



PETERS TOWNSHIP SANITARY AUTHORITY

Chapter 94 Municipal Wasteload Management Report

for

**Brush Run Water Pollution Control Plant
NPDES Permit No. PA0028711**

Operating Year 2013

Submitted March 2014

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PETERS TOWNSHIP SANITARY AUTHORITY
Washington County, Pennsylvania

Brush Run Water Pollution Control Plant

Chapter 94 – Municipal Wasteload Management Report
Operating Year 2013

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SECTION 1 INTRODUCTION

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 Peters Township Sanitary Authority (Authority) as a summary of the loadings and conditions existing at the Brush Run Water Pollution Control Plant (WPCP), its associated pump stations, and its tributary sewage collection and conveyance sewer systems during the 2013 operating year. In addition, this report includes a projection of the anticipated loadings at the WPCP for the next five years (2014-2018) and at the sewage pumping stations for the next two years (2014-2015).

The Brush Run WPCP is owned, operated and maintained by the Peters Township Sanitary Authority, and operates under Water Quality Management Permit Nos. 6369406-A2 through A6, 6384417 (Belt Filter Press), and NPDES Permit No. PA0028711. The portions of the NPDES Permit which establish the discharge limits of the WPCP are contained in Appendix A. The NPDES Permit became effective on July 1, 2009, and expires at midnight on June 30, 2014. The NPDES Permit renewal application was filed in December 2013.

The WPCP is located along Brush Run near the intersection of Valley Brook Road and Route 19 in Peters Township, Washington County. The location of the plant is shown in Figure 1, below. The WPCP provides advanced secondary treatment. The treatment process consists of screening, the conventional activated sludge process with anoxic zones and internal mixed liquor recycle for denitrification, disinfection and dechlorination, and effluent aeration.

Biological solids produced during the treatment process are stabilized by aerobic digestion, dewatered by a belt filter press, and disposed of at a sanitary landfill.



Figure 1: Brush Run WPCP Location Map

The hydraulic design capacity of the Brush Run WPCP is 2.0 million gallons per day (MGD) and the organic design capacity is 3,956 lbs BOD/day. The plant was originally constructed in 1964 and has undergone several expansions since it began operating. The most recent significant upgrade expanded the capacity of the plant to its current rating in 1995. The WPCP was designed with a capacity intended to accommodate growth projections in the Brush Run watershed of Peter Township through the design year 2010. However, the population growth projections utilized in the initial design of the WPCP have not been realized; inflow and infiltration control and prudent operation of the WPCP have extended the useful life well beyond the initial design. The 2011/2012 wet weather improvements project was completed

in June 2012 and extended the design year of the WPCP to 2030. The project enables the plant to process peak wet weather hourly average flows up to 12.5 MGD, and a maximum monthly average daily flow of 2.5 MGD. The process treatment tanks are designed to be easily expanded to ultimately treat a maximum monthly flow of 3.0 MGD with minimal investment. Since being placed into operation in 1995, the final effluent discharges from the WPCP have never exceeded the NPDES Permit discharge limits.

The Authority's management, operating and maintenance personnel hold the operator certifications required for operation of the WPCP. Table 1 contains a listing of the wastewater operator certificate numbers, class and subclass under the Pennsylvania Department of Labor and Industry.

Table 1: Peters Township Sanitary Authority – Operator Certificates

Employee	Class - Subclass	Issued	Expiration	Client ID	Cert #
James J. Miskis - Responsible Operator in Charge	A,E 1,2,3,4	7/1/2012	6/30/2015	196324	T1676
Mark A. Chucuddy	A,E 1,2,3,4	1/1/2012	12/31/2014	196953	T1630
Robert F. Paff Jr.	A,E 1,2,3,4	7/1/2012	6/30/2015	194018	T1739
Mike C. Anesetti	A,E 1,2,3,4	7/1/2012	6/30/2015	199541	T3960
Anthony M. Strelecki	B,E 1,2,3,4	1/1/2013	12/31/2014	193516	S8777
William J. Carlisle	B,E 1,2,3,4	1/1/2013	12/31/2014	197332	T3662

Class	Subclass
A = > 5 MGD	1 = Activated Sludge/SBR
B = 5 MGD or Less	2 = Trickling Filters & RBC
C = 1 MGD or Less	3 = Ponds and Lagoons
D = < 0.1 MGD	4 = Pretreatment
E = Collection Systems	

SECTION 2 HYDRAULIC LOADING

In accordance with § 94.12(a)(1) and (3)

The hydraulic design capacity of the Brush Run WPCP is 2.0 MGD. The historical hydraulic loadings by month for the past five years of operation (2009-2013) are shown in Table 2. Table 2 also provides the number of equivalent dwelling units (EDUs) served during each operating year. Detailed data for EDU projections has been included in Appendix B. The wastewater flow generated per EDU is calculated for each year. A five-year average flow per EDU is used to project future influent flows.

Table 2: Brush Run WPCP Hydraulic Loadings (2009-2013)

Year	Actual Hydraulic Loading				
	Monthly Average Flows (MGD)				
	2009	2010	2011	2012	2013
January	1.478	1.327	1.017	1.646	1.892
February	1.339	1.139	2.023	1.231	1.643
March	0.916	1.872	2.141	1.510	1.552
April	0.996	0.965	2.229	0.957	1.242
May	1.101	1.056	1.621	0.911	0.969
June	0.797	1.054	0.863	0.795	1.152
July	0.767	0.839	0.775	0.840	1.483
August	0.758	0.803	0.810	0.819	0.844
September	0.765	0.832	0.897	0.982	0.869
October	0.838	0.888	1.127	1.286	0.908
November	0.795	1.242	1.362	1.062	1.040
December	1.053	1.187	1.447	1.774	1.703
Annual Average Flow (MGD)	0.967	1.100	1.359	1.151	1.275
Maximum 3-Month Average Flow (MGD)	1.244	1.446	2.131	1.462	1.696
Ratio of Max. 3-Month to Annual Average	1.29	1.31	1.57	1.27	1.33
Total EDUs	4,178	4,233	4,255	4,314	4,416
Residential EDUs	3,768	3,790	3,811	3,859	3,883
Nonresidential EDUs	410	443	444	455	533
Flow per EDU (gpd/EDU)	231	260	319	267	289

Note: Flows in **RED** are the highest arithmetic mean of three (3) consecutive months for that particular year.

Monthly average flows entering the WPCP ranged from 0.844 MGD to a maximum of 1.892 MGD during the 2013 operating year. Maximum monthly flows have historically been experienced in the late winter and early spring months (January through May), whereas the remaining months generally experience flows closer to the annual average flow or less. The monthly average flow entering the WPCP did not exceed the hydraulic design capacity during any single month or consecutive three-month period in 2013. ***Therefore, the Brush Run WPCP was not hydraulically overloaded during the 2013 operating year.***

The historical loading data is used to project future average monthly flows for the next five years. Average monthly flows are used to calculate the annual average daily flow for each year during the past five years and two maximum flow values are then calculated for each year; the maximum month and the maximum three-month average. The maximum month flow is relevant because Chapter 94 regulations define the hydraulic design capacity of a treatment works as the maximum monthly design flow. Furthermore, the regulations define a hydraulic overload condition as occurring when the monthly average flow entering a plant exceeds the hydraulic design capacity for three consecutive months. A consecutive three-month period during which the monthly average flow of each month exceeds the hydraulic design capacity of the WPCP indicates that the plant may be operating beyond its hydraulic design capacity. The plant would therefore be deemed hydraulically overloaded, requiring that corrective measures be initiated.

Table 3 is a summary of the hydraulic loading over the past five years (2009 – 2013). The five-year annual average of flows will be used as the basis for determining the projected annual average flows. The maximum three-month flows for the next five years (2014-2018) will be projected based on the five-year average of the ratios of maximum three-month average flows to annual average flows.

Table 3: Brush Run WPCP Hydraulic Loading Summary (2009-2013)

Summary of Hydraulic Loading	
5-Year Annual Average of Flows (MGD)	1.170
5-Year Annual Average of Ratios	1.354
5-Year Average of Flows per EDU (gpd)	273
Design Capacity (MGD)	2.00

The maximum monthly average hydraulic loadings are largely dependent on precipitation patterns with flows increasing as precipitation increases due to infiltration and inflow. A relatively accurate estimate of precipitation influence on the monthly average flow can be calculated assuming that the best predictor of the future 5-year precipitation influence is the most recent historical 5-year precipitation influence. The influence of climate in the future will be more or less equivalent to the influence experienced in the recent past.

Using the five-year average flow as the starting point (1.170 MGD) and adding flows from new EDUs annually, the hydraulic loading for the next five years is projected. The number of growth EDUs is multiplied by the five-year average flow per EDU (273 gpd/EDU) to determine the increase in flow due to growth for each year. The projected annual average flows are shown in Table 4.

Table 4: Brush Run WPCP Projected Hydraulic Loadings (2014-2018)

Projected Hydraulic Loading				
Year	Previous Flow (MGD)	Additional EDUs (273 gpd/EDU)	Additional Increase in Flow (MGD)	Projected Flow (MGD)
2014	1.170	58	0.016	1.186
2015	1.186	30	0.008	1.195
2016	1.195	34	0.009	1.204
2017	1.204	43	0.012	1.216
2018	1.216	45	0.012	1.228

It is important to note that the EDU growth projections for each of the next five years take the current condition of the economy into consideration. Housing starts have been recovering to some extent while a depressed economy may still be occurring. Therefore, projected new

customers per year are considerably less than the recent historical average, with greater recovery in housing starts expected in 2014 or 2015. Of the fifty eight (58) new customers expected in 2014, 22 are existing customers from Upper St. Clair (Deerfield Manor) service area that is currently tributary to the ALCOSAN conveyance and treatment systems. The Peters Township Sanitary Authority and Upper St. Clair have entered into a Memorandum of Understanding (MOU) to convey flow from the Deerfield service area via gravity connection to the PTSA Brush Run system. This concept will eliminate the need for the Deerfield Manor Lift Station and reduce wet weather loading to the existing Brush Run lift station in Upper St. Clair. The Deerfield service area could be transferred to PTSA Brush Run collection system in 2014 contingent on resolution of administrative and institutional sewage planning issues identified in the MOU. PADEP sewage facility planning was initiated in 2010 and continued through 2012. The planning is on-going as part of the Upper St. Clair ALCOSAN Wet-Weather Plan Municipal Feasibility Study process.

To determine the three-month maximum flows for the next five years, the projected annual average flow is multiplied by the average of the ratios from the past five years (1.354). This ratio is the maximum three-month average flow to the five-year annual average of flows. The projected flows are contained in Table 5.

