

September Daily Rainfall	
Date	Precipitation (in)
1-Sep	0.07
2-Sep	
3-Sep	
4-Sep	
5-Sep	
6-Sep	0.04
7-Sep	
8-Sep	
9-Sep	
10-Sep	
11-Sep	0.10
12-Sep	
13-Sep	0.03
14-Sep	
15-Sep	
16-Sep	0.07
17-Sep	0.01
18-Sep	
19-Sep	
20-Sep	
21-Sep	0.05
22-Sep	
23-Sep	
24-Sep	
25-Sep	
26-Sep	
27-Sep	
28-Sep	
29-Sep	
30-Sep	0.02
Total	0.39

October Daily Rainfall	
Date	Precipitation (in)
1-Oct	
2-Oct	
3-Oct	0.23
4-Oct	0.11
5-Oct	
6-Oct	0.09
7-Oct	0.39
8-Oct	0.01
9-Oct	
10-Oct	0.01
11-Oct	0.02
12-Oct	
13-Oct	0.05
14-Oct	0.10
15-Oct	0.80
16-Oct	0.12
17-Oct	
18-Oct	0.10
19-Oct	0.06
20-Oct	0.01
21-Oct	0.13
22-Oct	0.02
23-Oct	
24-Oct	
25-Oct	
26-Oct	
27-Oct	
28-Oct	
29-Oct	
30-Oct	
31-Oct	0.17
Total	2.42

November Daily Rainfall	
Date	Precipitation (in)
1-Nov	0.06
2-Nov	
3-Nov	
4-Nov	
5-Nov	0.06
6-Nov	0.91
7-Nov	0.11
8-Nov	
9-Nov	
10-Nov	
11-Nov	
12-Nov	0.06
13-Nov	
14-Nov	
15-Nov	
16-Nov	0.14
17-Nov	0.46
18-Nov	
19-Nov	
20-Nov	
21-Nov	
22-Nov	0.03
23-Nov	0.18
24-Nov	0.06
25-Nov	
26-Nov	0.13
27-Nov	0.03
28-Nov	0.01
29-Nov	
30-Nov	
Total	2.24

December Daily Rainfall	
Date	Precipitation (in)
1-Dec	0.06
2-Dec	
3-Dec	
4-Dec	
5-Dec	0.06
6-Dec	0.91
7-Dec	0.11
8-Dec	
9-Dec	
10-Dec	
11-Dec	
12-Dec	0.06
13-Dec	
14-Dec	
15-Dec	
16-Dec	0.14
17-Dec	0.46
18-Dec	
19-Dec	
20-Dec	
21-Dec	
22-Dec	0.03
23-Dec	0.18
24-Dec	0.06
25-Dec	
26-Dec	0.13
27-Dec	0.03
28-Dec	0.01
29-Dec	
30-Dec	
31-Dec	
Total	2.24

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT

**Chapter 94 Municipal Wasteload Management Report
City of Duquesne Wastewater Treatment Plant
Operating Year 2015
Resubmission September 2016**

KLH

A blue wavy line graphic that starts under the 'K' and ends under the 'H', curving upwards at the right end.

**ENGINEERS, INC
5173 CAMPBELLS RUN ROAD
PITTSBURGH, PA 15205-9733**

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
Allegheny County, Pennsylvania

City of Duquesne Wastewater Treatment Plant

Chapter 94 – Municipal Wasteload Management Report
Operating Year 2015

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CSO Report..... Attachment 6

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
Allegheny County, Pennsylvania

City of Duquesne Wastewater Treatment Plant
Chapter 94 – Municipal Wasteload Management Report
Operating Year 2015

EXECUTIVE SUMMARY

In compliance with Section 94.12, of Chapter 94, Title 25 of the Pennsylvania Code and the Rules and Regulations of the Pennsylvania Department of Environmental Protection (PADEP), this report is submitted by the Municipal Authority of the City of McKeesport (Authority) as a summary of the loadings and conditions existing at the City of Duquesne Wastewater Treatment Plant (WWTP), tributary conveyance sewer systems, and pump stations during the operating year 2015. In addition, this report includes a projection of the anticipated loadings at the WWTP for the next five years (2016-2020). DEP forms and spreadsheets were utilized in order to complete the report.

The City of Duquesne WWTP is owned by the Authority and operated under NPDES Permit No. PA0026981, issued on September 5, 2003. The location of the WWTP is shown in Figure 1.

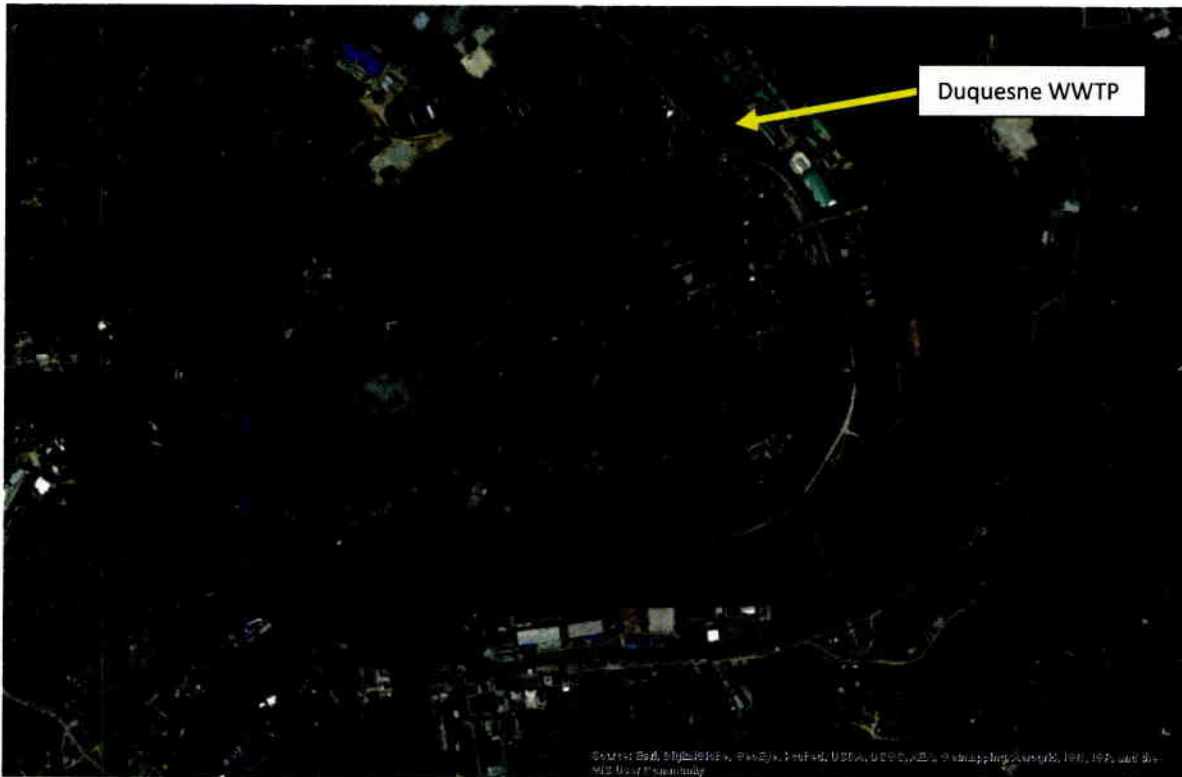


Figure 1: Duquesne WWTP Location

The Municipal Authority of the City of McKeesport took ownership of the City of Duquesne WWTP in November 2010. It currently retains a Hydraulic Design Capacity of 5 MGD and an Organic Design Capacity of 2780 lbs BOD5/day. The WWTP is a contact stabilization style activated sludge treatment plant that provides secondary treatment. Influent comes from the combined sewer system, which serves only the City of Duquesne. There are four (4) flow regulators within the collection system but none at the treatment plant. Influent flow combines at a manhole within the treatment plant site and flows through the plant as follows:

