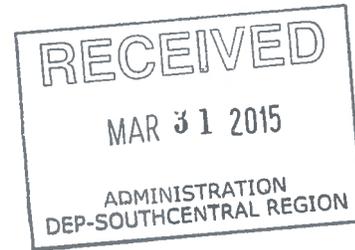




March 31, 2015

Timothy K. Wagner, Environmental Group Manager
PA DEP Clean Water Program
Bureau of Point and Non-Point Source Management
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200



**Fairview Township South WWTP
Fairview Township, York County
2014 Annual Wasteload Management Report**

Dear Mr. Wagner:

Enclosed please find two (2) copies of the Fairview Township South WWTP Municipal Wasteload Management Report for 2014.

Please do not hesitate to contact the Township or GHD if you have any questions or require additional information.

Sincerely,
GHD

Judy F. Musselman, BCES QEP
Senior Environmental Scientist

Enclosures

c: Stephen F. Smith, Township Manager



Fairview Township
South Wastewater Treatment Plant
NPDES Permit No. PA0082589
York County, Pennsylvania
2014 Annual Wasteload Management Report

March 2015

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Attachments

Attachment 1 – Flow Meter Calibration Certificate

DEP Chapter 94 Report Form

CHAPTER 94 MUNICIPAL WASTELOAD MANAGEMENT ANNUAL REPORT

For Calendar Year: **2014**

- 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:	Fairview Township South WWTP	Permit No.:	PA0082589
Mailing Address:	599 Lewisberry Road	Effective Date:	January 1, 2011
City, State, Zip:	New Cumberland, PA 17070	Expiration Date:	December 31, 2015
Contact Person:	Stephen Smith	Renewal Due Date:	June 30, 2015
Title:	Manager	Municipality:	Fairview Township
Phone:	717-901-5200	County:	York
Email:	steve@twp.fairview.pa.us	Consultant Name:	Judy Musselman, GHD
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 (Figures 1 & 3)</p> <p><input type="checkbox"/> DEP Chapter 94 Spreadsheet used (Attachment)</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 (Figures 2 & 4)</p> <p><input type="checkbox"/> DEP Chapter 94 Spreadsheet used (Attachment)</p> <p><input type="checkbox"/> Section 2 is not applicable (report is for a collection system).</p>			
<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))</p> <p>Projections based on developer and Township agreements for future growth.</p>			

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:

Not Applicable

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))

See report narrative.

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:

See report narrative.

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 – 6) **See report narrative.**
- 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)) **Not Applicable**

- 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. **Not Applicable**

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 (**Exhibit D**)

11. For facilities with CSOs and where required by the NPDES permit, attach an Annual CSO Report (including satellite combined sewer systems). **Not Applicable**

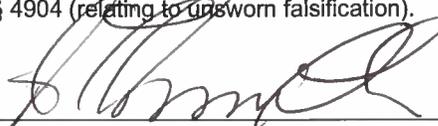
Annual CSO Report attached (**Attachment**)

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

Flow calibration report attached (**Attachment 1**)

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).

<p style="text-align: center;">Stephen F. Smith</p> <hr/> <p style="text-align: center;">Name of Responsible Official</p> <p style="text-align: center;">717-901-5200</p> <hr/> <p style="text-align: center;">Telephone No.</p>	 <hr/> <p style="text-align: center;">Signature</p> <p style="text-align: center;">3/31/2015</p> <hr/> <p style="text-align: center;">Date</p>
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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).

<p style="text-align: center;">Judy F. Musselman</p> <hr/> <p style="text-align: center;">Name of Preparer</p> <p style="text-align: center;">717-585-6359</p> <hr/> <p style="text-align: center;">Telephone No.</p>	 <hr/> <p style="text-align: center;">Signature</p> <p style="text-align: center;">3/31/15</p> <hr/> <p style="text-align: center;">Date</p>
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Municipal Wasteload Management Report

1.0 Introduction

Fairview Township owns and operates the wastewater treatment and conveyance system that serves the southern drainage area of Fairview Township, York County, Pennsylvania. The South wastewater treatment plant (WWTP) was constructed in 1993.

Treatment unit processes consist of preliminary screening, sequencing batch reactors (SBRs) and disinfection with chlorine. The treated and disinfected wastewater is discharged to an unnamed tributary of Fishing Creek in State Watershed 7-E.

Solids handling facilities are comprised of an aerobic digester/storage tank and belt press filtration. Dewatered biosolids cake is disposed of at the Modern Landfill in Lower Windsor and Windsor Townships, York County under DEP Permit No. 100113. During 2014, approximately 146 dry tons of biosolids cake from the Fairview Township South WWTP was taken to the landfill. Of this 146 dry tons, approximately 90 dry tons was generated at the South WWTP while the remaining 56 dry tons was received from the North WWTP and dewatered at the South WWTP.

The wastewater treatment plant, which operates under DEP National Pollutant Discharge Elimination System (NPDES) Permit No. PA0082589, has the permitted and designed average wastewater flow and average organic loading capacities of 0.50 MGD (monthly average flow), 0.94 MGD (maximum monthly flow), and 1,280 pounds BOD₅ per day, respectively. **Exhibits A** and **B** provide flow and BOD data based on treatment plant operating records. The Fairview Township South WWTP maintains an agreement with Red Barn Trading Company for the purchase of 20,000 Lbs Total Nitrogen (TN) credits per year for 15 years (2010-2024) to comply with the Chesapeake Bay requirements contained in its NPDES permit. Please refer to Section 11.0 for further discussion of the nutrient credits.

The collection and conveyance system includes sewers ranging from 8 to 16 inches in diameter and six (6) pump stations. A more detailed description of the pump stations is found in section 8.0 of this report.

2.0 Hydraulic Loadings

The average daily hydraulic loadings to the Fairview Township South WWTP for each month during 2010 through 2014 are plotted and shown in **Figure 1**. The flow data indicate that the permitted maximum monthly flow of 0.94 MGD was not exceeded at any time during the past five (5) years.

The five-year average daily flow calculated for 2010 through 2014 is 0.4854 MGD. The five-year average ratio between the three-month maximum average and the annual average flow for 2010 through 2014 is 1.11 as shown on **Exhibit A**.