Table 5: Brush Run WPCP Projected 3-Month Maximum Flows (2014-2018)

Projected Maximum 3-Month Flows			
Year	Projected Flow (MGD)	Average of 5-Year Ratios	Max 3-Month Projected Flow (MGD)
2014	1.186	1.354	1.606
2015	1.195	1.354	1.617
2016	1.204	1.354	1.630
2017	1.216	1.354	1.646
2018	1.228	1.354	1.662

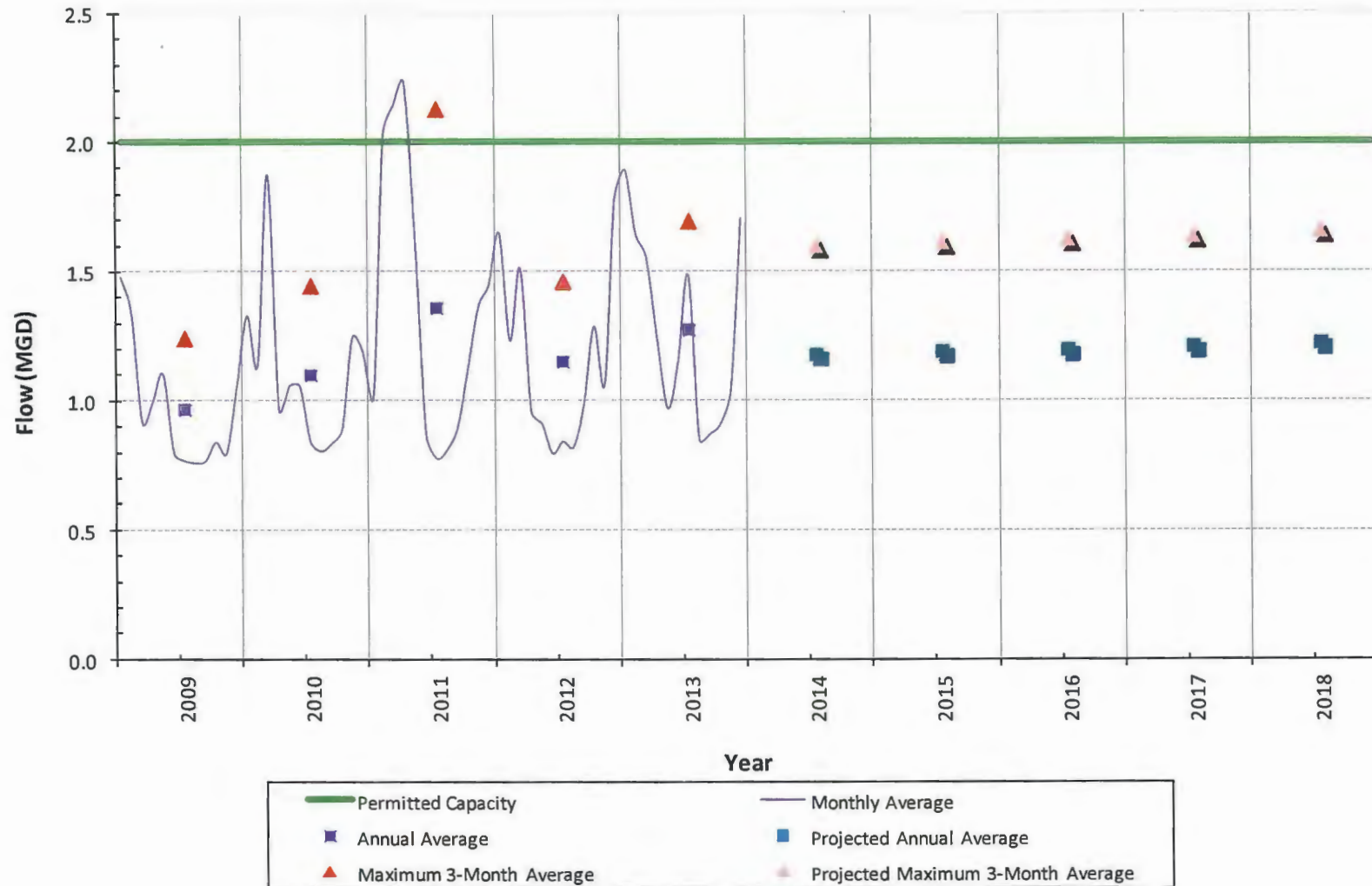
The hydraulic loading graph on Page 9 illustrates the hydraulic design capacity; the monthly average, annual average, and maximum three-month average flow for the past five years

(2009-2013); the projected annual and maximum three-month average flows for the next five years (2014-2018). As evident in the above charts and the graph, the maximum three-month average flows are not expected to exceed the hydraulic design capacity of 2.0 MGD in the next five years. The maximum three-month average flow in 2018 is projected to be 1.662 MGD and it is not likely that the plant will experience flows that exceed the hydraulic capacity before that time. ***Therefore, the Brush Run WPCP is not projected to be hydraulically overloaded within the next five years.***

Appendix C contains a table comparing the previous years' projected maximum three-month average flows with actual flows since 1999. Referring to the 2008 projected flows for 2013, the Authority projected in the 2008 Wasteload Management Report that the maximum three-month average flow in 2013 would be 1.728 MGD. The actual flow was 1.696 MGD. The 2008 projection was 98% of the actual flow, which validates the method used for projecting future hydraulic loadings.

Brush Run Water Pollution Control Plant Hydraulic Loading

Design Capacity = 2.0 MGD



SECTION 3 ORGANIC LOADING

In accordance with § 94.12(a)(2) and (3)

The organic design capacity of the Brush Run WPCP is 3,956 lbs BOD/day. The historical organic loadings by month for the past five years of operation (2009-2013) are shown in Table 6. The organic loading generated per EDU is calculated for each year. A five-year average loading per EDU is used to project future organic loadings.

Table 6: Brush Run WPCP Organic Loadings (2009-2013)

Year	Actual Organic Loading				
	Monthly Average BOD ₅ Loads (lbs/day)				
	2009	2010	2011	2012	2013
January	2,965	2,386	2,349	2,350	3,236
February	2,385	2,420	2,093	3,063	3,208
March	1,900	2,614	2,153	2,176	2,858
April	2,172	1,795	2,668	2,151	2,533
May	2,029	2,112	2,843	2,194	2,414
June	1,722	2,064	2,568	2,110	3,338
July	2,120	2,125	1,960	1,997	2,508
August	1,948	2,083	2,124	2,292	2,495
September	2,148	1,854	1,808	2,387	2,813
October	2,179	2,372	1,892	2,846	2,549
November	2,314	2,299	2,373	2,697	3,058
December	2,820	2,729	2,697	3,348	3,052
Annual Average Loading	2,225	2,238	2,294	2,468	2,839
Maximum Month Average Loading	2,965	2,729	2,843	3,348	3,338
Ratio of Max. Month to Annual Average	1.33	1.22	1.24	1.36	1.18
Total EDUs	4,178	4,233	4,255	4,314	4,416
Residential EDUs	3,768	3,790	3,811	3,859	3,883
Nonresidential EDUs	410	443	444	455	533
Load per EDU (lbs/day)	0.533	0.529	0.539	0.572	0.643

Note: Load in RED is the highest value for that particular year.

The maximum monthly average organic loading during the 2013 operating year was 3,338 lbs BOD/day, below the design capacity of 3,956 lbs BOD/day. ***Therefore, the Brush Run WPCP was not organically overloaded during the 2013 operating year.***

The methodology used to calculate the historical and projected organic loadings is similar to the procedure used for hydraulic loadings with the exception that maximum month organic loadings are used in place of the maximum three-month average loadings. Unlike hydraulic loadings which are dependent on precipitation patterns and the condition of the sewer system, the source of organic loadings is strictly from customers. Organic loadings are expected to incrementally increase as new customers connect to the sewer system. Some inherent variability in organic loadings may exist due to business activity from non-residential sources such as restaurants or the public school system, as does inherent variability due to raw sewage sampling and the analytical procedure used to calculate the BOD concentration of the influent raw sewage. Chapter 94 of the Municipal Wasteload Management regulations defines a facility's organic design capacity as the highest daily organic load at which the facility is expected to provide a specified level of treatment. The regulations define organic overload as occurring when the average daily organic load exceeds the organic design capacity. The average daily organic load is defined as the mean of all samples collected over a calendar month. Any monthly average exceeding the design organic capacity would indicate the facility is operating in an overloaded condition. The design capacity is specified in the Part II Water Quality Management Permit. The Part II Permit for the 1995 Brush Run WPCP upgrade and expansion project identifies the organic design capacity as 2,000 lbs BOD/day. Stress testing with only 50% of the plant capacity in service during initial startup of the facility in 1995 demonstrated the facility's actual organic capacity was closer to 4,000 lbs/day BOD. The Authority submitted a Rating Study to the PADEP in October 1996. Subsequently, the PADEP approved rerating the Brush Run WPCP to an organic design capacity of 3,956 lbs/day.

Table 7 is a summary of the organic loading over the past five years (2009 – 2013). The five-year annual average of organic loadings will be used as the basis for determining the projected annual average loadings. The maximum month loadings for the next five years

(2014-2018) will be projected based on the five-year average of the ratios of maximum month loadings to annual average loadings.

Table 7: Brush Run WPCP Organic Loading Summary (2009-2013)

Summary of Organic Loading	
5-Year Annual Avg. of Loads (lbs/day)	2,413
5-Year Annual Average of Ratios	1.265
5-Year Avg. of Loads per EDU (lbs/day)	0.563
Design Capacity (lbs/day)	3,956

Using the five-year average load as the starting point (2,413 lbs BOD/day) and then adding loads from new EDUs annually, the organic loadings for the next five years are projected. The number of growth EDUs is multiplied by the five-year average load per EDU (0.563 lbs BOD/day) to determine the increase in organic loading due to growth for each year. The projected annual average organic loadings are shown in Table 8.

Table 8: Brush Run WPCP Projected Organic Loadings (2014-2018)

Projected Organic Loadings				
Year	Previous BOD ₅ Load (lbs/day)	Additional EDUs (0.563 ppd/EDU)	Additional BOD ₅ Load (lbs/day)	Projected BOD ₅ Load (lbs/day)
2014	2,413	58	32.7	2,445
2015	2,445	30	16.9	2,462
2016	2,462	34	19.1	2,481
2017	2,481	43	24.2	2,506
2018	2,506	45	25.3	2,531

To determine the maximum month loadings for the next five years, the projected annual average loads are multiplied by the average of the ratios from the past five years (1.265). This ratio is the maximum month average load to annual average. The projected loadings are contained in Table 9.