1. The flow enters the Parshall Flume, which continuously records flow using an ultrasonic flow meter and seven-day chart recorder.
2. Flow then goes through a mechanically cleaned bar screen, or during times of maintenance, a manually cleaned bar screen.
3. Sewage then flows through an aerated grit chamber for grit removal, utilizing a mechanical removal system.
4. Sewage then flows into contact tanks No. 1 & 2, where it is processed by activated stabilized sludge.
5. Flow is then divided into the two (2) clarifier tanks where biological flow and heavy particles settle out.
6. The treated sewage is then chlorinated as it proceeds to the chlorine contact tank before final discharge into the Monongahela River near the mouth of Thompson Run.

Each component of the treatment plant has a bypass flow channel for use during maintenance and repair. The entire treatment process may be bypassed to the chlorine contact tank, if necessary, during high flows. All diversions are manual and set for high flow conditions to prevent wash out of the treatment tanks. The influent parameter limits for the WWTP are established as follows:

1. Flow: 2.5 times the 2.0 MGD average for an instantaneous flow of 5.0 mgd.
2. BOD: The following estimated Influent Loading Limits can be derived based on the 2.5 peaking factor for flow.
 - a. Monthly Average: 167 mg/l or 2,780 lbs/day
 - b. Weekly average: 250 mg/l or 4,170 lbs/day
 - c. Instantaneous: 333 mg/l maximum
3. Total suspended Solids (TSS): Using the same assumptions, Influent Loading Limits are estimated at:
 - a. Monthly Average: 200 mg/L or 3,336 lbs/day
 - b. Weekly Average: 300 mg/L or 5,004 lbs/day
 - c. Instantaneous: 400 mg/L maximum

Although the monthly average numbers are the only ones defined, the other estimated limits establish flags for possible problems.

The City's sewage conveyance system is divided into five drainage areas. All of these areas have combined sewage flow and are controlled by a regulator.

- AREA 1: Crawford Avenue area (Flows into area 2)
- AREA 2: Hudson Avenue area (Regulator #1)
- AREA 3: Grant Avenue area (Regulator #2)
- AREA 4: Grant Avenue Extension area (Regulator #4)
- AREA 5: Commonwealth Avenue area (Regulator #3)

Table No. 1 represents the approximate quantities of sewer line and related appurtenances.

Table 1: Duquesne Collection System

Area	Flush Tanks		Manholes		Egg Shape Pipe		Total Pipe	
1	10	EA	79	EA	0	LF	15,760	LF
2	25	EA	188	EA	5,500	LF	27,500	LF
3	23	EA	146	EA	2,850	LF	30,820	LF
4	6	EA	58	EA	0	LF	63,150	LF
5	0	EA	86	EA	0	LF	20,650	LF
Total:	64	EA	557	EA	8350	LF	157880	LF

The City of Duquesne WWTP was not hydraulically or organically overloaded in the operating year 2015, and is not projected to be hydraulically or organically overloaded in the next five years.

When the Authority purchased the system in 2010 the WWTP had no know industrial customers. The Authority is currently conducting an Industrial Waste Survey to determine the presence of industrial users and to determine if an Industrial Pretreatment Program is required.

One sewer extension was completed in 2015 for the Orchard Park Housing Development. The involved the installation of approximately 1360 LF of 8" PVC to server residential customers. A project location map as well as as-built drawings can be found in attachment 2.



CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: 2015

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

GENERAL INFORMATION			
Permittee Name:	Municipal Authority of the City of McKeesport - Duquesne WWTP	Permit No.:	PA0026981
Mailing Address:	100 Atlantic Ave.	Effective Date:	09/05/03
City, State, Zip:	McKeesport, PA 15132	Expiration Date:	09/15/08
Contact Person:	Charles R. Schultz	Renewal Due Date:	
Title:	Superintendent	Municipality:	City of Duquesne
Phone:	(412) 673-9701	County:	Allegheny
Email:	cschultz@mck-macm.org	Consultant Name:	KLH Engineers, Inc.
CHAPTER 94 REPORT COMPONENTS			
<p>1. Attach to this report a line graph depicting the monthly average flows (expressed in MGD) for each month for the past 5 years and projecting the flows for the next 5 years. The graph must also include a line depicting the hydraulic design capacity per the WQM permit. (25 Pa. Code § 94.12(a)(1))</p> <p>Check the appropriate boxes:</p> <p><input checked="" type="checkbox"/> Line graph for flows attached (Attachment 1b)</p> <p><input checked="" type="checkbox"/> DEP Chapter 94 Spreadsheet used (Attachment 1a)</p> <p><input type="checkbox"/> Section 1 is not applicable (report is for a collection system).</p>			
<p>2. Attach to this report a line graph depicting the monthly average organic loads (express as lbs BOD5/day) for each month for the past 5 years and projecting the organic loads for the next 5 years. The graph must also include a line depicting the organic design capacity of the treatment plant per the WQM permit. (25 Pa. Code § 94.12(a)(2))</p> <p>Check the appropriate boxes:</p> <p><input checked="" type="checkbox"/> Line graph for organic loads attached (Attachment 1c)</p> <p><input checked="" type="checkbox"/> DEP Chapter 94 Spreadsheet used (Attachment 1a)</p> <p><input type="checkbox"/> Section 2 is not applicable (report is for a collection system).</p>			

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

The DEP Ch. 94 Spreadsheet was used. The City of Duquesne WWTP was not hydraulically or organically overloaded in the operating year 2015, and is not projected to be hydraulically or organically overloaded in the next five years.

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

Check the appropriate boxes:

- Map showing sewer extensions constructed, approved/exempted but not yet constructed, and proposed projects attached (**Attachment**)
- List summarizing each extension or project attached (**Attachment**)
- Schedules describing how each project will be completed over time and effects attached (**Attachment**)

Comments:

Refer to Attachment [2]

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

Refer to Attachment [3].

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

Check the appropriate boxes:

- System experienced capacity-related bypassing, SSOs or surcharging during the report year. On a separate sheet, list the date, location, and reason for each bypass, SSO or surcharge event.
- System did not experience capacity-related bypassing, SSOs or surcharging during the report year.