Figure 3 shows the annual average flows and the three-month maximum flows from 2010 through 2014 and projected through the next five years to the year 2019. The hydraulic projections for the Fairview Township South WWTP are based on 36, 65, 95, 71 and 17 new connections for calendar years 2015 through 2019, respectively, multiplied by an average flow of 228 GPD per EDU for a total of 0.06475 MGD. The 2015 estimated new connection flow is added to the five-year average flow from 2010-2014 to project the flow for calendar year 2015, and then to the average flow for the preceding year for each successive year. As noted on **Figure 3**, it appears that the Fairview Township South WWTP will not exceed the 3-month maximum hydraulic loading of 0.94 MGD during the next five (5) years.

The 5-year flow projections are found in **Table 1**. A volume of 228 GPD per EDU is used to calculate the projected flows, which is based on the number of persons per household of 2.53 (2010 US Census) multiplied by 90 GPCD. The 5-year average flow of 0.4854 MGD is used as the base flow for projections for calendar year 2015.

Table 1. 5-Year Flow Projections

Year	2014	2016	2017	2018	2019	Total Projections	
						EDUs	MGD
Briarcliff 1 & 2 (Gemcraft)	1	1	1	0	0	3	0.00068
Briarcliff 3 (Gemcraft)	0	0	0	0	0	0	0.00000
Beinhower	0	0	0	0	0	0	0.00000
Colonial Woods	0	0	0	1	2	3	0.00068
Deer Run Estates/Woods	3	1	1	1	1	7	0.00160
Fairview Ridge	4	4	4	1	0	13	0.00296
Irish Meadows	0	1	0	0	0	1	0.00023
Martin Tract	0	7	8	9	0	24	0.00547
New View Tract	0	25	55	20	0	100	0.02280
Olde Orchard Hill	12	12	12	2	8	46	0.01049
Pelleschi	0	0	0	0	0	0	0.00000
Pleasant View PRD	6	6	6	6	6	30	0.00684
Shops at Old York	0	0	0	26	0	26	0.00593
Woodbridge Farms	10	8	8	5	0	31	0.00707
Totals	36	65	95	71	17	284	0.06475

3.0 Organic Loadings

The average daily organic loadings to the Fairview Township South WWTP for each month during 2010 through 2014 are shown on **Figure 2**. The five-year average concentration and loading for BOD₅ are 194 mg/L and 810 Lbs/Day, respectively, as shown on **Exhibit B**. The five-year average ratio of the one-month maximum to the average daily organic loading for 2010 through 2014 is 1.36. The pounds of BOD₅ per EDU are estimated to be 0.43. This loading is based on 0.17 pounds BOD₅ per day per capita multiplied by 2.53 persons per EDU, which is based on 2010 US Census data for Fairview Township, York County.

The organic loading projections are based on 36, 65, 95, 71 and 17 new connections for calendar years 2015 through 2019, respectively, multiplied by 0.43 pounds of BOD₅ per EDU for a total of 122 Lbs/Day. The 2015 estimated new connection organic loading is added to the five-year average loading from 2010-2014 to project the loading for calendar year 2015, and then to the average loading for the preceding year for each successive year. **Figure 4** shows the annual average daily organic loadings and the projections for the annual average daily and one-month maximum loadings from the data in **Exhibit B**. As noted on **Figure 4**, it appears that the projected one-month maximum organic loading for the Fairview Township South WWTP will not exceed the treatment plant's design organic capacity of 1,280 Lbs/Day during the next five (5) years.

4.0 Discussion of Hydraulic and Organic Overload Conditions

The permitted hydraulic design capacity of 0.94 MGD is the flow rate which the plant is not expected to exceed in order to provide the required treatment without creating a backup, surcharge or overflow. A hydraulic overload is the condition that occurs when the monthly average flow entering the plant exceeds the hydraulic design capacity for 3 consecutive months out of the preceding 12 months. For calendar year 2014, the plant was not hydraulic overloaded. As shown in **Figure 3**, the Fairview Township South WWTP is not expected to exhibit any hydraulic overloads during the next five (5) years based on the projections for new connections from 2015 through 2019 as shown in **Exhibit A**.

The permitted organic design capacity of 1,280 pounds BOD₅ per day is the maximum daily loading which the plant can effectively treat. When the average daily organic load exceeds the organic design capacity, the plant is considered organically overloaded. The Fairview Township South WWTP was not organically overloaded in 2014 as shown on **Figure 1**.

As shown in **Figure 4**, the Fairview Township South WWTP is not expected to exhibit organic overloads during the next five (5) years based on the projections for new connections from 2015 through 2019 as contained in **Exhibit B**. With these projections contained in **Exhibit B** and shown on **Figure 4**, it appears the Fairview Township South WWTP is approaching its organic capacity by year 2019 using the 1-month maximum organic loading. However, in accordance with 25 Pa. Code §94.1, an organic overload occurs when the average daily organic load exceeds the organic design capacity upon which the permit and the plant design are calculated, not the 1-month maximum loading. That being said, the projected annual average loading by the year 2019 is only 73% of the organic design capacity.

5.0 Collection System Construction, Connections and Extensions

No new sewer extensions were constructed during 2014 in Fairview Township that are tributary to the South WWTP.

New connections to the Fairview Township South WWTP sewer system during 2014 are shown on **Table 2**. There was 1 new commercial connection and 30 new residential connections in 2014. The total number of sewer connections contributing to the Fairview Township South WWTP as of December 31, 2014 is 2,161 connections. **Table 3** provides a breakdown of these connections.

Table 2. 2014 New Connections

Development	2014 Connections
Briarcliff 1 & 2 (Gemcraft)	1
Bumps & Jumps	1
Fairview Ridge	5
Hughes	1
Olde Orchard Hill	4
Woodbridge Farms	19
Total	31
Flow Increase, MGD	0.00707

Table 3. Breakdown of Sewer System Connections

Type User	Fairview Township South
Residential	2,075
Commercial	86
Industrial	0
Institutional	0
Totals	2,161

6.0 Sewer System Monitoring, Maintenance, Repair and Rehabilitation

Analysis of the Fairview Township South WWTP influent, effluent and sludge was conducted in 2014 by ALS Environmental, DEP ID 22-00293, with the exception of DO, Total Chlorine Residual and pH, which are analyzed in-house by plant staff.

A summary of the plant performance data is provided in **Exhibit C**. Fairview Township South WWTP reported no exceedances of its NPDES permit on its Discharge Monitoring Reports in 2014.