Table 9: Brush Run WPCP Projected Maximum Month Organic Loadings (2014-2018)

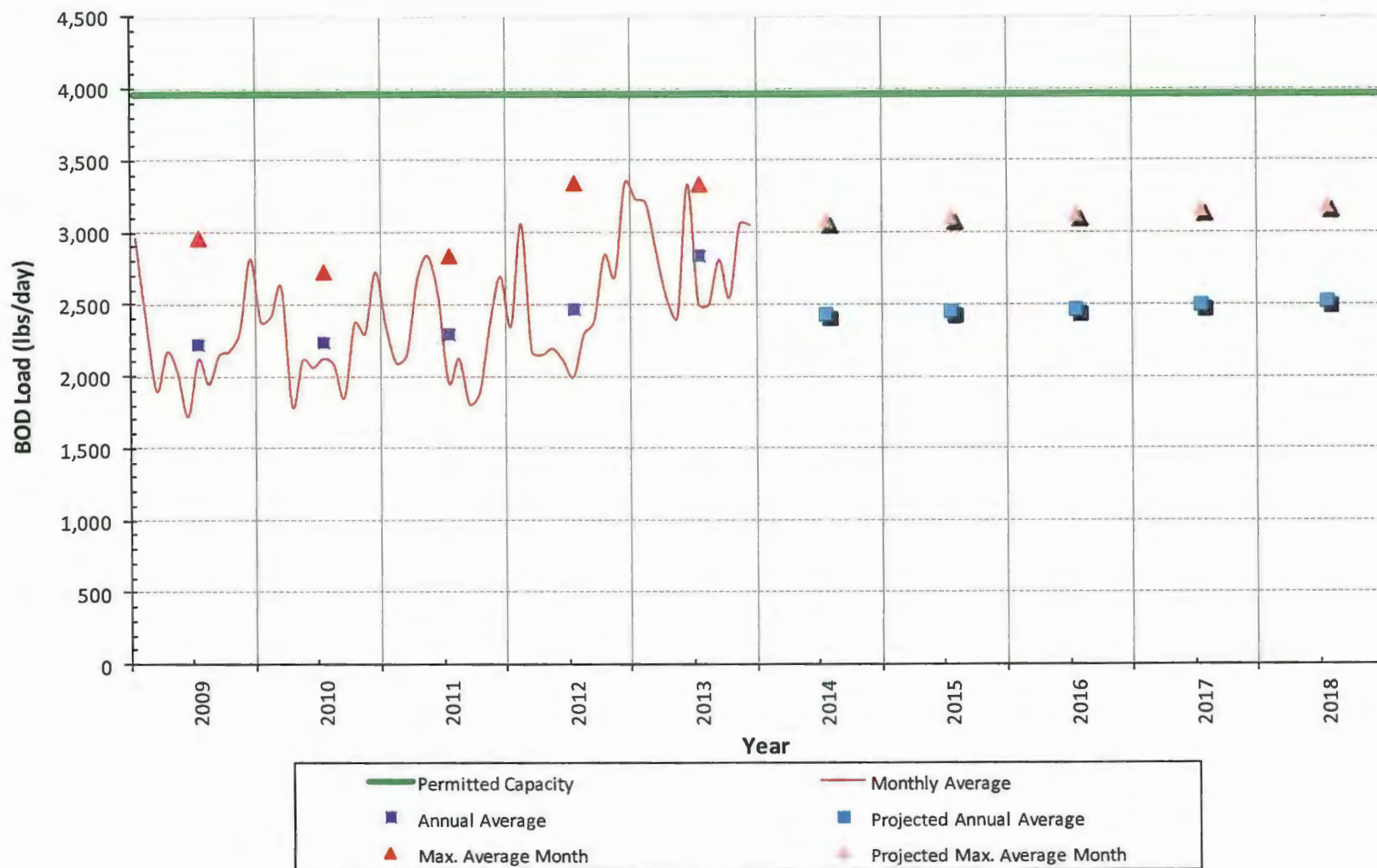
Projected Maximum Month Organic Loading			
Year	Projected BOD ₅ Load (lbs/day)	Average of Ratios	Max. Month Projected Load (lbs/day)
2014	2,445	1.265	3,093
2015	2,462	1.265	3,114
2016	2,481	1.265	3,138
2017	2,506	1.265	3,169
2018	2,531	1.265	3,201

The organic loading graph on Page 14 illustrates the organic design capacity; the monthly average, annual average and maximum month loads for the past five years (2009-2013); the projected annual and maximum month load for the next five years (2014-2018). As evident in the charts and the graph, the maximum month loads are not expected to exceed the organic design capacity of 3,956 lbs BOD/day in the next five years. The maximum month average loading in 2018 is projected to be 3,201 lbs BOD/day and it is not likely that the plant will experience loadings that exceed the organic capacity before that time. ***Therefore, the Brush Run WPCP is not projected to be organically overloaded within the next five years.***

The 2013 annual average organic loading per EDU was 0.57 lbs/day BOD with the historical 5-year average loading at the value of 0.563 lb BOD/day. The maximum month loading per EDU in 2013 was 0.756 lbs/day BOD. Based on 2010 census data, the average household in Peters Township has 2.88 persons/household. Therefore, the 2013 annual average and maximum month BOD per EDU translates to 0.20 lbs/person and 0.26 lbs/person, respectively. These values compare reasonably with PADEP design standards which suggest 0.22 lbs/capita.

Brush Run Water Pollution Control Plant Organic Loading

Design Capacity = 3,956 lbs/day



SECTION 4 BIOSOLIDS DISPOSAL

Liquid waste biosolids from the Brush Run WPCP's aerobic treatment process are conveyed to aerobic digesters where they are mixed and aerated until stabilized. The biosolids are pumped from the digestion tanks to a belt filter press for on-site mechanical dewatering. This dewatering operation also receives stabilized biosolids from the Donaldson's Crossroads WPCP, which are delivered via tanker truck to the aerobic digesters prior to being pumped to the belt filter press. Dewatered solids are conveyed to a roll-off dumpster that is periodically transported to Arden Landfill in Washington County for final disposal.

Annual biosolids production and processing data is included in Appendix D of this report. During 2013, the Brush Run WPCP produced a total of 116 dry tons and received a total of 117 dry tons from the Donaldson's Crossroads WPCP. When accounting for the average 13.99% solids content of the dewatered cake, a total of 1,696 wet tons of dewatered biosolids were sent off-site for landfill disposal. The biosolids dewatering facility, which typically operates one 8-hour shift, two days per week during summer months, and three days per week during the winter months, has adequate capacity for biosolids from both of the Peters Township treatment facilities. This capacity will remain available for the projected organic loadings of both plants for the next five years.

In order to obtain a Class B sludge designation, the geometric mean of seven (7) samples must be less than 2,000,000 colonies/gram of total solids. The Authority conducted these tests with all analyses performed by Microbac Laboratories. The results shown in Table 10 indicate that the Brush Run WPCP qualifies for a Class B sludge designation, with a geometric mean of colonies/gram of 260,676.

Table 10: Fecal Analysis Results

Sample Date	% Solids	Fecal Coliforms (Colonies/gram)	pH (feed)	PTSA % Solids
6-Nov-13	13.6%	1,466,000	7.11	13.46
25-Nov-13	12.6%	935,100	6.43	12.43
26-Nov-13	12.8%	342,100	6.53	12.42
3-Dec-13	12.5%	130,000	5.07	12.3
4-Dec-13	12.5%	130,000	5.07	12.75
5-Dec-13	12.7%	120,000	5.73	12.74
11-Dec-13	12.8%	86,000	4.85	13.36
Avg % Solids	12.8%			
Geo Mean of Colonies/gram		260,676		

SECTION 5 INDUSTRIAL WASTE

In accordance with § 94.12(a)(8)

The collection and conveyance system primarily serves residential customers, with service to relatively few commercial customers consisting of office, retail, and food service establishments. The Brush Run WPCP currently receives industrial discharges from only one source, the FPD Company. The FPD Company is only permitted for discharge of non-contact cooling water during the summer months, estimated at 500 gallons/day. Consequently there are no concerns about recurring or catastrophic toxicity, resulting biological plant upsets and noncompliant discharges to the outfall.

SECTION 6 CONDITION OF THE SEWER SYSTEM

In accordance with § 94.12(a)(6)

The overall condition of the collector and interceptor sewers in the Brush Run sewershed is considered fair to good. The Authority's major concern with the condition of the sewer system is infiltration and inflow (I&I). A substantial portion of the public and private building sewers in the Authority's sewer system were constructed 30 to 45 years ago, and contribute substantial volumes of I&I during and immediately after substantial precipitation events.

In 1997 the Authority initiated an aggressive systematic review of its sewer system, and now routinely invests \$500,000 to \$700,000 annually on sewer system rehabilitation, repair and replacement projects. While this effort has produced measurable reductions in infiltration volume, wet weather peak flows are of the same magnitude as they were in 1997. During unusually heavy rainfall events, short term, localized interceptor surcharging occurs, and during the most severe events, manhole overflows were experienced at two locations. In response to these issues, the Authority initiated an expansion of its program to manage wet weather flows in 2007. The program involved three elements of the Brush Run system including conveyance/interceptor capacity, treatment capacity and a building sewer inspection program.

The first element of the program was development of the Valleybrook Interceptor Comprehensive Plan. Since the interceptor capacity augmentation projects in 2008, one manhole overflow has been completely eliminated, and the second is nearly eliminated, and will be addressed with the planned Upper and Lower Palipetz Drive Augmentation projects in 2014/2015.

Pertaining to treatment capacity, the Authority undertook a Wet Weather Optimization Study of the Brush Run WPCP for the purpose of identifying ways to effectively process peak wet weather flows up to 13 MGD through the existing facility with minimal investment. The study included enhancements to the existing final clarifiers and conversion of excess aerobic digestion capacity to holding or clarification. Increasing the peak flow capacity of the treatment plant will allow augmentation of the interceptor to eliminate bottlenecks and thereby eliminate the excessive wet weather surcharging of the interceptor.

The Wet Weather Optimization Study was subdivided in three Phases. Phase A included an Alternative Screening Analysis that included in-situ WPCP field testing/sampling in the scope of work. Phase B included a detailed analysis of the alternatives that were recommended as part of Phase A alternative screening process. Phase C was an evaluation of the potential to

add additional clarifier capacity via adding a third clarifier. The findings of the Wet Weather Optimization Study were submitted to the PADEP in September of 2009.

The construction of the third clarifier (Brush Run WPCP Wet Weather Improvements Project) has been completed.

The third element to the Authority's wet weather management program is the development of a building sewer inspection program to identify excess infiltration originating on private property and the elimination of such. A new supervisory staff position was created to develop and manage the inspection program. The position was filled in March 2008. In 2010, discussion was initiated with Peters Township Council related to strengthening the existing Township real-estate dye testing procedures whereby potential illicit storm water or surface water runoff connections are dye tested during the real-estate transfer process. In February 2011 and continuing through May 2012, the Authority undertook a building lateral pilot program to demonstrate the effectiveness or ineffectiveness of conducting an area wide building sewer testing and repair program.