Comments:

The collection system appears to be in good condition. The sewerage system and WWTP are under constant monitoring and problems are resolved immediately, as necessary.

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

Check the appropriate boxes:

- The collection system does not contain pump stations
- The collection system does contain pump stations (Number –)
- Discussion of condition of each pump station attached (**Attachment**)

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

- a. A copy of any ordinance or regulation governing industrial waste discharges to the sewer system or a copy of amendments adopted since the initial submission of the ordinance or regulation under Chapter 94, if it has not previously been submitted.
- b. A discussion of the permittee's or municipality's program for surveillance and monitoring of industrial waste discharges into the sewer system during the past year.
- c. A discussion of specific problems in the sewer system or at the plant, known or suspected to be caused by industrial waste discharges and a summary of the steps being taken to alleviate or eliminate the problems. The discussion shall include a list of industries known to be discharging wastes which create problems in the plant or in the sewer system and action taken to eliminate the problem or prevent its recurrence. The report may describe pollution prevention techniques in the summary of steps taken to alleviate current problems caused by industrial waste dischargers and in actions taken to eliminate or prevent potential or recurring problems caused by industrial waste dischargers.

Check the appropriate boxes:

- Industrial waste report as described in 8 a., b. and c. attached (**Attachment**)
- Industrial pretreatment report as required in an NPDES permit attached (**Attachment**)

9. Existing or Projected Overload.

Check the appropriate boxes:

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

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

- Corrective Action Plan attached (Attachment)

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

- Sewage Sludge Management Inventory attached (Attachment 4)

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

- Annual CSO Report attached (Attachment 6)

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

- Flow calibration report attached (Attachment 5)

RESPONSIBLE OFFICIAL CERTIFICATION

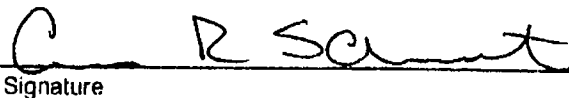
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Charles R. Schultz

Name of Responsible Official

(412) 673-9701

Telephone No.



Signature

3-29-2016

Date

PREPARER CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared by me or otherwise under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowledge of violations. See 18 Pa. C.S. § 4904 (relating to unsworn falsification).

Steven H. Greenberg, P.E.

Name of Preparer

Signature

(412) 494-0510

3-29-16

Telephone No.

Date

ATTACHMENT 1

PaDEP Chapter 94 Spreadsheet



PADEP Chapter 94 Spreadsheet
Sewage Treatment Plants

Reporting Year:

Facility Name:

Permit No.:

Persons/EDU:

Existing Hydraulic Design Capacity: MGD

Existing Organic Design Capacity: lbs BOD5/day

Upgrade Planned in Next 5 Years? Year:

Upgrade Planned In Next 5 Years? Year:

Future Hydraulic Design Capacity: MGD

Future Organic Design Capacity: lbs BOD5/day

Monthly Average Flows for Past Five Years (MGD)

Month	2011	2012	2013	2014	2015
January	0.43	1.28	0.975	0.79871	0.9368
February	0.841	0.83	1.006	1.01607	0.705
March	0.691	1.048	1.094	0.726	1.359
April	0.842	0.803	0.943	0.971	1.1473
May	0.637	0.98	0.79	1.12065	0.5731
June	0.975	0.739	1.281	1.05183	1.3447
July	0.733	1.098	1.412	0.87587	1.3479
August	0.566	0.839	0.895	1.07919	0.71839
September	1.003	1.0	0.739	0.56217	0.65517
October	1.132	1.08	0.744	0.59663	0.69052
November	1.036	0.525	0.767	0.592	0.65887
December	1.199	1.091	0.981	0.65403	0.805

Annual Avg	0.84	0.943	0.969	0.83701215	0.911812
Max 3-Mo Avg	1.122	1.172	1.196	1.04782616	1.136997
Max : Avg Ratio	1.34	1.24	1.23	1.25	1.25
Existing EDUs	3,179.0	3,179.0	3,179.0	3,179.0	3,179.0
Flow/EDU (GPD)	264.2	296.6	304.8	263.3	286.8
Flow/Capita (GPD)					
Exist. Overload?	NO	NO	NO	NO	NO

Projected Flows for Next Five Years (MGD)

	2016	2017	2018	2019	2020
New EDUs	2.0	2.0	2.0	2.0	2.0
New EDU Flow	0.0006	0.0006	0.0006	0.0006	0.0006
Proj. Annual Avg	0.90076	0.90136	0.90196	0.90256	0.90316
Proj. Max 3-Mo Avg	1.13706	1.13782	1.13858	1.13933	1.14009
Proj. Overload?	NO	NO	NO	NO	NO

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

Month	2011	2012	2013	2014	2015
January	429	758	418	371	461
February	104	575	436	316	276
March	98	533	393	291	306
April	440	583	493	432	287
May	642	719	345	472	182
June	470	678	348	453	325
July	933	806	290	393	371
August	390	707	246	576	246
September	515	467	295	296	202
October	849	612	377	244	219
November	276	324	315	277	225
December	694	346	254	257	233

Annual Avg	487	592	351	365	278
Max Mo Avg	933	806	493	576	461
Max : Avg Ratio	1.92	1.36	1.41	1.58	1.66
Existing EDUs	3,179	3,179	3,179	3,179	3,179
Load/EDU	0.153	0.186	0.110	0.115	0.087
Load/Capita					
Exist. Overload?	NO	NO	NO	NO	NO

