grab **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
General Chemistry							
Cyanide	0.007	mg/l	0.004	Lachat 10-204-00-1X	10/23/18		CPR
Cyanide, Free	0.008	mg/l	0.004	PA DEP CN (free), Auto	10/22/18		CPR
Total Phenolics	0.013	mg/l	0.010	EPA 420.4	10/25/18		CPR
Volatiles							
1,1,1-Trichloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,1,2,2-Tetrachloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,1,2-Trichloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,1-Dichloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,1-Dichloroethene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,2,4-Trichlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,2-Dichlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,2-Dichloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,2-Dichloropropane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,3-Dichlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,4-Dichlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
2-Chloroethyl Vinyl Ether	<5.0	ug/l	5.0	EPA 624	10/27/18		GXF
Acrolein	<2.0	ug/l	2.0	EPA 624	10/26/18	V-01	GXF
Acrylonitrile	<2.0	ug/l	2.0	EPA 624	10/26/18	V-01	GXF
Benzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Bromodichloromethane	1.2	ug/l	0.5	EPA 624	10/27/18		GXF
Bromoform	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Bromomethane (Methyl Bromide)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Carbon Tetrachloride	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Chlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Chloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Chloroform	2.4	ug/l	0.5	EPA 624	10/27/18		GXF
Chloromethane (Methyl Chloride)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Cis-1,3-Dichloropropene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Dibromochloromethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Ethylbenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Hexachlorobutadiene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Methylene Chloride (Dichloromethane)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Naphthalene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Tetrachloroethene (PCE)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Toluene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA, (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.



M.J. Reider Associates, Inc.

Lab ID: 8031549-02 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Volatiles							
Trans-1,2-Dichloroethene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Trans-1,3-Dichloropropene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Trichloroethene (TCE)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Vinyl Chloride	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Volatiles - Tentatively Identified Compounds (TICs) - All results estimated							
No TICs Found	<15.0	ug/l		EPA 624	10/27/18		GXF



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.
NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current
NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-03

Collected By: Client

Sampled: 10/18/18 05:25

Received: 10/18/18 14:35

Sample Desc: Influent- Composite

Sample Type: Composite

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Organics							
4,4'-DDD	<0.06	ug/l	0.06	EPA 608	10/26/18	O-12	TWH
4,4'-DDE	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
4,4'-DDT	<0.06	ug/l	0.06	EPA 608	10/26/18	O-12	TWH
Aldrin	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Alpha-BHC	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Alpha-Chlordane	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Beta-BHC	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Chlordane (technical)	<0.56	ug/l	0.56	EPA 608	10/26/18		TWH
Delta-BHC	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Dieldrin	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endosulfan I	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endosulfan II	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endosulfan Sulfate	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endrin	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Endrin Aldehyde	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Gamma-Chlordane	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Heptachlor	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Heptachlor Epoxide	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
Lindane	<0.06	ug/l	0.06	EPA 608	10/26/18		TWH
PCB-1016	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1221	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1232	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1242	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1248	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1254	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
PCB-1260	<0.22	ug/l	0.22	EPA 608	10/26/18		TWH
Toxaphene	<0.56	ug/l	0.56	EPA 608	10/26/18	O-13b	TWH
Semivolatiles							
Sample Analysis Notes: Semi-VOA EPA 625 NPDES (G-10, O-13a)							
1,2-Diphenylhydrazine (as Azobenzene)	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
2,2'-Oxybis(1-Chloropropane)	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
2,4,6-Trichlorophenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
2,4-Dichlorophenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
2,4-Dimethylphenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
2,4-Dinitrophenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
2,4-Dinitrotoluene	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-03 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Semivolatiles							
2,6-Dinitrotoluene	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
2-Chloronaphthalene	<12.0	ug/l	12.0	EPA 625	10/23/18	O-20	MEB
2-Chlorophenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
2-Nitrophenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
3,3'-Dichlorobenzidine	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
4,6-Dinitro-o-cresol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
4-Bromophenyl Phenyl Ether	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
4-Chloro-3-Methylphenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
4-Chlorophenyl phenyl ether	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
4-Nitrophenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
Acenaphthene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Acenaphthylene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Anthracene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Benzidine	<120	ug/l	120	EPA 625	10/23/18		MEB
Benzo(a)anthracene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Benzo(a)pyrene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Benzo(b)fluoranthene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Benzo(ghi)perylene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Benzo(k)fluoranthene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Bis(2-chloroethoxy)methane	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Bis(2-Chloroethyl)ether	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Bis(2-Ethylhexyl)phthalate	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Butyl Benzyl Phthalate	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Chrysene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Dibenzo(a,h)anthracene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Diethyl Phthalate	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Dimethyl Phthalate	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Di-n-butyl Phthalate	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Di-n-octyl Phthalate	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Fluoranthene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Fluorene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Hexachlorobenzene	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Hexachlorocyclopentadiene	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Hexachloroethane	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Indeno(1,2,3-cd)pyrene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Isophorone	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Nitrobenzene	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.



M.J. Reider Associates, Inc.

Lab ID: 8031549-03 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Semivolatiles							
N-Nitrosodimethylamine	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
N-Nitrosodi-n-propylamine	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
N-Nitrosodiphenylamine	<12.0	ug/l	12.0	EPA 625	10/23/18		MEB
Pentachlorophenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
Phenanthrene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Phenol	<24.1	ug/l	24.1	EPA 625	10/23/18		MEB
Pyrene	<6.0	ug/l	6.0	EPA 625	10/23/18		MEB
Semivolatiles - Tentatively Identified Compounds (TICs) - All results estimated							
17-(1,5-Dimethylhexyl)-10,13-d	DET-SW	ug/l	40.0	EPA 625	10/23/18		MEB
9-Octadecenoic acid, (E)-	DET-SW	ug/l	40.0	EPA 625	10/23/18		MEB
Cholestan-3-ol	DET-SW	ug/l	40.0	EPA 625	10/23/18		MEB
n-Hexadecanoic acid	DET-SW	ug/l	40.0	EPA 625	10/23/18		MEB
Octadecanoic acid	DET-SW	ug/l	40.0	EPA 625	10/23/18		MEB
Total Metals							
Antimony	<0.003	mg/l	0.003	EPA 200.8 Rev 5.4	10/23/18		MPB
Arsenic	<0.001	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Beryllium	<0.0010	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Cadmium	0.0002	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Chromium	0.0014	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Copper	0.061	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Lead	0.002	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Mercury	<0.0002	mg/l	0.0002	EPA 245.1 Rev 3.0	10/19/18		KED
Molybdenum	0.002	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Nickel	0.0038	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Selenium	<0.001	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Silver	0.0004	mg/l	0.0010	EPA 200.8 Rev 5.4	10/23/18		MPB
Thallium	<0.001	mg/l	0.001	EPA 200.8 Rev 5.4	10/23/18		MPB
Zinc	0.153	mg/l	0.005	EPA 200.7 Rev 4.4	10/25/18		RES



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-04 **Collected By:** Client **Sampled:** 10/18/18 05:45 **Received:** 10/18/18 14:35
Sample Desc: Influent - Grab **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
General Chemistry							
Cyanide	0.006	mg/l	0.004	Lachat 10-204-00-1X	10/23/18		CPR
Cyanide, Free	0.006	mg/l	0.004	PA DEP CN (free), Auto	10/22/18		CPR
Total Phenolics	0.029	mg/l	0.010	EPA 420.4	10/25/18		CPR
Volatiles							
1,1,1-Trichloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,1,2,2-Tetrachloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,1,2-Trichloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,1-Dichloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,1-Dichloroethene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,2,4-Trichlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,2-Dichlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,2-Dichloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,2-Dichloropropane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,3-Dichlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
1,4-Dichlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
2-Chloroethyl Vinyl Ether	<5.0	ug/l	5.0	EPA 624	10/27/18		GXF
Acrolein	<2.0	ug/l	2.0	EPA 624	10/27/18	V-01a	GXF
Acrylonitrile	<2.0	ug/l	2.0	EPA 624	10/27/18	V-01a	GXF
Benzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Bromodichloromethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Bromoform	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Bromomethane (Methyl Bromide)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Carbon Tetrachloride	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Chlorobenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Chloroethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Chloroform	1.6	ug/l	0.5	EPA 624	10/27/18		GXF
Chloromethane (Methyl Chloride)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Cis-1,3-Dichloropropene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Dibromochloromethane	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Ethylbenzene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Hexachlorobutadiene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Methylene Chloride (Dichloromethane)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Naphthalene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Tetrachloroethene (PCE)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Toluene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-04 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Volatiles							
Trans-1,2-Dichloroethene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Trans-1,3-Dichloropropene	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Trichloroethene (TCE)	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Vinyl Chloride	<0.5	ug/l	0.5	EPA 624	10/27/18		GXF
Volatiles - Tentatively Identified Compounds (TICs) - All results estimated							
No TICs Found	<15.0	ug/l		EPA 624	10/27/18		GXF



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-05

Collected By: Client

Sampled: 10/18/18 07:10

Received: 10/18/18 14:35

Sample Desc: Sludge

Sample Type: Grab

Comments: Due to the sample matrix, this sample was analyzed as a non-potable liquid and the results/units were converted to a solid for reporting purposes.

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
General Chemistry							
Cyanide	1.3	mg/kg dry	0.004	Lachat 10-204-00-1X	10/23/18		CPR
Total Phenolics	65.5	mg/kg dry	0.100	EPA 420.4	10/25/18		CPR
Solids, Total	<1.0	%	1.0	SM 2540 G	10/22/18		TMH
Organics							
4,4'-DDD	<0.5	ug/kg dry	0.5	EPA 608	10/26/18	O-12	TWH
4,4'-DDE	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
4,4'-DDT	<0.5	ug/kg dry	0.5	EPA 608	10/26/18	O-12	TWH
Aldrin	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Alpha-BHC	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Alpha-Chlordane	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Beta-BHC	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Chlordane (technical)	<10.0	ug/kg dry	10.0	EPA 608	10/26/18		TWH
Delta-BHC	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Dieldrin	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Endosulfan I	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Endosulfan II	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Endosulfan Sulfate	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Endrin	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Endrin Aldehyde	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Gamma-Chlordane	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Heptachlor	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Heptachlor Epoxide	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
Lindane	<0.5	ug/kg dry	0.5	EPA 608	10/26/18		TWH
PCB-1016	<5.0	ug/kg dry	5.0	EPA 608	10/26/18		TWH
PCB-1221	<5.0	ug/kg dry	5.0	EPA 608	10/26/18		TWH
PCB-1232	<5.0	ug/kg dry	5.0	EPA 608	10/26/18		TWH
PCB-1242	<5.0	ug/kg dry	5.0	EPA 608	10/26/18		TWH
PCB-1248	<5.0	ug/kg dry	5.0	EPA 608	10/26/18		TWH
PCB-1254	<5.0	ug/kg dry	5.0	EPA 608	10/26/18		TWH
PCB-1260	<5.0	ug/kg dry	5.0	EPA 608	10/26/18		TWH
Toxaphene	<10.0	ug/kg dry	10.0	EPA 608	10/26/18	O-13b	TWH
Semivolatiles							
Sample Analysis Notes: Semi-VOA EPA 625 PPL/TTO (G-10, O-13)							
1,2,4-Trichlorobenzene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
1,2-Dichlorobenzene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB



107 Angelica Street • Reading, PA 19611 • www.mjreider.com • (610) 374-5129 • fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.
NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current
NELAP accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-05 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Semivolatiles							
1,2-Diphenylhydrazine (as Azobenzene)	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
1,3-Dichlorobenzene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
1,4-Dichlorobenzene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
1,4-Dioxane	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
2,2'-Oxybis(1-Chloropropane)	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
2,4,6-Trichlorophenol	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
2,4-Dichlorophenol	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
2,4-Dimethylphenol	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
2,4-Dinitrophenol	<2500	ug/kg dry	2500	EPA 625	10/23/18		MEB
2,4-Dinitrotoluene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
2,6-Dinitrotoluene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
2-Chloronaphthalene	<500	ug/kg dry	500	EPA 625	10/23/18	O-14	MEB
2-Chlorophenol	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
2-Nitrophenol	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
3,3'-Dichlorobenzidine	<1000	ug/kg dry	1000	EPA 625	10/23/18		MEB
4,6-Dinitro-o-cresol	<2500	ug/kg dry	2500	EPA 625	10/23/18		MEB
4-Bromophenyl Phenyl Ether	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
4-Chloro-3-Methylphenol	<1000	ug/kg dry	1000	EPA 625	10/23/18		MEB
4-Chlorophenyl phenyl ether	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
4-Nitrophenol	<2500	ug/kg dry	2500	EPA 625	10/23/18		MEB
7,12-Dimethylbenz(a)anthracene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Acenaphthene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Acenaphthylene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Anthracene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Benzidine	<1000	ug/kg dry	1000	EPA 625	10/23/18		MEB
Benzo(a)anthracene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Benzo(a)pyrene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Benzo(b)fluoranthene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Benzo(ghi)perylene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Benzo(k)fluoranthene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Bis(2-chloroethoxy)methane	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Bis(2-Chloroethyl)ether	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Bis(2-Ethylhexyl)phthalate	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Butyl Benzyl Phthalate	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Chrysene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.
NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current
NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-05 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Semivolatiles							
Dibenzo(a,h)anthracene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Diethyl Phthalate	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Dimethyl Phthalate	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Di-n-butyl Phthalate	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Di-n-octyl Phthalate	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Fluoranthene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Fluorene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Hexachlorobenzene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Hexachlorobutadiene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Hexachlorocyclopentadiene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Hexachloroethane	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Indeno(1,2,3-cd)pyrene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Isophorone	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Naphthalene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Nitrobenzene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
N-Nitrosodimethylamine	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
N-Nitrosodi-n-propylamine	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
N-Nitrosodiphenylamine	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Pentachlorophenol	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Phenanthrene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Phenol	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Pyrene	<500	ug/kg dry	500	EPA 625	10/23/18		MEB
Semivolatiles - Tentatively Identified Compounds (TICs) - All results estimated							
9-Octadecenoic acid, (E)-	DET-SW	ug/l	40.0	EPA 625	10/23/18		MEB
Cholestan-3-ol	DET-SW	ug/l	40.0	EPA 625	10/23/18		MEB
n-Hexadecanoic acid	DET-SW	ug/l	40.0	EPA 625	10/23/18		MEB
Total Metals							
Antimony	<0.50	mg/kg dry	0.50	EPA 200.7 Rev 4.4	10/19/18	G-18	RES
Arsenic	<0.50	mg/kg dry	0.50	EPA 200.7 Rev 4.4	10/22/18		RES
Beryllium	2.36	mg/kg dry	0.050	EPA 200.7 Rev 4.4	10/19/18		RES
Cadmium	2.16	mg/kg dry	0.050	EPA 200.7 Rev 4.4	10/31/18		RES
Chromium	13.4	mg/kg dry	0.050	EPA 200.7 Rev 4.4	10/19/18		RES
Copper	1050	mg/kg dry	0.100	EPA 200.7 Rev 4.4	10/19/18		RES
Lead	43.5	mg/kg dry	0.10	EPA 200.7 Rev 4.4	10/22/18		RES
Mercury	0.438	mg/kg dry	0.0020	EPA 245.1 Rev 3.0	10/19/18		KED
Molybdenum	9.61	mg/kg dry	0.10	EPA 200.7 Rev 4.4	10/22/18		RES
Nickel	18.0	mg/kg dry	0.050	EPA 200.7 Rev 4.4	10/19/18		RES
Selenium	0.79	mg/kg dry	0.50	EPA 200.7 Rev 4.4	10/19/18		RES



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-05 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Total Metals							
Silver	3.56	mg/kg dry	0.050	EPA 200.7 Rev 4.4	10/22/18		RES
Thallium	<0.50	mg/kg dry	0.50	EPA 200.7 Rev 4.4	10/19/18		RES
Zinc	1870	mg/kg dry	0.050	EPA 200.7 Rev 4.4	10/22/18		RES
Zinc	1960	mg/kg dry	0.050	EPA 200.7 Rev 4.4	10/25/18		RES



107 Angelica Street • Reading, PA 19611 • www.mjreider.com • (610) 374-5129 • fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.
NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current
NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-06 **Collected By:** Client **Sampled:** 10/18/18 07:10 **Received:** 10/18/18 14:35
Sample Desc: Sludge **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
General Chemistry							
Solids, Total	<1.0	%	1.0	SM 2540 G	10/22/18		TMH
Volatiles							
1,1,1-Trichloroethane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
1,1,2,2-Tetrachloroethane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
1,1,2-Trichloroethane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
1,1-Dichloroethane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
1,1-Dichloroethene	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
1,2-Dichloroethane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
1,2-Dichloropropane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
2-Chloroethyl Vinyl Ether	<965	ug/kg dry	965	EPA 8260	10/26/18		GXF
Acrolein	<1930	ug/kg dry	1930	EPA 8260	10/26/18	V-01c	GXF
Acrylonitrile	<1930	ug/kg dry	1930	EPA 8260	10/26/18		GXF
Benzene	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Bromodichloromethane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Bromoform	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Bromomethane (Methyl Bromide)	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Carbon Tetrachloride	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Chlorobenzene	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Chloroethane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Chloroform	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Chloromethane (Methyl Chloride)	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Cis-1,3-Dichloropropene	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Dibromochloromethane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Ethylbenzene	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Methylene Chloride (Dichloromethane)	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Tetrachloroethene (PCE)	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Toluene	74400	ug/kg dry	1900	EPA 8260	10/26/18		GXF
Trans-1,2-Dichloroethene	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Trans-1,3-Dichloropropene	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Trichloroethene (TCE)	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Trichlorofluoromethane	<482	ug/kg dry	482	EPA 8260	10/26/18		GXF
Vinyl Chloride	<482	ug/kg dry	482	EPA 8260	10/26/18	V-02	GXF
Volatiles - Tentatively Identified Compounds (TICs) - All results estimated							
Acetone	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF
Dimethyl sulfide	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF
D-Limonene	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.
NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current
NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

M.J. Reider Associates, Inc.

Lab ID: 8031549-06 Continued

	Result	Unit	Rep. Limit	Procedure	Analyzed	Analyte Notes	Analyst
Volatiles - Tentatively Identified Compounds (TICs) - All results estimated							
Dodecane	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF
Dodecane, 2-methyl-	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF
Tetradecane	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF
Tridecane	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF
unknown Alkane	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF
unknown Hydrocarbon 1	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF
unknown Hydrocarbon 2	DET-VS	ug/kg dry	3620	EPA 8260	10/26/18		GXF

Notes and Definitions

- DET-SW Semi-Volatile results greater than 40ug/l as compared to concentration of closest internal standard.
- DET-VS Volatile results greater than 30ug/kg as compared to concentration of closest internal standard.
- G-10 The elevated reporting limit was due to sample matrix interference.
- G-18 The CCV was outside the acceptance limits of 90-110% at 112% and 111%, however the analyte was not detected at or above the laboratory reporting limit.
- O-12 The following Pesticide CCV4 recoveries were outside of the acceptable range of 85-115% : 4,4-DDD 124% and 4,4-DDT 38%.
- O-13 The epa 625 internal standard Perylene-d12 had low recovery in the sample at 41.9%,recommended (50-200%).
- O-13a The epa 625 internal standard Perylene-d12 had low recovery in the sample at 49.6%,recommended (50-200%).
- O-13b The following toxaphene CCV recoveries were outside of the acceptable range of 85-115%: toxaphene-1 at 84%, toxaphene-2 at 83%, toxaphene-3 at 74%, toxaphene-4 at 63%, and average toxaphene rec. at 75%.
- O-14 The epa 625 LCS had low recovery for 2-Chloronaphthalene at 56.97%,recommended (60-118%).
- O-20 The epa 625 LCS had low recovery for 2-Chloronaphthalene at 56.97%,recommended (60-118%).
- O-21 The epa 625 RPD >30%, at 66.62% for Di-n-octyl Phthalate for sample and duplicate.
- V-01 For the EPA 624 analysis, this sample did not meet the preservation requirements for Acrolein and Acrylonitrile. The sample vial labeled pH 4-5 had an actual pH=3.0.
- V-01a For the EPA 624 analysis, this sample did not meet the preservation requirements for Acrolein and Acrylonitrile. The sample vial labeled pH 4-5 had an actual pH=7.0.
- V-01c For the EPA 8260 procedure, the recovery of Acrolein in the matrix spike @ 6.7% was outside of the acceptable range of 70-130% for the QC performed on this sample.
- V-02 For the EPA 8260 procedure, the ccv Vinyl chloride @ +20.7% was outside of the acceptable range of +/- 20% difference for a continuing calibration check compound.
- TICS A TIC (tentatively identified compound) is a compound that can be detected by the analytical testing method, but its' identity and concentration cannot be confirmed without further analytical investigation. Certain analytical methods can report TICs as compounds that the instrument can detect but are not identified as specific requested target compounds by using the following methodology:
The mass spectra of the non-target compound is compared to the mass spectra of compounds in the NIST/EPA mass spectral library. A most-probable match is detailed on the TIC report generated by the instrument and reviewed by the analyst. A probable match with a Q value >80, and above the concentration of the internal standard, is required for the non-target compound to be reported as a TIC by the laboratory. As many as 10 TICs will be detailed on the analytical report. It's possible that unknown compounds may be present that cannot be further identified.



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.
NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current
NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.