As required by the Fairview Township South WWTP NPDES Permit, a Sewage Sludge Management Inventory is presented in **Exhibit D**. In addition, sludge production is estimated and compared to actual sludge production, using EPA's Composite Correction Approach worksheet, which is also included in **Exhibit D**.

The annual calibration certificate for the flow metering equipment is attached to this report as **Attachment 1**.

Repairs to the Sewer System are conducted on an as-needed basis. There are 5 full-time operators, all of which are certified, who service the North and South sewer systems. Major repairs and/or replacements at the South WWTP during 2014 include the following:

- Clean float trees for SBR tanks.
- Change blower filters.
- Change belt and service belt filter press.
- Relocate DO sensor to SBR tank to connect to SCADA.
- Service Parkson screen.
- Service sodium aluminate pumps.
- Service sludge pumps.
- Service emergency generator.
- Install sump pump in sludge pit.
- Work on SCADA for air control to run off PLC.
- Repair air line on SBR #1.
- Service blowers.
- Install new blower hose on digester.
- Install dock in tanks to service influent valves.

The collection system maintenance program consists of systematic checks on manholes throughout the collection system. Manhole inserts are placed in those manholes that appear to be affected by inflow. Televising activities are also conducted to inspect potential problem areas of the collection system. A five-year contract was awarded to Mr. Rehab in August 2012 to flush and televise sewer mains. Approximately 20% of the mains will be televised each year. Specific collection system rehabilitation/repair activities that occurred during 2014 include the following:

- Change oil and install new impeller at Beinhower P.S.
- Install new genset at Cornhill P.S.
- Service check valves.
- Unclog blockage on suction tube at Deer Run Estates P.S.
- Repair alternator switch at Deer Run Estates P.S.

7.0 Condition of South WWTP Collection System

Fairview Township maintains an Infiltration/Inflow (I/I) program in the South WWTP collection system. Investigation and rehabilitation is implemented as needed. Previously, a contractor was retained to perform smoke testing in the South WWTP collection system, but Fairview Township has since purchased smoke testing equipment and staff performs this function to locate and repair defects contributing to I/I.

There are no known major problems within the South WWTP collection system. The majority of the South WWTP collection system has only been in existence since 1993. Therefore, the collection system is in relatively good condition. There are no combined sewers in the South WWTP collection system.

8.0 Pump Stations

Fairview Township owns and operates six (6) pump stations in the South WWTP sewer service area. Each pump station is equipped with a device that records pump operating (run) time. Each station has two (2) pumps. Data for each of the pump stations is provided in **Table 4**. The rated capacities shown on **Table 4** are determined by assuming one pump is in standby mode, in conformance with DEP guidelines. The maximum capacity of each pump station is generally expected to be less than the combined individual capacity of the two (2) pumps. A long-term recommendation is to conduct wet well drawdown tests at each pump station, which typically yields more accurate information on individual and simultaneous operation of the pumps.

The daily average and maximum month flows on **Table 4** are estimated based on pump runtimes and rated capacities. Maximum month flows through 2015 are projected to increase by 5% since only minimal growth is anticipated in the collection system tributary to these pump stations. As the data indicates on **Table 4**, the pump stations are not currently hydraulically overloaded nor are they anticipated to be overloaded within the next 2 years.

Table 4. Pump Station Data

Pump Station	Rated Capacity	2014 Average Daily Flow, GPD	2014 Maximum Month Flow, GPD	2016 Projected Maximum Month Flow, GPD ⁽¹⁾
1. Beinhower P.S.	700 GPM 1,008,000 GPD	370,980	510,440	535,960
2. Ceejay/Fisher P.S.	200 GPM 288,000 GPD	13,350	18,840	19,780
3. Cornhill P.S.	230 GPM 331,200 GPD	61,650	117,350	123,200
4. Deer Run Estates P.S.	120 GPM 172,800 GPD	33,700	63,770	66,960
5. Fairmont P.S.	120 GPM 172,800 GPD	47,410	66,670	70,010
6. Pleasant View P.S.	375 GPM 540,000 GPD	30,300	97,800	102,690

⁽¹⁾ Based on 5% increase.

9.0 Industrial Waste Report

There are no industrial dischargers in the South sewer service area that are known to discharge any industrial process wastewater to the South wastewater treatment plant.

10.0 Chesapeake Bay Tributary Strategy Nutrient Requirements

Fairview Township is required to meet cumulative annual pollutant loading requirements (cap loads) for total nitrogen (TN) and total phosphorus (TP) for compliance with the Chesapeake Bay Tributary Strategy nutrient requirements. The permit conditions for TN and TP are based on the Chesapeake Bay Agreement which, among other environmentally beneficial goals, seeks to reduce the nutrient loading to the Bay, thereby enhancing its water quality.

The Township must meet the Chesapeake Bay related NPDES permit requirements at both the North and South WWTP effluent discharges. DEP has informed the Township of these requirements through two letters. The initial cap loads for the North WWTP were received from DEP in correspondence dated December 20, 2006, which went into effect October 2010. The cap loads for the South WWTP were received in a letter from DEP dated February 27, 2009 and went into effect October 2012.

Beginning in October 2012, the nutrient cap load limits for the South WWTP are 9,132 pounds of TN per year and 1,218 pounds of TP per year. Beginning in October 2010, the cap load limits for the North WWTP are 13,333 pounds of TN per year and 1,778 pounds of TP per year.

Fairview Township currently has a contract with Red Barn Trading Company to purchase up to 20,000 pounds of nitrogen credits per year, beginning in 2010 through 2024. These credits were initially purchased for the North WWTP to meet its TN effluent requirements in 2010, but the nitrogen credits are now used on a township wide basis to meet both WWTP's cap load requirements. Exhibit E summarizes the TN credits required from Red Barn Trading Company.

11.0 Municipal Official Acknowledgment and Approval

Fairview Township is committed to providing adequate wastewater treatment services to the community. The objectives of this report identify and address sewer system needs now and in the future.