Under the building lateral pilot program, fifty six (56) participating property owners in the Friar Lane sewershed executed an agreement with the Authority that identified the terms and conditions of the Pilot Program. Each participating property was subjected to a rainfall simulation by simultaneously applying/injecting a volume of approximately 600-800 gallons, equivalent to a severe rainstorm, to various points on the property under test conditions. A camera inspection of the building sewer and drain was performed during the test to locate sources of infiltration. When flow was observed at the sewer main, different color dye was applied to identify the source of I&I. During the first two weeks of November 2011, the Authority performed the tests on the fifty five properties, with 42% of the properties failing due to defects in the private building sewer/or drain allowing groundwater to infiltrate into the sewer at a rate greater than one gallon per minute. An additional 24% of the properties exhibited deficiencies in which the property had minor defects, but did not contribute inflow

and infiltration greater than one gallon per minute during the test. During the pilot program, twenty three (23) properties had repairs completed to eliminate defects that contribute I&I into the sanitary sewer system, including uncovering and raising buried vents, cleanouts and installing proper caps, excavations to replace pipe, wyes and vent stacks, root cutting, and disconnection of an illegal foundation drain. In January 2013, the Authority installed flow monitors to determine the effectiveness of the building lateral pilot program. An initial calculation of effectiveness of the building lateral program indicates a 45% reduction in post-repair flow from one rain event. The objective was to obtain 40% reduction in flow and a minimum of 30% reduction during three peak rain events. The flow monitors remain in place and the Authority will continue to monitor the effectiveness of the building lateral program.

SECTION 7 PUMPING STATIONS

In accordance with § 94.12(a)(7)

The Authority owns, operates and maintains six sewage pumping stations in the Brush Run Sewer System. These pumping stations are listed as follows:

- Colony Manor Pump Station
- Fairway Estates Pump Station
- Hidden Brook Pump Station
- Maple Lane Pump Station
- Rutledge Drive Pump Station
- Sylvania Drive Pump Station

More information, including statistics, permit numbers and homes served is included in Appendix E. Table 11 identifies the station design capacity, actual maximum pumping rate, present maximum monthly daily average flow and the projected two-year maximum month daily average flow for each station.

Table 11: 2013 Pump Station Summary for the Brush Run Sewershed

Pump Station	Colony Manor	Fairway Estates	Hidden Brook	Maple Lane	Rutledge Drive	Sylvania Drive
Pump Rate (gpm) ¹	94.5	31.0	213.0	127.5	115.5	51.5
Actual Station Capacity (gpd) ²	136,080	44,640	306,720	183,600	166,320	74,160
Design Station Capacity (gpd)	115,000	36,000	315,000	216,000	144,000	144,000
Total Annual Run Hours ³	384.25	659.85	1,156.89	338.6	598	503.3
Run Time (% of available hours)	4.4%	7.5%	13.2%	3.9%	6.8%	5.7%
Annual Average Daily Pumped Volume (gpd)	5,967	3,352	40,507	7,096	11,353	4,082
Max Month Run Hours	41.15	71.03	165.57	43.5	87.1	121.7
Run Time (% of available hours)	5.5%	9.5%	24.6%	5.8%	11.7%	16.4%
Max Month Average Daily Pumped Volume (gpd)	7,526	4,262	75,571	10,735	19,471	12,131
Projected 2-year Max Month Average Day Volume (gpd)	7,600	4,500	76,000	11,000	20,000	12,500

¹Pump Rate was determined from the annual pump test and is the average pump rate of the two pumps.

²Actual Station Capacity is the Pump Rate multiplied by 1,440 minutes/day.

³Total Annual Run Hours are recorded on the panel meter and is the total run time for both service pumps.

As can be seen from the table, the maximum month daily flow for each pump station ranges from 5% to 25% of the station design capacity, indicating there is substantial reserve capacity at all six pump stations. Customer growth is not anticipated in any of the service areas to the pump stations, with the exception of the Hidden Brook Pump Station and the Maple Lane Pump Station. Both of these are expected to add a few customers each in 2014. It should be noted that nearly all of the pumping stations in the Brush Run sewershed are experiencing flows at or near their design flows, with the exception of the Sylvania Drive Pump Station. The Authority is investigating the cause of this low flow condition at the Sylvania Drive Pump Station. Force main accumulation has been identified as a contributing factor and is scheduled for cleaning in 2014.

The flow data presented in Table 11 was obtained from a combination of permanent flow meters at three stations (Hidden Brook, Maple Lane, and Rutledge Drive), run time meter and

draw down tests for each of the remaining stations using an electronic pump station analyzer. Pump station statistics and station analyzer reports can be found in Appendix E.

In 2012, an automatic telephone dialer was installed at the Fairways Estates Pump Station even though this pump station is equipped with an oversized emergency storage vault. Each of the remaining pump stations in the Brush Run Sewershed are also equipped with autodialers for automatic notification of equipment failure, loss of power and high wet well level. The dialers are programmed to call the Authority's emergency cell phone so that crews can be dispatched immediately regardless of the time of the day to investigate the cause of the fault and to correct it.

SECTION 8 SEWER EXTENSIONS

In accordance with § 94.12(a)(4)

The sewer extensions accepted include the following:

- Sewer extensions completed in 2013
 - McLaughlin/Weaver/Brula – 94 LF of 8" PVC to serve 1 EDU
- Pending sewer extensions
 - Tuscany Development – 6,076 LF of 8" PVC to serve 22 EDUs

SECTION 9 SEWER SYSTEM MONITORING, MAINTENANCE, REPAIR AND REHABILITATION

In accordance with § 94.12(a)(5)

The Authority is responsible for operation, maintenance, administration, sampling and monitoring of the Brush Run WPCP. Operations generally fall into three categories; permit compliance, process optimization, and facilities operations.

Permit Compliance: Treatment process monitoring and sampling is performed in accordance with State and Federal NPDES requirements and the specific requirements of NPDES Permit No. PA0028711. Table 12 lists the wastewater and treated effluent parameters that are

monitored and analyzed to satisfy these requirements. The NPDES permit discharge limits for the Brush Run facility are included in Appendix A.

Table 12: Brush Run WPCP Monitoring Requirements

Parameter	Frequency	Sample Type	Sample Location
Total Flow	Continuous	Recorder	Influent
BOD5	2 per week	24-hr composite	Influent
CBOD5	2 per week	24-hr composite	Influent & Effluent
Suspended Solids	2 per week	24-hr composite	Influent & Effluent
Ammonia-Nitrogen	2 per week	24-hr composite	Influent & Effluent
Dissolved Oxygen	2 per week	Grab	Influent & Effluent
Fecal Coliform	2 per week	Grab	Effluent
pH	2 per week	Grab	Influent & Effluent
Total Residual Chlorine	Daily	Grab	Effluent

During 2013, PTSA's on-site laboratory maintained Environmental Laboratory Accreditation under Title 25, Chapter 252, of the Pennsylvania Code. The Brush Run WPCP's accreditation certificate number was 006-002 during the 2013 operating year. Certificate 006-002 had an expiration date of January 31, 2014. The Authority has since received Certificate 007-001, expiring January 31, 2015. The PADEP Lab Number is 63-00908.

Process Optimization: The Authority's operators also regularly collect samples and monitor parameters in addition to those identified in the table above in order to ensure proper operation of the treatment process. Examples of process optimization monitoring include sampling the treatment process between the plant influent and final effluent sampling locations, tracking mixed liquor suspended solids and volatile solids, and settleable solids. Sample locations include the aeration tanks, clarifiers, and aerobic digesters. Third-party, independent calibration reports for the WPCP flow meters are included in Appendix F.

Facility Equipment Operations: The Authority staff also maintains and operates the necessary mechanical equipment that drives the process, including blowers, pumps and other equipment. The scope of operation and maintenance for this equipment covers both

preventive maintenance and repairs. The Authority maintains a computerized equipment maintenance database and inventory. All equipment, including standby equipment, is kept operational all times. When an equipment failure occurs, it is either repaired immediately by staff, or if necessary, sent out to a qualified equipment repair shop for immediate repair. All equipment is considered to be in satisfactory condition and properly maintained.

During 2008 the Authority upgraded its Supervisory Control and Data Acquisition (SCADA) to include the capability to monitor plant equipment status and operation from remote stations over the Internet. Management and each operator can access the SCADA system from their office or home to ascertain the status of equipment alarms, influent flow rate, aeration, dissolved oxygen concentration and other variables. The SCADA also provides remote access to the Authority's Hidden Brook Pump Station equipment status, wet well level, and discharge flow.

In 2009, the Authority expanded its monitoring to include continuous monitoring of final clarifier pH to assist with pH control during low flow conditions.

The Authority is also responsible for the maintenance and repair of approximately 72.5 miles of public sewer in the Brush Run Sewer System. A copy of the PTSA System Index Map is provided in Appendix G. The sewer system is maintained, monitored and rehabilitated by the Authority's staff, which consists of six maintenance personnel under the direction of the Authority Manager. Equipment owned by the Authority for maintenance and repair includes the following:

- High-Pressure Jet Cleaning and Vacuum Truck
- Closed-Circuit Video System with both main line and lateral cameras
- 4,000 Gallon Tanker Truck
- Trailer Mounted Emergency Generator (capable of providing power to any of the Authority's pump stations)
- 6-inch Trailer Mounted Diesel Trash Pump (emergency backup for pump stations)

- 4-inch, 3-inch and 2-inch gasoline powered trash pumps
- 7 Open Channel Flow Meters
- 2 automatic composite samplers

Furthermore, the Authority maintains a Geographical Information System (GIS) in conjunction with Peters Township, wherein all public sanitary sewers are graphically displayed along with properties, roads, streams and contours. The Authority continues to expand its GIS system to enhance its maintenance records and sewer mapping abilities.

The Authority defines maintenance as either preventive or emergency maintenance. Preventive maintenance operations include routine inspections of manholes and sewers, and scheduled inspections of all pump stations two times each week. Manholes are inspected with greater frequency during high ground water periods. When leaks are found, they are documented and repaired. The Authority's preventative maintenance goal includes closed circuit television inspection of 24,000 LF of sewer (Brush Run and Donaldson's Crossroads Sewer Systems combined) on an annual basis, which provides for a 15-year re-inspection cycle for its non-PVC sewer segments. Beginning in 2009, the Authority began regular inspection of PVC sewers. During 2013, 10,667 LF of sewer was inspected with closed circuit television (CCTV) equipment. Of the 10,667 LF televised in 2013, 8,050 LF was in the Brush Run sewershed.

Emergency maintenance operations would include the repair of broken sewers or force mains, cleaning and debris removal from blocked sewer lines, and repair of damaged manholes. The Authority's maintenance plan includes a target of rehabilitating and/or replacing 12,000 linear feet of sewer annually. Rehabilitation methods routinely used include point repairs followed by test and grout of sewer joints; Cured-in-Place (CIP) lining; and complete in-trench replacement of sewer and manholes.