M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 1632
Project Manager: Twila Dixon

**BOTTLE ORDER
Chain of Custody**

Client: East Norriton Plymouth Whitpan Joint S
Project: 1134- Annual Priority Pollutant Scan

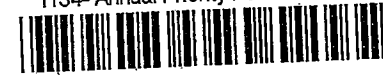
Report To: East Norriton Plymouth Whitpan Joint Sewer Auth - Glenn DeBernardi - 200 Ross Street - Plymouth Meeting, PA 19462

Invoice To: East Norriton Plymouth Whitpan Joint Sewer Auth - Glenn DeBernardi - 200 Ross Street - Plymouth Meeting, PA 19462

8031549

PM: TED

East Norriton Plymouth Whitpan Joint Sewer Auth
1134- Annual Priority Pollutant Scan



Collected By:
(Full Name)

GLENN DEBERNARDI / PGB

Comments: _____

-01 Effluent- Composite

Ag EPA 200.8, As EPA 200.8, Be EPA 200.8, Cd EPA 200.8, Cr EPA 200.8, Cu EPA 200.8, Hg EPA 245.1, Mo EPA 200.8, Ni EPA 200.8, Pb EPA 200.8, Pesticides/PCBs EPA 608 Low Level, Sb EPA 200.8, Se EPA 200.8, Semi-VOA EPA 625 NPDES, Semi-VOA EPA 625 TICS, Tl EPA 200.8, Zn EPA 200.8, TKN

Matrix: Waste Water
Type: Composite (Simple)
A - AG Liter NM NP
B - AG Liter NM NP
C - AG Liter NM NP
D - AG Liter NM NP
E - PI 500ml HNO3

Date: 10-18-18
Time: 5:20 AM

F - PI 500ml H₂SO₄

-02 Effluent - Grab

CN Lachat 10204001X, CN-F DEPI, Phenols EPA 420.4, VOA EPA 624 NPDES, VOA EPA 624 TICS,

Matrix: Waste Water
Type: Grab

Date: 10-18-18
Time: 5:40 AM

A - AG 250ml WM H2SO4
B - PI 500ml Ascorbic Acid & NaOH
C - Vial 40ml HCL (pH <2), zero hdspc
D - Vial 40ml HCL (pH <2), zero hdspc
E - Vial 40ml HCL (pH <2), zero hdspc
F - Vial 40ml HCL (pH 4-5), zero hdspc
G - Vial 40ml NP, zero hdspc
H - Vial TRIP BLANK 40ml HCL (pH <2), zero hdspc

-03 Influent- Composite

Ag EPA 200.8, As EPA 200.8, Be EPA 200.8, Cd EPA 200.8, Cr EPA 200.8, Cu EPA 200.8, Hg EPA 245.1, Mo EPA 200.8, Ni EPA 200.8, Pb EPA 200.8, Pesticides/PCBs EPA 608 Low Level, Sb EPA 200.8, Se EPA 200.8, Semi-VOA EPA 625 NPDES, Semi-VOA EPA 625 TICS, Tl EPA 200.8, Zn EPA 200.8,

Matrix: Waste Water
Type: Composite (Simple)
A - AG Liter NM NP
B - AG Liter NM NP
C - AG Liter NM NP
D - AG Liter NM NP
E - PI 500ml HNO3

Date: 10-18-18
Time: 5:25 AM

Glenn DeBernardi
Relinquished By

10-18-18 / 7:35 AM
Date/Time

[Signature]
Received By

10-18-18 0958
Date/Time

Relinquished By

Date/Time

[Signature]
Received at Laboratory By

10-18-18 1435
Date/Time

The Client, by signing (or having the client's agent sign), agrees to MIRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>2</u>
Samples on Ice?	<input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Approved By:	<u>[Signature]</u>
Entered By:	<u>[Signature]</u>



M.J. Reider Associates, Inc.

8031549

Client Code: 1632
Project Manager: Twila Dixon

Client: East Norriton Plymouth Whitpan Joint Sewer
Project: 1134- Annual Priority Pollutant Scan

Collected By: GLENN DEBERMAN / PCB
(Full Name)

Comments: _____

-04 Influent - Grab

CN Lachat 10204001X, CN-F DEPI, Phenols EPA 420.4, VOA EPA 624 NPDES, VOA EPA 624 TICS,

Matrix: Waste Water
Type: Grab

Date: 10-18-18
Time: 5:45a

- A - AG 250ml WM H2SO4
- B - PI 500ml Ascorbic Acid & NaOH
- C - Vial 40ml HCL (pH <2), zero hdspc
- D - Vial 40ml HCL (pH <2), zero hdspc
- E - Vial 40ml HCL (pH <2), zero hdspc
- F - Vial 40ml HCL (pH 4-5), zero hdspc
- G - Vial 40ml NP, zero hdspc
- H - Vial TRIP BLANK 40ml HCL (pH<2), zero hdspc

-05 Sludge

Ag EPA 200.7, As EPA 200.7, Be EPA 200.7, Cd EPA 200.7, CN Lachat 10204001X, Cr EPA 200.7, Cu EPA 200.7, Hg EPA 245.1, Mo EPA 200.7, Ni EPA 200.7, Pb EPA 200.7, Pesticides/PCBs EPA 608 Short List, Phenols EPA 420.4, Sb EPA 200.7, Se EPA 200.7, Semi-VOA EPA 625 PPL/TTO, Semi-VOA EPA 625 TICS, TI EPA 200.7, TS-M (Dry Wt) SM 2540G, VOA EPA 624, VOA EPA 624 TICS, Zn EPA 200.7,

Matrix: Liquid Sludge
Type: Grab

Date: 10-18-18
Time: 0710

- A - Glass Jar 32 oz
- C - Glass Jar 32 oz
- G - Glass Jar 32 oz
- J - Glass Jar 8 oz

[Signature] 10-18-18/7:35am
Relinquished By Date/Time

[Signature] 10-18-18 0958
Received By Date/Time

Relinquished By _____ Date/Time _____

[Signature] 10-18-18 1435
Received at Laboratory By Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>12</u>
Samples on Ice?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By:	<u>[Signature]</u>
Entered By:	<u>[Signature]</u>

The Client, by signing (or having the client's agent sign), agrees to MIRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

M.J. Reider Associates, Inc.

MJRA Terms & Conditions

All samples submitted must be accompanied by signed documentation representing a Chain of Custody (COC). The COC Record acts as a contract between the client and MJRA. Signing the COC form gives approval for MJRA to perform the requested analyses and is an agreement to pay for the cost of such analyses. COC Records must be completed in black or blue indelible ink (must not run when wet). COC documentation begins at the time of sample collection. Client is required to document all sample details prior to releasing samples to MJRA. All samples must be placed on ice immediately after sampling and shipped or delivered to the laboratory in a manner that will maintain the sample temperature above freezing and below 6C (loose ice is preferred).

Sample Submission, Sample Acceptance & Sampling Containers

Included on the COC must be the sample description, date and time of collection (including start and stop for composites), container size and type, preservative information, sample matrix, indication of whether the sample is a grab or composite, number of containers & a list of the tests to be performed. Poor sample collection technique, inappropriate sampling containers and/or improper sample preservation may lead to sample rejection. Suitable sample containers, labels, and preservatives (as applicable), along with blank COCs are provided at no additional cost.

Turnaround Times (TAT)

Average TAT for test results range from 5 to 15 working days depending on the specific analyses and time of year submitted. Faster turnaround times (*RUSH TAT) may be available depending on the current workload in a particular department and the nature of the analyses requested. We encourage you to verify requests for expedited sample results with one of our Technical Directors prior to sample submittal. Without confirmation from a Technical Director, your results may not be completed by your deadline. *RUSH TAT Surcharges are applied for expedited turnaround times.

Analytical Results, Sample Collection Integrity & Subcontracting

Analytical values are for the sample as submitted and relate only to the item tested. The value indicates a snapshot of the constituent content of the sample at the time of sample collection. Analytical results can be impacted by poor sample collection technique and/or improper preservation. All sample collection completed by MJRA was performed in accordance with applicable regulatory protocols or as specified in customer specific sampling plans. Constituent content will vary over time based on the matrix of the sample and the physical and chemical changes to its environment. All sample results and laboratory reports are strictly confidential. Results will not be available to anyone except the primary client or authorized party representing the client unless MJRA receives additional permissions from the client. When necessary, MJRA will subcontract certain analyses to a third party accredited laboratory. If client prohibits subcontracting, it must be provided in writing and include instruction on how to proceed with client samples that require third party analyses.

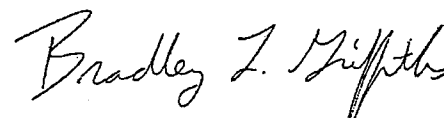
Payment Terms

Payment Terms are Net 30 days. Prices are subject to change without notice. A standing monthly charge of 1.5% of the clients over-30-day-unpaid balance may be added to the balance after 30 days and each month thereafter (day 31, 61, 91 etc.). The laboratory accepts all major credit cards, ACH transactions, checks and cash. New clients must pay for all services rendered prior to sample collection and/or in some cases report processing. Clients must contact the MJRA accounting department to pursue a credit-based account. MJRA reserves the right to terminate the client's credit account and to refuse to perform additional services on a credit basis if any balance is outstanding for more than 60 days.

Warranty & Litigation

MJRA does not guarantee any results of its services but has agreed to use its best efforts, in accordance with the standards and practices of the industry, to cause such results to be accurate and complete. We disclaim any other warranties, expressed or implied, including a warranty of fitness for a particular purpose and warranty of merchantability. Clients agree that they shall reimburse MJRA for any and all fees, cost and litigation expenses, including reasonable attorney fees incurred by MJRA in obtaining payment for the services rendered. All costs associated with compliance with any subpoena for documents, testimony, or any other purpose relating to work performed by MJRA, for a client, shall be paid by that client. MJRA's aggregate liability for negligent acts and omissions and of an intentional breach by MJRA will not exceed the fee paid for the services. Client agrees to indemnify and hold MJRA harmless for any and all liabilities in excess of said amount. Neither MJRA nor the client shall be liable to the other for special, incidental consequential or punitive liability or damages included but not limited to those arising from delay, loss of use, loss of profits or revenues. MJRA will not be liable to the client unless the client has notified MJRA of the discovery of the alleged negligent act, error, omissions or breach within 30 days of the

Reviewed and Approved by:



Bradley Griffiths For Twila Dixon
Technical Director



107 Angelica Street ○ Reading, PA 19611 ○ www.mjreider.com ○ (610) 374-5129 ○ fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.
NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current
NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

Appendix G

Flow Meter Calibration Reports

First Quarter

Flow Meter Calibration Reports

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Chem #8 - 01-12-18	Site/Location	East Norriton Plant
Customer	East-Norriton	Model#	Hydroranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	Chemical Rd Influent
Manufacturer	Miltronics	Device #	8
Serial Number	PBDT5030406	Recorder	Chessell 392
Instrument Accuracy % FS	2.00%	SCADA	
Customer Equipment/ID#	Chemical Road	Remote Totalizer	x 1
Primary Device	9" Parshall Flume		
Calibrated Range In E.U.	0 to 5.0 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufacturers Procedure		
Date Of Last Calibration	October 12, 2017		
Date Calibrated	January 12, 2018		
Date Due	April-18		
Temperature	64 Deg F		
Relative Humidity	76%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Expected Reading in Ma	Measured Value As Found MA	% Error As Found	Measured Value As Left MA	% Error As Left
0.0	4.00	4.00	0.000%	4.00	0.000%
8.88" = 1.25MGD	8.00	8.00	0.000%	8.00	0.000%
14.01" = 2.5 MGD	12.00	12.00	0.000%	12.00	0.000%
18.21" = 3.75 MGD	16.00	16.00	0.000%	16.00	0.000%
21.96" = 5.0MGD	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
14.4 / 6.30	500 gpm = 500 cts/min	60.06	0.100%	60.06	0.100%
28.8 / 8.61	1000 gpm = 1000 cts/min	59.99	0.017%	59.99	0.017%
86.4 / 17.82	3000 gpm = 3000 cts/min	59.81	0.317%	59.81	0.317%

Zero Reading = 22.26
Max Head Height = 70.70

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly

Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Activated #7 01/11/18	Site/Location	East Noriton Plant
Customer	East-Noriton		
Instrument Description	Radar flow Meter	Model#	Vegamet 391
Manufacturer	Vega		
Serial Number	28370062	Instrument ID#	Activated Side
Instrument Accuracy % FS	1.00%		
Customer Equipment/ID#	Activated Sludge Flow		
Primary Device	36" Sharp Crested Weir W/Econt		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	October 13, 2017		
Date Calibrated	January 11, 2018		
Date Due	April-18		
Temperature	48 Deg F		
Relative Humidity	65%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00"	4.00	4.00	0.000%	4.00	0.000%
4.08"	8.00	8.00	0.000%	8.00	0.000%
8.64"	12.00	12.00	0.000%	12.00	0.000%
10.56"	16.00	16.00	0.000%	16.00	0.000%
17.25"	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Inches	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00"	0.00	0.00	0.000%	0.00	0.000%
4.08"	2.50	2.50	0.000%	2.50	0.000%
8.64"	5.00	5.00	0.000%	5.00	0.000%
10.56"	7.50	7.50	0.000%	7.50	0.000%
17.25"	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.86	0.233%	59.86	0.233%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.06	0.100%	60.06	0.100%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.81	0.317%	59.81	0.317%

45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly

Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Trickling # 6 01/11/18	Site/Location	East Noriton Plant
Customer	East-Noriton JSA		
Instrument Description	Ultrasonic flow Meter	Model#	Vegaplug64
Manufacturer	Vega		
Serial Number	35473600	Instrument ID#	Trickling Filter Flow
Instrument Accuracy % FS	2.00%	Totalizer at Scada	= x 1000
Customer Equipment/ID#	Effluent Flow	Device #	6
Primary Device	90 Deg V-Notch Weir		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	New		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	October 13, 2017		
Date Calibrated	January 11, 2018		
Date Due	April-18		
Temperature	48 Deg F		
Relative Humidity	65%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0.0 mgd	4.00	4.00	0.000%	4.00	0.000%
14.29 = 2.5 mgd	8.00	8.00	0.000%	8.00	0.000%
18.85 = 5.0 mgd	12.00	12.00	0.000%	12.00	0.000%
22.17 = 7.5 mgd	16.00	16.00	0.000%	16.00	0.000%
24.96 = 10.0 mgd	20.00	20.00	-12.000%	20.00	0.000%

STANDARD VALUE Inches	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00	0.00	0.00	0.000%	0.00	0.000%
14.29	2.50	2.50	0.000%	2.50	0.000%
18.85	5.00	5.00	0.000%	5.00	0.000%
22.17	7.50	7.50	0.000%	7.50	0.000%
24.96	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE Ma. MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

Integrator/Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.99	0.017%	59.99	0.017%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.16	-0.267%	60.16	-0.267%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.90	0.167%	59.90	0.167%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
 Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #3 01/11/18	Site/Location	Sawmill Pump Station
Customer	East-Norriton JSA	Model#	Multiranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	East Norriton Flow
Manufacturer	Milltronics	Device #	3
Serial Number	122104118VU	Flow Recorder	Honeywell DPR-100C Channel 1
Instrument Accuracy % FS	2.00%	SCADA	Remote Totalizer x 1
Customer Equipment/ID#	East Norriton Flow		
Primary Device	12" Parshall Flume		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	.1 % high		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	October 12, 2017		
Date Calibrated	January 11, 2018		
Date Due	April-18		
Temperature	48 Deg F		
Relative Humidity	65%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0 mgd	4.00	4.23	1.438%	4.00	0.000%
11.71 = 2.5 mgd	8.00	8.23	1.438%	8.00	0.000%
18.54 = 5.0 mgd	12.00	12.24	1.500%	12.00	0.000%
24.18 = 7.5 mgd	16.00	16.24	1.500%	16.00	0.000%
29.28 = 10 mgd	20.00	20.25	1.563%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.49	0.100%	7.49	0.100%
20.00	10.00	9.98	0.200%	9.98	0.200%

Integrator Test/Check % / Ma.	Expected SCADA cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	60.14	-0.233%	60.14	-0.233%
57.6 / 13.22	4000 gpm = 4000 cts/min	59.95	0.083%	59.95	0.083%
86.4 / 17.82	6000 gpm = 6000 cts/min	60.05	-0.083%	60.05	-0.083%

Blanking Distance = 28.61"
Max Head Height = 29.24"

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #5 01/11/18	Site/Location	Saw Mill Rd
Customer	East-Noriton JSA	Model #	Promag 53W3H
Instrument Description	Magmeter Signal Converter	Instrument ID#	Whitpain flow
Manufacturer	Endress Hauser	Device #	5
Serial Number	9219CA19000	Flow Recorder	Honeywell DPR-100C Channel 3
Instrument Accuracy % FS	0.03%	SCADA	
Customer Equipment/ID#	Whitpain flow	Remote Totalizer	x 1
Primary Device	300 mm		
Calibrated Range In E.U.	0 to 2400 gpm		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	October 12, 2017		
Date Calibrated	January 11, 2018		
Date Due	April-18		
Temperature	48 Deg F		
Relative Humidity	65%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
Endress + Hauser	Field Check	C1050802000	20-Mar-17	March-18	

STANDARD VALUE %	Expected Reading Ma	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0	4.00	4.00	0.000%	4.00	0.000%
25	8.00	8.00	0.000%	8.00	0.000%
50	12.00	12.00	0.000%	12.00	0.000%
75	16.00	16.00	0.000%	16.00	0.000%
100	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display GPM	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0	0	0.000%	0	0.000%
8.00	600	600	0.000%	600	0.000%
12.00	1200	1200	0.000%	1200	0.000%
16.00	1800	1800	0.000%	1800	0.000%
20.00	2400	2400	0.000%	2400	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	0.86	0.86	0.000%	0.86	0.000%
12.00	1.73	1.73	0.000%	1.73	0.000%
16.00	2.59	2.59	0.000%	2.59	0.000%
20.00	3.46	3.46	0.000%	3.46	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.000	0.00	0.000%	0.00	0.000%
8.00	0.870	0.86	0.000%	0.86	0.000%
12.00	1.730	1.73	0.000%	1.73	0.000%
16.00	2.590	2.59	0.000%	2.59	0.000%
20.00	3.460	3.45	-0.289%	3.45	-0.289%

STANDARD VALUE % / Ma.	Integrator/Test/Check cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 0.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
20.83 / .720	500 gpm = 500 cts/min	60.03	-0.050%	60.03	-0.050%
41.66 / 1.44	1000 gpm = 1000 cts/min	60.12	-0.200%	60.12	-0.200%
83.33 / 2.88	2000 gpm = 2000 cts/min	59.92	0.133%	59.92	0.133%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45652A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #2 01/11/18	Site/Location	Sawmill Pump Station
Customer	East-Noriton JSA	Model#	Multiranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	Whitpain Plymouth
Manufacturer	Milltronics	Device #	2
Serial Number	122104118VU	Flow Recorder	Honeywell DPR-100C Channel 2
Instrument Accuracy % FS	2.00%	SCADA	
Customer Equipment/ID#	Whitpain Plymouth	Remote Totalizer	x 1
Primary Device	12" Parshall Flume		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	October 12, 2017		
Date Calibrated	January 11, 2018		
Date Due	April-18		
Temperature	48 Deg F		
Relative Humidity	65%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	STANDARD VALUE Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0 mgd	4.00	3.93	-0.437%	4.00	0.000%
11.71 = 2.5 mgd	8.00	7.93	-0.438%	8.00	0.000%
18.54 = 5.0 mgd	12.00	11.93	-0.438%	12.00	0.000%
24.18 = 7.5 mgd	16.00	15.93	-0.438%	16.00	0.000%
29.28 = 10 mgd	20.00	19.93	-0.438%	20.00	0.000%

STANDARD VALUE Inches	STANDARD VALUE MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00	0.00	0.00	0.400%	0.00	0.000%
11.71	2.50	2.46	0.400%	2.50	0.000%
18.54	5.00	4.96	0.400%	5.00	0.000%
24.18	7.50	7.46	0.400%	7.50	0.000%
29.28	10.00	9.96	0.400%	10.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.49	0.100%	7.49	0.100%
20.00	10.00	9.98	0.200%	9.98	0.200%

STANDARD VALUE % / Ma.	Integrator/Test/Check cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	60.04	-0.067%	60.04	-0.067%
57.6 / 13.22	4000 gpm = 4000 cts/min	59.97	0.050%	59.97	0.050%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.96	0.067%	59.96	0.067%

Blanking Distance = 30.56"
Max Head Height = 29.24"

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sheffield #4 01/11/18	Site/Location	County Line Rd.
Customer	East-Noriton JSA	Model#	8712CR12NOM4
Instrument Description	Magmeter	Cal Number	11164052108
Manufacturer	Rosemount		52005
Serial Number	90W100195	Instrument ID#	Sheffield Flow
Instrument Accuracy % FS	0.05%	Device #	4
Customer Equipment/ID#	Sheffield Flow		
Primary Device	300 mm		
Calibrated Range In E.U.	0 to 5000 gpm		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	October 12, 2017	SCADA	
Date Calibrated	January 11, 2018	Remote Totalizer	x 1
Date Due	April-18		
Temperature	48 Deg F		
Relative Humidity	65%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Process meter	741B	7025501	18-Aug-17	Aug-18	
Rosemount	8714D	617	20-Mar-17	March-18	

STANDARD VALUE	STANDARD VALUE	Measured Value	% Error	Measured Value	% Error
Ft./sec	Ma.	As Found	As Found	As Left	As Left
0.0	4.00	4.01	0.063%	4.00	0.000%
3.0	5.60	5.61	0.063%	5.60	0.000%
10.0	9.28	9.29	0.063%	9.28	0.000%
30.0	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE	Expected SCADA Display	Measured Value	% Error	Measured Value	% Error
MA.	GPM	As Found	As Found	As Left	As Left
4.00	0	0	0.000%	0	0.000%
8.00	1250	1250	0.000%	1250	0.000%
12.00	2500	2500	0.000%	2500	0.000%
16.00	3750	3750	0.000%	3750	0.000%
20.00	5000	5000	0.000%	5000	0.000%

Integrator Test/Check	Expected SCADA	Measured Value	% Error	Measured Value	% Error
% / Ma.	cts/min	As Found	As Found	As Left	As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
40 / 10.40	2000 gpm = 2000 cts/min	60.18	-0.300%	60.18	-0.300%
80 / 16.80	4000 gpm = 4000 cts/min	59.92	0.133%	59.92	0.133%
100 / 20.00	5000 gpm = 5000 cts/min	60.04	-0.067%	60.04	-0.067%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
 Technician

ALLIED CONTROL SERVICES, INC.