This report has been reviewed and is hereby approved for submission to the Pennsylvania Department of Environmental Protection (DEP) by:



Stephen F. Smith
Township Manager



Judy F. Musselman, BCES QEP
GHD

Exhibits

Exhibit A – Average Monthly Hydraulic Loadings

Exhibit B – Average Monthly Organic Loadings

Exhibit C – 2014 WWTP Performance Summary

Exhibit D – Sewage Sludge Management Inventory

Exhibit E – Nutrient Credit Purchases

**EXHIBIT A
FAIRVIEW TOWNSHIP SOUTH WWTP
MONTHLY AVERAGE HYDRAULIC LOADINGS**

Month	Monthly Average Daily Flows, MGD					5-Year Avg
	2010	2011	2012	2013	2014	
January	0.4260	0.3800	0.4713	<i>0.5047</i>	0.4852	
February	0.4070	0.4240	0.4549	<i>0.4950</i>	0.5139	
March	<i>0.5180</i>	0.5780	0.4642	<i>0.4955</i>	<i>0.5187</i>	
April	<i>0.4700</i>	0.7070	0.4359	0.4290	<i>0.5743</i>	
May	<i>0.5020</i>	0.6430	0.4681	0.4622	<i>0.6137</i>	
June	0.5010	0.5140	0.4546	0.4552	0.5044	
July	0.4840	0.4580	0.4382	0.4450	0.4520	
August	0.4780	0.5160	0.4605	0.4556	0.4547	
September	0.3980	<i>0.7770</i>	0.4540	0.4308	0.4464	
October	0.3450	<i>0.5610</i>	<i>0.5257</i>	0.5441	0.4242	
November	0.4160	<i>0.6270</i>	<i>0.4729</i>	0.4333	0.4063	
December	0.4110	0.5630	<i>0.4703</i>	0.4705	0.4338	5-Year Avg
Annual Average	0.4463	0.5623	0.4642	0.4684	0.4856	0.4854
Max. 3-Month Average*	0.4967	0.6550	0.4896	0.4984	0.5689	0.5417
3-Month Max/Avg Ratio	1.11	1.16	1.05	1.06	1.17	1.11

* Months Used To Calculate Maximum 3-Month Average Are Bold and Italicized

Projected Hydraulic Loadings					
Year	Average	3-Mo Max	Design	No. EDUs	Incr. Flow
2010	0.4463	0.4967	0.9400		
2011	0.5623	0.6550	0.9400		
2012	0.4642	0.4896	0.9400		
2013	0.4684	0.4984	0.9400		
2014	0.4856	0.5689	0.9400		
2015	0.4936	0.5496	0.9400	36	0.0082
2016	0.5084	0.5661	0.9400	65	0.0148
2017	0.5301	0.5903	0.9400	95	0.0217
2018	0.5463	0.6083	0.9400	71	0.0162
2019	0.5501	0.6126	0.9400	17	0.0039

**EXHIBIT B
FAIRVIEW TOWNSHIP SOUTH WWTP
MONTHLY AVERAGE ORGANIC LOADINGS**

Month	Monthly Average Organic Loadings, Lbs/Day					5-Year Avg
	2010	2011	2012	2013	2014	
January	690	1,105	735	551	692	
February	717	1,569	910	583	426	
March	720	755	807	800	592	
April	704	926	983	636	925	
May	930	861	936	724	1,076	
June	1,016	915	868	907	844	
July	963	781	900	504	765	
August	899	838	620	568	914	
September	960	1,000	818	767	700	
October	837	728	757	647	628	
November	878	878	558	896	903	
December	785	1,041	538	736	904	
Annual Average	842	950	786	693	781	810
Max. Monthly Average	1,016	1,569	983	907	1,076	1,110
1-Month Max/Avg Ratio	1.21	1.65	1.25	1.31	1.38	1.36
BOD, mg/L	226	203	184	170	186	194

Projected Organic Loadings					
Year	Average	1-Mo Max	Design		
2010	842	1,016	1,280		
2011	950	1,569	1,280		
2012	786	983	1,280		
2013	693	907	1,280		
2014	781	1,076	1,280	No. EDUs	Incr. Load
2015	826	1,122	1,280	36	15.5
2016	854	1,160	1,280	65	28.0
2017	894	1,216	1,280	95	40.9
2018	925	1,257	1,280	71	30.5
2019	932	1,267	1,280	17	7.3