Tasks undertaken by the Authority in 2013 in regards to sanitary sewer rehabilitation and maintenance in both the Brush Run and Donaldson's Crossroads sewersheds are described as follows:

- Three (3) inflow protectors were installed in manholes.
- Ten (10) manholes were excavated and adjusted to grade.
- Televised a total of 10,667 feet of public sewer including 5,463 feet of the East Edgewood Drive sanitary sewers.
- Staff performed two repairs on the Rutledge Drive Pump Station's force main.
- Upgraded the motor starters at the Stratford Drive Pump Station. This will allow for automatic restart of the pumps upon power failure, and thereby minimize staff callouts for short-duration power failures.
- Procured a portable generator and a grinder pump control panel for responding to prolonged power failures for our Irishtown Road customers served by Authority owned grinder pumps.
- Staff replaced approximately 8 LF of sanitary sewer along Marble Drive along with manhole invert improvements.
- Completed stream bank stabilization to area eroded during the July 10, 2013 100-year flood on Brush Run to protect our Valleybrook Interceptor in the vicinity of 539 Valleybrook Road.
- Cleaned the Waterdam Plaza Pump Station force main. The cleaning reduced the pumps' total dynamic head, which will serve to minimize pump wear as well as power consumption.
- Replaced the Waterdam Plaza Pump station automatic telephone dialer.
- Completed testing, grouting and trenchless Cured-in-Place Pipe (CIPP) repairs in the Stratford Manor area.
- Applied chemical root control to 2,132 LF of sewers previously found to have heavy root intrusion. The root control application will be placed on a 5-year recurring basis, unless the sewers with heavy root intrusion are either CIPP lined or replaced.

- Staff performed 225 dye tests on homes for property transfers. Of the testing performed 21.33% of the properties failed due to a major inflow or infiltration source, compared to the prior long-term average of 13%.
- Replaced the signal cable on the building sewer camera.
- Uncovered 5 manholes located on individuals properties with an additional 4 in the process of notification or repair. This work is at the property owners' cost.
- Performed 52 Grease trap inspections of food service establishments.
- Conducted post-repair contracted flow monitoring of the Friar Lane and East Edgewood sewers for the pilot project, and continued flow monitoring through mid-summer with the Authority's open channel flow monitors. Preliminary evaluation of the flow monitoring results indicates measurable reduction of peak flow infiltration in the Friar Lane sewers when compared to the reference sewershed (East Edgewood).

SECTION 10 REVIEW OF OVERLOAD CONDITIONS

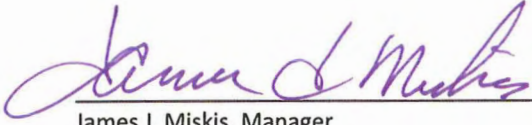
In accordance with § 94.12(a)(9)

As previously discussed, the Brush Run WPCP was not hydraulically or organically overloaded during the 2013 operating year, nor is it projected to be hydraulically or organically overloaded in the next five years (2014-2018).

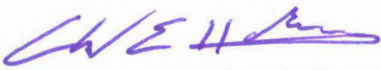
SECTION 11 CERTIFICATION

In accordance with § 94.12(a)

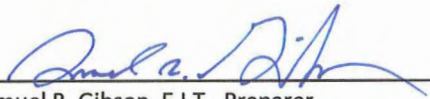
I certify that the information provided in this report is true and correct to the best of my knowledge and belief.



James J. Miskis, Manager
Peters Township Sanitary Authority



Chad E. Hanley, P.E., Reviewer
KLH Engineers, Inc.



Samuel R. Gibson, E.I.T., Preparer
KLH Engineers, Inc.

APPENDIX A

NPDES Permit Discharge Limits



Pennsylvania Department of Environmental Protection

400 Waterfront Drive
Pittsburgh, PA 15222-4745

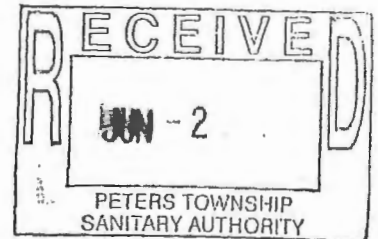
Southwest Regional Office

JUN 1 2009

412-442-4000
Fax 412-442-4328

CERTIFIED MAIL NO. 7003 2260 0000 3141 2803

Peters Township Sanitary Authority
3244 Washington Road
McMurray, PA 15317-3153



Re: Sewage
Brush Run Sewage Treatment Plant
NPDES Permit No. PA0028711
APS I.D. No. 653015
Peters Township
Washington County

Dear Authority Members:

Your permit is enclosed. Review it carefully, with special attention to the effluent limitations, monitoring requirements, and other requirements in Part C of the permit.

A Discharge Monitoring Report (DMR) and Supplemental Reporting Forms are included. The master DMR will be prepared and distributed by the U.S. Environmental Protection Agency (EPA) in the near future. Use the enclosed DMR Form until you receive a master from EPA. The reporting forms must be submitted to the Department and the EPA Regional Office as instructed in the permit and the enclosed Instruction Sheet.

A copy of an original "Discharge Monitoring Report - Supplemental Sewage Sludge Report" is enclosed. You should make a supply of copies for future use. Please follow the instructions and submit copies of the completed form (2 sided), as an attachment to the DMR, to each of the addresses listed in Part C of the permit, but not EPA.

We would like to bring your attention to the Department's new electronic DMR (eDMR) program. The program can be accessed through the internet at www.dep.state.pa.us/edmr and can be used in lieu of paper DMR and supplemental report submissions. Please find enclosed additional information concerning eDMR. We highly encourage your participation in this program. Please direct any questions to the contacts listed on the eDMR fact sheet.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa. C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, PO Box 8457, Harrisburg, PA 17105-8457, 717-787-3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800-654-5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717-787-3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717-787-3483) FOR MORE INFORMATION.

If you have any questions, please call me at 412-442-4344.

Sincerely,

A handwritten signature in black ink that reads "William C. Mitchell". The signature is written in a cursive style with a large, stylized 'W' and 'M'.

William C. Mitchell
Water Management

Enclosures

cc: U. S. Environmental Protection Agency

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER MANAGEMENT PROGRAM

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

NPDES PERMIT NO. PA0028711

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 et seq. (the "Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 et seq.,

Peters Township Sanitary Authority
3244 Washington Road
McMurray, PA 15317-3153

is authorized to discharge from a facility located at

Brush Run Sewage Treatment Plant
Peters Township
Washington County

to receiving waters named Brush Run

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B, and C hereof.

THIS PERMIT SHALL EXPIRE AT MIDNIGHT, JUN 30 2014.

The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.
2. Failure to comply with the terms, conditions, or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal.
3. Complete application for renewal of this permit, or notification of intent to cease discharging by the expiration date, must be submitted to the Department at least 180 days prior to the expiration date (unless permission has been granted by the Department for submission at a later date), using the appropriate NPDES permit application form.

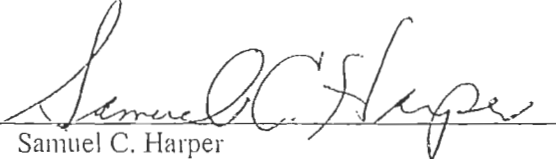
In the event that a timely and complete application for renewal has been submitted and the Department is unable, through no fault of the permittee, to reissue the permit before the expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports, will be automatically continued and will remain fully effective and enforceable pending the grant or denial of the application for permit renewal.

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

DATE PERMIT ISSUED

JUN 1 2009

ISSUED BY


Samuel C. Harper
Water Management Program Manager

DATE EFFECTIVE

JUL 1 2009

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR OUTFALL 001 WHICH RECEIVES WASTE FROM:

the sewage treatment plant

at Latitude 40° 17' 32" Longitude 80° 06' 31" Stream Code 36873 River Mile Index (RMI) 0.97

- a. The permittee is authorized to discharge during the period from effective date through expiration date.
- b. Based on the production data and/or anticipated wastewater characteristics and flows described in the permit application and its supporting documents and/or amendments, the following effluent limitations and monitoring requirements apply. Total (dissolved plus suspended fraction) is implied for each parameter unless otherwise indicated.

Discharge Parameter	DISCHARGE LIMITATIONS (gross unless otherwise indicated)							MONITORING REQUIREMENTS	
	Mass Units (lbs/day except flow)			Concentrations (mg/l unless otherwise indicated)				Measurement Frequency	Sample Type
	Average Monthly	Average Weekly	Max. Daily	Average Monthly	Average Weekly	Max. Daily	Instant. Max.		
Flow (mgd)	Monitor and Report							continuous	recorded
CBOD-5 Day									
May 1 to Oct 31	333.6	500.4		20.0	30.0		40.0	2/week	8-hour composite
Nov 1 to Apr 30	417.0	625.5		25.0	37.5		50.0	2/week	8-hour composite
Suspended Solids	500.4	750.6		30.0	45.0		60.0	2/week	8-hour composite
Ammonia Nitrogen									
May 1 to Oct 31	33.4	50.0		2.0	3.0		4.0	2/week	8-hour composite
Nov 1 to Apr 30	75.1	113.4		4.5	6.8		9.0	2/week	8-hour composite
Total Residual Chlorine ⁽²⁾				0.05			0.16	30/month	grab
Dissolved Oxygen				5 mg/l minimum				2/week	grab
% Removal (BOD-5 Day & SS)	refer to Part C								
Fecal Coliform Organisms									
May 1 to Sept 30				200/100 ml Geometric Mean			1,000/100 ml ⁽¹⁾	2/week	grab
Oct 1 to Apr 30				2,000/100 ml Geometric Mean			10,000/100 ml	2/week	grab
pH	not less than 6.0 nor greater than 9.0 standard units							2/week	grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at the outfall pipe.

⁽¹⁾Effective disinfection to control disease producing organisms shall be the production of an effluent which will contain a concentration of fecal coliform organisms not greater than 1,000/100 ml in more than ten percent of the samples.

⁽²⁾See Part C of this permit for additional monitoring and reporting information relative to this parameter.

1. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR STORM WATER OUTFALLS: 010 through 013

- a. The permittee is authorized to discharge during the period from effective date through expiration date.
- b. The outfalls listed below are permitted to discharge uncontaminated storm water runoff from areas in and around the treatment plant. Refer to Part C - Requirements Applicable to Storm Water Outfalls.