P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Walton #7 01/11/18	Site/Location	Walton Rd
Customer	East-Noriton		
Instrument Description	Ultrasonic flow Meter	Model#	50US3000
Manufacturer	Fischer Porter		
Serial Number	90W005775	Instrument ID#	Walton Rd
Instrument Accuracy % FS	2.00%	Device #	7
Customer Equipment/ID#	Walton Rd		
Primary Device	10" Leapold Lagco		
Calibrated Range In E.U.	0 to 400 GPM		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	October 12, 2017	SCADA	
Date Calibrated	January 11, 2018	Remote Totalizer	x 1
Date Due	April-18		
Temperature	48 Deg F		
Relative Humidity	65%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0. = 0 GPM	4.00	4.01	0.063%	4.02	0.125%
4.53" = 200 GPM	8.00	8.00	0.000%	8.00	0.000%
5.88" = 300 GPM	16.00	16.00	0.000%	16.00	0.000%
7.08" = 400 GPM	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE MA.	Expected SCADA Display GPM	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0	0	0.000%	0	0.000%
8.00	100	99	-0.063%	99	-0.063%
12.00	200	199	-0.063%	199	-0.063%
16.00	300	300	0.000%	300	0.000%
20.00	400	400	0.000%	400	0.000%

Integrator Test/Check % / Ma.	Expected SCADA cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
25 / 8.0	100 gpm = 100 cts/min	59.86	0.233%	59.86	0.233%
50 / 12.0	200 gpm = 200 cts/min	59.92	0.133%	59.92	0.133%
100 / 20.0	400 gpm = 400 cts/min	59.99	0.017%	59.99	0.017%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

Second Quarter
Flow Meter Calibration Reports

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Chem #8 - 04-13-18	Site/Location	East Norriton Plant
Customer	East-Norriton	Model#	Hydroranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	Chemical Rd Influent
Manufacturer	Miltronics	Device #	8
Serial Number	PBDT5030406	Recorder	Chessell 392
Instrument Accuracy % FS	2.00%	SCADA	
Customer Equipment/ID#	Chemical Road	Remote Totalizer	x 1
Primary Device	9" Parshall Flume		
Calibrated Range In E.U.	0 to 5.0 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	January 12, 2018		
Date Calibrated	April 13, 2018		
Date Due	July-18		
Temperature	64 Deg F		
Relative Humidity	78%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	Expected Reading Expected Reading in Ma	Measured Value As Found MA	% Error As Found	Measured Value As Left MA	% Error As Left
0.0	4.00	4.00	0.000%	4.00	0.000%
8.88" = 1.25MGD	8.00	8.00	0.000%	8.00	0.000%
14.01" = 2.5 MGD	12.00	12.00	0.000%	12.00	0.000%
18.21" = 3.75 MGD	16.00	16.00	0.000%	16.00	0.000%
21.96" = 5.0MGD	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
14.4 / 6.30	500 gpm = 500 cts/min	59.92	-0.133%	59.92	0.133%
28.8 / 8.61	1000 gpm = 1000 cts/min	60.05	-0.083%	60.05	-0.083%
86.4 / 17.82	3000 gpm = 3000 cts/min	59.81	0.317%	59.81	0.317%

Zero Reading = 22.26
Max Head Height = 70.70

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly

Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Activated #7 04/12/18	Site/Location	East Noriton Plant
Customer	East-Noriton	Model#	Vegamet 391
Instrument Description	Radar flow Meter	Instrument ID#	Activated Side
Manufacturer	Vega		
Serial Number	28370062		
Instrument Accuracy % FS	1.00%		
Customer Equipment/ID#	Activated Sludge Flow		
Primary Device	36" Sharp Crested Weir W/Econt		
Calibrated Range In E.U.	0 to10.00 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	January 11, 2018		
Date Calibrated	April 12, 2018		
Date Due	July-18		
Temperature	64 Deg F		
Relative Humidity	60%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00"	4.00	4.00	0.000%	4.00	0.000%
4.08"	8.00	8.00	0.000%	8.00	0.000%
8.64"	12.00	12.00	0.000%	12.00	0.000%
10.56"	16.00	16.00	0.000%	16.00	0.000%
17.25"	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Inches	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00"	0.00	0.00	0.000%	0.00	0.000%
4.08"	2.50	2.50	0.000%	2.50	0.000%
8.64"	5.00	5.00	0.000%	5.00	0.000%
10.56"	7.50	7.50	0.000%	7.50	0.000%
17.25"	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	60.05	-0.083%	60.05	-0.083%
57.6 / 13.22	4000 gpm = 4000 cts/min	59.93	0.117%	59.93	0.117%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.93	0.117%	59.93	0.117%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute of Standards And Technology (NIST). Completed records of all work performed are maintained by Allied Control

Dennis J. Reilly

 Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Trickling # 6 04/12/18	Site/Location	East Noriton Plant
Customer	East-Noriton JSA		
Instrument Description	Ultrasonic flow Meter	Model#	Vegaplus64
Manufacturer	Vega		
Serial Number	35473600		
Instrument Accuracy % FS	2.00%	Instrument ID#	Trickling Filter Flow
Customer Equipment/ID#	Effluent Flow	Totalizer	= x 1000
Primary Device	90 Deg V-Notch Weir	Device #	6
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	New		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	January 11, 2018		
Date Calibrated	April 12, 2018		
Date Due	July-18		
Temperature	64 Deg F		
Relative Humidity	60%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	60151	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0.0 mgd	4.00	4.00	0.000%	4.00	0.000%
14.29 = 2.5 mgd	8.00	8.00	0.000%	8.00	0.000%
18.85 = 5.0 mgd	12.00	12.00	0.000%	12.00	0.000%
22.17 = 7.5 mgd	16.00	16.00	0.000%	16.00	0.000%
24.96 = 10.0 mgd	20.00	20.00	-12.000%	20.00	0.000%

STANDARD VALUE Inches	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00	0.00	0.00	0.000%	0.00	0.000%
14.29	2.50	2.50	0.000%	2.50	0.000%
18.85	5.00	5.00	0.000%	5.00	0.000%
22.17	7.50	7.50	0.000%	7.50	0.000%
24.96	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE Ma. MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	60.02	-0.033%	60.02	-0.033%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.18	-0.300%	60.18	-0.300%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.92	0.133%	59.92	0.133%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).
Completed records of all work performed are maintained by Allied Control

Dennis J. Reilly

Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #3 04-13-18	Site/Location	Sawmill Pump Station
Customer	East-Norriton JSA	Model#	Multiranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	East Norriton Flow
Manufacturer	Milltronics	Device #	3
Serial Number	122104118VU	Flow Recorder	Honeywell DPR-100C Channel 1
Instrument Accuracy % FS	2.00%	SCADA	
Customer Equipment/ID#	East Norriton Flow	Remote Totalizer	x 1
Primary Device	12" Parshall Flume		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	.1 % high		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	January 12, 2018		
Date Calibrated	April 13, 2018		
Date Due	July-18		
Temperature	64 Deg F		
Relative Humidity	78%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0 mgd	4.00	3.97	-0.188%	4.00	0.000%
11.71 = 2.5 mgd	8.00	7.97	-0.188%	8.00	0.000%
18.54 = 5.0 mgd	12.00	11.97	-0.188%	12.00	0.000%
24.18 = 7.5 mgd	16.00	15.97	-0.188%	16.00	0.000%
29.28 = 10 mgd	20.00	19.97	-0.188%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	1.48	-0.200%	2.50	0.000%
12.00	5.00	4.98	-0.200%	5.00	0.000%
16.00	7.50	7.48	-0.200%	7.50	0.000%
20.00	10.00	9.98	-0.200%	10.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.49	0.100%	7.49	0.100%
20.00	10.00	9.98	0.200%	9.98	0.200%

Integrator/Test/Check % / Ma.	Expected SCADA cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.92	0.133%	59.92	0.133%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.05	-0.083%	60.05	-0.083%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.86	0.233%	59.86	0.233%

Blanking Distance = 28.61"
Max Head Height = 29.24"

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #5 04-13-18	Site/Location	Saw Mill Rd
Customer	East-Noriton JSA	Model#	Promag 53W3H
Instrument Description	Magmeter Signal Converter	Instrument ID#	Whitpain flow
Manufacturer	Endress Hauser	Device #	5
Serial Number	9219CA19000	Flow Recorder	Honeywell DPR-100C Channel 3
Instrument Accuracy % FS	0.03%	SCADA	
Customer Equipment/ID#	Whitpain flow	Remote Totalizer	x 1
Primary Device	300 mm		
Calibrated Range In E.U.	0 to 2400 gpm		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	January 12, 2018		
Date Calibrated	April 13, 2018		
Date Due	July-18		
Temperature	64 Deg F		
Relative Humidity	78%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015I	16080046	N/A	N/A	
Endress + Hauser	Field Check	C1050802000	20-Mar-17	March-18	

STANDARD VALUE %	Expected Reading Ma	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0	4.00	4.00	0.000%	4.00	0.000%
25	8.00	8.00	0.000%	8.00	0.000%
50	12.00	12.00	0.000%	12.00	0.000%
75	16.00	16.00	0.000%	16.00	0.000%
100	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display GPM	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0	0	0.000%	0	0.000%
8.00	600	600	0.000%	600	0.000%
12.00	1200	1200	0.000%	1200	0.000%
16.00	1800	1800	0.000%	1800	0.000%
20.00	2400	2400	0.000%	2400	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	0.86	0.86	0.000%	0.86	0.000%
12.00	1.73	1.73	0.000%	1.73	0.000%
16.00	2.59	2.59	0.000%	2.59	0.000%
20.00	3.46	3.46	0.000%	3.46	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.000	0.00	0.000%	0.00	0.000%
8.00	0.870	0.86	0.000%	0.86	0.000%
12.00	1.730	1.73	0.000%	1.73	0.000%
16.00	2.590	2.59	0.000%	2.59	0.000%
20.00	3.460	3.45	-0.289%	3.45	-0.289%

STANDARD VALUE % / Ma.	IntegratorTest/Check cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 0.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
20.83 / 7.20	500 gpm = 500 cts/min	59.86	0.233%	59.86	0.233%
41.66 / 1.44	1000 gpm = 1000 cts/min	d	0.017%	59.99	0.017%
83.33 / 2.88	2000 gpm = 2000 cts/min	59.92	0.133%	59.92	0.133%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #2 04-13-18	Site/Location	Sawmill Pump Station
Customer	East-Norlton JSA	Model#	Multiranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	Whitpain Plymouth
Manufacturer	Milltronics	Device #	2
Serial Number	122104118VU	Flow Recorder	Honeywell DPR-100C Channel 2
Instrument Accuracy % FS	2.00%	SCADA	
Customer Equipment/ID#	Whitpain Plymouth	Remote Totalizer	x 1
Primary Device	12" Parshall Flume		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	January 12, 2018		
Date Calibrated	April 13, 2018		
Date Due	July-18		
Temperature	64 Deg F		
Relative Humidity	78%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fuka Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	STANDARD VALUE Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0 mgd	4.00	4.00	0.000%	4.00	0.000%
11.71 = 2.5 mgd	8.00	8.00	0.000%	8.00	0.000%
18.54 = 5.0 mgd	12.00	12.00	0.000%	12.00	0.000%
24.18 = 7.5 mgd	16.00	16.00	0.000%	16.00	0.000%
29.28 = 10 mgd	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Inches	STANDARD VALUE MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00	0.00	0.00	0.000%	0.00	0.000%
11.71	2.50	2.50	0.000%	2.50	0.000%
18.54	5.00	5.00	0.000%	5.00	0.000%
24.18	7.50	7.50	0.000%	7.50	0.000%
29.28	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.49	0.100%	7.49	0.100%
20.00	10.00	9.98	0.200%	9.98	0.200%

STANDARD VALUE % / Ma.	Integrator/Test/Check cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.92	0.133%	59.92	0.133%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.03	-0.050%	60.03	-0.050%
86.4 / 17.82	6000 gpm = 6000 cts/min	60.18	-0.300%	60.18	-0.300%

Blanking Distance = 30.56"
Max Head Height = 29.24"

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sheffield #4 04-13-18	Site/Location	County Line Rd.
Customer	East-Noriton JSA	Model#	8712CR12NOM4
Instrument Description	Magmeter	Cal Number	11164052108
Manufacturer	Rosemount		52005
Serial Number	90W100195	Instrument ID#	Sheffield Flow
Instrument Accuracy % FS	0.05%	Device #	4
Customer Equipment/ID#	Sheffield Flow		
Primary Device	300 mm		
Calibrated Range In E.U.	0 to 5000 gpm		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	January 12, 2018	SCADA	
Date Calibrated	April 13, 2018	Remote Totalizer	x 1
Date Due	July-18		
Temperature	64 Deg F		
Relative Humidity	78%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Process meter	741B	7025501	18-Aug-17	Aug-18	
Rosemount	8714D	617	20-Mar-17	March-18	

STANDARD VALUE	STANDARD VALUE	Measured Value	% Error	Measured Value	% Error
Ft./sec	Ma.	As Found	As Found	As Left	As Left
0.0	4.00	3.98	-0.125%	4.00	0.000%
3.0	5.60	5.58	-0.125%	5.60	0.000%
10.0	9.28	9.26	-0.125%	9.28	0.000%
30.0	20.00	19.98	-0.125%	20.00	0.000%

STANDARD VALUE	Expected SCADA Display	Measured Value	% Error	Measured Value	% Error
MA.	GPM	As Found	As Found	As Left	As Left
4.00	0	0	0.000%	0	0.000%
8.00	1250	1244	-0.125%	1250	0.000%
12.00	2500	2494	-0.125%	2500	0.000%
16.00	3750	2744	-0.125%	3750	0.000%
20.00	5000	4994	-0.125%	5000	0.000%

Integrator/Test/Check % / Ma.	Expected SCADA cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
40 / 10.40	2000 gpm = 2000 cts/min	59.86	0.233%	59.86	0.233%
80 / 16.80	4000 gpm = 4000 cts/min	59.92	0.133%	59.92	0.133%
100 / 20.00	5000 gpm = 5000 cts/min	59.99	0.017%	59.99	0.017%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

Third Quarter

Flow Meter Calibration Reports

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Chem #8 - 07-12-18	Site/Location	East Noriton Plant
Customer	East-Noriton	Model#	Hydroranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	Chemical Rd Influent
Manufacturer	Milltronics	Device #	8
Serial Number	PBDT5030406	Recorder	Chessell 392
Instrument Accuracy % FS	2.00%	SCADA	
Customer Equipment/ID#	Chemical Road	Remote Totalizer	x 1
Primary Device	9" Parshall Flume		
Calibrated Range In E.U.	0 to 5.0 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	April 12, 2018		
Date Calibrated	July 12, 2018		
Date Due	October-18		
Temperature	86 Deg F		
Relative Humidity	62%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Expected Reading in Ma	Measured Value As Found MA	% Error As Found	Measured Value As Left MA	% Error As Left
0.0	4.00	4.00	0.000%	4.00	0.000%
8.88" = 1.25MGD	8.00	8.00	0.000%	8.00	0.000%
14.01" = 2.5 MGD	12.00	12.00	0.000%	12.00	0.000%
18.21" = 3.75 MGD	16.00	16.00	0.000%	16.00	0.000%
21.96" = 5.0MGD	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
14.4 / 6.30	500 gpm = 500 cts/min	59.95	0.083%	59.95	0.083%
28.8 / 8.61	1000 gpm = 1000 cts/min	60.07	-0.117%	60.07	-0.117%
86.4 / 17.82	3000 gpm = 3000 cts/min	60.14	-0.233%	60.14	-0.233%

Zero Reading = 22.26
 Max Head Height = 70.70

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
 Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Activated #7 7/12/2018	Site/Location	East Noriton Plant
Customer	East-Noriton		
Instrument Description	Radar flow Meter	Model#	Vegamet 391
Manufacturer	Vega		
Serial Number	28370062	Instrument ID#	Activated Side
Instrument Accuracy % FS	1.00%		
Customer Equipment/ID#	Activated Sludge Flow		
Primary Device	36" Sharp Crested Weir W/Econt		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	April 12, 2018		
Date Calibrated	July 12, 2018		
Date Due	October-18		
Temperature	86 Deg F		
Relative Humidity	62%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00"	4.00	4.00	0.000%	4.00	0.000%
4.08"	8.00	8.00	0.000%	8.00	0.000%
8.64"	12.00	12.00	0.000%	12.00	0.000%
10.56"	16.00	16.00	0.000%	16.00	0.000%
17.25"	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Inches	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00"	0.00	0.00	0.000%	0.00	0.000%
4.08"	2.50	2.50	0.000%	2.50	0.000%
8.64"	5.00	5.00	0.000%	5.00	0.000%
10.56"	7.50	7.50	0.000%	7.50	0.000%
17.25"	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	60.03	-0.050%	60.03	-0.050%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.17	-0.283%	60.17	-0.283%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.87	0.217%	59.87	0.217%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute of Standards and Technology (NIST). Completed records of all work performed are maintained by Allied Control

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Trickling # 6 7/13/2018	Site/Location	East Noriton Plant
Customer	East-Noriton JSA		
Instrument Description	Ultrasonic flow Meter	Model#	Vegaplug64
Manufacturer	Vega		
Serial Number	35473600		
Instrument Accuracy % FS	2.00%	Instrument ID#	Trickling Filter Flow
Customer Equipment/ID#	Effluent Flow	Totalizer	at Scada = x 1000
Primary Device	90 Deg V-Notch Weir	Device #	6
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	New		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	April 12, 2018		
Date Calibrated	July 13, 2018		
Date Due	October-18		
Temperature	76 Deg F		
Relative Humidity	62%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0.0 mgd	4.00	4.00	0.000%	4.00	0.000%
14.29 = 2.5 mgd	8.00	8.00	0.000%	8.00	0.000%
18.85 = 5.0 mgd	12.00	12.00	0.000%	12.00	0.000%
22.17 = 7.5 mgd	16.00	16.00	0.000%	16.00	0.000%
24.96 = 10.0 mgd	20.00	20.00	0.000%	20.00	0.000%

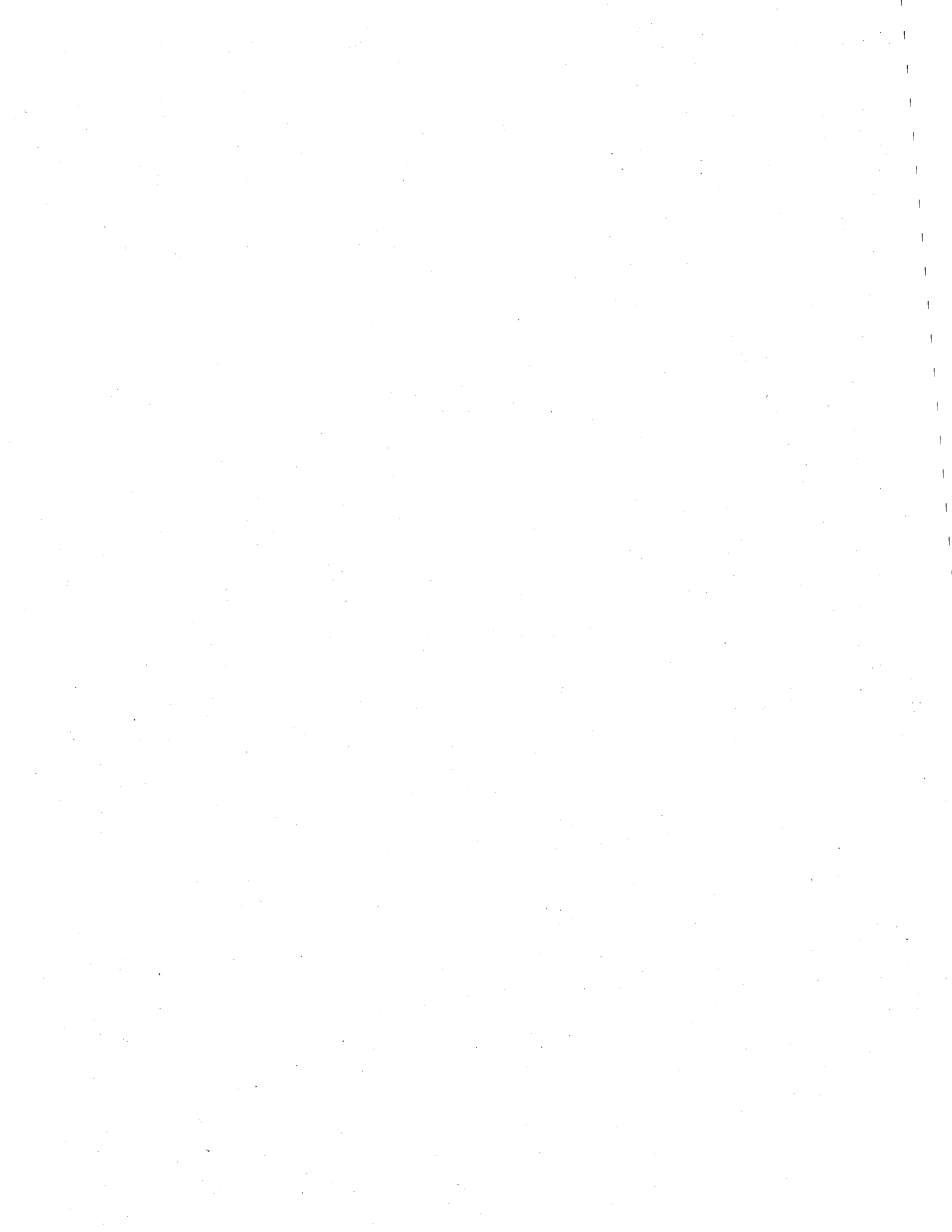
STANDARD VALUE Inches	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00	0.00	0.00	0.000%	0.00	0.000%
14.29	2.50	2.50	0.000%	2.50	0.000%
18.85	5.00	5.00	0.000%	5.00	0.000%
22.17	7.50	7.50	0.000%	7.50	0.000%
24.96	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE Ma. MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.99	0.017%	59.99	0.017%
57.6 / 13.22	4000 gpm = 4000 cts/min	59.88	0.200%	59.88	0.200%
86.4 / 17.82	6000 gpm = 6000 cts/min	60.10	-0.167%	60.10	-0.167%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).
 Completed records of all work performed are maintained by Allied Control

Dennis J. Reilly
 Technician



ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Trickling # 6	7/13/2018		
Customer	East-Noriton JSA		Site/Location	East Noriton Plant
Instrument Description	Ultrasonic flow Meter			
Manufacturer	Vega		Model#	Vegaplus64
Serial Number	35473600			
Instrument Accuracy % FS	2.00%			
Customer Equipment/ID#	Effluent Flow		Instrument ID#	Trickling Filter Flow
Primary Device	90 Deg V-Notch Weir		Totalizer	
Calibrated Range In E.U.	0 to 10.00 MGD		at Scada	= x 1000
Pre-Calibration Status	New			
Completed Status	In Tolerance		Device #	6
Procedure Used	Per Manufactures Procedure			
Date Of Last Calibration	April 12, 2018			
Date Calibrated	July 13, 2018			
Date Due	October-18			
Temperature	76 Deg F			
Relative Humidity	62%			
Technician	Dennis Reilly			