EXHIBIT C
FAIRVIEW TOWNSHIP SOUTH WWTP
2014 WWTP PERFORMANCE SUMMARY

Parameter	Permit Limit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average	Min	Max
Flow																
Monthly Average, MGD	0.500	0.4852	0.5139	0.5187	0.5743	0.6137	0.5044	0.4520	0.4547	0.4464	0.4242	0.4063	0.4338	0.4856	0.4063	0.6137
Daily Max, MGD	NA	0.6377	0.7387	1.1904	0.9788	1.0021	0.6247	0.5551	0.6616	0.5589	0.5104	0.5078	0.5449	0.7093	0.5078	1.1904
Biochemical Oxygen Demand (BOD)																
Influent, mg/L	NA	175	106	146	177	222	168	189	215	179	176	246	232	186	106	246
Influent, Lbs/Day	NA	692	426	592	925	1,076	844	765	914	700	628	903	904	781	426	1,076
Carbonaceous Biochemical Oxygen Demand (CBOD)																
Effluent, mg/L (Weekly Max)	40.0	3.90	3.30	2.30	2.10	2.90	3.80	4.10	5.80	6.90	5.40	5.60	6.00	4.34	2.10	6.90
Effluent, Lbs/Day (Weekly Max)	167	13.3	13.0	9.86	11.6	12.8	18.6	15.2	32.0	29.3	19.4	20.9	25.3	18.4	9.86	32.0
Effluent, mg/L (Monthly Avg)	25.0	2.65	2.43	2.08	2.02	2.23	3.03	3.02	4.38	4.04	4.30	4.85	4.36	3.28	2.02	4.85
Effluent, Lbs/Day (Monthly Avg)	104	10.2	9.81	8.38	10.6	11.0	15.3	12.1	19.4	16.1	16.0	17.9	17.0	13.6	8.38	19.4
% Removal	85.0	98.5	97.7	98.6	98.9	99.0	98.2	98.4	97.9	97.7	97.5	98.0	98.1	98.2	97.5	99.0
Total Residual Chlorine (TRC)																
Effluent Average, mg/L	0.22	0.17	0.20	0.17	0.17	0.18	0.16	0.21	0.19	0.18	0.19	0.16	0.17	0.18		
Effluent Maximum, mg/L	0.74	0.33	0.36	0.31	0.35	0.30	0.26	0.38	0.32	0.31	0.40	0.43	0.35			0.43
Fecal Coliform (May 1 - Sep 30)/(Oct 1 - Apr 30)																
Effluent, #/100 mL	200/2,000	4	2	2	27	3	42	12	7	22	16	7	15	9	2	42
Dissolved Oxygen (DO)																
Effluent Minimum, mg/L	5.00	8.02	7.56	8.10	8.13	7.58	7.38	7.01	6.57	6.88	7.12	7.50	7.62		6.57	
Ammonia Nitrogen (May 1 - Oct 31)/(Nov 1 - Apr 30)																
Effluent, mg/L (Monthly Avg)	1.9/5.7	3.84	2.83	4.03	0.52	0.58	0.36	0.15	0.33	0.30	0.59	1.50	0.94	1.33	0.15	4.03
Effluent, Lbs/Day (Monthly Avg)	7.9/23	15.8	11.7	16.1	2.70	2.66	1.82	0.65	1.31	1.23	2.10	5.68	3.58	5.44	0.65	16.1
Effluent, Lbs/Day (Total Monthly)	Report	491	327	498	80.9	82.4	54.6	20.1	40.8	37.0	65.2	170	111	165	20.1	498
pH																
Effluent-Min, Standard Unit	6.0	7.05	7.04	7.01	7.00	7.09	7.06	7.13	7.13	7.07	7.14	7.08	7.01		7.00	
Effluent-Max, Standard Unit	9.0	7.23	7.34	7.48	7.29	7.45	7.44	7.42	7.36	7.37	7.58	7.33	7.27			7.58
Total Phosphorus (P)																
Effluent, mg/L	2.0	0.14	0.18	0.15	0.23	0.23	0.37	0.28	0.25	0.38	0.16	0.10	0.13	0.22	0.10	0.38
Effluent, Lbs/Day	8.3	0.55	0.72	0.57	1.18	1.16	1.86	1.17	1.08	1.56	0.59	0.37	0.53	0.95	0.37	1.86
Total Suspended Solids (TSS)																
Influent, mg/L	NA	171	153	179	298	302	365	185	279	246	179	334	237	244	153	365
Influent, Lbs/Day	NA	670	621	736	1,559	1,500	1,846	758	1,138	980	644	1,246	903	1,050	621	1,846
Effluent, mg/L (Weekly Max)	45.0	7.00	9.00	5.00	5.00	5.00	5.00	5.00	5.00	28.0	5.00	5.00	12.0	8.00	5.00	28.0
Effluent, Lbs/Day (Weekly Max)	187	31.3	32.0	24.7	29.0	29.5	26.0	22.4	27.6	104	20.8	19.7	49.4	34.7	19.7	104
Effluent, mg/L (Monthly Avg)	30.0	5.50	6.00	5.00	5.00	5.00	5.00	5.00	5.00	10.0	5.00	5.00	6.40	5.66	5.00	10.0
Effluent, Lbs/Day (Monthly Avg)	125	22.1	24.0	20.2	26.2	24.9	25.3	20.4	21.4	38.5	18.7	18.4	25.3	23.8	18.4	38.5
% Removal	85.0	96.7	96.1	97.2	98.3	98.3	98.6	97.3	98.1	96.1	97.1	98.5	97.2	97.5	96.1	98.6
Copper (Cu)																
Effluent, mg/L	0.02	0.006	0.006	0.007	0.005	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.006	0.005	0.004	0.007
Effluent, Lbs/Day	0.08	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
Zinc (Zn)																
Effluent, mg/L	0.15	0.05	0.06	0.06	0.04	0.05	0.05	0.05	0.04	0.05	0.05	0.06	0.05	0.05	0.04	0.06
Effluent, Lbs/Day	0.62	0.20	0.20	0.30	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.21	0.20	0.30

**EXHIBIT D
FAIRVIEW TOWNSHIP SOUTH WWTP
2014 SEWAGE SLUDGE MANAGEMENT INVENTORY**

Month	Average Flow (MGD)	Average Influent BOD ₅ (mg/L)	Average Effluent CBOD ₅ (mg/L)	Volume of Sludge Wasted (Gallons)	Average Solids RAS (mg/L)	Biosolids Generated ⁽¹⁾ (Dry Tons)	Average Total Solids (%)
January	0.4852	175	2.65	246,326	No Data Available	8.75	14.40
February	0.5139	106	2.43	277,564		15.81	14.02
March	0.5187	146	2.08	263,686		16.78	16.52
April	0.5743	177	2.02	268,440		15.18	13.92
May	0.6137	222	2.23	279,093		12.21	15.46
June	0.5044	168	3.03	350,400		7.70	13.43
July	0.4520	189	3.02	294,903		12.83	15.41
August	0.4547	215	4.38	265,980		10.37	16.01
September	0.4464	179	4.04	261,360		9.97	17.23
October	0.4242	176	4.30	232,469		9.21	15.58
November	0.4063	246	4.85	252,120		12.50	15.01
December	0.4338	232	4.36	346,952		14.73	14.81
Total				3,339,293		146.02	
Average	0.4856	186	3.28	9,149			15.15
Min	0.4063	106	2.02				13.43
Max	0.6137	246	4.85				17.23

⁽¹⁾ Includes liquid sludge received from the North WWTP

**Exhibit E
Total Nitrogen Credit Purchases**

Year Ending (1, 2)	North WWTP			South WWTP			Total Estimated Township TN Credits Required
	TN Cap Loading Limit (lbs/yr)	Actual / Est. TN Loading (lbs/yr)	Credits Required (lbs/yr)	TN Cap Loading Limit (lbs/yr)	Actual / Est. TN Loading (lbs/yr)	Credits Required (lbs/yr)	
2010 (Actual)	13,333	20,345	-7,012	9,132	7,732	0	-7,012
2011 (Actual)	13,333	23,671	-10,338	9,132	6,715	0	-10,338
2012 (Actual)	13,333	21,588	-8,255	9,132	Unknown	0	-8,255
2013 (Actual)	13,333	18,108	-4,775	9,132	7,807	0	-4,775
2014 (Actual)	13,333	19,348	-6,015	9,132	10,115	-983	-6998
2015	13,333	19,528	-6,195	9,132	10,205	-1,073	-7268
2016	13,333	19,708	-6,375	9,132	10,295	-1,163	-7538
2017	13,333	19,888	-6,555	9,132	10,385	-1,253	-7808
2018	13,333	20,068	-6,735	9,132	10,475	-1,343	-8078
2019	13,333	20,248	-6,915	9,132	10,565	-1,433	-8348
2020	13,333	20,428	-7,095	9,132	10,655	-1,523	-8618
2021	13,333	20,608	-7,275	9,132	10,745	-1,613	-8888
2022	13,333	20,788	-7,455	9,132	10,835	-1,703	-9158
2023	13,333	20,968	-7,635	9,132	10,925	-1,793	-9428
2024	13,333	21,148	-7,815	9,132	11,015	-1,883	-9698

Notes:

(1) Year Ending is the water year from October to September.