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

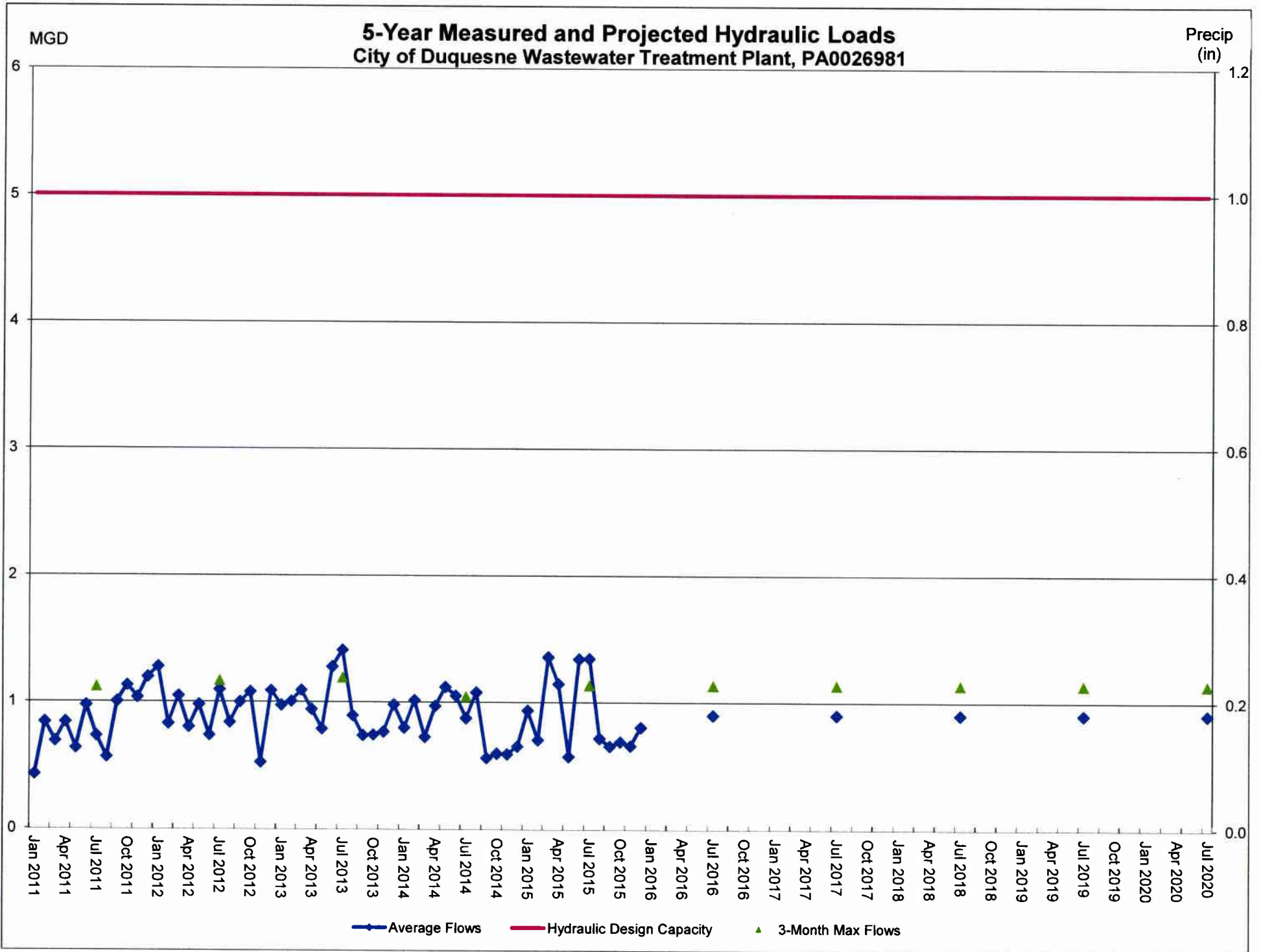
	2016	2017	2018	2019	2020
New EDUs	2	2	2	2	2
New EDU Load	0.261	0.261	0.261	0.261	0.261
Proj. Annual Avg	415	415	415	416	416
Proj. Max Avg	657	657	658	658	659
Proj. Overload?	NO	NO	NO	NO	NO

Show Precipitation Data on Hydraulic Graph?

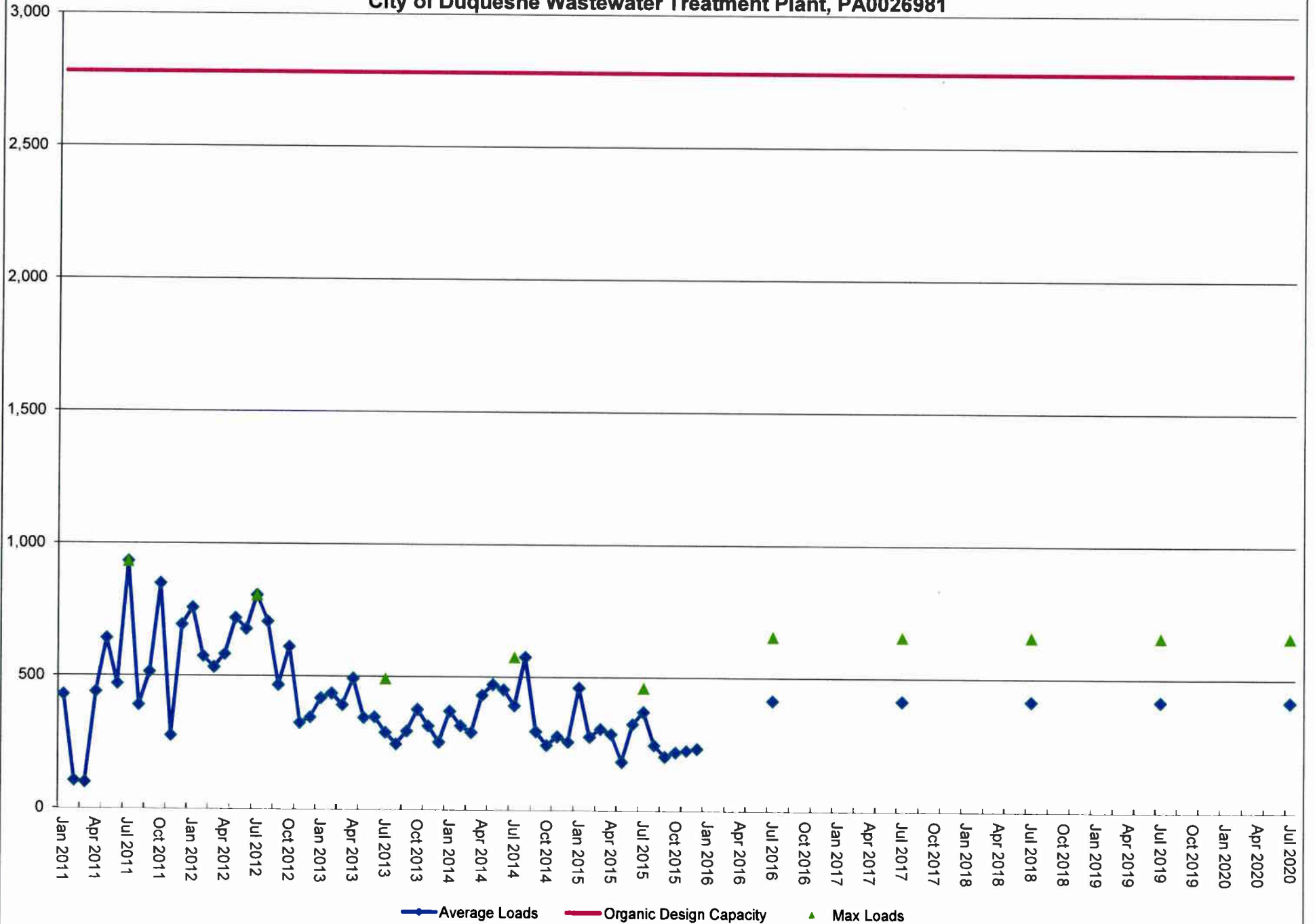
Total Monthly Precipitation for Past Five Years (Inches)

Month	2011	2012	2013	2014	2015
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					