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0.0 mgd	4.00	4.00	0.000%	4.00	0.000%
14.29 = 2.5 mgd	8.00	8.00	0.000%	8.00	0.000%
18.85 = 5.0 mgd	12.00	12.00	0.000%	12.00	0.000%
22.17 = 7.5 mgd	16.00	16.00	0.000%	16.00	0.000%
24.96 = 10.0 mgd	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Inches	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00	0.00	0.00	0.000%	0.00	0.000%
14.29	2.50	2.50	0.000%	2.50	0.000%
18.85	5.00	5.00	0.000%	5.00	0.000%
22.17	7.50	7.50	0.000%	7.50	0.000%
24.96	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE Ma. MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.99	0.017%	59.99	0.017%
57.6 / 13.22	4000 gpm = 4000 cts/min	59.88	0.200%	59.88	0.200%
86.4 / 17.82	6000 gpm = 6000 cts/min	60.10	-0.167%	60.10	-0.167%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).
 Completed records of all work performed are maintained by Allied Control

Dennis J. Reilly
 Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #3 07-13-18	Site/Location	Sawmill Pump Station
Customer	East-Norriton JSA	Model#	Multiranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	East Norriton Flow
Manufacturer	Milltronics	Device #	3
Serial Number	122104118VU	Flow Recorder	Honeywell DPR-100C Channel 1
Instrument Accuracy % FS	2.00%	SCADA	
Customer Equipment/ID#	East Norriton Flow	Remote Totalizer	x 1
Primary Device	12" Parshall Flume		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	.1 % high		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	April 13, 2018		
Date Calibrated	August 12, 2018		
Date Due	October-18		
Temperature	72 Deg F		
Relative Humidity	64%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fuke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0 mgd	4.00	4.01	0.062%	4.00	0.000%
11.71 = 2.5 mgd	8.00	8.02	0.125%	8.00	0.000%
18.54 = 5.0 mgd	12.00	12.03	0.188%	12.00	0.000%
24.18 = 7.5 mgd	16.00	16.05	0.312%	16.00	0.000%
29.28 = 10 mgd	20.00	20.08	0.500%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.01	0.100%	0.00	0.000%
8.00	2.50	2.51	0.100%	2.50	0.000%
12.00	5.00	5.02	0.200%	5.00	0.000%
16.00	7.50	7.53	0.300%	7.50	0.000%
20.00	10.00	10.05	0.500%	10.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma. MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.49	0.100%	7.49	0.100%
20.00	10.00	9.98	0.200%	9.98	0.200%

Integrator/Test/Check % / Ma.	Expected SCADA cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	60.00	0.000%	60.00	0.000%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.05	-0.083%	60.05	-0.083%
86.4 / 17.82	6000 gpm = 6000 cts/min	60.20	-0.333%	60.20	-0.333%

Blanking Distance = 28.61"
Max Head Height = 29.24"

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #5 07-13-18	Site/Location	Saw Mill Rd
Customer	East-Noriton JSA	Model#	Promag 53W3H
Instrument Description	Magmeter Signal Converter	Instrument ID#	Whitpain flow
Manufacturer	Endress Hauser	Device #	5
Serial Number	9219CA19000	Flow Recorder	Honeywell DPR-100C Channel 3
Instrument Accuracy % FS	0.03%	SCADA	
Customer Equipment/ID#	Whitpain flow	Remote Totalizer	x 1
Primary Device	300 mm		
Calibrated Range In E.U.	0 to 2400 gpm		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	April 12, 2018		
Date Calibrated	July 13, 2018		
Date Due	October-18		
Temperature	76 Deg F		
Relative Humidity	62%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
Endress + Hauser	Field Check	C1050802000	20-Mar-17	March-18	

STANDARD VALUE %	Expected Reading Ma	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0	4.00	4.00	0.000%	4.00	0.000%
25	8.00	8.00	0.000%	8.00	0.000%
50	12.00	12.00	0.000%	12.00	0.000%
75	16.00	16.00	0.000%	16.00	0.000%
100	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display GPM	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0	0	0.000%	0	0.000%
8.00	600	600	0.000%	600	0.000%
12.00	1200	1200	0.000%	1200	0.000%
16.00	1800	1800	0.000%	1800	0.000%
20.00	2400	2400	0.000%	2400	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	0.86	0.86	0.000%	0.86	0.000%
12.00	1.73	1.73	0.000%	1.73	0.000%
16.00	2.59	2.59	0.000%	2.59	0.000%
20.00	3.46	3.46	0.000%	3.46	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.000	0.00	0.000%	0.00	0.000%
8.00	0.870	0.86	0.000%	0.86	0.000%
12.00	1.730	1.73	0.000%	1.73	0.000%
16.00	2.590	2.59	0.000%	2.59	0.000%
20.00	3.460	3.45	-0.289%	3.45	-0.289%

STANDARD VALUE % / Ma.	Integrator/Test/Check cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 0.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
20.83 / .720	500 gpm = 500 cts/min	59.92	0.133%	59.92	0.133%
41.66 / 1.44	1000 gpm = 1000 cts/min	59.97	0.050%	59.97	0.050%
83.33 / 2.88	2000 gpm = 2000 cts/min	59.88	0.200%	59.88	0.200%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #2 07-12-18	Site/Location	Sawmill Pump Station
Customer	East-Noriton JSA		
Instrument Description	Ultrasonic flow Meter	Model#	Multiranger 200
Manufacturer	Milltronics		
Serial Number	122104118VU	Instrument ID#	Whitpain Plymouth
Instrument Accuracy % FS	2.00%	Device #	2
Customer Equipment/ID#	Whitpain Plymouth	Flow Recorder	Honeywell DPR-100C
Primary Device	12" Parshall Flume		Channel 2
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	In Tolerance	SCADA	
Completed Status	In Tolerance	Remote Totalizer	x 1
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	April 13, 2018		
Date Calibrated	August 12, 2018		
Date Due	October-18		
Temperature	72 Deg F		
Relative Humidity	64%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	STANDARD VALUE Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0 mgd	4.00	4.01	8.010%	4.00	0.000%
11.71 = 2.5 mgd	8.00	8.01	0.062%	8.00	0.000%
18.54 = 5.0 mgd	12.00	12.01	0.062%	12.00	0.000%
24.18 = 7.5 mgd	16.00	16.02	0.125%	16.00	0.000%
29.28 = 10 mgd	20.00	20.02	0.125%	20.00	0.000%

STANDARD VALUE Inches	STANDARD VALUE MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00	0.00	0.00	0.000%	0.00	0.000%
11.71	2.50	2.50	0.000%	2.50	0.000%
18.54	5.00	5.00	0.000%	5.00	0.000%
24.18	7.50	7.51	0.100%	7.50	0.000%
29.28	10.00	10.01	0.100%	10.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.49	0.100%	7.49	0.100%
20.00	10.00	9.98	0.200%	9.98	0.200%

STANDARD VALUE % / Ma.	Integrator/Test/Check cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.95	0.083%	59.95	0.083%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.20	-0.333%	60.20	-0.333%
86.4 / 17.82	6000 gpm = 6000 cts/min	60.07	-0.117%	60.07	-0.117%

Blanking Distance = 30.56"
Max Head Height = 29.24"

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sheffield #4 07-13-18	Site/Location	County Line Rd.
Customer	East-Noriton JSA	Model#	8712CR12NOM4
Instrument Description	Magmeter	Cal Number	11164052108
Manufacturer	Rosemount		52005
Serial Number	90W100195	Instrument ID#	Sheffield Flow
Instrument Accuracy % FS	0.05%	Device #	4
Customer Equipment/ID#	Sheffield Flow		
Primary Device	300 mm		
Calibrated Range In E.U.	0 to 5000 gpm		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	April 12, 2018	SCADA	
Date Calibrated	July 13, 2018	Remote Totalizer	x 1
Date Due	October-18		
Temperature	76 Deg F		
Relative Humidity	62%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Process meter	741B	7025501	18-Aug-17	Aug-18
Rosemount	8714D	617	20-Mar-17	March-18

STANDARD VALUE	STANDARD VALUE	Measured Value	% Error	Measured Value	% Error
Ft./sec	Ma.	As Found	As Found	As Left	As Left
0.0	4.00	3.98	-0.125%	4.00	0.000%
3.0	5.60	5.58	-0.125%	5.60	0.000%
10.0	9.28	9.26	-0.125%	9.28	0.000%
30.0	20.00	19.98	-0.125%	20.00	0.000%

STANDARD VALUE	Expected SCADA Display	Measured Value	% Error	Measured Value	% Error
MA.	GPM	As Found	As Found	As Left	As Left
4.00	0	0	0.000%	0	0.000%
8.00	1250	1244	-0.125%	1250	0.000%
12.00	2500	2494	-0.125%	2500	0.000%
16.00	3750	2744	-0.125%	3750	0.000%
20.00	5000	4994	-0.125%	5000	0.000%

IntegratorTest/Check	Expected SCADA	Measured Value	% Error	Measured Value	% Error
% / Ma.	cts/min	As Found	As Found	As Left	As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
40 / 10.40	2000 gpm = 2000 cts/min	59.88	0.200%	59.88	0.200%
80 / 16.80	4000 gpm = 4000 cts/min	60.10	-0.167%	60.10	-0.167%
100 / 20.00	5000 gpm = 5000 cts/min	59.97	0.050%	59.97	0.050%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Walton #7 07-12-18	Site/Location	Walton Rd
Customer	East-Noriton	Model#	50US3000
Instrument Description	Ultrasonic flow Meter	Instrument ID#	Walton Rd
Manufacturer	Fischer Porter	Device #	7
Serial Number	90W005775		
Instrument Accuracy % FS	2.00%		
Customer Equipment/ID#	Walton Rd		
Primary Device	10 " Leapold Lagco		
Calibrated Range In E.U.	0 to 400 GPM		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	April 12, 2018	SCADA	
Date Calibrated	July 12, 2018	Remote Totalizer	x 1
Date Due	October-18		
Temperature	76 Deg F		
Relative Humidity	62%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	18-Aug-17	Aug-18
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0. = 0 GPM	4.00	3.94	0.000%	4.02	0.125%
4.53" = 200 GPM	8.00	7.92	-0.500%	8.00	0.000%
5.88" = 300 GPM	16.00	15.92	-0.500%	16.00	0.000%
7.08" = 400 GPM	20.00	19.92	-0.500%	20.00	0.000%

STANDARD VALUE MA.	Expected SCADA Display GPM	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0	0	0.000%	1	0.125%
8.00	100	98	-0.500%	100	0.000%
12.00	200	198	-0.500%	200	0.000%
16.00	300	298	-0.500%	300	0.000%
20.00	400	398	-0.500%	400	0.000%

Integrator/Test/Check % / Ma.	Expected SCADA cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
25 / 8.0	100 gpm = 100 cts/min	59.93	0.117%	59.93	0.117%
50 / 12.0	200 gpm = 200 cts/min	60.03	-0.050%	60.03	-0.050%
100 / 20.0	400 gpm = 400 cts/min	60.17	-0.283%	60.17	-0.283%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
 Technician

CERTIFICATE OF CALIBRATION

East Norriton W.W.T.P.

Plant Main Influent

Primary: Round Pipe ID = 36.00 Inches
Range 0.00 MGD to 30.00 MGD

Manufacturer: MARSH McBIRNEY **Model:** FL900 FLOW METER
Serial: 090900DA1476

SUMMARY OF FIELD CALIBRATION MEASUREMENTS AS OF 7-13-18

Pipe Velocity as Found

<u>Standard (FPS)</u>	<u>Meter (FPS)</u>
3.55	3.35

Pipe Velocity as Left

<u>Standard (FPS)</u>	<u>(Meter (FPS)</u>
3.55	3.55

Pipe Depth as Found

<u>Standard (IN.)</u>	<u>Meter (IN.)</u>
19.75	19.65

Pipe Depth as Left

<u>Standard (IN.)</u>	<u>Meter (IN.)</u>
19.75	19.75

Flodar Flow/mADC as Found

<u>MGD</u>	<u>As Expected</u>	<u>As Found</u>
4.27 MGD.	6.28 mADC	6.28 mADC

Flodar Flow/mADC as Left

<u>As Left</u>
6.28 mADC

Sediment level as measured was approximately 0.0 inches.
Sediment level parameter as-left was 0.0 inches

NOTE: Increased Velocity .2 fps and Increased Level .1 inches

This document certifies that the described equipment has been calibrated and is operating in accordance with the flow accuracy as originally stated by the equipment manufacturer. Verification is indicated by the measured results shown above. It is further certified that all meter parameters were field verified and are in accordance with the manufacturer's recommendations. The equipment is accurately measuring the depth and velocity readings.

Dennis J. Reilly

CERTIFIED BY NAME

07-13-18

DATE

Allied Control Services, Inc.
611 Garfield Avenue
West Point, PA 19486
Phone: 1-800-441-4844
Fax: 215-699-9030

Fourth Quarter

Flow Meter Calibration Reports

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Chem #8 - 10-11-18	Site/Location	East Norriton Plant
Customer	East-Norriton	Instrument Description	Ultrasonic flow Meter
Manufacturer	Milltronics	Model#	Hydroranger 200
Serial Number	PBDT5030406	Instrument ID#	Chemical Rd Influent
Instrument Accuracy % FS	2.00%	Device #	8
Customer Equipment/ID#	Chemical Road	Recorder	Chessell 392
Primary Device	9" Parshall Flume	SCADA	
Calibrated Range In E.U.	0 to 5.0 MGD	Remote Totalizer	x 1
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	July 12, 2018		
Date Calibrated	October 11, 2018		
Date Due	January-19		
Temperature	70 Deg F		
Relative Humidity	68%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	24-Aug-18	24-Aug-19
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Expected Reading in Ma	Measured Value As Found MA	% Error As Found	Measured Value As Left MA	% Error As Left
0.0	4.00	4.00	0.000%	4.00	0.000%
8.88" = 1.25MGD	8.00	8.00	0.000%	8.00	0.000%
14.01" = 2.5 MGD	12.00	12.00	0.000%	12.00	0.000%
18.21" = 3.75 MGD	16.00	16.00	0.000%	16.00	0.000%
21.96" = 5.0MGD	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	1.25	1.25	0.000%	1.25	0.000%
12.00	2.50	2.50	0.000%	2.50	0.000%
16.00	3.75	3.75	0.000%	3.75	0.000%
20.00	5.00	5.00	0.000%	5.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
14.4 / 6.30	500 gpm = 500 cts/min	60.07	-0.117%	60.07	-0.117%
28.8 / 8.61	1000 gpm = 1000 cts/min	60.20	-0.333%	60.20	-0.333%
86.4 / 17.82	3000 gpm = 3000 cts/min	60.17	-0.283%	60.17	-0.283%

Zero Reading = 22.26
Max Head Height = 70.70

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Activated #7 10/12/2018	Site/Location	East Noriton Plant
Customer	East-Noriton	Model#	Vegamet 391
Instrument Description	Radar flow Meter	Instrument ID#	Activated Side
Manufacturer	Vega		
Serial Number	28370062		
Instrument Accuracy % FS	1.00%		
Customer Equipment/ID#	Activated Sludge Flow		
Primary Device	36" Sharp Crested Weir W/Econt		
Calibrated Range In E.U.	0 to10.00 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	July 12, 2018		
Date Calibrated	October 12, 2018		
Date Due	January-19		
Temperature	66 Deg F		
Relative Humidity	68%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	24-Aug-18	24-Aug-19	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00"	4.00	4.00	0.000%	4.00	0.000%
4.08"	8.00	8.00	0.000%	8.00	0.000%
8.64"	12.00	12.00	0.000%	12.00	0.000%
10.56"	16.00	16.00	0.000%	16.00	0.000%
17.25"	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Inches	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00"	0.00	0.00	0.000%	0.00	0.000%
4.08"	2.50	2.50	0.000%	2.50	0.000%
8.64"	5.00	5.00	0.000%	5.00	0.000%
10.56"	7.50	7.50	0.000%	7.50	0.000%
17.25"	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.91	0.150%	59.91	0.150%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.11	-0.183%	60.11	-0.183%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.81	0.317%	59.81	0.317%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute of Standards And Technology (NIST). Completed records of all work performed are maintained by Allied Control

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Trickling # 6 10/12/2018	Site/Location	East Noriton Plant
Customer	East-Noriton JSA	Instrument Description	Ultrasonic flow Meter
Manufacturer	Vega	Model#	Vegaplus64
Serial Number	35473600	Instrument ID#	Trickling Filter Flow
Instrument Accuracy % FS	2.00%	Totalizer	at Scada = x 1000
Customer Equipment/ID#	Effluent Flow	Device #	6
Primary Device	90 Deg V-Notch Weir		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	New		
Completed Status	In Tolerance		
Procedure Used	Per Manufacturers Procedure		
Date Of Last Calibration	July 12, 2018		
Date Calibrated	October 12, 2018		
Date Due	January-19		
Temperature	66 Deg F		
Relative Humidity	68%		
Technician	Dennis Reilly		

Standards Used					
Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	24-Aug-18	24-Aug-19	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0.0 mgd	4.00	4.00	0.000%	4.00	0.000%
14.29 = 2.5 mgd	8.00	8.00	0.000%	8.00	0.000%
18.85 = 5.0 mgd	12.00	12.00	0.000%	12.00	0.000%
22.17 = 7.5 mgd	16.00	16.00	0.000%	16.00	0.000%
24.96 = 10.0 mgd	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Inches	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00	0.00	0.00	0.000%	0.00	0.000%
14.29	2.50	2.50	0.000%	2.50	0.000%
18.85	5.00	5.00	0.000%	5.00	0.000%
22.17	7.50	7.50	0.000%	7.50	0.000%
24.96	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE Ma. MA.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

Integrator Test/Check % / Ma.	Expected SCADA 60 seconds test times	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.90	0.167%	59.90	0.167%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.04	-0.067%	60.04	-0.067%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.98	0.033%	59.98	0.033%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).
 Completed records of all work performed are maintained by Allied Control

Dennis J. Reilly
 Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #3 10-11-18	Site/Location	Sawmill Pump Station
Customer	East-Norriton JSA	Model#	Multiranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	East Norriton Flow
Manufacturer	Milltronics	Device #	3
Serial Number	122104118VU	Flow Recorder	Honeywell DPR-100C Channel 1
Instrument Accuracy % FS	2.00%	SCADA	
Customer Equipment/ID#	East Norriton Flow	Remote Totalizer	x 1
Primary Device	12" Parshall Flume		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	.1 % high		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	July 12, 2018		
Date Calibrated	October 11, 2018		
Date Due	January-19		
Temperature	70 Deg F		
Relative Humidity	68%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	24-Aug-18	24-Aug-19	
Nokia stopwatch	6015i	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0 mgd	4.00	4.00	0.000%	4.00	0.000%
11.71 = 2.5 mgd	8.00	8.00	0.000%	8.00	0.000%
18.54 = 5.0 mgd	12.00	12.00	0.000%	12.00	0.000%
24.18 = 7.5 mgd	16.00	16.00	0.000%	16.00	0.000%
29.28 = 10 mgd	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.49	0.100%	7.49	0.100%
20.00	10.00	9.98	0.200%	9.98	0.200%

Integrator Test/Check % / Ma.	Expected SCADA cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	60.17	-0.283%	60.17	-0.283%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.05	-0.083%	60.05	-0.083%
86.4 / 17.82	6000 gpm = 6000 cts/min	59.93	0.117%	59.93	0.117%

Blanking Distance = 28.61"
Max Head Height = 29.24"

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #5 10-11-18	Site/Location	Saw Mill Rd
Customer	East-Noriton JSA	Model#	Promag 53W3H
Instrument Description	Magmeter Signal Converter	Instrument ID#	Whitpain flow
Manufacturer	Endress Hauser	Device #	5
Serial Number	9219CA19000	Flow Recorder	Honeywell DPR-100C Channel 3
Instrument Accuracy % FS	0.03%	SCADA	
Customer Equipment/ID#	Whitpain flow	Remote Totalizer	x 1
Primary Device	300 mm		
Calibrated Range In E.U.	0 to 2400 gpm		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	July 12, 2018		
Date Calibrated	October 11, 2018		
Date Due	January-19		
Temperature	70 Deg F		
Relative Humidity	68%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	24-Aug-18	24-Aug-19
Nokia stopwatch	6015i	16080046	N/A	N/A
Endress + Hauser	Field Check	C1050802000	20-Mar-18	March-19

STANDARD VALUE %	Expected Reading Ma	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0	4.00	4.00	0.000%	4.00	0.000%
25	8.00	8.00	0.000%	8.00	0.000%
50	12.00	12.00	0.000%	12.00	0.000%
75	16.00	16.00	0.000%	16.00	0.000%
100	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Ma.	Expected Local Display GPM	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0	0	0.000%	0	0.000%
8.00	600	600	0.000%	600	0.000%
12.00	1200	1200	0.000%	1200	0.000%
16.00	1800	1800	0.000%	1800	0.000%
20.00	2400	2400	0.000%	2400	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	0.86	0.86	0.000%	0.86	0.000%
12.00	1.73	1.73	0.000%	1.73	0.000%
16.00	2.59	2.59	0.000%	2.59	0.000%
20.00	3.46	3.46	0.000%	3.46	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.000	0.00	0.000%	0.00	0.000%
8.00	0.870	0.86	0.000%	0.86	0.000%
12.00	1.730	1.73	0.000%	1.73	0.000%
16.00	2.590	2.59	0.000%	2.59	0.000%
20.00	3.460	3.45	-0.289%	3.45	-0.289%

STANDARD VALUE % / Ma.	Integrator/Test/Check cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 0.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
20.83 / .720	500 gpm = 500 cts/min	60.20	-0.333%	60.20	-0.333%
41.66 / 1.44	1000 gpm = 1000 cts/min	59.95	0.083%	59.95	0.083%
83.33 / 2.88	2000 gpm = 2000 cts/min	60.07	-0.117%	60.07	-0.117%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sawmill #2 10-11-18	Site/Location	Sawmill Pump Station
Customer	East-Noriton JSA	Model#	Multiranger 200
Instrument Description	Ultrasonic flow Meter	Instrument ID#	Whitpain Plymouth
Manufacturer	Milltronics	Device #	2
Serial Number	122104118VU	Flow Recorder	Honeywell DPR-100C Channel 2
Instrument Accuracy % FS	2.00%	SCADA	
Customer Equipment/ID#	Whitpain Plymouth	Remote Totalizer	x 1
Primary Device	12" Parshall Flume		
Calibrated Range In E.U.	0 to 10.00 MGD		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufacturers Procedure		
Date Of Last Calibration	July 12, 2018		
Date Calibrated	October 11, 2018		
Date Due	January-19		
Temperature	70 Deg F		
Relative Humidity	68%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date	
Fluke Multimeter	741B	7025501	24-Aug-18	24-Aug-19	
Nokia stopwatch	6015I	16080046	N/A	N/A	
ISCO	5th Edt	N/A	N/A	N/A	
Empire	403	N/A	N/A	N/A	