(2) Years Ending 2010, 2011, 2012 only require credit purchases to meet effluent TN requirements at North WWTP. Year ending 2013 and forwards require nutrient credit purchases to meet effluent TN requirements for both North and South WWTPs.

Total Phosphorus Credit Purchases

Year Ending (1)	North WWTP			South WWTP			Total Estimated Township TP Credits Required
	TP Cap Loading Limit (lbs/yr)	Actual / Est. TP Loading (lbs/yr)	Credits Required (lbs/yr)	TP Cap Loading Limit (lbs/yr)	Actual / Est. TP Loading (lbs/yr)	Credits Required (lbs/yr)	
2010 (Actual)	1,778	600	0	1,218	244	0	0
2011 (Actual)	1,778	571	0	1,218	166	0	0
2012 (Actual)	1,778	526	0	1,218		0	0
2013 (Actual)	1,778	455	0	1,218	215	0	0
2014 (Actual)	1,778	514	0	1,218	335	0	0
2015	1,778	524	0	1,218	340	0	0
2016	1,778	534	0	1,218	345	0	0
2017	1,778	539	0	1,218	350	0	0
2018	1,778	544	0	1,218	355	0	0
2019	1,778	549	0	1,218	360	0	0
2020	1,778	554	0	1,218	365	0	0
2021	1,778	559	0	1,218	370	0	0
2022	1,778	564	0	1,218	375	0	0
2023	1,778	569	0	1,218	380	0	0
2024	1,778	574	0	1,218	385	0	0

Notes:

(1) Year Ending is the water year from October to September.