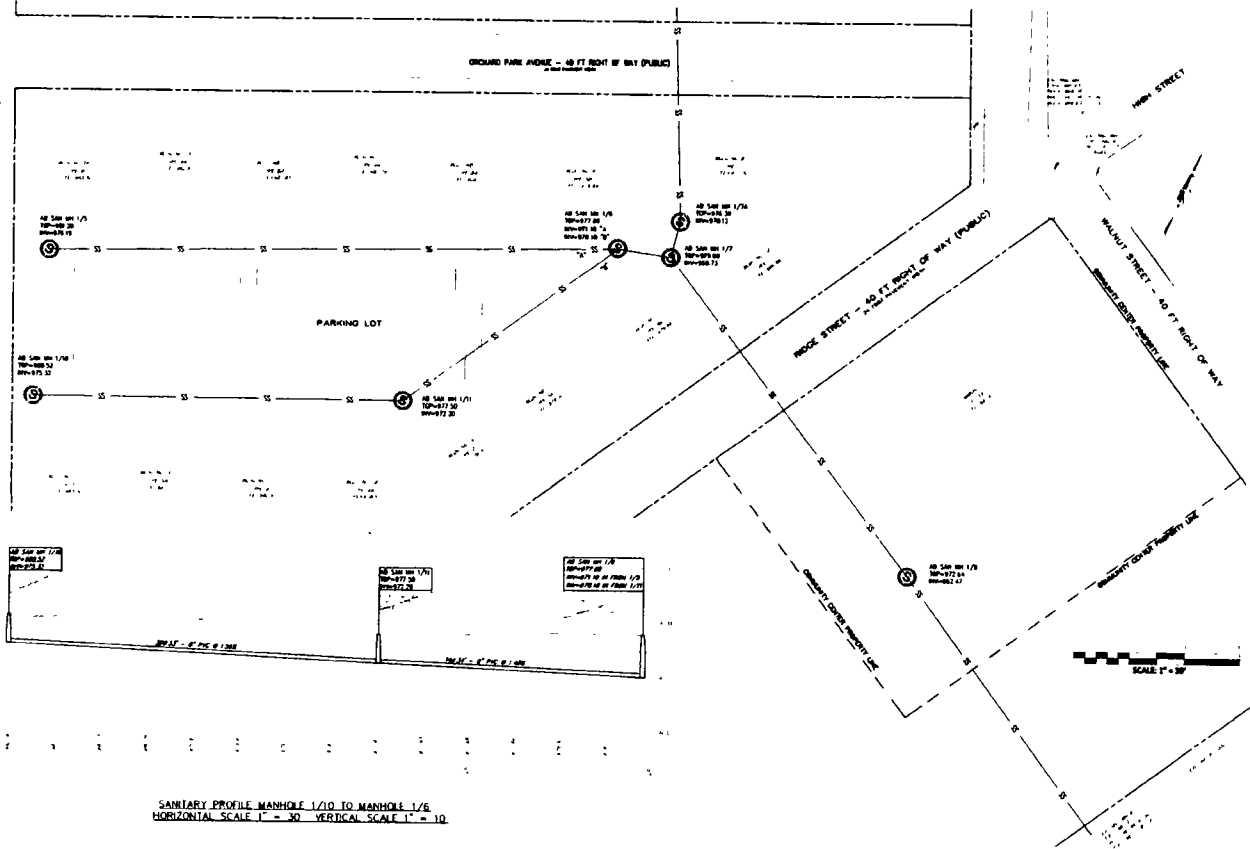
5-Year Measured and Projected Hydraulic Loads City of Duquesne Wastewater Treatment Plant, PA0026981



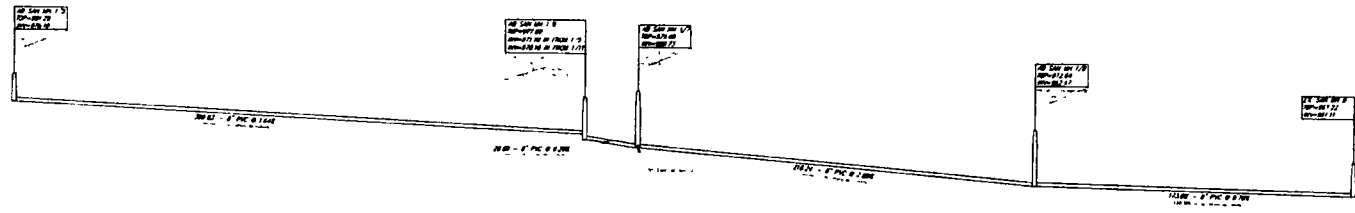
5-Year Measured and Projected Organic Loads City of Duquesne Wastewater Treatment Plant, PA0026981



ATTACHMENT 2
Sewer Extensions Map

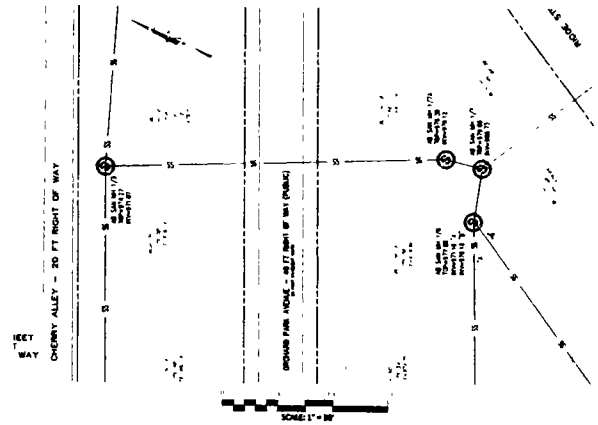
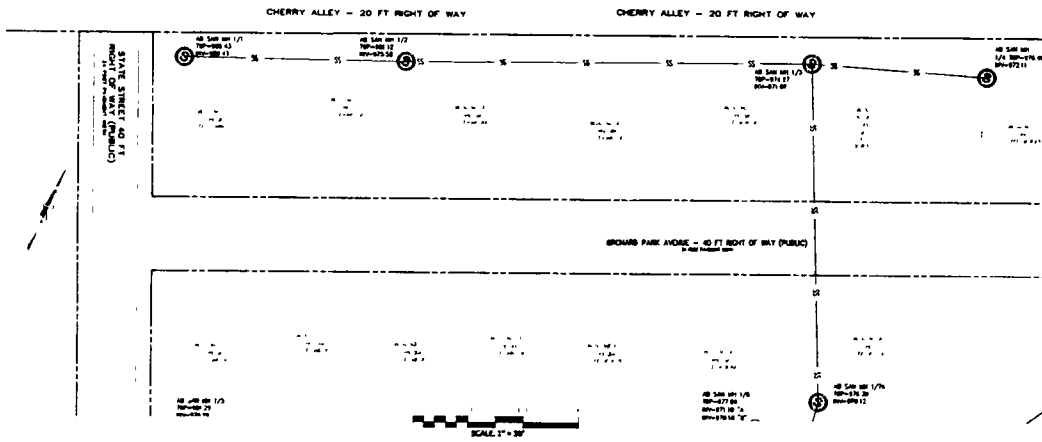


SANITARY PROFILE MANHOLE 1/10 TO MANHOLE 1/6
 HORIZONTAL SCALE 1" = 30' VERTICAL SCALE 1" = 10'