Outfall	Name	Receiving Stream/Code/RMI	Latitude/Longitude
010	Drain for Parking and Sidewalk Areas and Building Roof Drains	Brush Run / 36873 / 1.12	40° 17' 27" / 80° 06' 28"
011	Drain for Parking Area	Brush Run / 36873 / 1.01	40° 17' 29" / 80° 06' 28"
012	Drain for Lawn Area	Brush Run / 36873 / 1.00	40° 17' 30" / 80° 06' 28"
013	Drain for Lawn Area	Brush Run / 36873 / 0.99	40° 17' 31" / 80° 06' 28"

APPENDIX B

EDU Calculations

PETERS TWP SANITARY AUTHORITY

Non-Residential EDU Equivalent Calculation

YEAR	Total Non Res Consump (actual data) from PTSA budget report	Ann Avg Res Consump (actual data) from PTSA budget report	QRTLY K gal.	Non Res EDUs (calculated)	Proportional split based on 1999 data	
					BR (35%)	DC (65%)
1997	60,300,000	68800	17.2	876	307	570
1998	64,535,000	67200	16.8	960	336	624
1999	66,695,000	70000	17.5	953	333	619
2000	65,325,000	67200	16.8	972	340	632
2001	67,317,000	66400	16.6	1014	355	659
2002	66,003,000	66800	16.7	988	346	642
2003	67,400,000	64100	16.0	1051	368	683
2004	70,300,000	61400	15.4	1145	401	744
2005	80,539,000	63000	15.8	1278	447	831
2006	72,819,000	60700	15.2	1200	420	780
2007	79,714,000	61400	15.4	1298	454	844
2008	69,750,000	58,980	14.7	1183	414	769
2009	68,134,000	58,100	14.5	1173	410	762
2010	72,806,227	57,515	14.4	1266	443	823
2011	73,644,657	58,038	14.5	1269	444	825
2012	74,029,500	57,000	14.25	1299	455	844
2013	80,945,735	53,200	13.30	1522	533	989

	BR RES	BR TOTAL		DC RES	DC TOTAL		GRAND TOTAL
1997	2955	3262		1701	2271		5532
1998	2991	3327		1703	2327		5654
1999	3053	3386		1713	2332		5719
2000	3144	3484		1729	2361		5845
2001	3201	3556		1740	2399		5955
2002	3274	3620		1755	2397		6017
2003	3365	3733		1770	2453		6186
2004	3459	3860		1790	2534		6394
2005	3553	4000		1802	2633		6633
2006	3631	4051		1821	2601		6652
2007	3667	4121		1828	2672		6793
2008	3704	4118		1831	2600		6718
2009	3768	4178		1795	2557		6736
2010	3790	4233		1798	2621		6854
2011	3811	4255		1795	2620		6875
2012	3859	4314		1807	2651		6965
2013	3883	4416		1818	2807		7223

APPENDIX C

Comparison of Historical Projections

BRUSH RUN WPCP
Chapt 94 Projection vs Actual

3-month Max Flow					Max month BOD			
	Proj	Actual	Difference	% of Proj.	Proj	Actual	Difference	% of Proj.
1999 Projected								
2000	1.533	1.423	0.110	92.82%	2953	2597	356	87.94%
2001	1.558	1.367	0.191	87.74%	2983	2742	241	91.92%
2002	1.583	1.394	0.189	88.06%	3030	2610	420	86.14%
2003	1.608	1.485	0.123	92.35%	3078	2273	805	73.85%
2004	1.633	1.632	0.001	99.94%	3126	2579	547	82.50%
2000 Projected								
2001	1.605	1.367	0.238	85.17%	2951	2742	209	92.92%
2002	1.629	1.390	0.239	85.33%	2975	2610	365	87.73%
2003	1.653	1.485	0.168	89.84%	3039	2273	766	74.79%
2004	1.677	1.632	0.045	97.32%	3083	2579	504	83.65%
2005	1.701	1.887	-0.186	110.93%	3127	2410	717	77.07%
2001 Projected								
2002	1.488	1.390	0.098	93.41%	2805	2610	195	93.05%
2003	1.511	1.485	0.026	98.28%	2847	2273	574	79.84%
2004	1.533	1.632	-0.099	106.46%	2889	2579	310	89.27%
2005	1.556	1.887	-0.331	121.27%	2932	2410	522	82.20%
2006	1.578	1.205	0.373	76.36%	2974	3171	-197	106.62%
2002 Projected								
2003	1.478	1.485	-0.007	100.47%	2745	2273	472	82.81%
2004	1.499	1.632	-0.133	108.87%	2785	2579	206	92.60%
2005	1.521	1.887	-0.366	124.06%	2826	2410	416	85.28%
2006	1.543	1.205	0.338	78.09%	2866	3171	-305	110.64%
2007	1.565	1.680	-0.115	107.35%	2907	2603	304	89.54%
2003 Projected								
2004	1.487	1.632	-0.145	109.75%	2670	2579	91	96.59%
2005	1.522	1.887	-0.365	123.98%	2733	2410	323	88.18%
2006	1.557	1.205	0.352	77.39%	2796	3171	-375	113.41%
2007	1.592	1.680	-0.088	105.53%	2860	2603	257	91.01%
2008	1.627	1.649	-0.022	101.35%	2923	2615	308	89.46%
2004 Projected								
2005	1.505	1.887	-0.382	125.38%	2636	2410	226	91.43%
2006	1.541	1.205	0.336	78.20%	2699	3171	-472	117.49%
2007	1.577	1.680	-0.103	106.53%	2763	2603	160	94.21%
2008	1.611	1.649	-0.038	102.36%	2823	2615	208	92.63%
2009	1.645	1.244	0.401	75.62%	2883	2965	-82	102.84%
2005 Projected								
2006	1.596	1.205	0.391	75.50%	2585	3171	-586	122.67%
2007	1.628	1.680	-0.052	103.19%	2636	2603	33	98.75%
2008	1.659	1.649	0.010	99.40%	2686	2615	71	97.36%
2009	1.690	1.244	0.446	73.61%	2737	2965	-228	108.33%
2010	1.721	1.446	0.275	84.021%	2788	2729	59	97.88%
2006 Projected								
2007	1.555	1.680	-0.125	108.04%	2656	2603	53	98.00%
2008	1.581	1.649	-0.068	104.30%	2701	2615	86	96.82%
2009	1.606	1.244	0.362	77.46%	2745	2964	-219	107.98%
2010	1.632	1.446	0.186	88.60%	2789	2729	60	97.85%
2011	1.658	2.131	-0.473	1.285	2833	2842	-9	1.0031768
2007 Projected								
2008	1.613	1.649	-0.036	102.23%	2653	2615	38	98.57%
2009	1.633	1.244	0.389	76.18%	2686	2965	-279	110.39%
2010	1.657	1.446	0.211	87.27%	2726	2729	-3	100.11%
2011	1.683	2.131	-0.448	126.62%	2768	2842	-74	102.67%
2012	1.709	1.462	0.247	0.855	2811			
2008 Projected								
2009	1.635	1.244	0.391	76.09%	2715	2965	-250	109.21%
2010	1.655	1.446	0.209	87.37%	2748	2729	19	99.31%
2011	1.677	2.131	-0.454	127.07%	2784	2842	-58	102.08%
2012	1.702	1.462	0.240	85.90%	2826	3348	-522	118.47%
2013	1.728	1.696	0.032	0.981	2869	3338	-469	1.1634716
2009 Projected								
2010	1.543	1.446	0.097	93.71%	2779	2729	50	98.20%
2011	1.566	2.131	-0.565	136.08%	2821	2842	-21	100.74%
2012	1.584	1.462	0.122	92.30%	2854	3348	-494	117.31%
2013	1.605	1.696	-0.091	105.67%	2891	3338	-447	115.46%
2014	1.627				2932			

BRUSH RUN WPCP
Chapt 94 Projection vs Actual

2010 Projected								
2011	1.459	2.131	-0.672	146.06%	2852	2842	10	99.65%
2012	1.477	1.462	0.015	98.98%	2889	3348	-459	115.89%
2013	1.500	1.696	-0.196	113.07%	2932	3338	-406	113.85%
2014	1.520				2972			
2015	1.537				3004			
2011 Projected								
2012	1.649	1.462	0.187	88.66%	2803	3348	-545	119.44%
2013	1.660	1.696	-0.036	102.17%	2822	3338	-516	118.28%
2014	1.669				2838			
2015	1.679				2854			
2016	1.687				2868			
2012 Projected								
2013	1.601	1.696	-0.095	105.93%	2945	3338	-393	113.34%
2014	1.612				2965			
2015	1.625				2989			
2016	1.640				3017			
2017	1.655				3044			
AVG % of Proj. =				98.80%			98.69%	

APPENDIX D

Annual Biosolids Production

Peters Township Sanitary Authority
Annual sludge production calculation using wet tons and cake solids

2013 Month	AVG. CAKE % SOLIDS	WET TONS [1]	CALC TOTAL	DC DRY TONS [2]	BR DRY TONS [3]	BR METRIC DRY TONS [3]	DC METRIC DRY TONS [2]
Jan	13.38	200.66	26.85	13.76	13.09	11.87	12.48
Feb	12.69	145.33	18.44	9.49	8.95	8.12	8.61
Mar	12.93	189.22	24.47	12.62	11.85	10.75	11.45
Apr	13.28	191.02	25.37	11.09	14.28	12.95	10.06
May	12.93	110.68	14.31	4.83	9.48	8.60	4.38
Jun	15.30	121.09	18.53	10.63	7.90	7.16	9.64
Jul	16.17	71.07	11.49	7.11	4.38	3.98	6.45
Aug	16.48	115.83	19.09	10.91	8.18	7.42	9.90
Sep	14.37	129.37	18.59	7.04	11.55	10.48	6.39
Oct	14.06	169.50	23.83	15.29	8.54	7.75	13.87
Nov	13.32	104.07	13.86	6.18	7.68	6.97	5.61
Dec	12.97	148.56	19.27	8.77	10.50	9.52	7.96
Total	13.99	1696.40	234.10	117.72	116.38	105.58	106.80

1) As reported received at landfill

2) DC (Donaldson Crossroads) dry tons is the dry tonnage removed from DC digesters and hauled to the Brush Run plant for dewatering and final disposal.

3) BR (Brush Run) dry tons is calculated as the difference between Total Dry Tons received at landfill minus DC dry tons received at BR for processing.