STANDARD VALUE Inches	STANDARD VALUE Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 = 0 mgd	4.00	4.00	8.010%	4.00	0.000%
11.71 = 2.5 mgd	8.00	8.00	0.000%	8.00	0.000%
18.54 = 5.0 mgd	12.00	12.00	0.000%	12.00	0.000%
24.18 = 7.5 mgd	16.00	16.00	0.000%	16.00	0.000%
29.28 = 10 mgd	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE Inches	STANDARD VALUE MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0.00	0.00	0.00	0.000%	0.00	0.000%
11.71	2.50	2.50	0.000%	2.50	0.000%
18.54	5.00	5.00	0.000%	5.00	0.000%
24.18	7.50	7.50	0.000%	7.50	0.000%
29.28	10.00	10.00	0.000%	10.00	0.000%

STANDARD VALUE Ma.	Expected Recorder Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.50	0.000%	7.50	0.000%
20.00	10.00	10.00	0.000%	10.00	0.000%

NOTE: PAPER RECORDING NOT BEING USED

STANDARD VALUE Ma.	Expected SCADA Display MGD	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0.00	0.00	0.000%	0.00	0.000%
8.00	2.50	2.50	0.000%	2.50	0.000%
12.00	5.00	5.00	0.000%	5.00	0.000%
16.00	7.50	7.49	0.100%	7.49	0.100%
20.00	10.00	9.98	0.200%	9.98	0.200%

STANDARD VALUE % / Ma.	Integrator/Test/Check cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
28.8 / 8.61	2000 gpm = 2000 cts/min	59.95	0.083%	59.95	0.083%
57.6 / 13.22	4000 gpm = 4000 cts/min	60.04	-0.067%	60.04	-0.067%
86.4 / 17.82	6000 gpm = 6000 cts/min	60.17	-0.283%	60.17	-0.283%

Blanking Distance = 30.56"
Max Head Height = 29.24"

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Sheffield #4 10-11-18	Site/Location	County Line Rd.
Customer	East-Noriton JSA		
Instrument Description	Magmeter	Model#	8712CR12NOM4
Manufacturer	Rosemount	Cal Number	11164052108
Serial Number	90W100195		52005
Instrument Accuracy % FS	0.05%	Instrument ID#	Sheffield Flow
Customer Equipment/ID#	Sheffield Flow	Device #	4
Primary Device	300 mm		
Calibrated Range In E.U.	0 to 5000 gpm		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	July 12, 2018	SCADA	
Date Calibrated	October 11, 2018	Remote Totalizer	x 1
Date Due	January-19		
Temperature	70 Deg F		
Relative Humidity	68%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	24-Aug-18	24-Aug-19
Rosemount	8714D	617	20-Mar-17	March-18

STANDARD VALUE	STANDARD VALUE	Measured Value	% Error	Measured Value	% Error
Ft./sec	Ma.	As Found	As Found	As Left	As Left
0.0	4.00	4.00	0.000%	4.00	0.000%
3.0	5.60	5.60	0.000%	5.60	0.000%
10.0	9.28	9.28	0.000%	9.28	0.000%
30.0	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE	Expected SCADA Display	Measured Value	% Error	Measured Value	% Error
MA.	GPM	As Found	As Found	As Left	As Left
4.00	0	0	0.000%	0	0.000%
8.00	1250	1244	-0.125%	1250	0.000%
12.00	2500	2494	-0.125%	2500	0.000%
16.00	3750	2744	-0.125%	3750	0.000%
20.00	5000	4994	-0.125%	5000	0.000%

Integrator Test/Check	Expected SCADA	Measured Value	% Error	Measured Value	% Error
% / Ma.	cts/min	As Found	As Found	As Left	As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
40 / 10.40	2000 gpm = 2000 cts/min	60.20	-0.333%	60.20	-0.333%
80 / 16.80	4000 gpm = 4000 cts/min	59.95	0.083%	59.95	0.083%
100 / 20.00	5000 gpm = 5000 cts/min	60.00	0.000%	60.00	0.000%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standarrds And Technology (NIST).

Dennis J. Reilly
Technician

ALLIED CONTROL SERVICES, INC.
P.O. Box 234
611 Garfield Avenue
West Point, PA 19486
(215) 699-2855

Certificate Of Calibration

Certificate #	Walton #7 10-11-18	Site/Location	Walton Rd
Customer	East-Noriton		
Instrument Description	Ultrasonic flow Meter	Instrument ID#	Walton Rd
Manufacturer	Fischer Porter	Device #	7
Serial Number	90W005775	Model#	50US3000
Instrument Accuracy % FS	2.00%		
Customer Equipment/ID#	Walton Rd		
Primary Device	10 " Leapold Lagco		
Calibrated Range In E.U.	0 to 400 GPM		
Pre-Calibration Status	In Tolerance		
Completed Status	In Tolerance		
Procedure Used	Per Manufactures Procedure		
Date Of Last Calibration	July 12, 2018	SCADA	
Date Calibrated	October 11, 2018	Remote Totalizer	x 1
Date Due	January-19		
Temperature	70 Deg F		
Relative Humidity	68%		
Technician	Dennis Reilly		

Standards Used

Manufacturer	Model	Serial	Cal Date	Due date
Fluke Multimeter	741B	7025501	24-Aug-18	24-Aug-19
Nokia stopwatch	6015i	16080046	N/A	N/A
ISCO	5th Edt	N/A	N/A	N/A
Empire	403	N/A	N/A	N/A

STANDARD VALUE Inches	Expected Reading Ma.	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0. = 0 GPM	4.00	4.02	0.125%	4.02	0.125%
4.53" = 200 GPM	8.00	8.00	0.000%	8.00	0.000%
5.88" = 300 GPM	16.00	16.00	0.000%	16.00	0.000%
7.08" = 400 GPM	20.00	20.00	0.000%	20.00	0.000%

STANDARD VALUE MA.	Expected SCADA Display GPM	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
4.00	0	2	0.000%	2	0.125%
8.00	100	100	0.000%	100	0.000%
12.00	200	200	0.000%	200	0.000%
16.00	300	300	0.000%	300	0.000%
20.00	400	400	0.000%	400	0.000%

Integrator Test/Check % / Ma.	Expected SCADA cts/min	Measured Value As Found	% Error As Found	Measured Value As Left	% Error As Left
0 / 4.00	0 gpm = 0 cts/min	0	0.000%	0	0.000%
25 / 8.0	100 gpm = 100 cts/min	60.05	-0.083%	60.05	-0.083%
50 / 12.0	200 gpm = 200 cts/min	60.11	-0.183%	60.11	-0.183%
100 / 20.0	400 gpm = 400 cts/min	59.95	0.083%	59.95	0.083%

It is hereby certified that the equipment above has been calibrated to manufacturer's specifications in compliance with MIL-STD-45662A, ISO 10012-1, and/or customer contractual requirements. The standards used to calibrate this equipment are traceable to the National Institute Of Standards And Technology (NIST).

Dennis J. Reilly
 Technician

**EAST NORRITON TOWNSHIP
2018 CHAPTER 94 REPORT**

COLLECTION SYSTEM QUESTIONNAIRE

JUNE 2019

PREPARED FOR:

**EAST NORRITON TOWNSHIP
2501 STANBRIDGE STREET EAST
NORRITON, PA 19401-1616**

PREPARED BY:

**CARROLL ENGINEERING CORPORATION
949 EASTON ROAD
WARRINGTON, PA 18976**

Copyright © - 2019 Carroll Engineering Corporation - All Rights Reserved - These documents were prepared by, and are owned by, Carroll Engineering Corporation; and as such, represent instruments of professional service with respect to the project for which they were specifically designed and to the listed client and/or applicant. The documents and information are not intended or represented to be suitable for reuse by the listed client/applicant, or by others, on extensions or modification of the project or any other project. The reproduction of a copy of these plans, or reuse of these documents, and/or the copying of any portion of information shown on these plans is not permitted and in no circumstance will be approved without an assignment of copyright privileges. Violation of this restriction shall be considered a violation of the Professional Code of Ethics and a theft of corporate assets, both of which shall be prosecuted to the fullest extent of current statutes. In the event of any unauthorized use, the person initiating the use shall accept all responsibility, both for copyright violation and professional liability, for any claims, damages, losses, and expenses arising from the unauthorized reproduction, misuse, or misappropriation of these documents or information shown on said documents.

TABLE OF CONTENTS

- I. COLLECTION SYSTEM QUESTIONNAIRE
- II. PUMP STATION DATA SUMMARY
- III. ADDITIONAL CONNECTION INFORMATION
- IV. FLOWS AT METERED PUMP STATIONS FOR RAIN EVENTS GREATER THAN ONE
(1) INCH
- V. SANITARY SEWER OVERFLOWS
- VI. CALIBRATION REPORTS

I. COLLECTION SYSTEM QUESTIONNAIRE

2018 COLLECTION SYSTEM QUESTIONNAIRE

Municipality Name: East Norriton Township

Date: June 18, 2019

A. SEWER SYSTEM DETAILS

1. Connected Population: (Estimated)

Present

2018	2019	2020	2021	2022	2023
15,920	16,180	16,456	16,606	16,913	17,177

2. Total Length of System: 313,251 feet (Actual)

3. Range of pipe sizes:

- a. Smallest: 8 inches (Actual)
- b. Largest: 24 inches (Actual)

4. Total number of manholes: 1,486 (Actual)

5. Construction material:

- a. Pipes: VCP, PVC, DIP
- b. Manholes: Precast concrete or brick

6. Combined sewers:

- a. Location: None
- b. Percent of total system: N/A

7. Major Interceptors:

Name	Length (feet)	Pipe Diameter (in)		Estimated Service Population
		Maximum	Minimum	
Stony Creek No. 1	7,750	18	10	8,499
Stony Creek No. 2 (East Branch)	9,500	24	10	15,655
Stony Creek No. 3 (West Branch)	2,625	12	12	4,163

8. Five-year Projections: Interceptors

Name/Segment	Limiting Section Capacity (MGD)	Peak Flows (MGD)*					
		Actual	Projected				
		2018	2019	2020	2021	2022	2023
Stony Creek No. 1	3.464	3.37	3.40	3.44	3.45	3.47	3.49
Stony Creek No. 2	5.853	5.13	5.20	5.27	5.32	5.41	5.48
Stony Creek No. 3	1.985	1.58	1.59	1.60	1.60	1.62	1.62

Please see supporting documentation provided at the end of this questionnaire.

*Note: Peak Flows in each interceptor for 2018 were calculated by taking the average of the peak daily flows from each month. Projections for 2019 through 2023 were calculated by adding projected EDUs (1 EDU = 230 GPD) and using a peaking factor of 3.0.

9. Mitigating Measures

If the projected flow exceeds the limiting section capacity at any time during the five-year period, explain proposed and on-going efforts to correct the potential overload for each instance. Estimate the probable success of these mitigating measures in eliminating the potential overload condition.

As part of its overall flow management strategy, the Township is continually looking for opportunities to reduce flows. As part of the residential resale U&O process, Township personnel specifically look for illegal connections (sump pumps, condensate lines, etc.) to the sewer system and require they be disconnected when found. In areas of the Township where storm sewer systems exist, the Township has undertaken a program to provide connections to the storm sewers for any property that wishes to connect their sump pump discharges, thereby eliminating the temptation to connect sump pumps to the sanitary sewer.

The installation of a stormwater system in Barbara Drive to capture sump pump discharges to eliminate peaks during wet weather events is proposed for 2019-2020. Barbara Drive is tributary to the Stony Creek No. 1 Interceptor and to Timberlake Pump Station, where projected peak flows are expected to exceed capacity in 2021.

The Township continues to utilize the surge storage tank at Einstein Pump Station to mitigate the effects of severe wet weather events on the collection system. When appropriate, flows are diverted into the tank at Einstein to minimize flows to the Timberlake PS and ultimately to the Norris City PS. The goal is for the Township to utilize this asset to their advantage to better handle extreme wet weather flows.

a. SURGE STORAGE TANK AT EINSTEIN PUMP STATION

The narrative below detailing the Einstein Pump Station operation and its interaction with the Germantown and Timberlake pump stations has been provided in prior questionnaires and is again provided as reference for the Department's use.

Completion of the Einstein Hospital project involved the construction of a sanitary sewer pump station and a 281,000 gallon surge storage tank. Also incorporated into this project is a SCADA system that allows monitoring and control of the Germantown PS-Einstein PS-Timberlake PS system to better manage flows from the western part of the service territory and subsequently better manage flows through the associated interceptors.

The SCADA system monitors wet well levels at Germantown, Einstein & Timberlake pump stations as well as flows from both Germantown and Einstein, both of which are tributary to Timberlake. Communications among all stations is via radio control system. The Township has established a maximum combined pumping limit from both Germantown & Einstein of 2,400 GPM. This limit, based on field experience, is the flow at which no overflows will occur at the Timberlake PS.

The control logic for the Einstein PS is designed such that should the wet well level at Timberlake PS become elevated or the combined pumping rates of both Einstein and Germantown exceed 2,400 GPM, then flows from Einstein will be diverted into the surge storage tank located adjacent to the Einstein pump station. When peak flow conditions have subsided and conditions at all three stations are acceptable, the surge storage tank will drain into the Einstein wet well and be pumped forward to Timberlake.

The Stony Creek No. 1 interceptor receives direct benefit from this SCADA system by reducing peak flows generated from the western portion of our service territory. The Stony Creek No. 3 interceptor also benefits greatly from the diversion of the entire Sandra Lane PS drainage area through the sanitary sewer improvements and diversions that have been constructed and came online in 2012.

In 2018, the surge storage tank at the Einstein Pump Station was utilized a total of twenty-six (26) times. Of those twenty-six times, nine (9) were excluded from the table below because of the low volume of sewage that was pumped (<10,000 gals.). The surge tank was activated for a total of 2,855,113 gallons of sewage in 2018.

2018 SURGE STORAGE TANK ACITIVATIONS*									
Date	Gallons Stored	Date	Gallons Stored	Date	Gallons Stored	Date	Gallons Stored	Date	Gallons Stored
2/9/2018	278,206	3/2/2018	288,478	9/10/2018	44,323	11/19/2018	18,122	12/31/2018	11,744
2/14/2018	13,860	5/17/2018	377,006	9/30/2018	134,324	11/26/2018	37,554		
2/16/2018	49,508	6/10/2018	369,365	10/16/2018	11,757	12/20/2018	456,211		
2/25/2018	104,718	8/14/2018	130,482	11/13/2018	18,122	12/28/2018	203,886		

*Storage volumes (gallons Stored) are based on total diverted flows and does not account for flow that was release back into the system on the same day.

b. STONY CREEK No.2 INTERCEPTOR REALIGNMENT & NORRIS CITY AVE DIVERSION

In an effort to mitigate the SSOs that occur at MH 2A on Pacer Lane, the Township is proposing to realign the interceptor at MH 2 on Norris City Avenue. Currently the influent pipe makes an acute angle with the effluent pipe creating significant head loss and surcharge conditions resulting in SSOs at MH 2A immediately upstream. The Township proposes to install two "doghouse" manholes, one upstream and one downstream of MH 2 to create pipe angles of greater than 90 degrees. This will improve the hydraulic conditions at this manhole and ultimately mitigate the issues at MH 2A.

To further mitigate high flow conditions at MH 2A, the Township proposed to divert flows from the Coleston neighborhood of Montgomery Ave., Hartranft Blvd., Hancock Ave. , Francis Ave., and Johnson Hwy, by constructing more than 300 feet of new 8- inch gravity sewers along Norris City Avenue between MH 5 and a new diversion manhole between MH 517 & 518 on Swede Road. This diversion will bypass an estimated 184,000 gpd of wet weather flows around MH 2A on Pacer Lane and redirect these flows down Norris City Avenue directly to the Norris City PS.

In 2018, the Township received a PA Small Water & Sewer grant to complete this project, which is estimated at \$220,000 . We anticipate construction for this project to begin sometime in fall of 2019.

c. SANITARY SEWER OVERFLOWS (SSOs)

During the 2018 calendar year, the Township experienced SSOs at several locations throughout the year. A summary of these events as well as each report submitted to DEP in accordance with Department guidelines and with East Norriton Township policy can be found in Attachment V of this report. The attached documentation lists the date, location, duration, cause and resolution, where applicable, for each event.

10. Inflow/Infiltration Abatement Programs

Discuss ongoing and proposed inflow / infiltration programs to address sanitary sewer overflows in the service area, including sewer system monitoring, maintenance, repair and rehabilitation, routine and special activities, personnel and equipment used, sampling frequency, quality assurance, data analysis and inflow / infiltration monitoring. Provide a detailed schedule of remedial action that will be taken during the five-year projection period.

a. CHEMICAL ROOT CONTROL PROGRAM

In 2018, the Township continued its chemical root control program to systematically address areas of its service territory that have historically been problematic with respect to root blockages. During the year, the Township evaluated 3,365 IF of 8" sewer, 1,725 LF of 15" sewer and 840 LF of 24" sewer to be included in the root control program for 2019.

b. LATERAL INSPECTION PROGRAM

In 2007 East Norriton Township began a lateral inspection program as part of the property resale U&O process. This process involves Township staff televising and inspecting private sewer laterals for defects and possible sources of I/I. During 2018, a total of eighteen (18) laterals were televised, of which 8 (eight) required repairs. These repairs were either completed prior to property transfer or monies held in escrow until such time as the repairs were completed. To date, 1,557 private sewer laterals have been inspected through this program and 191 leaking and defective laterals have been repaired.

The above lateral inspection program is in addition to the 364 private laterals that were inspected as part of the 2007 Consent Order and Agreement. Of these 364 laterals, 252 were repaired.

In the last 9 years, a total of 1,921 laterals have been inspected with 453 of those repaired.

c. MANHOLE INSPECTION/REPAIR/REHABILITATION

The Township has an ongoing manhole inspection program in which leaking manholes are identified for repairs or rehabilitation however, no manholes were repaired or rehabilitated during 2018.

d. MANHOLE TO MANHOLE LINING

No sewer main was lined within the Township during 2018

B. PUMPING STATIONS

1. Description

Name/Number	Location	Capacity (MGD)		Metered	Force Main		Estimated Service Population
		Existing	Ultimate	(Yes/No)	Length (feet)	Diameter (inches)	
Stony Creek No. 1 (Timberlake)	Timberlake Apartments	4.6	4.6	Yes (Digital)	2130	12	8,499
Stony Creek No. 2 (Norris City)	Norris City Avenue at Bridge	7.5	7.5	Yes (Digital)	3505	16	15,655
Stony Creek No. 3 (Germantown)	Germantown Pike East of Burnside	2.9	2.9	Yes (Digital)	4900	12	4,163
Stony Creek No. 3 (Germantown)	Parallel Force Main - PS to Sunset Ave.			Yes (Digital)	931	6	4,163
Sandra Lane	Sandra Lane & Whitehall Road	0.50	0.50	Yes (Digital)	1900	6	191
Burnside Avenue	Norriton Business Center & Burnside Avenue	0.22	0.22	No (Timer)	1500	6	228
Schultz Road	Schultz Road & Singer Road	0.14	0.14	No (Timer)	1850	4	100
Whitehall Road	Whitehall Road & Township Line Road	0.07	0.07	No (Timer)	1100	4	53
Einstein Medical Center	Germantown Pike at Einstein MC	-	0.78	Yes (Digital)	2400	6	650

2. Pumping Station Part II Permitted Flows (Maximum Daily - MGD)

Name/Number	Part II Permitted Capacity	Number of Pumps	Maximum Pumping Rate*	2018 Average Flow	2018 Maximum Flow
Stony Creek No. 1 (Timberlake)	4.6	3	4.49	1.57	3.37
Stony Creek No. 2 (Norris City)	7.5	3	7.85	2.56	5.13
Stony Creek No. 3 (Germantown)	2.9	3	3.33	0.64	1.58
Sandra Lane	0.50	2	0.72	0.03	0.10
Burnside Avenue	0.22	2	0.43	Not Metered	0.11
Schultz Road	0.14	2	0.13	Not Metered	0.05
Whitehall Road	0.07	2	0.07	Not Metered	0.02
Einstein Med Ctr	1.4	2	1.4	0.15	0.33

*Maximum pumping rate based on field evaluation of pump performance.

3. Five Year Projection: Pump Stations (Maximum Daily - MGD)

Name	Capacity	2018	2019	2020	2021	2022	2023
Stony Creek No. 1 (Timberlake)	4.9	3.37	3.40	3.44	3.45	3.47	3.49
Stony Creek No. 2 (Norris City)	7.5	5.13	5.20	5.27	5.32	5.41	5.48
Stony Creek No. 3 (Germantown)	2.9	1.58	1.59	1.60	1.60	1.62	1.62
Sandra Lane	0.50	0.10	0.10	0.10	0.10	0.10	0.10
Burnside Avenue	0.22	0.11	0.11	0.13	0.13	0.15	0.15
Schultz Road	0.14	0.05	0.05	0.05	0.05	0.05	0.05
Whitehall Road	0.07	0.02	0.02	0.02	0.02	0.02	0.02
Einstein Medical Center	1.4	0.33	0.35	0.38	0.39	0.39	0.39

Maximum daily flows in each interceptor and pump station for 2018 were calculated by taking the average of the peak daily flows from each month. Maximum daily flow projections for 2019 through 2023 were calculated by adding projected EDUs (1 EDU = 230 GPD) and using a peaking factor of 3.0.

4. Mitigating Measures

If the projected peak flow exceeds the pumping station capacity at any time during the five year period, explain proposed and on-going efforts to correct the potential overload for each instance. Estimate the probable success of these mitigating measures in eliminating potential overload condition. Use additional sheets if necessary.