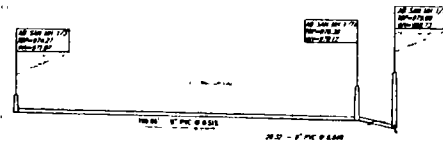


SANITARY PROFILE MANHOLE 1/5 TO MANHOLE 1/7
 HORIZONTAL SCALE 1" = 30' VERTICAL SCALE 1" = 10'

SANITARY SEWERS AS-BUILTS		SCALE	AS NOTED	REVISIONS
ORCHARD PARK - PHASE 1		Drawn	MFC	
HEAT CORP		Checked	DRM/MS	
CITY OF BURGESS		DATE	APR 9 2013	
PROJECT No. 14-134		PROJECT No.	14-134	
SHEET		SHEET	3 of 7	
R.L.F. MITTAL AND ASSOCIATES, INC.				
117 Eisenhower Plaza Blvd., 1st Floor, P.O. Box 182299				
Ph. (215) 387-7400 or FAX (215) 387-5700				
		AB2		



SANITARY PROFILE MANHOLE 1/1 TO MANHOLE 1/2
 HORIZONTAL SCALE 1" = 30' VERTICAL SCALE 1" = 10'



SANITARY PROFILE MANHOLE 1/3 TO MANHOLE 1/4
 HORIZONTAL SCALE 1" = 30' VERTICAL SCALE 1" = 10'

SANITARY SEWERS AS-BUILTS ORCHARD PARK - PHASE 1 HET CORP <small>Submitted to CITY OF BURLINGAME</small>		SCALE: AS NOTED DRAWN: NTC CHECKED: BML/MSH DATE: AS BUILT DATE: JUNE 9, 2015 PROJECT No: 14-132	SHEET: 1 of 2 DEPARTMENT: PUBLIC WORKS DRAWING NO:
R.F. MITAL AND ASSOCIATES, INC. <small>1212 S. 12th Street, Suite 400, Philadelphia, PA 19104 Tel: (215) 427-7400 or Fax: (215) 427-7704</small>		AB1	

ATTACHMENT 3

Sewer System Monitoring, Maintenance, Repair, and Rehabilitation

SEWER SYSTEM MONITORING, MAINTENANCE, REPAIR, AND REHABILITATION

In accordance with § 94.12(a)(5)

The Municipal Authority of the City of McKeesport is responsible for the operation and maintenance of the WWTP and its collector and interceptor sewers. These responsibilities include the administration, operation, maintenance and monitoring of the WWTP and sewer system. The routine monitoring employed at the WWTP is conducted in compliance with state permit requirements and federal National Pollutant Discharge Elimination System (NPDES) permit requirements.

Daily attendance of the system consists of a regular eight (8) hour day, five (5) days per week, two (2) hours on Saturday and two (2) hours on Sunday. The treatment plant contains a security system, which is electronically monitored 24 hours every day. Vital technical elements such as high wet well level, pump failures, pressure loss or power failures are a part of the monitoring system. The superintendent or his designated representative is on 24-hour call and can be reached in case of emergency.

A routine monitoring and maintenance program has been established by the Executive Director and is carried out by the maintenance crew under his supervision and direction. Sewers and manholes are checked weekly. If structural damage or blockages are found, corrective measures and repairs are undertaken immediately, if necessary. The Authority's jet/vactor truck and CCTV equipment are utilized on a regular basis to maintain and investigate the condition of the collection system. This process began in November 2010 immediately after the Authority acquired the system. The Authority also purchased flow monitors for permanent installation at the CSO structures. The CSO Report is included as Attachment 8. Cleaning is conducted on an as needed basis and repairs are made as necessary. Emergency maintenance operations include repair of broken sewer and alleviating a blocked sewer line or manhole.

Major equipment maintenance operations at the WWTP are grouped into three general service categories: preventative maintenance, corrective maintenance and major repairs. Preventative maintenance consists of functions that are generally performed while the plant is operating. Corrective maintenance measures are minor repairs made while the plant is still in operation with minimum equipment downtime. Major repairs result in a process unit being out of service. Major, corrective and preventative maintenance are performed periodically at the WWTP. Records are kept to indicate all work done.

Maintenance of the sewage collection and conveyance system includes the inspection of manholes and sewers. The Authority's jet/vactor truck and CCTV equipment are utilized on a regular basis to maintain and investigate the condition of the collection system. This process

began in November 2010 immediately after the Authority acquired the system. The Authority also purchased flow monitors for permanent installation at the CSO structures. The CSO Reports is included as Attachment 5. Cleaning is conducted on an as needed basis and repairs are made as necessary. Emergency maintenance operations include repair of broken sewer and alleviating a blocked sewer line or manhole.

Inspection of laterals from any new customer's building or a new sewer extension is performed by the superintendent and is installed in accordance with the Sewer Users Ordinance. All sewer tap-ins for new customers are made by Borough Employees using 6" plastic pipe from the main to the user's property line. Customers are responsible from property line onward, with installation in accordance with the above mentioned user ordinance.

The Authority's NPDES permit, issued on April 22, 2008, included a compliance schedule for the management and control of CSOs. The Authority is making every effort possible to control combined sewer overflows within the system. The maintenance performed in 2015 was considered typical and preventative, consisting of repairing gates in the regulators and cleaning debris out of the gates and lines.

The general condition of the collector and interceptor sewers owned and maintained by the Authority is fair to good. As described in the previous section, sewers are under constant inspection and maintenance. Much of the sewers were built before the advent of present day construction materials and techniques and several sewersheds have substantial quantities of infiltration and inflow.

ATTACHMENT 4
Sewage Sludge Management Inventory

SEWAGE SLUDGE MANAGEMENT INVENTORY

The Duquesne WWTP has two (2) sludge thickening tanks to feed sludge to the belt filter press. Pressed sludge is then hauled to the landfill for disposal. During 2015, dewatered sludge was hauled to the USA Waste Site (Permit No. 100580). Table No. 2 provides information on monthly sludge production as dry tons removed for disposal.

Table 2: Biosolids Disposal (2015)

Month	Dry Tons
January	1.72
February	0.00
March	0.00
April	2.56
May	3.56
June	3.24
July	1.68
August	2.98
September	2.31
October	1.74
November	3.67
December	0.00
Total	23.47

Solids Management (Sludge) Calculator

This worksheet calculates the expected sludge volume that should be produced by various treatment processes over a one-year period.
Enter data into green cells - hit the Tab key to move between cells. Red cells are calculated.