APPENDIX E

Pump Station Operational Data

2013

LOCATION Design Cap.	JAN.	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL RUN HOURS	MTH AVG	ACTUAL GPM PUMP OUTPUT	TOTAL GAL PUMPED	AVG GPD PER PUMP	AVG TOTAL GPD
RUTLEDGE DR. 144,000 GPD	26.70 27.50	24.20 24.80	27.80 28.60	22.50 23.20	21.30 22.10	22.80 28.80	43.20 43.90	22.70 22.90	15.70 15.80	14.70 14.70	17.80 17.60	34.30 34.40	293.70 304.30	24.48 25.36	116 115	2,044,152 2,099,670	5,600 5,753	11,353
COLONY MANOR 115,000 GPD	16.15 16.30	14.23 14.02	15.93 15.73	15.25 15.81	15.18 14.60	14.71 14.92	20.19 20.96	15.49 17.17	12.88 13.59	4.45 28.61	14.24 13.84	20.37 19.63	179.07 205.18	14.92 17.10	95 94	1,020,699 1,157,215	2,796 3,170	5,967
STRATFORD 144,000 GPD	35.33 35.60	29.40 29.60	35.30 33.00	29.20 26.10	24.30 25.60	31.10 77.00	42.10 42.50	20.60 21.00	17.50 16.90	18.20 18.00	22.50 22.30	58.30 57.10	363.83 404.70	30.32 33.73	136 136	2,968,853 3,302,352	8,134 9,048	17,181
FAIRWAY EST. 36,000 GPD	29.45 34.77	28.49 23.46	26.46 31.76	25.43 29.55	32.11 32.83	23.65 27.25	28.29 30.88	21.64 24.61	19.55 22.97	22.80 26.90	21.59 24.38	35.13 35.90	314.59 345.26	26.22 28.77	33 29	622,888 600,752	1,707 1,646	3,352
SYLVANIA DR. 144,000 GPD	19.10 102.60	12.50 30.00	25.90 47.00	9.40 13.20	7.70 11.90	9.40 13.70	20.50 29.00	8.50 12.20	10.30 14.40	9.90 14.10	13.40 17.70	21.30 29.60	167.90 335.40	13.99 27.95	58 45	584,292 905,580	1,601 2,481	4,082
WATERDAM 223,000 GPD	46.20 34.70	37.10 34.20	44.80 38.50	43.30 38.30	39.10 35.70	34.70 32.50	44.10 39.80	31.80 29.40	27.20 25.50	37.40 34.20	24.00 22.80	23.50 23.20	433.20 388.80	36.10 32.40	131 137	3,404,952 3,195,936	9,329 8,756	18,085
HIDDEN BROOK 315,000 GPD	46.87 45.80	69.67 95.90	42.67 68.40	40.93 41.10	37.70 57.80	38.49 35.50	58.42 54.60	41.38 38.50	31.11 29.40	36.45 34.50	36.67 34.70	71.73 68.60	552.09 604.80	46.01 50.40	213 213	7,055,710 7,729,344	19,331 21,176	40,507
MAPLE LANE 216,000 GPD	13.30 13.60	14.00 14.00	16.00 16.50	13.20 13.30	12.20 12.60	12.70 12.40	22.00 21.50	11.30 13.00	9.20 9.70	16.90 10.70	11.70 10.70	20.00 18.10	172.50 166.10	14.38 13.84	127 128	1,314,450 1,275,648	3,601 3,495	7,096

NOTE: MAY 7 discovered bad off float at Hiddenbrook

10/11/13 to 10/28/13: Colony Manor, Pump 1 out of service due to bad motor starter.

10/4/13: Maple Lane: found off float in bottom of well, pump #1 had run for a continuous 5 hours.

8/5/13 Waterdam F/M cleaned

PETERS TOWNSHIP SANITARY AUTHORITY
PUMPING STATION STATISTICS
Brush Run Watershed
Last update: 12/15/09

FAIRWAY ESTATES:

Wet Well Capacity	1232 Gal.
Additional storage capacity	4500 Gal.
Emergency Overflow	NO
Transfer switch/Generator Connection	NO
Portable Pumping Connection	NO
Emergency Response Plan	• Portable pumps to tanker truck • Portable generator wired direct
Homes Served	11
Permit Date	Aug. 31, 1990
Permit No.	6390404
Design Capacity	36,000 GPD

W/W capacity calculated to rim elevation of wet well

RUTLEDGE DRIVE:

Wet Well Capacity	1030 Gal.
Additional storage capacity	3052 Gal.
Emergency Overflow	YES
Transfer switch/Generator Connection	YES
Portable Pumping Connection	NO
Emergency Response Plan	• Portable generator via connection • Portable pumps to tanker truck
Homes Served	62 + Fairways Discharge
Permit Date	Jan. 8, 1971
Permit No.	6370415
Design Capacity	144,000 GPD

Holding tanks begin to fill with w/w after 3.5'

SYLVANIA DRIVE:

Wet Well Capacity	2277 Gal.
Additional storage capacity	Included in above
Emergency Overflow	NO
Transfer switch/Generator Connection	NO
Portable Pumping Connection	NO
Emergency Response Plan	• Portable pumps to tanker truck • Portable generator wired direct
Homes Served	11
Permit Date	Jan. 26, 1972
Permit No.	6371421
Design Capacity	144,000 GPD

1500 Gal. overflow tank fills with w/w after 3.75'

COLONY MANOR:

Wet Well Capacity	3435 Gal.
Additional storage capacity	0
Emergency Overflow	YES
Transfer switch/Generator Connection	NO
Portable Pumping Connection	NO
Emergency Response Plan	• Portable pumps to tanker truck • Portable generator wired direct
Homes Served	31
Permit Date	Dec. 3, 1987
Permit No.	6387418
Design Capacity	115,000 GPD

W/W Capacity calculated to overflow elevation

HIDDEN BROOK:

Wet Well Capacity	8267 Gal.
Additional storage capacity	4458 Gal.
Emergency Overflow	NO
Transfer switch/Generator Connection	YES/On Site Generator
Portable Pumping Connection	YES
Emergency Response Plan	• On site generator w'/auto transfer • 6" engine driven pump from connection to force main
Homes Served	303 (at build out) Includes 117 from HVM and 10 from Trigon
Permit Date	March 7, 2003
Permit No.	6302403
Design Capacity / Rated Capacity	315,000 / 316,800 GPD

W/W Capacity calculated to rim elevation of w/w

MAPLE LANE:

Wet Well Capacity	3,000 Gal.
Additional storage capacity	YES (8,600 Gal. tank @ Timbercrest)
Emergency Overflow	NO
Transfer switch/Generator Connection	YES/On Site Generator
Portable Pumping Connection	NO
Emergency Response Plan	• Portable pumps to tanker truck • On-site generator w/ auto transf. • Portable generator w/man transf.
Homes Served	64 (incl. vacant lots)
Permit Date	July 25, 2006
Permit No.	026106
Design Capacity	216,000 GPD

Summary Report for Station-AnalyzerTM

Report Date : 12/11/2013 Period : 17 Days
Site : FAIRWAY Report From : 11/22/0113 10:21:00 AM
Description : FAIRWAY ESTATES L.S. Report To : 12/9/0113 12:52:00 PM

Flow Information

Total Flow : 83402.19 Gallons
Average Inflow Rate : 3.39 GPM
Minimum Inflow Rate : 0.48 GPM @ 12/2/0113 4:18:45 AM
Maximum Inflow Rate : 15.60 GPM @ 11/22/0113 10:04:23 PM

Pump Information

<u>Pump #</u>	<u># of Starts</u>	<u>Run Minutes</u>	<u>% Usage</u>	<u>Avg. Pump Rate</u>
1	358	1219.60	45.65%	33.06 GPM
2	358	1452.03	54.35%	29.39 GPM
3	0	0.00	0.00%	0.00 GPM
4	0	0.00	0.00%	0.00 GPM

Average Flow Rate for Pump Combinations

<u>Pumps</u>	<u>Pump Rate</u>	<u>Pumps</u>	<u>Pump Rate</u>	<u>Pumps</u>	<u>Pump Rate</u>	<u>Pumps</u>	<u>Pump Rate</u>
1,2	0.00 GPM	2,3	0.00 GPM	1,2,4	0.00 GPM	2,3,4	0.00 GPM
1,3	0.00 GPM	2,4	0.00 GPM	1,2,3	0.00 GPM	1,2,3,4	0.00 GPM
1,4	0.00 GPM	3,4	0.00 GPM	1,3,4	0.00 GPM		

Station Information

Average Pump Time : 3.73 Minutes
Total # of Cycles : 717
Average Fill Time : 30.56 Minutes

Other Events

11/27/0113 1:46:04 PM- Maint. ON
11/27/0113 1:46:48 PM- Power Off
11/27/0113 1:48:52 PM- Power On
11/27/0113 1:49:16 PM- Maint. ON
11/27/0113 1:49:18 PM- Maint. OFF

Summary Report for Station-Analyzer™

Report Date :	12/11/2013	Period :	17 Days
Site :	SYLVANIA	Report From :	11/5/0113 10:27:00 AM
Description :	SYLVANIA DR. L.S.	Report To :	11/22/0113 10:02:00 AM

Flow Information

Total Flow	:	72850.33 Gallons
Average Inflow Rate	:	3.03 GPM
Minimum Inflow Rate	:	0.30 GPM @ 11/20/0113 6:08:28 AM
Maximum Inflow Rate	:	27.01 GPM @ 11/7/0113 7:31:36 AM

Pump Information

<u>Pump #</u>	<u># of Starts</u>	<u>Run Minutes</u>	<u>% Usage</u>	<u>Avg. Pump Rate</u>
1	418	630.23	43.68%	57.61 GPM
2	416	812.60	56.32%	44.57 GPM
3	0	0.00	0.00%	0.00 GPM
4	0	0.00	0.00%	0.00 GPM

Average Flow Rate for Pump Combinations

<u>Pumps</u>	<u>Pump Rate</u>	<u>Pumps</u>	<u>Pump Rate</u>	<u>Pumps</u>	<u>Pump Rate</u>	<u>Pumps</u>	<u>Pump Rate</u>
1,2	GPM	2,3	0.00 GPM	1,2,4	0.00 GPM	2,3,4	0.00 GPM
1,3	0.00 GPM	2,4	0.00 GPM	1,2,3	0.00 GPM	1,2,3,4	0.00 GPM
1,4	0.00 GPM	3,4	0.00 GPM	1,3,4	0.00 GPM		

Station Information

Average Pump Time	1.73 Minutes
Total # of Cycles	835
Average Fill Time	27.04 Minutes

Other Events

11/7/0113 1:08:38 AM- Power Off	11/19/0113 1:34:10 PM- Maint. OFF
11/7/0113 1:16:23 AM- Power On	
11/7/0113 1:19:31 AM- Power Off	
11/7/0113 1:19:56 AM- Power On	
11/8/0113 7:16:28 PM- Power Off	
11/8/0113 9:25:54 PM- Power On	
11/19/0113 1:25:14 PM- Maint. ON	
11/19/0113 1:27:02 PM- Power Off	
11/19/0113 1:33:29 PM- Power On	
11/19/0113 1:33:53 PM- Maint. ON	

Summary Report for Station-AnalyzerTM

Report Date	: 10/21/2013	Period	: 1 Month 11 Days
Site	: COLONY_M	Report From	: 7/2/0113 10:38:00 AM
Description	: COLONY MANOR L.S.	Report To	: 8/13/0113 11:35:00 AM

Flow Information

Total Flow	: 334184.19 Gallons
Average Inflow Rate	: 5.52 GPM
Minimum Inflow Rate	: 0.91 GPM @ 7/23/0113 3:38:53 AM
Maximum Inflow Rate	: 117.62 GPM @ 7/10/0113 9:16:40 AM

Pump Information

<u>Pump #</u>	<u># of Starts</u>	<u>Run Hours</u>	<u>% Usage</u>	<u>Avg. Pump Rate</u>
1	1181	29.40	48.93%	95.10 GPM
2	1142	30.68	51.07%	94.41 GPM
3	0	0.00	0.00%	0.00 GPM
4	0	0.00	0.00%	0.00 GPM

Average Flow Rate for Pump Combinations

<u>Pumps</u>	<u>Pump Rate</u>	<u>Pumps</u>	<u>Pump Rate</u>	<u>Pumps</u>	<u>Pump Rate</u>	<u>Pumps</u>	<u>Pump Rate</u>
1,2	0.00 GPM	2,3	0.00 GPM	1,2,4	0.00 GPM	2,3,4	0.00 GPM
1,3	0.00 GPM	2,4	0.00 GPM	1,2,3	0.00 GPM	1,2,3,4	0.00 GPM
1,4	0.00 GPM	3,4	0.00 GPM	1,3,4	0.00 GPM		

Station Information

Average Pump Time	1.55 Minutes
Total # of Cycles	2324
Average Fill Time	24.47 Minutes

Other Events

7/18/0113 6:16:28 AM- Power Off
7/18/0113 6:22:19 AM- Power On

PETERS TOWNSHIP SANITARY AUTHORITY

PUMPING STATIONS TRIBUTARY TO BRUSH RUN WPCP

Listed below is a summary of the data obtained from the permanent flow metering devices at the Authority's pumping stations equipped with such devices.