The narrative below describing the Germantown Pump Station Parallel Force Main has been provided in prior questionnaires and is again provided as reference for the Department's use:

GERMANTOWN PUMP STATION PARALLEL FORCE MAIN

In order to regain the capacity lost in the Germantown PS Force Main due to the sliplining project (930 LF of 6-inch, epoxy lined, ductile iron pipe), the Township obtained approval from DEP to install a parallel force main from the Germantown PS to a discharge point in the existing gravity collection system at Sunset Avenue.

The parallel force main is constructed from an existing 12" x 8" Tee and valve arrangement located on the existing 12-inch cast iron force main just outside of the pump station wet well. The new parallel force main utilizes the existing pump station pumps to convey sewage through this Tee and valve assembly and into a valve vault, where the operation of the parallel force main is regulated via a 6" pinch valve with a motorized actuator controlled by the PLC at the PS, which was installed as part of the Einstein PS project. This parallel force main then runs under the paved portion of Germantown Pike to the intersection with Sunset Avenue, at which point the force main terminates into an existing gravity manhole. The sewage conveyed by this parallel force main then flows by gravity through portions of the existing, and newly constructed, collection system to the new Einstein PS. It is the intention to have this parallel force main active only during periods of extreme wet weather when the existing sliplined force main cannot convey the flows the pump station receives.

The control logic in the PLC is such that wet well levels at the Germantown PS are monitored and during periods of extreme wet weather when the wet well levels are elevated, the pinch valve is opened to allow sewage to flow through both the sliplined original force main and the new parallel force main. Again, all sewage conveyed through both force mains is pumped via the existing pumps at the pump station. Other than the controls listed above, no other modifications to the pump station or pumps was performed.

During the design process, considerations were given to the downstream gravity collection system. It should be noted that this downstream collection system also receives the recently diverted Sandra Lane PS flows. This sewage no longer flows to Germantown PS. It was determined that the receiving gravity sewers for both of these discharges (Sandra Lane PS & Germantown PS Parallel FM) has a limiting capacity of 850 gpm. The parallel force main & appurtenances is designed to convey a maximum of 500 gpm, which restores the operational pumping capacity at Germantown PS to its original 2,400 gpm. Through the PLC at Germantown, this maximum capacity will be established by programming limitations on the opening of the pinch valve.

Physical construction of these facilities was completed in late 2012 and the system came online in early 2013. The contracted cost for the installation of this parallel force main and all associated features was \$298,095.84. With design, review, inspection costs, along with all other costs associated with mitigating the original force main capacity loss, East Norriton Township will have spent well in excess of \$500,000 to regain the original pumping capacity at our Germantown PS. Add to that the costs incurred with the original force main sliplining project, and our total costs to restore the structural integrity of our original 12-inch cast iron force main and maintain the preconstruction capacity was \$1.25M.

Additionally, East Norriton Township installed VFD motor controls at Sandra Lane PS in 2013 to better control the pumping rate, and subsequently the discharge rate of sewage entering the receiving collection system. This will allow us to better manage our flows downstream and reduce any possibility of exceeding the limiting section capacity described above.

In 2018, this parallel force main was activated on nineteen (19) different days throughout the year. Below is a chart of when the parallel force main was active and how much flow was conveyed through the main to Einstein PS. Using the parallel force main directs flows to Einstein PS, which can then be pumped into the surge storage tank.

2018 GERMANTOWN PUMP STATION PARALLEL FORCE MAIN ACITIVATIONS									
Date	Gallons of Flow	Date	Gallons of Flow	Date	Gallons of Flow	Date	Gallons of Flow	Date	Gallons of Flow
2/5/2018	42,433	4/17/2018	168,949	7/24/2018	66,477	9/19/2018	110	11/13/2018	131,868
2/8/2018	24,315	5/18/2018	136,374	7/27/2018	2,279	9/26/2018	10,274	11/19/2018	317,674
2/12/2018	204,076	5/21/2018	86,239	8/14/2018	193,185	10/2/2018	140,952	12/17/2018	3,396
3/5/2018	360,480	5/29/2018	143,525	9/10/2018	241,940	11/5/2018	1,556		

C. METER PITS

Name/Number	Location	Size/Type*	Sensor**	Estimated Connected Population
Fisher & Porter Model 50YS3000	Saw Mill Pump Station	12" Flume	Ultra-Sonic	15,920
Endress & Hauser Model FA00CB16000	Germantown PS Parallel Force	6" Pipe	Magnetic Flow Meter	N/A
Endress & Hauser Model E9041716000	Einstein PS Force Main	6" Pipe	Magnetic Flow Meter	650
Endress & Hauser Model E9041716000	Einstein PS Surge Storage Tank	6" Pipe	Magnetic Flow Meter	N/A

*i.e., Weir, Flume, Pipe, etc.

**Magnetic Flow Meter, Ultrasonic Level Sensor, etc.

D. OPERATION AND MAINTENANCE

1. Overall Sewer System Condition

The sewer system experiences periodic increases in flow during significant rainfall events, however, the overall condition of the system is good.

2. Describe routine operation and maintenance procedures:

a. SEWER SYSTEM

1. All known problem areas are checked on a regular basis. These include locations where there is a history of blockages due to roots and/or grease.
2. Township staff continue cleaning and televising the gravity sewers to maintain system integrity and proper capacity within the mains.
3. Routine maintenance programs continue for Chemical Root Treatment, Manhole Inspection and Repair, Lateral Inspection, House-to-House Property Inspections, Portable Flow Monitoring and Smoke Testing.

b. PUMP STATIONS

1. All pump stations are inspected on a daily basis and preventative maintenance is performed according to manufacturer's recommendations.
2. All stations are equipped with auto dialers that alert on-call personnel when problems arise. All pump station operators share in the on-call responsibilities on a rotating basis. On-call operators are required by Township policy to be available at all times during their on-call times.
3. In 2016 the Township continued our VFD Replacement Program where we will replace the aging VFDs (9 total) at the three Stony Creek pump stations, Timberlake, Norris City and Germantown. Also in 2013, Sandra Lane Pump Station was upgraded with VFDs controls on both pumps. This will allow us to better control flows from that station during wet weather events, thereby reducing the impact to the receiving stations downstream (Einstein, Timberlake & Norris City).
5. In 2018, the Township replaced the comminutor at the Timberlake PS.
6. Timberlake, Norris City, Germantown and Einstein all have dedicated emergency generators permanently installed at each facility. We also have two (2) trailer mounted generators for use at all other stations. One trailer is located at Burnside PS due to the limited phase capabilities of this generator and is essentially dedicated to this pump station. The other trailer mounted generator, purchased in 2009, is housed at the Public Works Facility and can power any of the other pump stations. All generators are inspected, tested and maintained by a third party company specializing in this field.

c. METER PITS

1. The meter pit at Saw Mill Pump Station is maintained by ENPWJSA.
2. There are three (3) meter pits installed within the Township's collection and conveyance system and are listed below:
 - A. Einstein Pump Station Force Main
 - B. Einstein Pump Station Surge Storage Tank
 - C. Germantown Pump Station Parallel Force Main
3. All meter pits are routinely checked and all equipment is maintained according to manufacturer's recommendations. All meters are calibrated on an annual basis.

3. **Known Problem Areas:**

<u>Location</u>	<u>Nature of Problem</u>	<u>Corrective Measures Taken</u>
Multiple locations in system	Cracked pipes; root intrusion; manhole leaks	Repair/replace laterals; seal manholes; slipline pipelines
MH 2A - Pacer Lane	SSOs, sewer alignment issue at MH 2 just downstream	Project planned to realign 24-inch interceptor at MH 2 to eliminate acute pipe angle and improve hydraulic conditions. Also plan to divert sewage from Coleston neighborhood away from MH 2A and directly to Norris City PS. A Pennsylvania Small Water & Sewer grant has been applied for.
MH 402 - Wellington Road	SSOs	Repair of the downstream sewer run between MH 407 and 407A was completed in 2015, which has reduced the severity of SSOs here. However, as in 2014, grease and rags appear to be a separate and continuing problem. The Township will monitor that section periodically in the future.
MH 779 - Behind 3048 Taft Road	SSOs	Surcharging at manholes 779 and 780 along the easement adjacent to Taft Road is due to ongoing Inflow and Infiltration issues upstream. The area is frequently monitored by the Township, especially during significant precipitation events.
MH 780 - Behind 3044 Taft Road	SSOs	

4. **Proposed Repair/Rehabilitation Projects:**

<u>Location</u>	<u>Length of Repaired/ Replaced Pipe</u>	<u>Diameter of Pipe</u>	<u>Proposed Construction Commencement</u>	<u>Miscellaneous Project Information</u>
I/I Abatement Program	Varies	Varies	Ongoing	Lateral Repairs; sliplining
Interceptors: Stony Creek No. 2	9,500 l.f.	Varies: 10" to 24"	2020	Pressure testing & grouting; CIPP lining & point repairs as needed
Interceptors: Stony Creek No. 1	1,000 l.f.	10"	2020	Relocate sewer away from Stony Creek to protect pipe from meandering creek
Pump Stations: Whitehall Road Pump Station	Replace Existing Station	N/A	2020	Replace existing air ejector station with a small package pump station.

E. SANITARY SEWER EXTENSIONS

No new sewer extensions were completed in 2018.

F. CONNECTED AND PROPOSED DEVELOPMENTS

Name of Area Served	Permits Obtained	DEP Permit #	Connected (EDUs)	Proposed Housing Units or EDU's				
			2018	2019	2020	2021	2022	2023
Bentwood Executive Campus	N/A	N/A	65	55		13	64	64
2208 Old Arch Road	N/A	N/A		7	7			
Northwoods (Commercial)	N/A	N/A			18	30	30	23
Moreland Development (Restaurant)	N/A	N/A				3		
317 W. Germantown Pk (Commercial)	N/A	N/A				14		21
Tone 2000	N/A	N/A		7				
Valenza Property (Commercial)	N/A	N/A		3				
Einstein Regional Medical Center	Yes	4609411		24	46			
Norriton Bus. Campus (Lots 2 & 14)	N/A	N/A			18		18	
1055 W. Germantown Pk (Alfonse)	N/A	N/A					5	
Altmore Property (Commercial)	N/A	N/A					9	
1030 W. Germantown Pk (Gambone)	N/A	N/A		7				
Hillcrest Office Building (Commercial)	N/A	N/A			24			
2000 Arch Road Assoc.	N/A	N/A		3				
Miscellaneous	N/A	N/A	1	3	3	3	3	3
Totals			66	109	116	63	129	111

G. CERTIFICATION

Signed: _____ (SEAL)
James C. Sullivan, P.E.

Title: Director of Engineering Services

Address: 2501 Stanbridge Street
East Norriton, PA 19401

Phone No. (610) 275-2800

II. PUMP STATION DATA SUMMARY

**2018 CHAPTER 94 REPORT
EAST NORRITON TOWNSHIP
2018 AVERAGE DAILY & PEAK DAILY FLOWS AT METERED PUMP STATIONS**

NORRIS CITY PS					
MONTH	AVG.DAILY	PEAK DAILY	PEAKING FACTOR	RAINFALL ³	PEAK FLOW RAIN EVENT
JAN	1,677,253	3,495,287	2.1	3.3	1.4
FEB	3,174,502	5,844,941	1.8	5.8	1.8
MAR	3,355,460	6,415,823	1.9	2.4	2.1
APR	2,164,638	4,812,549	2.2	3.7	2.4
MAY	2,475,411	4,966,137	2.0	7.4	2.8
JUN	2,162,794	5,517,960	2.6	5.7	2.5
JUL	2,232,711	4,173,288	1.9	9.3	4.1
AUG	2,196,581	4,837,113	2.2	8.0	3.7
SEP	2,784,793	5,448,561	2.0	9.1	3.6
OCT	1,950,683	2,850,960	1.5	2.8	1.0
NOV	3,392,749	6,682,122	2.0	10.2	1.7
DEC ²	3,160,554	6,532,150	2.1	-	-
AVG	2,560,677	5,131,408	2.0	6.2	2.5

TIMBERLAKE PS					
MONTH	AVG.DAILY	PEAK DAILY	PEAKING FACTOR	RAINFALL ³	PEAK FLOW RAIN EVENT
JAN	1,005,078	2,423,389	2.4	3.3	1.4
FEB	2,056,679	4,142,436	2.0	5.8	1.8
MAR	2,106,867	4,527,152	2.1	2.4	2.1
APR	1,305,823	3,494,744	2.7	3.7	2.4
MAY	1,527,412	3,486,170	2.3	7.4	2.8
JUN	1,298,102	3,739,581	2.9	5.7	2.5
JUL	1,438,264	3,037,771	2.1	9.3	4.1
AUG	1,350,765	3,318,471	2.5	8.0	3.7
SEP	1,755,950	3,652,840	2.1	9.1	3.6
OCT	1,167,581	1,882,320	1.6	2.8	1.0
NOV	2,114,787	4,438,785	2.1	10.2	1.7
DEC ²	1,717,037	2,275,490	1.3	-	-
AVG	1,570,362	3,368,262	2.1	6.2	2.5

EINSTEIN PS					
MONTH	AVG.DAILY	PEAK DAILY	PEAKING FACTOR	RAINFALL ³	PEAK FLOW RAIN EVENT
JAN	85,835	180,711	2.1	3.3	1.4
FEB	150,990	260,489	1.7	5.8	1.8
MAR	159,421	464,657	2.9	2.4	2.1
APR	100,280	274,558	2.7	3.7	2.4
MAY	154,376	334,782	2.2	7.4	2.8
JUN ¹	162,962	283,518	1.7	5.7	2.5
JUL	202,632	391,746	1.9	9.3	4.1
AUG	177,174	343,658	1.9	8.0	3.7
SEP	190,740	465,179	2.4	9.1	3.6
OCT	116,188	235,234	2.0	2.8	1.0
NOV	176,916	583,687	3.3	10.2	1.7
DEC ²	116,270	143,986	1.2	-	-
AVG	149,482	330,184	2.2	6.2	2.5

GERMANTOWN PS					
MONTH	AVG.DAILY	PEAK DAILY	PEAKING FACTOR	RAINFALL ³	PEAK FLOW RAIN EVENT
JAN	438,198	1,226,141	2.8	3.3	1.4
FEB	949,589	2,245,602	2.4	5.8	1.8
MAR	844,098	2,255,322	2.7	2.4	2.1
APR	549,488	1,715,478	3.1	3.7	2.4
MAY	657,471	1,759,441	2.7	7.4	2.8
JUN ¹	442,294	1,063,481	2.4	5.7	2.5
JUL	559,981	1,486,212	2.7	9.3	4.1
AUG	521,754	1,626,795	3.1	8.0	3.7
SEP	739,500	1,711,346	2.3	9.1	3.6
OCT	444,104	860,059	1.9	2.8	1.0
NOV	922,283	2,049,663	2.2	10.2	1.7
DEC ²	663,280	986,361	1.5	-	-
AVG	644,337	1,582,158	2.5	6.2	2.5

SANDRA LANE PS					
MONTH	AVG.DAILY	PEAK DAILY	PEAKING FACTOR	RAINFALL ³	PEAK FLOW RAIN EVENT
JAN	20,306	56,900	2.8	3.3	1.4
FEB	40,193	121,000	3.0	5.8	1.8
MAR	36,681	131,200	3.6	2.4	2.1
APR	25,090	112,600	4.5	3.7	2.4
MAY	30,355	97,500	3.2	7.4	2.8
JUN	24,443	97,300	4.0	5.7	2.5
JUL	28,632	79,500	2.8	9.3	4.1
AUG	28,848	97,800	3.4	8.0	3.7
SEP	40,497	110,800	2.7	9.1	3.6
OCT	25,787	56,900	2.2	2.8	1.0
NOV	48,980	125,100	2.6	10.2	1.7
DEC ²	44,000	58,700	1.3	-	-
AVG	32,818	95,442	2.9	6.2	2.5

NOTES:

1. The Germantown and Einstein Pump Stations are missing a number of data points in mid-June due to program problems with the laptop used to store PS data.
2. December 2018 flows for the Norris Pump Station are based on treatment plant data; All other pump stations are missing data from December 3rd through the end of the year. The Township experienced program problems with the laptop used to store PS data.
3. December 2018 precipitation data not available at the time of this report. The Township experienced program problems with the laptop used to store precipitation data.

III. ADDITIONAL CONNECTION INFORMATION

**2018 CHAPTER 94 REPORT
EAST NORRITON TOWNSHIP
CONNECTIONS TRIBUTARY TO PUMP STATIONS & INTERCEPTORS**

Pump Station/interceptor	Connected		Proposed Housing Units and Population									
	2018		2019		2020		2021		2022		2023	
	EDUs	POP.	EDUs	POP.	EDUs	POP.	EDUs	POP.	EDUs	POP.	EDUs	POP.
STONY CREEK NO.1(TIMBERLAKE)	1	2	41	98	64	152	17	40	32	76	21	50
STONY CREEK NO.2 (NORRIS CITY)	65	155	99	236	109	259	63	150	129	307	111	264
STONY CREEK NO.3 (GERMANTOWN)	1	2	7	17	18	43	0	0	32	76	0	0
TIMBERLAKE PS	1	2	41	98	64	152	17	40	32	76	21	50
NORRIS CITY PS	65	155	99	236	109	259	63	150	129	307	111	264
GERMANTOWN PS	1	2	7	17	18	43	0	0	32	76	0	0
SANDRA LANE PS	0	0	0	0	0	0	0	0	0	0	0	0
BURNSIDE PS	0	0	7	17	18	43	0	0	32	76	0	0
EINSTEIN PS	0	0	31	74	46	109	3	7	0	0	0	0
SCHULTZ ROAD PS	0	0	0	0	0	0	0	0	0	0	0	0
WHITEHALL ROAD PS	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL SYSTEM	66	157	109	259	116	276	63	150	129	307	111	264

ESTIMATED SERVICE POPULATIONS TRIBUTARY TO PUMP STATIONS & INERCEPTORS

Pump Station/Interceptor	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	POP.	POP.	POP.	POP.	POP.	POP.	POP.	POP.	POP.	POP.	POP.	POP.
STONY CREEK NO.1(TIMBERLAKE)	8,446	8,463	8,470	8,494	8,497	8,497	8,499	8,597	8,749	8,790	8,866	8,916
STONY CREEK NO.2 (NORRIS CITY)	15,406	15,463	15,470	15,494	15,500	15,500	15,655	15,890	16,150	16,300	16,607	16,871
STONY CREEK NO.3 (GERMANTOWN)	4,144	4,154	4,159	4,161	4,161	4,161	4,163	4,180	4,223	4,223	4,299	4,299
TIMBERLAKE PS	8,446	8,463	8,470	8,494	8,497	8,497	8,499	8,597	8,749	8,790	8,866	8,916
NORRIS CITY PS	15,406	15,463	15,470	15,494	15,500	15,500	15,655	15,890	16,150	16,300	16,607	16,871
GERMANTOWN PS	4,144	4,154	4,159	4,161	4,161	4,161	4,163	4,180	4,223	4,223	4,299	4,299
SANDRA LANE PS	191	191	191	191	191	191	191	191	191	191	191	191
BURNSIDE PS	197	207	207	228	228	228	228	245	288	288	364	364
EINSTEIN PS	650	650	650	650	650	650	650	724	833	840	840	840
SCHULTZ ROAD PS	100	100	100	100	100	100	100	100	100	100	100	100
WHITEHALL ROAD PS	50	50	50	50	53	53	53	53	53	53	53	53
TOTAL SYSTEM	15,460	15,560	15,565	15,608	15,608	15,763	15,920	16,180	16,456	16,606	16,913	17,177

*Population estimates are based on Census figure of 2.38 people/household to convert mix of residential & commercial EDUs.

PROJECTED PEAK FLOWS AT PUMP STATIONS AND INTERCEPTORS (MGD)

Pump Station/interceptor	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow	Flow
STONY CREEK NO.1(TIMBERLAKE)	2.7	2.87	3.15	3.33	3.73	3.31	3.37	3.40	3.44	3.45	3.47	3.49
STONY CREEK NO.2 (NORRIS CITY)	3.72	4.98	6.79	5.6	5.25	4.91	5.13	5.20	5.27	5.32	5.41	5.48
STONY CREEK NO.3 (GERMANTOWN)	1.47	1.62	1.92	1.64	2	1.65	1.58	1.59	1.60	1.60	1.62	1.62
TIMBERLAKE PS	2.7	2.87	3.15	3.33	3.73	3.31	3.37	3.40	3.44	3.45	3.47	3.49
NORRIS CITY PS	3.72	4.98	6.79	5.6	5.25	4.91	5.13	5.20	5.27	5.32	5.41	5.48
GERMANTOWN PS	1.47	1.62	1.92	1.64	2	1.65	1.58	1.59	1.60	1.60	1.62	1.62
SANDRA LANE PS	0.13	0.16	0.2	0.1	0.08	0.09	0.10	0.10	0.10	0.10	0.10	0.10
BURNSIDE PS	0.14	0.14	0.14	0.15	0.11	0.11	0.11	0.11	0.13	0.13	0.15	0.15
EINSTEIN PS	0.27	0.48	0.52	0.36	0.37	0.25	0.33	0.35	0.38	0.39	0.39	0.39
SCHULTZ ROAD PS	0.09	0.09	0.09	0.09	0.09	0.09	0.05	0.05	0.05	0.05	0.05	0.05
WHITEHALL ROAD PS	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02

Note: Peak daily flows in each interceptor and pump station for 2018 were calculated by taking the average of the peak daily flows from each month. Maximum daily flow projections for 2019 through 2023 were calculated by adding projected EDUs (1 EDU = 230 GPD) and using a peaking factor of 3.0.