Facility Name: **City of Duquesne WWTP** Permit No.: **PA0026981**
Enter Date Enter Date

Evaluation Period: **1/1/2015** to **12/31/2015**

Design Flow: **5** MGD Actual Annual Average Flow: **0.9188** MGD

Type of Biological Treatment Process: **Extended Aeration** Treatment Factor: **0.65**

Type of Digestion Process: **Aerobic Digestion, HDT= >30** Digestion Factor: **0.65**

Total Population Served by Treatment Plant: **7,947**

Average Annual Influent BOD5 Load (per Ch. 94 Report): **278.0** lbs/day

Average Annual Influent BOD5 Load (Expected based on Population): **1,351.0** lbs/day *(Population x 0.17)*

% of Influent BOD5 Load per Ch. 94 Report / Influent Load Expected: **20.6%** *(Influent Load per Ch. 94 Report / Influent Load based on Population)*

Average Annual Effluent Concentration of **CBOD5**: **7.63** mg/L **Assume 9.156 mg/L BOD5**

Average Annual Pounds (lbs) of BOD5 Discharged: **70.16** lbs/day *(Actual Flow x Effluent BOD5 Concentration x 8.34)*

Influent BOD5 Load per Person per Day (based on Ch. 94): **0.035** *(Influent BOD5 Load per Ch. 94 Report / Population - 0.17 to 0.22 is typical)*

Pounds of BOD5 Removed (based on Ch. 94): **207.8** lbs/day *(Influent BOD5 Load per Ch. 94 Report - BOD5 Discharged)*

Pounds of BOD5 Removed (based on Population): **1,280.8** lbs/day *(Influent BOD5 Load Expected based on Population - BOD5)*

Sludge Removed from Treatment Plant (Previous Year): **17.3** Dry Tons = **34,660** Dry lbs

Sludge Production and Wasting Calculations

Based on Chapter 94 Report

X	207.8	BOD5 Removed / Day (lbs)
	0.65	Treatment Factor
X	135.10	Daily Solids Production (lbs)
	0.65	Digestion Factor
X	87.81	Daily Digested Solids (lbs)
	365	Days per Year
	32,051	Solids Generated / Year (lbs)
-	34,660	Solids Actually Wasted / Year (lbs)
	-2,609	Difference (lbs)
	108%	% of Expected Volume Wasted <i>(85 - 115% is generally acceptable)</i>
	0.5%	Percent Solids of Wasted Solids
	768,620	Volume of Solids to Remove Annually (gallons)
-	831,175	Volume of Solids Actually Removed Annually (gallons)
	-62,555	Difference (gallons)

Based on Population

X	1,280.8	BOD5 Removed / Day (lbs)
	0.65	Treatment Factor
X	832.54	Daily Solids Production (lbs)
	0.65	Digestion Factor
X	541.15	Daily Digested Solids (lbs)
	365	Days per Year
	197,520	Solids Generated / Year (lbs)
	34,660	Solids Actually Wasted / Year (lbs)
	162,860	Difference (lbs)
	18%	% of Expected Volume Wasted <i>(85 - 115% is generally acceptable)</i>
	19.3%	Percent Solids of Removed Solids
	122,585	Volume of Solids to Remove Annually (gallons)
-	21,511	Volume of Solids Actually Removed Annually (gallons)
	101,074	Difference (gallons)

ATTACHMENT 5
Flow Meter Calibration Certificate



TOTAL INSTRUMENT MAINTENANCE

423 Stoneybrook Drive
Elizabeth, PA 15037

FIELD CALIBRATION CERTIFICATE

NOTE: This is a multi-part form. For legible copies, please press firmly when entering data.

Certificate No CC T.I.M.-1563

Customer Information: _____ Ref PO No _____

Company M.A.C.M.

Site Address 100 Atlantic Ave

City McKeesport State: Pa. Zip 15132

Contact Information:

Name Chuck Schultz

Title Supt

Street Address Same as above

City _____ State: _____ Zip _____

Tel [] _____

Instrument Data:

Description Duquesne Plant Influent Ultrasonic Flow Mtr

Manufacturer ABB Model No. Detam 1500

Serial No. 030402121VQ Tag No. _____

Calibration Data:

Units of Measurement

- 1. 4-200 mA DC
- 2. _____
- 3. _____
- 4. _____
- 5. _____
- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____

Test Equipment:

- 1. Fluke 8060A D.V.O.M
- 2. _____
- 3. _____
- 4. _____
- 5. _____

Reference Data:

Ambient temperature (°F): 57

Relative Humidity (%) _____

The instrumentation described above has been accurately calibrated under ambient conditions in accordance with the Manufacturer's documented procedures and specification. The test equipment used is calibrated and is traceable to the National Institute of Standards and technology.

Calibrated by: Jim Pruffel

NAME

2 APR 2015
DATE

ATTACHMENT 6

CSO Report

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
Allegheny County, Pennsylvania

DUQUESNE
Annual Combined Sewer Overflow Status Report
Operating Year 2015

1.0 Introduction

The Municipal Authority of the City of McKeesport (Authority) owns, operated and maintains the City of Duquesne Wastewater Treatment Plant (WWTP), its associated pump stations, and tributary sewage collection and conveyance sewer systems. The Authority operates the plant under National Pollutant Discharge Elimination System (NPDES) Permit No. PA0026981. As required by the NPDES Permit, the Authority is required to submit an Annual Combined Sewer Overflow (CSO) Status Report to the Pennsylvania Department of Environmental Protection (PADEP) on March 31 of each year with the annual Municipal Wasteload Management Report required by 25 PA Code Chapter 94, Section 94.12. This report shall meet those requirements.

The Authority owns, operates and maintains four (4) CSO outfalls which serve as combined sewer overflows necessitated by storm water entering the sewer system and exceeding the hydraulic capacity of the sewers and/or the treatment plant and are permitted to discharge only for such reason. The permitted CSO outfalls as listed as follows:

- Clark Street
- Hamilton Avenue
- Overland Avenue
- Wylie Avenue

2.0 Summary of CSO Discharges for 2015

During the operating year 2014, CSO discharges occurred within the Duquesne combined sewer system. Each discharge is monitored for cause, frequency, duration and quantity of flow. The data is recorded and reported as an attachment to the monthly discharge monitoring report (DMR) using the Department-provided DMR for CSOs. Monitoring is undergone in compliance with the requirements of the NPDES Permit. A summary of the total monthly and annual wet weather CSO discharges is provided in this Attachment.

3.0 Water Quality Impacts

CSOs contain untreated domestic, commercial and industrial wastes, as well as surface runoff. Thus, many different types of contaminants may be present in the discharges. Contaminants may include pathogens, oxygen-demanding pollutants, suspended solids, nutrients, toxics and floatable matter. The presence of such contaminants in CSOs can cause a variety of adverse impacts on the physical characteristics of surface water, impair the viability of aquatic habitats, and pose a potential threat to drinking water supplies.

4.0 Implementation of the Nine Minimum Controls

The Nine Minimum Controls (NMCs) are identified in the Environmental Protection Agency (EPA) CSO Control Policy as minimum technology-based controls that can be used to address CSO problems without extensive engineering studies or significant construction costs, prior to the implementation of long-term control measures. The NMCs are listed and efforts to implement them are outlined as follows:

1. Proper operation and regular maintenance programs for the sewer system and the CSOs

The Municipal Authority of the City of McKeesport conducts inspection and maintenance of the outfall on a regular basis. Inspections are conducted and evidence of overflows is recorded on a field inspection log. Whenever blockages or clogging is found, the debris is cleared and removed from the CSO regulator. The number of regulator inspections and blockages found and corrected are provided in this Attachment.

The Authority also conducts catch basin cleaning, repairs and replacement as necessary. The 2014 catch basin repair and replacement records are included in this Attachment.