Figures

Figure 1 – 5-Year Monthly Hydraulic Loadings

Figure 2 – 5-Year Monthly Organic Loadings

Figure 3 – Annual Hydraulic Loadings

Figure 4 – Annual Organic Loadings

FIGURE 1
Fairview Township South WWTP
5-Year Monthly Hydraulic Loadings, MGD

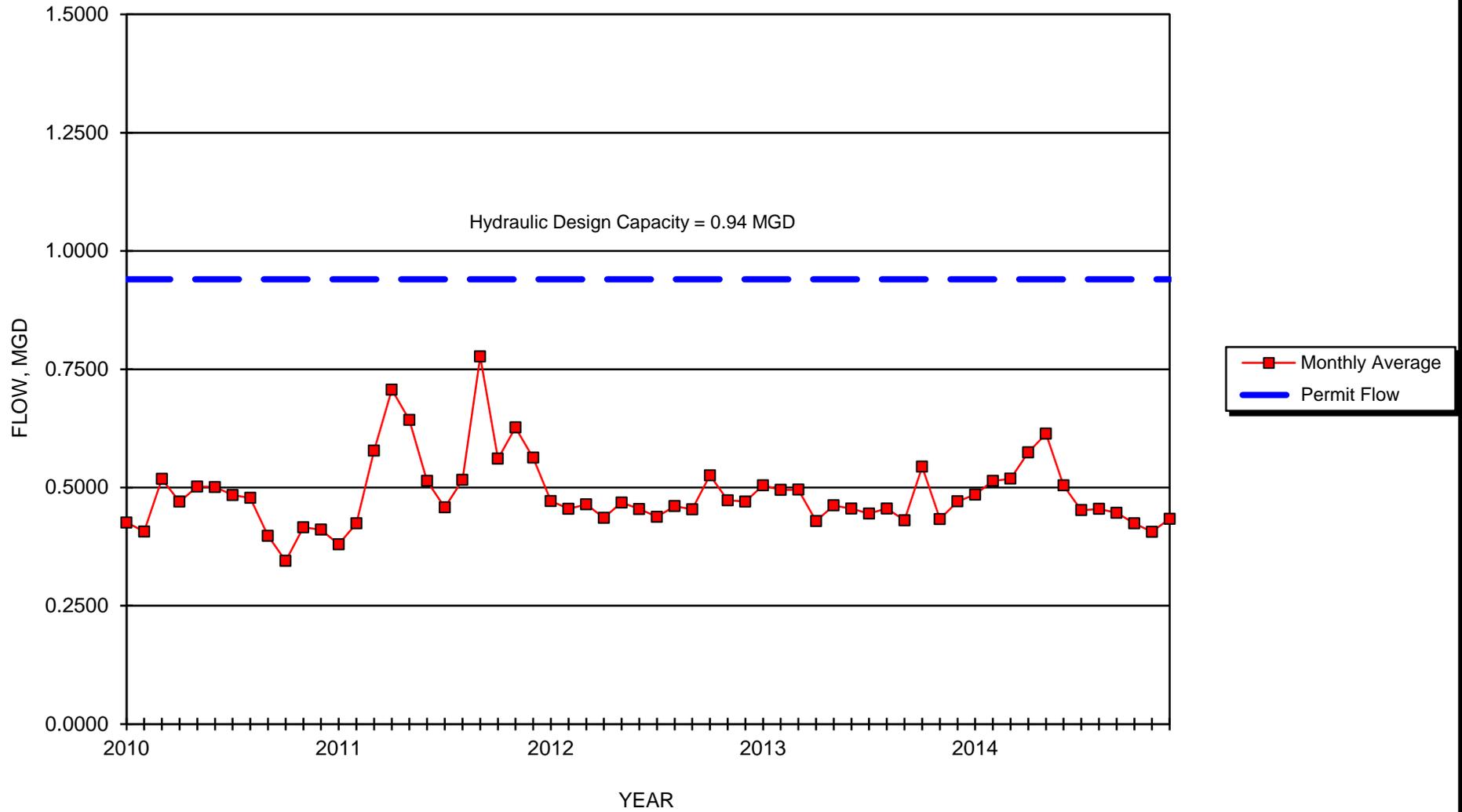


FIGURE 2
Fairview Township South WWTP
5-Year Monthly Organic Loadings, Lbs/Day

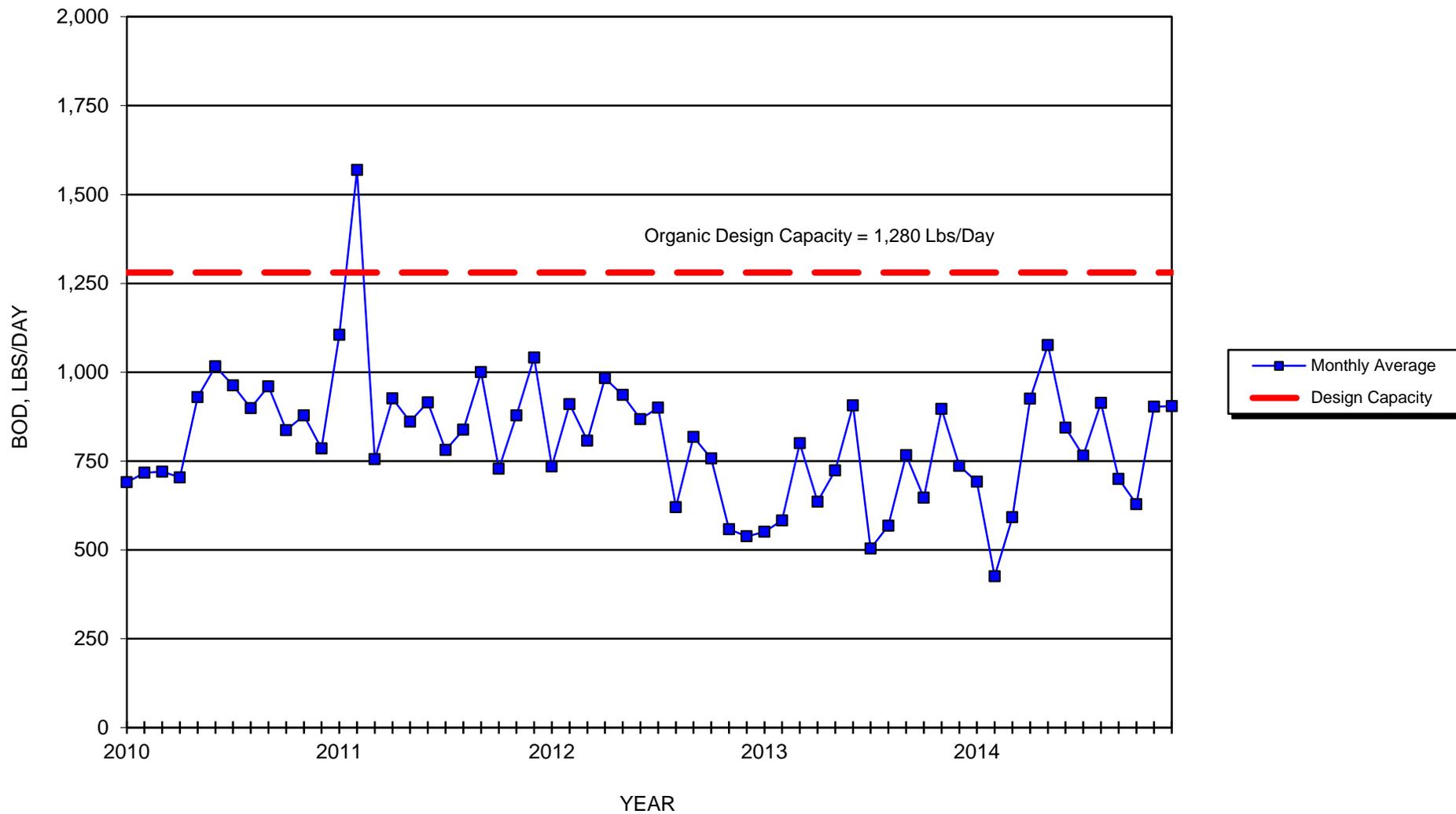


FIGURE 3
Fairview Township South WWTP
Annual Hydraulic Loadings, MGD

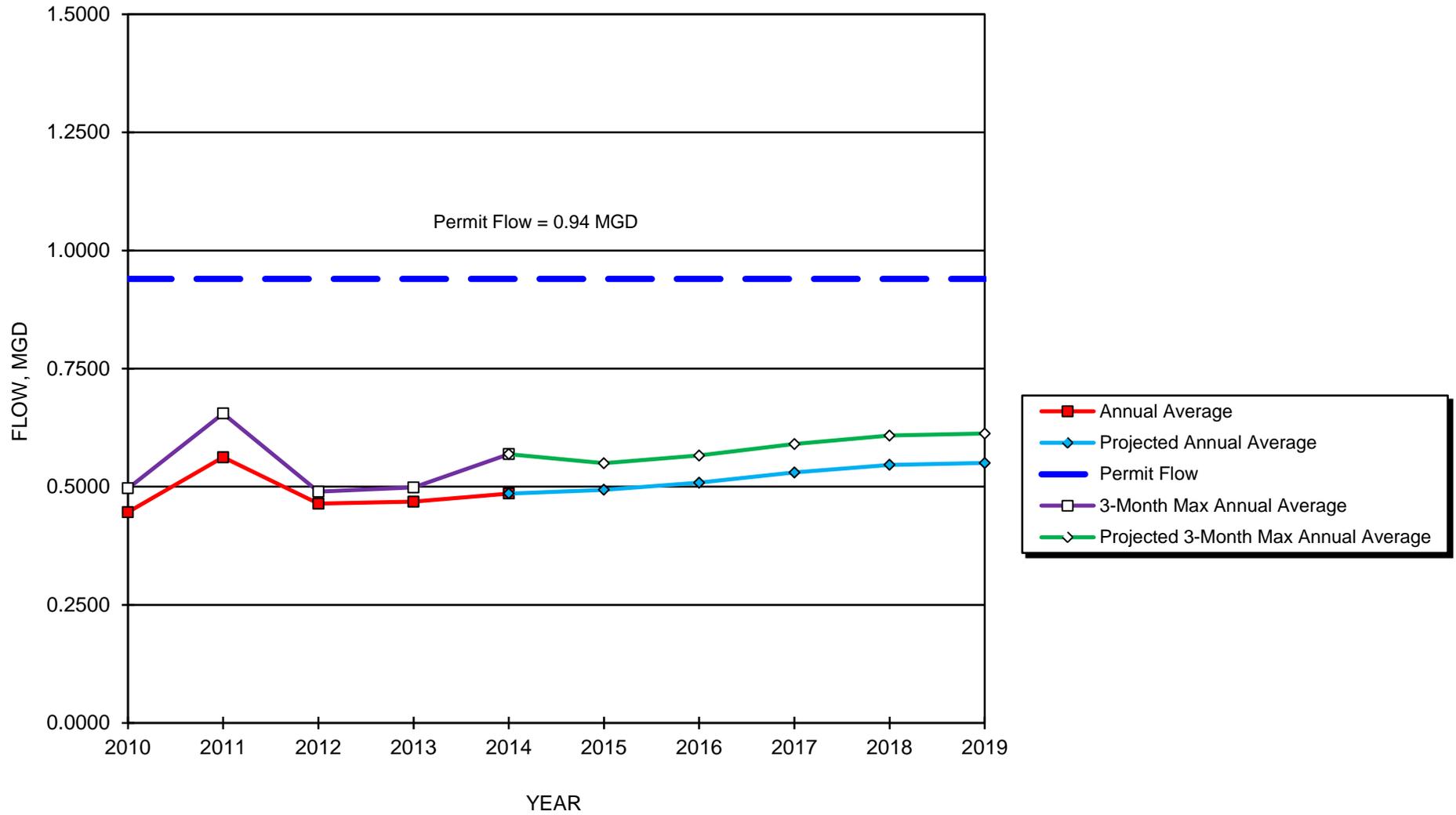
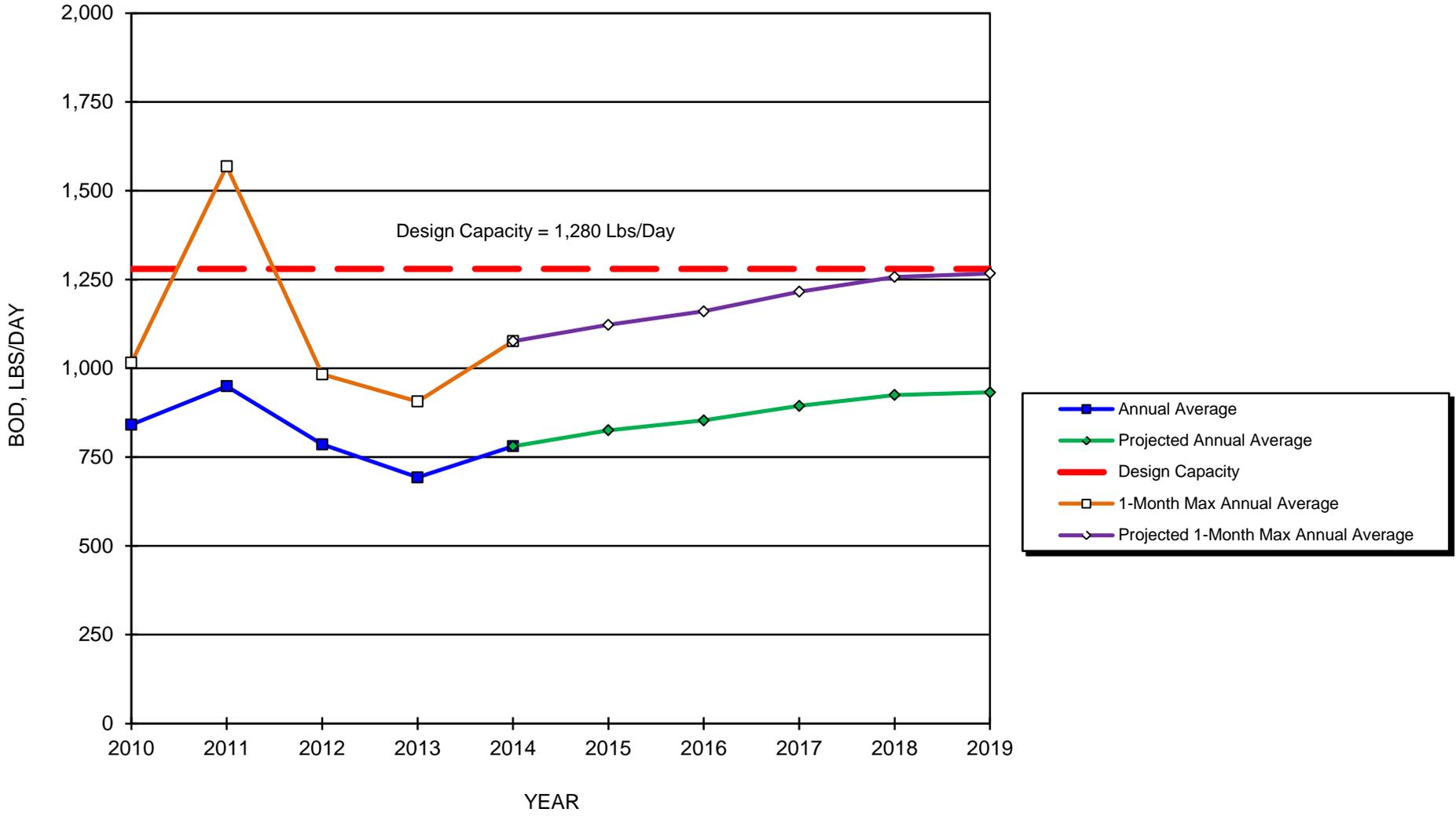


FIGURE 4
Fairview Township South WWTP
Annual Organic Loadings, Lbs/Day



Attachments

Attachment 1 – Flow Meter Calibration Certificate



TRI-STAR INC.

CERTIFICATE OF CALIBRATION

TO Fairview Township
599 Lewisberry Road
New Cumberland, PA 17070

Reference to TRI-STAR Job number SERVICE REPORT DATED 07/09/13, FAIRVIEW

PO# 14-073NS AND TSI INVOICE #S34850 FOR THE SOUTH PLANT INSTRUMENTS

TRI-STAR's calibration instrument M/N TRANSMATION 1045 S/N 7804910
THERMO ELECTRIC M/N 311800001 S/N 60110A-3-1

is traceable to the National Institute Standards Technology

Certified by YIS Report No. 162230, 162233 Date 03/18/2014

Code Ref: NONE

Next Certificate of Calibration due: JULY 31, 2015

Approved for TRI-STAR Inc.

by Steve Summy

title SERVICE TECH

date July 10, 2014

Steve Summy *IOS*
Authorized Signature



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