Rutledge Drive	
Report Date:	January 3, 2014
Report Period:	1/1/13 to 12/31/13
Long term average pumping rate:	116 GPM
Maximum pumping rate:	126 GPM

Hidden Brook	
Report Date:	January 3, 2014
Report Period:	1/1/13 to 12/31/13
Long term average pumping rate:	213 GPM
Maximum pumping rate:	231 GPM

Maple Lane	
Report Date:	January 3, 2014
Report Period:	1/1/13 to 12/31/13
Long term average pumping rate:	127 GPM
Maximum pumping rate:	1141 GPM

PETERS TWP SANITARY AUTHORITY

Lift Station Historic Pump Rates

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
LOCATION Design Cap.																	
RUTLEDGE DR. 144,000 GPD	105 105	136 98	145 130	153 154	119 116	106 98	117 114	123 123	132 132	125 125	117 117	117 117	111 111	108 108	116 116	119 119	116 115
COLONY MANOR 115,000 GPD	117 61	99 124	93 109	90 109	83 93	88 97	84 88	73 90	77 100	73 91	79 94	81 98	75 76	98 93	93 102	91 99	95 94
STRATFORD 144,000 GPD	85 95	112 87	94 79	51 75	144 130	176 184	210 211	132 132	131 131	140 140	130 130	138 138	140 140	134 134	134 134	139 139	136 136
FAIRWAY EST. 36,000 GPD	33 29	33 33	32 32	33	25 23	18 18	18 18	16 19	15 15	17 17	16 17	13 14	17 17	33 32	39 40	32 29	33 29
TIMBERCREST 144,000 GPD	94 129	108 120	48 23	149 138	105 100	107 101	101 81	67 51	118 123	117 116	117 117	118 118	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a
SYLVANIA DR. 144,000 GPD	73 53	26 72	65 72	61 146	103 150	148 103	63 37	66 55	84 89	88 94	71 66	102 122	72 66	58 56	57 48	54 39	58 45
WATERDAM 223,000 GPD	73 71	114 79	72 95	94 86	76 75	95	118 101	108 168	109 88	102 133	111 139	75 114	162 116	82 81	97 97	65 73	131 137
HIDDEN VALLEY 184,320 GPD					134 140	148 157	119 124	160 211	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a	n/a n/a
HIDDENBROOK 315,000 GPD									245 245	239 239	241 232	222 221	207 203	217 217	201 204	215 215	213 213
MAPLE LANE 216,000 GPD													195 195	170 170	137 137	139 139	127 128

APPENDIX F

Flow Meter Calibration Certificates

TIM

TOTAL INSTRUMENT MAINTENANCE

423 Stoneybrook Drive

Elizabeth, PA 15037

BRUSH RUN

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.-1243

Customer Information:

Ref PO No _____

Company P.T.S.A.

Site Address 111 Bell Dr

City M^cMurray

State: Pa

Zip 15317

Contact Information:

Name Mark Chucuddy

Title Asst. Mgr

Street Address Same as above

City _____

State: _____

Zip _____

Tel [] _____

Instrument Data:

Description BFP Converter

Manufacturer F&P

Model No. 52FT1210ACB

Serial No. 8512A 01695

Tag No. _____

Calibration Data:

Units of Measurement

- | | |
|----------------------|-----------|
| 1. <u>4-20 mA DC</u> | 6. _____ |
| 2. <u>ft/per sec</u> | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

Test Equipment:

- | |
|---------------------------------|
| 1. <u>Fluke 8060 A D.V.O.M.</u> |
| 2. <u>A.B.B. Flow Simulator</u> |
| 3. _____ |
| 4. _____ |
| 5. _____ |

Reference Data:

Ambient temperature (°F): 75

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 Pappalardo
NAME

27 AUG 2013

**TOTAL INSTRUMENT MAINTENANCE**423 Stoneybrook Drive
Elizabeth, PA 15037

BRUSH RUN

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. -1243**Customer Information:**

Ref PO No _____

Company P.T.S.A.Site Address 111 Bell DrCity McMurray State: Pa. Zip 15317**Contact Information:**Name MARK ChucupdyTitle ASST. MGRStreet Address Same as above

City _____ State: _____ Zip _____

Tel [] _____

Instrument Data:Description Plant In-f Ultrasonic Flow xmts./rec kindManufacturer 94 W10 200 8/80540284 110349 - Model No. Sous3143BBBSerial No. F4P 003-B03 Tag No. _____**Calibration Data:****Test Equipment:**Units of Measurement

- | | |
|-------------------------|-----------|
| 1. <u>4-20 M.A.D.C.</u> | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

- | |
|---------------------------------|
| 1. <u>Fluke 8060 A D.V.O.M.</u> |
| 2. _____ |
| 3. _____ |
| 4. _____ |
| 5. _____ |

Reference Data:Ambient temperature (°F): 75

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:

NAME

21 Sept. 013

**TOTAL INSTRUMENT MAINTENANCE**423 Stoneybrook Drive
Elizabeth, PA 15037

BRUSH RUN

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.-1243**Customer Information:**

Ref PO No _____

Company P.T.S.ASite Address 111 Bell DrCity McMurrayState: PaZip 15317**Contact Information:**Name MARK ChucuddyTitle Asst MGRStreet Address Same as above

City _____

State: _____

Zip _____

Tel [] _____

Instrument Data:Description Air flow xntis Aeration Display - Digester Display, Aeration & Digester mtrManufacturer F&P / RosemountModel No. SDP4100A45Serial No. 94W101998-997/110349-0447007

Tag No. _____

F&P

Rosemount

Calibration Data:**Test Equipment:**Units of Measurement

- | | |
|------------------------------|-----------|
| 1. <u>In. H₂O</u> | 6. _____ |
| 2. <u>420 M.A.D.S</u> | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

- | |
|-------------------------------|
| 1. <u>Taylor 300</u> |
| 2. <u>Fluke 8060 D.V.O.M.</u> |
| 3. <u>Transmotion 1040A</u> |
| 4. _____ |
| 5. _____ |

Reference Data:Ambient temperature (°F): 75

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:

NAME

27 Aug. 2013

**TOTAL INSTRUMENT MAINTENANCE**423 Stoneybrook Drive
Elizabeth, PA 15037

BRUSH RUN

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. -1243**Customer Information:**

Ref PO No _____

Company P.T.S.A.Site Address 111 Bell Dr.City McMurrayState: Pa.Zip 15317**Contact Information:**Name MARK ChucuddyTitle Asst. MGR.Street Address Same as above

City _____

State: _____

Zip _____

Tel [] _____

Instrument Data:Description RAS meterManufacturer F&PModel No. 50xm13BXAD10AAA C229Serial No. 94U025455

Tag No. _____

Calibration Data:Units of Measurement

- | | |
|-------------------------|-----------|
| 1. <u>4-20 M.A.D.C.</u> | 6. _____ |
| 2. <u>ft./per sec.</u> | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

Test Equipment:

- | |
|---------------------------------|
| 1. <u>Flyke 8060 A D.V.O.M.</u> |
| 2. <u>A.B.R. Flow simulator</u> |
| 3. _____ |
| 4. _____ |
| 5. _____ |

Reference Data:Ambient temperature (°F): 75

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:

NAME

27 Aug 01/3

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Elizabeth, PA 15037

BRUSH RUN

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Ref PO No _____

Company P.T. S.ASite Address 111 Bell DrCity McMurrayState: PaZip 15317**Contact Information:**Name MARK ChucuddyTitle Asst. MGRStreet Address Same as above

City _____

State: _____

Zip _____

Tel [] _____

Instrument Data:Description BAR Screen TransducerManufacturer MilltronicsModel No. MRP-400Serial No. 0094837

Tag No. _____

Calibration Data:**Test Equipment:**Units of Measurement

- | | |
|------------------------|-----------|
| 1. <u>4-20 mA D.C.</u> | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

1. Fuke 8060A D.V.O.M

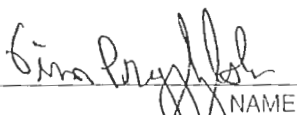
- | |
|----------|
| 2. _____ |
| 3. _____ |
| 4. _____ |
| 5. _____ |

Reference Data:Ambient temperature (°F): 75

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:


NAME27 Aug. 2013

**TOTAL INSTRUMENT MAINTENANCE**423 Stoneybrook Drive
Elizabeth, PA 15037

BRUSH RUN

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.-1243**Customer Information:**

Ref PO No _____

Company P.T.S.ASite Address 111 Bell DrCity McMurray State: Pa Zip 15317**Contact Information:**Name MARK ChucuddyTitle Asst. MGRStreet Address Same as above

City _____ State: _____ Zip _____

Tel [] _____

Instrument Data:Description Spur ECR rec.Manufacturer Chessell Model No. 1392Serial No. 110349-205-B03 Tag No. _____**Calibration Data:****Test Equipment:**Units of Measurement

- | | |
|-----------------------|-----------|
| 1. <u>4-20 M.A.C.</u> | 6. _____ |
| 2. _____ | 7. _____ |
| 3. _____ | 8. _____ |
| 4. _____ | 9. _____ |
| 5. _____ | 10. _____ |

- | |
|---------------------------|
| 1. <u>Transmatic 1040</u> |
| 2. _____ |
| 3. _____ |
| 4. _____ |
| 5. _____ |

Reference Data:Ambient temperature (°F): 75

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:

NAME27 Aug. 2013
DATE

APPENDIX G

PTSA System Index Map