2. Maximum use of the collection system for storage

The Authority makes every effort possible to maximize storage within the collection system. The regulator gates are set to achieve maximum storage.

3. Review and modification of pretreatment requirements to assure CSO impacts are minimized

There are no industrial dischargers served by the Duquesne WWTP. The service area has no industrial sources and does not expect any to move into the area. Therefore, there are no industrial impacts on the Duquesne CSOs.

4. Maximization of flow to the publicly owned treatment works for treatment

The Authority makes all efforts possible to maximize flow to the treatment plant. The regulator gates are adjusted as necessary to maximize this effort.

5. Prohibition of CSOs during dry weather

Dry weather CSO discharges are prohibited and none were experienced during the operating year 2014. If a dry weather overflow is experienced, however, the Allegheny County Health Department is notified immediately.

6. Control of solid and floatable materials in CSOs

The City of Duquesne performs routine street-sweeping in effort to implement the NMCs. Additionally, the regulator contains a screen which collects solids. The solids are then removed by Authority personnel. These efforts help to control solids and floatables in the CSO.

7. Pollution prevention

The street sweeping program helps to prevent pollution, as it keeps solids and floatables from entering the combined sewer system and being discharged into the river through a CSO outfall. Additionally, the screens in the CSO regulators collect solids and floatables that make it into the sewer system. Authority personnel clean the regulators on a routine basis.

8. Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts

The Authority conducts water pollution training at several schools including White Oak Middle School, South Allegheny Elementary School and Cornell Middle School. This allows the Authority to reach out to the children about the importance of protecting our waterways for the future. The Authority spoke with approximately 400 students in 2015.

In addition, the Authority has a booth at the International Village at Renzie Park each year. Games are available for adults and children along with literature about water pollution prevention. The Authority spends time answering questions from concerned home owners from the McKeesport area and beyond. This annual event allows the Authority to reach out to hundreds of people.

The Authority always has an employee on the Household Hazardous Waste Collections Task Force and numerous volunteers that attend several events annually.

9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls

As previously discussed, the Authority conducts routine inspections of the CSO regulators. These inspections occur after major wet weather events. Chalk is utilized on the walls of the outfall structures to identify any suspected overflow event. The Authority has installed flow meters to monitor overflows at the outfalls. Total daily rainfall is monitored using a rain gauge installed at the City of McKeesport treatment plant. The daily total inches of rain that caused each CSO discharge during 2015 is reported monthly in the supplemental DMR for CSOs and is included in this Attachment.

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
JANUARY 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	0.80	0.005
Hamilton Avenue	10.60	0.611
Overland Avenue	12.30	0.257
Wylie Avenue	28.90	0.827
TOTAL	52.60	1.700

Total 24-Hour Precipitation = 2.32 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
FEBRUARY 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	-	-
Hamilton Avenue	16.10	0.838
Overland Avenue	9.00	0.100
Wylie Avenue	32.60	1.297
TOTAL	57.70	2.235

Total 24-Hour Precipitation = 1.32 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
MARCH 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	12.40	0.025
Hamilton Avenue	89.20	4.938
Overland Avenue	14.30	0.255
Wylie Avenue	5.80	1.538
TOTAL	121.70	6.756

Total 24-Hour Precipitation = 4.15 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
APRIL 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	9.50	0.028
Hamilton Avenue	38.00	2.216
Overland Avenue	20.20	0.093
Wylie Avenue	52.10	1.639
TOTAL	119.80	3.976

Total 24-Hour Precipitation = 4.31 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
MAY 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	0.90	0.003
Hamilton Avenue	10.50	0.556
Overland Avenue	5.10	0.285
Wylie Avenue	14.70	0.32
TOTAL	31.20	1.164

Total 24-Hour Precipitation = 2.30 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
JUNE 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	21.8	0.050
Hamilton Avenue	72.60	4.79
Overland Avenue	35.60	0.409
Wylie Avenue	119.80	3.362
TOTAL	228.00	8.611

Total 24-Hour Precipitation = 9.4 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
JULY 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	6.40	0.016
Hamilton Avenue	21.50	1.619
Overland Avenue	18.90	0.642
Wylie Avenue	197.80	5.001
TOTAL	238.20	7.262

Total 24-Hour Precipitation = 2.66 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
AUGUST 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	1.30	0.003
Hamilton Avenue	7.80	0.713
Overland Avenue	2.80	0.049
Wylie Avenue	6.50	0.367
TOTAL	18.40	1.132

Total 24-Hour Precipitation = 1.88 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
SEPTEMBER 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	8.10	0.011
Hamilton Avenue	26.60	2.247
Overland Avenue	14.90	0.530
Wylie Avenue	36.30	3.349
TOTAL	85.90	6.137

Total 24-Hour Precipitation = 4.02 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
OCTOBER 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	2.30	0.004
Hamilton Avenue	20.70	1.332
Overland Avenue	12.40	0.294
Wylie Avenue	46.10	1.852
TOTAL	81.50	3.482

Total 24-Hour Precipitation = 3.18 in

**MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
NOVEMBER 2015**

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	1.30	0.003
Hamilton Avenue	12.10	0.708
Overland Avenue	6.10	0.099
Wylie Avenue	19.10	0.658
TOTAL	38.60	1.468

Total 24-Hour Precipitation = 1.85 in

MUNICIPAL AUTHORITY OF THE CITY OF MCKEESPORT
COMBINED SEWER OVERFLOWS
DUQUESNE
DECEMBER 2015

Outfall	Total Overflow Duration (hours)	Total Overflow (MG)
Clark Street	3.90	0.009
Hamilton Avenue	39.30	2.185
Overland Avenue	24.60	0.133
Wylie Avenue	94.70	2.202
TOTAL	162.50	4.529

Total 24-Hour Precipitation = 3.76 in

Date 6-6-15

Initial JK/ET

Duquesne Overflows

Name	Time	Overflow	Possible Event	Screen Cleaned
002 Wylie	10:51		✓	
003 Hamilton	10:50		✓	
004 Overland	11:00		✓	
005 Clark	11:05		✓	

Date ^{Tues} 6-9-15

Initial MH/SK

Duquesne Overflows

Name	Time	Overflow	Possible Event	Screen Cleaned
002 Wylie	2:00pm		✓	
003 Hamilton	1:40pm		✓	
004 Overland	1:45pm		✓	
005 Clark	1:55pm		✓	

Date ^{Saturday} 6-13-15

Initial MH/SK

Duquesne Overflows

Name	Time	Overflow	Possible Event	Screen Cleaned
002 Wylie	8:25am		✓	
003 Hamilton	8:23am		✓	
004 Overland	8:10am		✓	
005 Clark	8:25am		✓	

Date ^{Tues} 6-16-15

Initial MH/SK

Duquesne Overflows

Name	Time	Overflow	Possible Event	Screen Cleaned
002 Wylie	11:10		✓	
003 Hamilton	10:53		✓	
004 Overland	10:58		✓	2/25
005 Clark	11:05		✓	

RAIN AGAIN AT 120PM