**IV. FLOWS AT METERED PUMP STATIONS FOR RAIN EVENTS GREATER THAN
ONE (1) INCH**

**2018 CHAPTER 94 REPORT
EAST NORRITON TOWNSHIP
FLOWS AT METERED PUMP STATIONS FOR RAIN EVENTS GREATER THAN ONE (1) INCH**

Date	Rain Fall (inches)	Pump Station Flows (GPD)				
		Norris City	Timberlake	Germantown	Sandra Lane	Einstein
1/12/2018	1.4	3,495,287	2,423,389	1,226,141	56,900	180,711
2/4/2018	1.2	3,417,194	2,425,612	1,164,977	45,700	199,247
2/10/2018	1.8	5,844,941	4,142,436	2,245,602	121,000	260,489
3/7/2018	1.3 (snow)	4,950,723	3,210,038	1,323,087	63,900	252,319
4/16/2018	2.4	3,614,845	3,494,744	1,715,478	112,600	247,242
5/17/2018	1.7	4,873,369	3,486,170	1,759,441	97,500	334,782
5/27/2018	2.5	4,122,754	2,972,692	1,486,766	80,700	304,291
6/10/2018*	2.5	5,517,960	3,739,581	-	97,300	-
7/15/2018	1.2	2,322,312	1,491,156	309,351	41,600	157,836
7/22/2018	1.1	2,949,627	2,011,696	396,831	51,200	165,245
7/23/2018	1.4	2,221,927	1,424,195	849,821	27,200	242,832
7/24/2018	1.4	3,855,157	2,919,949	556,993	79,500	213,154
8/3/2018	1.2	2,754,810	1,095,661	403,579	49,000	157,780
8/13/2018	2.5	4,837,113	3,298,050	1,533,401	64,700	338,588
9/10/2018	3.8	5,197,443	3,607,240	1,711,346	77,400	465,179
9/18/2018	1.2	3,706,776	1,203,891	439,372	59,600	137,546
9/26/2018	1.3	3,721,658	2,695,335	1,203,669	48,400	230,917
9/28/2018	1.6	5,448,561	1,818,672	737,390	100,800	158,694
11/3/2018	1.3	3,718,869	1,004,129	488,277	61,100	101,929
11/5/2018	1.5	3,709,901	1,561,978	712,042	64,600	128,495
11/15/2018	1.5	3,322,173	3,364,958	1,610,304	42,500	356,777
11/24/2018	2.1	4,684,994	3,692,649	1,697,467	67,200	297,402
12/21/2018**	1.1	6,532,150	-	-	-	-
12/28/2018**	1.1	5,243,181	-	-	-	-

*The Germantown and Einstein Pump Stations are missing a number of data points in mid-June due to program problems with the laptop used to store PS data.

**All precipitation data was collected by East Norriton Township with the exception of the two events in December which were collected at the East-Norriton-Plymouth-Whitpain Joint Sewer Authority WWTP. PS flow data for Timberlake, Germantown, Sandra Lane and Einstein was not available during December storm events at the time of this report. The Township experienced program problems with the laptop used to store PS and precipitation data.

V. SANITARY SEWER OVERFLOWS

**2018 CHAPTER 94 REPORT
EAST NORRITON TOWNSHIP
2018 SANITARY SEWER OVERFLOWS**

Date	Location(s)		Wet/Dry Weather Event	Duration (Est./Actual)	Volume	Cause	Resolution
	MH #	Physical Location					
2/7/2018	2A	Pacer Lane ROW	Wet	Unkown	Unkown	Heavy Rain	Rain Subsidied
2/11/2018	2A	Pacer Lane ROW	Wet	Unkown	Unkown	Heavy Rain	Rain Subsidied
2/16/2018	2A	Pacer Lane ROW	Wet	6.5 Hrs.	Unkown	Heavy Rain	Rain Subsidied
3/2/2018	43	Meadowbrook Road	Wet	17+ Hrs.	Unkown	Heavy Rain	Rain/Snow Subsidied
3/2/2018	2A	Pacer Lane ROW	Wet	23.5+ Hrs.	Unkown	Heavy Rain	Rain/Snow Subsidied
4/16/2018	402	Wellington Road	Wet	2.75 Hrs	Unkown	Heavy Rain	Rain Subsidied
4/16/2018	2A	Pacer Lane ROW	Wet	4.5 Hrs.	Unkown	Heavy Rain	Rain Subsidied
5/27/2018	2A	Pacer Lane ROW	Wet	8.5 Hrs.	Unkown	Heavy Rain	Rain Subsidied
5/27/2018	402	Wellington Road	Wet	1.5 Hrs.	Unkown	Heavy Rain	Rain Subsidied
5/27/2018	780	Behind 3048 Taft Rd.	Wet	8.5 Hrs.	Unkown	Heavy Rain	Rain Subsidied
6/11/2018	780	Behind 3048 Taft Rd.	Wet	1.75 Hrs.	Unkown	Heavy Rain	Rain Subsidied
8/13/2018	2A	Pacer Lane ROW	Wet	13.5 Hrs.	Unkown	Heavy Rain	Rain Subsidied
8/13/2018	780	Behind 3048 Taft Rd.	Wet	1.5 Hrs.	Unkown	Heavy Rain	Rain Subsidied
9/9/2018	2A	Pacer Lane ROW	Wet	5 Hrs.	Unkown	Heavy Rain	Rain Subsidied
9/28/2018	2A	Pacer Lane ROW	Wet	7 Hrs.	Unkown	Heavy Rain	Rain Subsidied
9/28/2018	780	Behind 3048 Taft Rd.	Wet	7 Hrs.	Unkown	Heavy Rain	Rain Subsidied
9/28/2018	779	Behind 3044 Taft Rd.	Wet	7 Hrs.	Unkown	Heavy Rain	Rain Subsidied
10/9/2018	2923 Hannah Ave. basement sink		Dry	3 Hrs.	Unkown	Roots/Grease	Cleared Roots and Grease
11/5/2018	977	3134 Eisenhower Dr.	Dry	Unkown	Unkown	Root Blockage	Cleared Roots
11/10/2018	402	Wellington Road	Dry	Unkown	Unkown	Grease/Rags	Cleared Grease and Rags
11/13/2018	779	Behind 3044 Taft Rd.	Wet	Unkown	Unkown	Heavy Rain	Rain Subsidied
11/16/2018	779	Behind 3044 Taft Rd.	Wet	Unkown	Unkown	Heavy Rain	Rain Subsidied
12/21/2018	779	Behind 3044 Taft Rd.	Wet	Unkown	Unkown	Heavy Rain	Rain Subsidied
12/21/2018	2A	Pacer Lane ROW	Wet	Unkown	Unkown	Heavy Rain	Rain Subsidied
12/28/2018	779	Behind 3044 Taft Rd.	Wet	Unkown	Unkown	Heavy Rain	Rain Subsidied

*All SSOs summarized above were reported to DEP as required; full SSO Reports attached.

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: February 8, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: February 7, 2018 Location: MH 2A on Pacer Lane
4. How was SSO discovered? By who?	SSO found during routine inspection of previous SSO locations during wet weather event. Discovered by East Norriton Staff.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Discovered at approximately 7:15 pm End Time: Unknown
6. Date, time and name of person who notified PADEP of SSO?	Date: February 7, 2018 Time: 7:19 pm Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Small volume of sewage leaking from around the manhole lid. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to land area and ultimately found its way into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Rain Event Stopped by: Rain stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Only greywater was discharged. No solids or paper were part of the SSO. Affected areas were disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	This was a wet-weather event.
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: February 12, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: February 11, 2018 Location: MH 2A on Pacer Lane
4. How was SSO discovered? By who?	SSO found during routine inspection of previous SSO locations during wet weather event. Discovered by East Norriton Staff.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Discovered at approximately 4:00 pm End Time: Unknown
6. Date, time and name of person who notified PADEP of SSO?	Date: February 11, 2018 Time: 4:50 pm Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Sewage discharging from MH 2A. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to land area and ultimately found its way into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Rain Event - 1.9 inches of rain received. Stopped by: Rain stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 2A and creek. Affected area was disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	This was a wet-weather event. 1.9 inches of rain fell between approx. 1:00 PM Saturday February 10th to late afternoon on Sunday February 11th. This event was on the heels of 1.0 inches of rain on February 7th.
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: February 20, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: February 16, 2018 Location: MH 2A on Pacer Lane
4. How was SSO discovered? By who?	SSO found during routine inspection of previous SSO locations during wet weather event. Discovered by East Norriton Staff.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Discovered at approximately 5:00 am End Time: Approximately 11:30 am
6. Date, time and name of person who notified PADEP of SSO?	Date: February 16, 2018 Time: 7:20 am Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Sewage discharging from MH 2A. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to land area and ultimately found its way into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Rain Event - 0.75 inches of rain received. Stopped by: Rain stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 2A and creek. Affected area was disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	Almost 50,000 gallons of sewage was pumped into the tank at Einstein PS to minimize flow to Timberlake PS and to MH 2A in an attempt to minimize the SSO. We will look at other strategies to minimize SSOs at this location.
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: March 5, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: March 2, 2018 Location: MH 43 on Meadowbrook Road
4. How was SSO discovered? By who?	SSO found during routine inspection of previous SSO locations during wet weather event. Discovered by East Norriton Staff.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Discovered at approximately 7:00 am End Time: Sometime after midnight on Saturday March 3rd
6. Date, time and name of person who notified PADEP of SSO?	Date: March 2, 2018 Time: 8:13 am Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Sewage discharging from MH 43. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to pavement and into storm drain system. Storm drains follow Pacer Lane and discharge into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - Noreaster of March 2, 2018 Stopped by: Rain/snow stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to pavement between MH 43 and storm drain approximately 150 feet away. Affected area was hosed down.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	To mitigate this SSO, 288,478 gallons of sewage was pumped into the tank at Einstein PS to minimize flow to Timberlake PS and to MH 43. Also, the pumps at Timberlake PS were operated on "hand" to reduce station output and hopefully reduce SSO at MH 43. Unfortunately, small reductions in pump speed resulted in potential SSOs at Timberlake. Station returned to "Auto" and no SSO occurred at Timberlake.
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: March 5, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: March 2, 2018 Location: MH 2A on Pacer Lane
4. How was SSO discovered? By who?	SSO found during routine inspection of previous SSO locations during wet weather event. Discovered by East Norriton Staff.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Discovered at approximately 12:30 am End Time: Sometime after midnight on Saturday March 3rd
6. Date, time and name of person who notified PADEP of SSO?	Date: March 2, 2018 Time: 7:36 am Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Sewage discharging from MH 2A. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to land area and ultimately found its way into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - Noreaster of March 2, 2018 Stopped by: Rain/snow stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 2A and creek. Affected area was disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	To mitigate this SSO, 288,478 gallons of sewage was pumped into the tank at Einstein PS to minimize flow to Timberlake PS and to MH 2A. Also, the pumps at Timberlake PS were operated on "hand" to reduce station output and hopefully reduce SSO at MH 2A. Unfortunately, small reductions in pump speed resulted in potential SSOs at Timberlake. Station returned to "Auto" and no SSO occurred at Timberlake.
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: April 16, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: April 16, 2018 Location: MH 402 on Wellington Road
4. How was SSO discovered? By who?	SSO found during routine inspection of previous SSO locations during wet weather event. Discovered by East Norriton Staff.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Discovered at approximately 9:00 am End Time: Approximately 11:45 am
6. Date, time and name of person who notified PADEP of SSO?	Date: April 16, 2018 Time: 9:08 am Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from MH 402. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to roadway and into storm sewer which discharges to Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 2.5 inches of rainfall today Stopped by: Rain stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 402 and storm drain. Affected area was disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: April 16, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: April 16, 2018 Location: MH 2A on Pacer Lane
4. How was SSO discovered? By who?	SSO found during routine inspection of previous SSO locations during wet weather event. Discovered by East Norriton Staff.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Discovered at approximately 8:00 am End Time: Sometime between 12:00 pm and 1:00 pm
6. Date, time and name of person who notified PADEP of SSO?	Date: April 16, 2018 Time: 8:08 am Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Sewage discharging from MH 2A. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to land area and ultimately found its way into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 2.5 inches of rainfall today Stopped by: Rain stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 2A and creek. Affected area was disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: May 29, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: May 27, 2018 Location: MH 2A off of Pacer Lane
4. How was SSO discovered? By who?	During routine checking of previous SSO locations during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 9:30 am (Estimated) End Time: 6:00 pm (Estimated based on wet well level at Norris City PS)
6. Date, time and name of person who notified PADEP of SSO?	Date: May 27, 2018 Time: 11:03 am Name: Douglas R Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to land area and ultimately found its way into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 2.5 inches of rain in a short duration. Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 2A and creek. Affected area was disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: May 29, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: May 27, 2018 Location: MH 402 on Wellington Road
4. How was SSO discovered? By who?	During routine checking of previous SSO locations during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 9:30 am (Estimated) End Time: 11:00 am (Actual based on visual inspection)
6. Date, time and name of person who notified PADEP of SSO?	Date: May 27, 2018 Time: 11:03 am Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to pavement and into storm drain, which discharges to the main branch of Stoney Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 2.5 inches of rain in a short duration. Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 402 and storm drain. Affected area was cleaned up and disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: May 29, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: May 27, 2018 Location: MH 780 behind 3048 Taft Road
4. How was SSO discovered? By who?	During routine checking of previous SSO locations during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 9:30 am (Estimated) End Time: 6:00 pm (Estimated based on wet well level at Germantown PS)
6. Date, time and name of person who notified PADEP of SSO?	Date: May 27, 2018 Time: 11:03 am Name: Douglas R Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to stream bank and directly into the west branch of Stoney Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 2.5 inches of rain in a short duration. Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 780 and creek. Affected area was cleaned up and disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: June 11, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: June 11, 2018 Location: MH 780 behind 3048 Taft Road
4. How was SSO discovered? By who?	During routine checking of previous SSO locations during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 1:45 am (Estimated) End Time: 3:30 am (Estimated)
6. Date, time and name of person who notified PADEP of SSO?	Date: June 11, 2018 Time: 2:15 am Name: Douglas R Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to stream bank and directly into the west branch of Stoney Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 2.5 inches of rain in a short duration. Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 780 and creek. Affected area was cleaned up and disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: August 13, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: August 13, 2018 Location: MH 2A off of Pacer Lane
4. How was SSO discovered? By who?	During routine checking of previous SSO locations during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 10:30 am (Estimated) End Time: 12:00 pm (Estimated)
6. Date, time and name of person who notified PADEP of SSO?	Date: August 13, 2018 Time: 11:27 am Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to land area and ultimately found its way into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 2.0 inches of rain in less than 2 hours Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 2A and creek. Affected area was disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention: Bernard Krasnisky

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: August 13, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: August 13, 2018 Location: MH 780 behind 3048 Taft Road
4. How was SSO discovered? By who?	During routine checking of previous SSO locations during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 10:30 am (Estimated) End Time: 12:00 pm (Estimated)
6. Date, time and name of person who notified PADEP of SSO?	Date: August 13, 2018 Time: 11:27 am Name: Douglas R Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to stream bank and directly into the west branch of Stoney Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 2.0 inches of rain in less than 2 hours. Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 780 and creek. Affected area was cleaned up and disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: September 10, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: September 9, 2018 Location: MH 2A off of Pacer Lane
4. How was SSO discovered? By who?	During routine checking of previous SSO locations during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 7:00 pm (Estimated) End Time: 12:00 am (Estimated)
6. Date, time and name of person who notified PADEP of SSO?	Date: September 9, 2018 Time: 7:31 pm Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to land area and ultimately found its way into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event-3.5 inches of rain Friday afternoon to Sunday Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 2A and creek. Affected area was disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: September 28, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: September 28, 2018 Location: MH 2A off of Pacer Lane
4. How was SSO discovered? By who?	During routine checking of previous SSO locations during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 5:30 am (Estimated) End Time: 12:30 pm (Estimated)
6. Date, time and name of person who notified PADEP of SSO?	Date: September 28, 2018 Time: 7:48 am Name: Douglas R. Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to land area and ultimately found its way into the East Branch of Stony Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event -1.5 inches of rain early Friday morning Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 2A and creek. Affected area was disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: September 28, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: September 28, 2018 Location: MH 780 behind 3048 Taft Road
4. How was SSO discovered? By who?	During routine checking of previous SSO locations during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 5:30 am (Estimated) End Time: 12:30 pm (Estimated)
6. Date, time and name of person who notified PADEP of SSO?	Date: September 28, 2018 Time: 7:48 am Name: Douglas R Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to stream bank and directly into the west branch of Stoney Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 1.5 inches of rain early Friday morning. Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 780 and creek. Affected area was cleaned up and disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: September 28, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: September 28, 2018 Location: MH 779 behind 3044 Taft Road
4. How was SSO discovered? By who?	During routine checking of manholes during storm event. By Township personnel.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 5:30 am (Estimated) End Time: 12:30 pm (Estimated)
6. Date, time and name of person who notified PADEP of SSO?	Date: September 28, 2018 Time: 7:48 am Name: Douglas R Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from manhole. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharged to stream bank and directly into the west branch of Stoney Creek.
9. What caused SSO? How was it stopped?	Cause: Wet Weather Event - 1.5 inches of rain early Friday morning. Stopped by: Rain event stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to area between MH 779 and creek. Affected area was cleaned up and disinfected.
11. What actions will be taken to prevent a re-occurrence? When?	Review by Township Staff and continued implementation of I/I control measures. Ongoing.
12. Other comments?	
	Attention:

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: October 9, 2018 Name: Douglas R. Jones, Director of Public Works/Staff Engineer Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: October 9, 2018 Location: Discharge from private sewer lateral & into basement of home at 2923 Hannah Avenue
4. How was SSO discovered? By who?	Township was notified by resident of above address that sewage was discharging into his basement through his wash sink.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: 6:30 am Monday October 8, 2018 (Time per property owner) End Time: 9:30 am on Tuesday October 9, 2018 (Actual)
6. Date, time and name of person who notified PADEP of SSO?	Date: October 9, 2018 Time: 10:18 am Name: Douglas R Jones
7. Description and actual or estimated volume of SSO?	Greywater discharging from wash sink in basement of home at 2923 Hannah Avenue. No estimate of SSO volume available.
8. Where, Precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	SSO discharge was confined to wash sink and small area of concrete basement floor. No discharge to land area or waters of the Commonwealth.
9. What caused SSO? How was it stopped?	Cause: Roots and grease accumulation. Stopped by: Twp personnel jetted main to remove roots/grease.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to wash sink and small area of concrete basement floor. Property owner advised that he would clean up basement floor with water/bleach solution to disinfect.
11. What actions will be taken to prevent a re-occurrence? When?	Jetted portions of sewer mains immediately upstream and downstream of this location to ensure full functionality. Location to be chemically treated for roots. By the end of October.
12. Other comments?	Property owner noticed SSO in basement on Monday, October 8th, which is a Township holiday. He tried to contact ENT offices but was unsuccessful. He then came to the ENT Police Dept. but no one was on station. He waited until approximately 8:30 am on Tuesday October 9th to contact ENT. Twp. personnel responded immediately to investigate and remove blockage. Blockage was cleared to the point where no further discharges occurred by 9:30 am. Blockages fully removed and free flow of sewage was achieved by 10:15 am.
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: November 5, 2018 Name: Douglas R. Jones, Director of Public Works Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: November 5, 2018 Location: MH 977 located behind 3134 Eisenhower Dr., East Norriton, PA
4. How was SSO discovered? By Who?	Township was notified by resident of the above address via voicemail message to Doug Jones at 8:35 am on Monday November 5th that sewage was discharging from manhole on stormwater basin property behind his home.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Unknown End Time: 10:45 am November 5th (Actual)
6. Date, time and name of person who notified PADEP of SSO?	Date: November 5, 2018 Time: 11:23 am Name: Douglas R. Jones, Director of Public Works
7. Description and actual or estimated volume of SSO?	Greywater discharging from MH 977. No estimate of SSO volume available.
8. Where, precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	Discharged into stormwater basin located behind 3134 Eisenhower Drive.
9. What caused SSO? How was it stopped?	Cause: Root blockage Stopped by: Twp. Personnel jetted main to remove roots and blockage.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was raked up and neutralized with lime.
11. What actions will be taken to prevent a re-occurrence? When?	Sewer main between MH 974 & MH 978 was jetted to ensure functionality. Area will be chemically treated for root control during next contract period. Spring of 2019.
12. Other comments?	
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: November 12, 2018 Name: Douglas R. Jones, Director of Public Works Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: November 10, 2018 Location: MH 402 located at the intersection of Wellington Road and St. Vincent Street
4. How was SSO discovered? By Who?	Someone notified East Norriton Police who notified Public Works at approx. 10:20 am on Saturday November 10th that sewage was discharging from manhole in the street.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Unknown End Time: 11:20 am November 10th (Actual)
6. Date, time and name of person who notified PADEP of SSO?	Date: November 10, 2018 Time: 11:35 am Name: Douglas R. Jones, Director of Public Works
7. Description and actual or estimated volume of SSO?	Greywater discharging from MH 402. No estimate of SSO volume available.
8. Where, precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	Discharged into stormwater inlets located at the intersection.
9. What caused SSO? How was it stopped?	Cause: Grease/fibrous wipes blockage in 8" main between MH 407 & 407A Stopped by: Twp. Personnel jetted main to remove blockage.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area was limited to paved surfaces, which were hosed down with clean water.
11. What actions will be taken to prevent a re-occurrence? When?	This location will be placed on our list of areas to jet on a regular basis to ensure system is fully functional. Will also televise main to determine if other defects exist that contributed to blockage and SSO. ASAP.
12. Other comments?	
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: November 13, 2018 Name: Douglas R. Jones, Director of Public Works Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: November 13, 2018 Location: MH 779 located behind 3044 Taft Road
4. How was SSO discovered? By Who?	During routine inspection during a significant rain event, Sewer Dept. Personnel noticed sewage discharging from this manhole. Discovery was made at approximately 6:30 am on November 13th.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Unknown End Time: Sometime before 11:45 am November 13th (Estimated)
6. Date, time and name of person who notified PADEP of SSO?	Date: November 13, 2018 Time: 6:52 am Name: Douglas R. Jones, Director of Public Works
7. Description and actual or estimated volume of SSO?	Greywater discharging from MH 779. No estimate of SSO volume available.
8. Where, precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	Discharged into West Branch of Stony Creek. Manhole is located along the creek bank.
9. What caused SSO? How was it stopped?	Cause: High flow conditions due to 1.5" rain event. Stopped by: Rain stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area will be raked to remove any solids and lime will be applied to disinfect affected areas.
11. What actions will be taken to prevent a re-occurrence? When?	The Township, as part of our continued efforts, will investigate this drainage area for opportunities to eliminate any I/I. Ongoing.
12. Other comments?	
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: November 19, 2018 Name: Douglas R. Jones, Director of Public Works Phone #: 610-275-2800 x115
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge Street, East Norriton, PA 19401
3. Date found and specific location of SSO?	Date: November 16, 2018 Location: MH 779 located behind 3044 Taft Road
4. How was SSO discovered? By Who?	During routine inspection during a significant rain event, Sewer Dept. Personnel noticed sewage discharging from this manhole. Discovery was made at approximately 9:45 am on November 16th.
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Unknown End Time: Sometime before 12:00 pm November 16th (Estimated)
6. Date, time and name of person who notified PADEP of SSO?	Date: November 16, 2018 Time: 9:49 am Name: Douglas R. Jones, Director of Public Works
7. Description and actual or estimated volume of SSO?	Greywater discharging from MH 779. No estimate of SSO volume available.
8. Where, precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	Discharged into West Branch of Stony Creek. Manhole is located along the creek bank.
9. What caused SSO? How was it stopped?	Cause: High flow conditions due to 2.2" rain event. Stopped by: Rain stopped and flows subsided.
10. Describe extent of contamination and how it was cleaned up?	Contaminated area will be raked to remove any solids and lime will be applied to disinfect affected areas.
11. What actions will be taken to prevent a re-occurrence? When?	The Township, as part of our continued efforts, will investigate this drainage area for opportunities to eliminate any I/I. Ongoing.
12. Other comments?	
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: 12/28/18 Name: Brett Stephens Phone #: 610 275 2800 ext 147
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge St East Norriton PA 19401
3. Date found and specific location of SSO?	Date: 12/21/18 Location: MH779 located behind 3044 Taft Rd
4. How was SSO discovered? By Who?	Sewer dept personnel during routine inspection 7:00am
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Unknown End Time: approx 3:00 pm
6. Date, time and name of person who notified PADEP of SSO?	12/21/2018 Time: approx 7:15 am Brett Stephens
7. Description and actual or estimated volume of SSO?	Greywater discharging from MH779, no estimate of sso
8. Where, precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	West branch of stony creek
9. What caused SSO? How was it stopped?	Cause: High flow conditions from a 1.8 in rain event Stopped by: Rain stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Contaminated areas were raked to remove and solids and lime applied
11. What actions will be taken to prevent a re-occurrence? When?	The township as part of our continued efforts will investigate this area. Ongoing
12. Other comments?	
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: 1/3/19 Name: Brett Stephens Phone #: 610 275 2800 ext 147
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge St East Norriton PA 19401
3. Date found and specific location of SSO?	Date: 12/21/18 Location: MH2A Pacer Ln rear property
4. How was SSO discovered? By Who?	Sewer dept personnel during routine inspection 7:00am
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Unknown End Time: approx 3:30 pm
6. Date, time and name of person who notified PADEP of SSO?	Date: 12/28/18 Time: approx 8:23 am Brett Stephens
7. Description and actual or estimated volume of SSO?	Greywater discharging from MH2A Pacer Ln no estimate of sso
8. Where, precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	East branch of stony creek
9. What caused SSO? How was it stopped?	Cause: High flow conditions from a .8 in rain event Stopped by: Rain stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Contaminated areas were raked to remove and solids and lime applied
11. What actions will be taken to prevent a re-occurrence? When?	The township as part of our continued efforts will investigate this area. Ongoing
12. Other comments?	
	Attention:

FAX # 484-250-5971

Sanitary Sewer Overflow (SSO) Report to PADEP

1. Date, name, phone # of person completing this report?	Date: 1/3/19 Name: Brett Stephens Phone #: 610 275 2800 ext 147
2. Organization name and address?	Organization: East Norriton Township Address: 2501 Stanbridge St East Norriton PA 19401
3. Date found and specific location of SSO?	Date: 12/28/18 Location: MH779 located behind 3044 Taft Rd
4. How was SSO discovered? By Who?	Sewer dept personnel during routine inspection 11:00am
5. Start and end time of SSO? (Actual or Estimated)	Start Time: Unknown End Time: approx 3:30 pm
6. Date, time and name of person who notified PADEP of SSO?	Time: approx 3:00 pm Brett Stephens
7. Description and actual or estimated volume of SSO?	Greywater discharging from MH779, no estimate of sso
8. Where, precisely, did SSO go? (land, roadway, basement, swale, storm sewer, creek, etc.)	West branch of stony creek
9. What caused SSO? How was it stopped?	Cause: High flow conditions from a .8 in rain event Stopped by: Rain stopped and flows subsided
10. Describe extent of contamination and how it was cleaned up?	Contaminated areas were raked to remove and solids and lime applied
11. What actions will be taken to prevent a re-occurrence? When?	The township as part of our continued efforts will investigate this area. Ongoing
12. Other comments?	
	Attention:

VI. CALIBRATION REPORTS



LRM, Inc

Instrumentation & Disinfection Systems

Calibration Date

4/17/2018

User

East Norriton Township
2501 Stanbridge Street

Job Site

East Norriton Pa 19401

Attn Ron

Instrument Model No.

Instrument S/N

Krohne model IFS4000

A964054

Instrument Loop

Input Type

Norris City

Magmeter

Primary Signal Producer

Calibrated Range

16" Mag Primary

0 - 6000 gpm

Instrument Settings

Found

Changed To

Zero	Span
0	6000

Zero	Span
n/c	n/c

Calibration Data

Input %	Input Value	Output Value	% Error After Calibration
0 %	0.00 gpm	4.000 mADC	0.00%
50 %	3000.00 gpm	12.000 mADC	0.00%
100 %	6000.00 gpm	20.000 mADC	0.00%

Equipment Used Multimeter

Adjustments / Actions Taken : None

Comments :

Service Representative

Michael Sollazzo

Date 4/24/2018

215 N. Main Street - Souderton, Pa 18964 - 215-721-4840 - Fax 215-721-4923



LRM, Inc

Instrumentation & Disinfection Systems

Calibration Date

4/17/2018

User

East Norriton Township
2501 Stanbridge Street

Job Site

East Norriton Pa 19401

Attn Ed White

Instrument Model No.

Instrument S/N

Krohne model IFS4000

A964052

Instrument Loop

Input Type

Timber Lake

Magmeter

Primary Signal Producer

Calibrated Range

12" Mag Primary

0 - 3.5 kgal

Instrument Settings

Found

Changed To

Zero	Span
0	3.5

Zero	Span
n/c	n/c

Calibration Data

Input %	Input Value	Output Value	% Error After Calibration
0 %	0.00 kgal	4.000 mADC	0.00%
50 %	1.75 kgal	12.000 mADC	0.00%
100 %	3.50 kgal	20.000 mADC	0.00%

Equipment Used Multimeter

Adjustments / Actions Taken : None

Comments :

Service Representative

Michael Sollazzo

Date 4/24/2018

215 N. Main Street - Souderton, Pa 18964 - 215-721-4840 - Fax 215-721-4923



LRM, Inc

Instrumentation & Disinfection Systems

Calibration Date

4/17/2018

User

East Norriton Township
2501 Stanbridge Street

Job Site

East Norriton Pa 19401

Attn Ron

Instrument Model No.

Instrument S/N

50W1F-UL0A1RK5BAAA

E9049216000

Instrument Loop

Input Type

Einstein Forced Main

Magmeter

Primary Signal Producer

Calibrated Range

6" Mag Primary

0 - 1500 gpm

Instrument Settings

Found

Changed To

Zero	Span
0	1500

Zero	Span
n/c	n/c

Calibration Data

Input %	Input Value	Output Value	% Error After Calibration
0 %	4.00 mA	4.004 mADC	0.10%
50 %	12.00 mA	11.998 mADC	-0.02%
100 %	20.00 mA	19.982 mADC	-0.09%

Equipment Used Fieldcheck Verification

Adjustments / Actions Taken : None

Comments :

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code	Tag Name
PROMAG 50 W DN150	1.05 - 1.05
Device type	K-Factor
E9049216000	-3
Serial number	Zero point
V2.04.00	V1.04.02
Software Version Transmitter	Software Version I/O-Module
04/17/2018	13:17
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.55 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Passed	1 P
Test Sensor	Passed	

FieldCheck Details
550869
Production number
1.07.08
Software Version
08/2016
Last Calibration Date

Simubox Details
8812210
Production number
1.00.01
Software Version
10/2016
Last Calibration Date

Date

Operator's Sign

Inspector's Sign

Overall results:

The achieved test results show that the instrument is completely functional, and the measuring results lie within +/- 1% of the original calibration. ¹⁾

The calibration of the Fieldcheck test system is fully traceable to national standards.

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	-----
Device type	PROMAG 50 W DN150	K-Factor	1.05 - 1.05
Serial number	E9049216000	Zero point	-3
Software Version Transmitter	V2.04.00	Software Version I/O-Module	V1.04.02
Verification date	04/17/2018	Verification time	13:17

Verification Flow end value (100 %): 1120.393 gal/m
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	56.020 gal/m (5%)	1.50 %	0.18 %
✓		112.039 gal/m (10.0%)	1.00 %	-0.01 %
✓		560.197 gal/m (50.0%)	0.60 %	0.01 %
✓		1120.393 gal/m (100%)	0.55 %	-0.01 %
	Current Output 1			
✓		4.000 mA (0%)	0.05 mA	-0.009 mA
✓		4.800 mA (5%)	0.05 mA	-0.008 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.021 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.001 mA
✓		20.000 mA (100%)	0.05 mA	0.029 mA
	Pulse Output 1			
✓		125 P	1 P	0 P
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	9.600 ms	0.000..21.500 ms	12.841 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.000 mV	0.000 mV

Legend of symbols

✓	✗	---	?	!
Passed	Failed	not tested	not testable	Attention

FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	-----
Device type	PROMAG 50 W DN150	K-Factor	1.05 - 1.05
Serial number	E9049216000	Zero point	-3
Software Version Transmitter	V2.04.00	Software Version I/O-Module	V1.04.02
Verification date	04/17/2018	Verification time	13:17

Current Output	Assign	Current Range	Value 0_4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 gal/m	1500.00 gal/m		
Pulse Output	Assign	Pulse Value	Output signal	Pulse width		
Terminal 24/25	VOLUME FLOW	5.000 gal/P	Passive/Positive	100.00 ms		

Actual System Ident.

109.0



LRM, Inc

Instrumentation & Disinfection Systems

Calibration Date
4/17/2018

User

East Norriton Township 2501 Stanbridge Street
East Norriton Pa 19401
Attn Ron

Job Site

--

Instrument Model No.

50W1F-UL0A1RK5BAAA

Instrument S/N

FA00CB16000

Instrument Loop

Germantown PS - ByPass

Input Type

Magmeter

Primary Signal Producer

6" Mag Primary

Calibrated Range

0 - 1200 gpm

Instrument Settings

Found

Zero	Span
0	1200

Changed To

Zero	Span
n/c	n/c

Calibration Data

Input %	Input Value	Output Value	% Error After Calibration
0 %	4.00 mA	4.000 mADC	0.00%
50 %	12.00 mA	11.997 mADC	-0.03%
100 %	20.00 mA	19.992 mADC	-0.04%

Equipment Used Fieldcheck Verification

Adjustments / Actions Taken : None

Comments :

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code PROMAG 50 W DN150	Tag Name 1.0289 - 1.0289
Device type FA00CB16000	K-Factor -4
Serial number V2.04.00	Zero point V1.04.10
Software Version Transmitter 04/17/2018	Software Version I/O-Module 14:06
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.55 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Passed	1 P
Test Sensor	Passed	

FieldCheck Details
550869
Production number 1.07.08
Software Version 08/2016
Last Calibration Date

Simubox Details
8812210
Production number 1.00.01
Software Version 10/2016
Last Calibration Date

Date

Operator's Sign

Inspector's Sign

Overall results:

The achieved test results show that the instrument is completely functional, and the measuring results lie within +/- 1% of the original calibration. ¹⁾

The calibration of the Fieldcheck test system is fully traceable to national standards.

1) Prerequisite is an additional proof of electrode integrity with a high voltage test

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	-----
Device type	PROMAG 50 W DN150	K-Factor	1.0289 - 1.0289
Serial number	FA00CB16000	Zero point	-4
Software Version Transmitter	V2.04.00	Software Version I/O-Module	V1.04.10
Verification date	04/17/2018	Verification time	14:06

Verification Flow end value (100 %): 1120.393 gal/m
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	56.020 gal/m (5%)	1.50 %	0.28 %
✓		112.039 gal/m (10.0%)	1.00 %	0.02 %
✓		560.197 gal/m (50.0%)	0.60 %	0.00 %
✓		1120.393 gal/m (100%)	0.55 %	-0.02 %
	Current Output 1			
✓		4.000 mA (0%)	0.05 mA	-0.007 mA
✓		4.800 mA (5%)	0.05 mA	-0.008 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.019 mA
✓		12.000 mA (50.0%)	0.05 mA	0.001 mA
✓		20.000 mA (100%)	0.05 mA	0.026 mA
✓	Pulse Output 1	125 P	1 P	0 P
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	9.600 ms	0.000..21.500 ms	12.780 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.000 mV	6.533 mV

Legend of symbols

✓	X	---	?	!
Passed	Failed	not tested	not testable	Attention

FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	-----
Device type	PROMAG 50 W DN150	K-Factor	1.0289 - 1.0289
Serial number	FA00CB16000	Zero point	-4
Software Version Transmitter	V2.04.00	Software Version I/O-Module	V1.04.10
Verification date	04/17/2018	Verification time	14:06

Curent Output	Assign	Current Range	Value 0_4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 gal/m	1200.00 gal/m		
Pulse Output	Assign	Pulse Value	Output signal	Pulse width		
Terminal 24/25	VOLUME FLOW	5.000 gal/P	Passive/Positive	100.00 ms		

Actual System Ident.

113.0



LRM, Inc

Instrumentation & Disinfection Systems

Calibration Date

4/17/2018

User

East Norriton Township
2501 Stanbridge Street

Job Site

East Norriton Pa 19401

Attn Ron

Instrument Model No.

Instrument S/N

Krohne model IFS4000

A964053

Instrument Loop

Input Type

Germantown

Magmeter

Primary Signal Producer

Calibrated Range

12" Mag Primary

0 - 3.0 mgd

Instrument Settings

Found

Changed To

Zero	Span
0	3.0

Zero	Span
n/c	n/c

Calibration Data

Input %	Input Value	Output Value	% Error After Calibration
0 %	0.00 mgd	4.000 mADC	0.00%
50 %	1.50 mgd	12.000 mADC	0.00%
100 %	3.00 mgd	20.000 mADC	0.00%

Equipment Used Multimeter

Adjustments / Actions Taken : None

Comments :

Service Representative

Michael Sollazzo

Date 4/24/2018

215 N. Main Street - Souderton, Pa 18964 - 215-721-4840 - Fax 215-721-4923



LRM, Inc

Instrumentation & Disinfection Systems

Calibration Date
4/17/2018

User
East Norriton Township
2501 Stanbridge Street
East Norriton Pa 19401
Attn Ron

Job Site

Instrument Model No.

Instrument S/N

53W1F-UL0B1RK5B2AA

54023116000

Instrument Loop

Input Type

Sandra Lane

Magmeter

Primary Signal Producer

Calibrated Range

6" Mag Primary

0 - 500 gpm

Instrument Settings

Found

Changed To

Zero	Span
0	500

Zero	Span
n/c	n/c

Calibration Data

Input %	Input Value	Output Value	% Error After Calibration
0 %	4.00 mA	4.003 mADC	0.07%
50 %	12.00 mA	12.000 mADC	0.00%
100 %	20.00 mA	19.992 mADC	-0.04%

Equipment Used Fieldcheck Verification

Adjustments / Actions Taken : None

Comments :

DTM Version: 3.28.00

Pa

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code PROMAG 53 W DN150	Tag Name 1.04098 - 1.04098
Device type 54023116000	K-Factor 2
Serial number V1.04.00	Zero point V1.02.01
Software Version Transmitter 04/17/2018	Software Version I/O-Module 13:47
Verification date	Verification time

Verification result Transmitter: Passed

Test Item	Result	Applied Limits
Amplifier	Passed	Basis: 0.55 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Passed	1 P
Test Sensor	Passed	

FieldCheck Details 550869	Simubox Details 8812210
Production number 1.07.08	Production number 1.00.01
Software Version 08/2016	Software Version 10/2016
Last Calibration Date	Last Calibration Date

Date _____ Operator's Sign _____ Inspector's Sign _____

Overall results:

The achieved test results show that the instrument is completely functional, and the measuring results lie within +/- 1% of the original calibration. ¹⁾

The calibration of the Fieldcheck test system is fully traceable to national standards.

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	-----
Device type	PROMAG 53 W DN150	K-Factor	1.04098 - 1.04098
Serial number	54023116000	Zero point	2
Software Version Transmitter	V1.04.00	Software Version I/O-Module	V1.02.01
Verification date	04/17/2018	Verification time	13:47

Verification Flow end value (100 %): 1120.393 gal/m
Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
	Amplifier			
✓		56.020 gal/m (5%)	1.50 %	0.10 %
✓		112.039 gal/m (10.0%)	1.00 %	0.00 %
✓		560.197 gal/m (50.0%)	0.60 %	0.04 %
✓		1120.393 gal/m (100%)	0.55 %	-0.02 %
	Current Output 1			
✓		4.000 mA (0%)	0.05 mA	-0.006 mA
✓		4.800 mA (5%)	0.05 mA	-0.006 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.018 mA
✓		12.000 mA (50.0%)	0.05 mA	0.002 mA
✓		20.000 mA (100%)	0.05 mA	0.029 mA
✓	Pulse Output 1			
		102 P	1 P	0 P
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	9.600 ms	0.000..21.500 ms	12.142 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.000 mV	58.984 mV

Legend of symbols

✓	✗	---	?	!
Passed	Failed	not tested	not testable	Attention

FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	-----
Device type	PROMAG 53 W DN150	K-Factor	1.04098 - 1.04098
Serial number	54023116000	Zero point	2
Software Version Transmitter	V1.04.00	Software Version I/O-Module	V1.02.01
Verification date	04/17/2018	Verification time	13:47

Curent Output	Assign	Current Range	Value 0_4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 gal/m	500.00 gal/m		
Pulse Output	Assign	Pulse Value	Output signal	Pulse width		
Terminal 24/25	VOLUME FLOW	5.000 gal/P	Passive/Positive	100.00 ms		

Actual System Ident.

113.0



LRM, Inc

Instrumentation & Disinfection Systems

Calibration Date
4/17/2018

User

East Norriton Township
2501 Stanbridge Street

Job Site

East Norriton Pa 19401

Attn Ron

Instrument Model No.

Instrument S/N

50W2H-U10A1RK5BAAA

E9041716000

Instrument Loop

Input Type

Einstein Surge Tank

Magmeter

Primary Signal Producer

Calibrated Range

8" Mag Primary

0 - 1500 gpm

Instrument Settings

Found

Changed To

Zero	Span
0	1500

Zero	Span
n/c	n/c

Calibration Data

Input %	Input Value	Output Value	% Error After Calibration
0 %	4.00 mA	4.004 mADC	0.10%
50 %	12.00 mA	11.996 mADC	-0.03%
100 %	20.00 mA	19.979 mADC	-0.11%

Equipment Used Fieldcheck Verification

Adjustments / Actions Taken : None

Comments :

Service Representative

Michael Sollazzo

Date 4/24/2018

215 N. Main Street - Souderton, Pa 18964 - 215-721-4840 - Fax 215-721-4923

Flowmeter Verification Certificate Transmitter

Customer	Plant
Order code PROMAG 50 W DN200	Tag Name 1.0375 - 1.0375
Device type E9041716000	K-Factor 0
Serial number V2.04.00	Zero point V1.04.02
Software Version Transmitter 04/17/2018	Software Version I/O-Module 13:24
Verification date	Verification time

Verification result Transmitter: Passed

Test item	Result	Applied Limits
Amplifier	Passed	Basis: 0.55 %
Current Output 1	Passed	0.05 mA
Pulse Output 1	Passed	1 P
Test Sensor	Passed	

FieldCheck Details
550869
Production number 1.07.08
Software Version 08/2016
Last Calibration Date

Simubox Details
8812210
Production number 1.00.01
Software Version 10/2016
Last Calibration Date

Date _____ Operator's Sign _____ Inspector's Sign _____

Overall results:

The achieved test results show that the instrument is completely functional, and the measuring results lie within +/- 1% of the original calibration. ¹⁾

The calibration of the Fieldcheck test system is fully traceable to national standards.

1) Prerequisite is an additional proof of electrode integrity with a high voltage test.

FieldCheck - Result Tab Transmitter

Customer		Plant	
Order code		Tag Name	-----
Device type	PROMAG 50 W DN200	K-Factor	1.0375 - 1.0375
Serial number	E9041716000	Zero point	0
Software Version Transmitter	V2.04.00	Software Version I/O-Module	V1.04.02
Verification date	04/17/2018	Verification time	13:24

Verification Flow end value (100 %): 1991.810 gal/m
 Flow speed 4.00 m/s

Passed / Failed	Test item	Simul. Signal	Limit Value	Deviation
	Test Transmitter			
✓	Amplifier	99.591 gal/m (5%)	1.50 %	0.23 %
✓		199.181 gal/m (10.0%)	1.00 %	0.03 %
✓		995.905 gal/m (50.0%)	0.60 %	0.00 %
✓		1991.810 gal/m (100%)	0.55 %	-0.01 %
	Current Output 1			
✓		4.000 mA (0%)	0.05 mA	-0.008 mA
✓		4.800 mA (5%)	0.05 mA	-0.009 mA
✓		5.600 mA (10.0%)	0.05 mA	-0.022 mA
✓		12.000 mA (50.0%)	0.05 mA	-0.001 mA
✓		20.000 mA (100%)	0.05 mA	0.025 mA
✓	Pulse Output 1	125 P	1 P	0 P
		Start value	Limits range	Measured value
	Test Sensor			
✓	Coil Curr. Rise	13.300 ms	0.000..27.625 ms	18.300 ms
✓	Coil Curr. Stability		---	---
✓	Electrode Integrity	mV	0.0..300.000 mV	6.584 mV

Legend of symbols

✓	✗	—	?	!
Passed	Failed	not tested	not testable	Attention

FieldCheck: Parameters Transmitter

Customer		Plant	
Order code		Tag Name	-----
Device type	PROMAG 50 W DN200	K-Factor	1.0375 - 1.0375
Serial number	E9041716000	Zero point	0
Software Version Transmitter	V2.04.00	Software Version I/O-Module	V1.04.02
Verification date	04/17/2018	Verification time	13:24

Curent Output	Assign	Current Range	Value 0_4mA	Value 20 mA		
Terminal 26/27	VOLUME FLOW	4-20 mA activ	0.0 gal/m	1500.00 gal/m		
Pulse Output	Assign	Pulse Value	Output signal	Pulse width		
Terminal 24/25	VOLUME FLOW	10.000 gal/P	Passive/Positive	100.00 ms		

Actual System Ident.

111.0