



July 30, 2015

Ms. Lenka Berlin  
US EPA Region III, 3WP30  
1650 Arch Street  
Philadelphia, PA 19103

Re: Wissahickon Creek TMDL  
Comments submitted on behalf of Borough  
of Ambler

Dear Ms. Berlin:

On behalf of the Borough of Ambler, Pennsylvania, Environmental Engineering & Management Associates, Inc. (EEMA) has prepared the following comments pertaining to the DRAFT Total Phosphorus TMDL for the Wissahickon Creek Watershed published by EPA on May 20, 2015:

1. Table 5-1

- A. "Effluent Discharge Rate" is defined on page 59 as being "the flow used to determine effluent limitations for an [sic] NPDES permit." This is equivalent to Annual Average Design flow.
- B. Annual Average Design Flow was assumed for four of the WWTPs for every month of the 24 month period from January 2005 to December 2006. The design flow was then multiplied by actual TP values to calculate the Baseline TP load in pounds per year. This calculated baseline TP load is artificially greater than the real Baseline TP load. For example, if actual monthly flows were used to calculate monthly loads, and then those monthly loads were used to calculate the annual average load for 2005 and 2006, the Ambler WWTP averaged 57,106 lbs./year (vs 81,115 as reported in all Tables within the TMDL).
- C. It is a big assumption to use TP concentrations from the Ambler WWTP, which averaged 4.7 MGD in 2005 and 2006, and state that the TP concentration at 6.5 MGD would be the same as it was at 4.7 MGD.
- D. The Baseline TP loads are overstated by approximately 150% for the 2005 and 2006 period. Further, due to the 30% to 40% reduction in WWTP effluent TP after 2009 (per March 2015 DEP presentation; reduction may be greater), the stated Baseline TP Load is more than 200% the actual TP load presently occurring from the WWTPs.

Table 5-1. Flow and phosphorus data used to calculate the baseline conditions for the five WWTPs. Effluent discharge rate and average monthly observed phosphorus were used to calculate the baseline conditions at Abington, Ambler, Upper Dublin, and Upper Gwynedd. Average monthly observed flow and phosphorus were used to calculate baseline conditions at North Wales.

Time	Abington (PA0026867)		Ambler (PA0026603)		North Wales (PA0022586)		Upper Dublin (PA0029441)		Upper Gwynedd (PA0023256)	
	Flow (MGD)	Avg TP (mg/L)	Flow (MGD)	Avg TP (mg/L)	Flow (MGD)	Avg TP (mg/L)	Flow (MGD)	Avg TP (mg/L)	Flow (MGD)	Avg TP (mg/L)
Jan-05	3.91	3.3	6.5	3.4	0.7	1.8	1.1	3.1*	5.7	2.2
Feb-05	3.91	3.2	6.5	3.3	0.6	2.5	1.1	3.1*	5.7	2.0
Mar-05	3.91	3.2	6.5	3.0	0.7	1.6	1.1	3.1*	5.7	2.2
Apr-05	3.91	2.8	6.5	3.5	0.7	1.7	1.1	3.1*	5.7	3.0
May-05	3.91	3.8	6.5	4.7	0.3	3.3	1.1	2.6*	5.7	3.6
Jun-05	3.91	4.5	6.5	5.2	0.3	3.8	1.1	2.7*	5.7	3.5
Jul-05	3.91	3.9	6.5	5.1	0.4	3.5	1.1	3.2*	5.7	3.1
Aug-05	3.91	3.9	6.5	5.3	0.2	4.2	1.1	3.5*	5.7	3.4
Sep-05	3.91	4.2	6.5	4.7	0.2	4.5	1.1	2.7*	5.7	2.1
Oct-05	3.91	3.9	6.5	4.5	0.5	3.2	1.1	2.8*	5.7	1.8
Nov-05	3.91	4.3	6.5	4.9	0.4	3.2	1.1	2.4*	5.7	1.5
Dec-05	3.91	3.9	6.5	4.1	0.5	2.4	1.1	2.4*	5.7	1.5
Jan-06	3.91	3.6	6.5	3.1	0.8	1.9	1.1	3.1*	5.7	2.0
Feb-06	3.91	3.5	6.5	3.1	0.6	2.4	1.1	3.1*	5.7	2.6
Mar-06	3.91	4.2	6.5	3.6	0.3	4.0	1.1	3.1*	5.7	3.5
Apr-06	3.91	4.4	6.5	3.9	0.4	4.4	1.1	3.1*	5.7	3.0
May-06	3.91	4.8	6.5	4.2	0.3	3.7	1.1	2.6*	5.7	2.8
Jun-06	3.91	4.0	6.5	3.8	0.5	3.6	1.1	2.7	5.7	2.9
Jul-06	3.91	3.9	6.5	4.3	0.5	2.1	1.1	3.2+	5.7	2.8
Aug-06	3.91	4.2	6.5	4.5	0.3	3.7	1.1	3.7	5.7	3.1
Sep-06	3.91	3.7	6.5	4.4	0.7	2.2	1.1	2.6	5.7	2.9
Oct-06	3.91	3.7	6.5	4.0	0.5	2.8	1.1	2.8	5.7	2.9
Nov-06	3.91	3.5	6.5	3.7	0.8	1.6	1.1	2.3	5.7	2.3
Dec-06	3.91	3.8	6.5	4.1	0.5	2.7	1.1	2.4	5.7	2.7

\*TP Calculated based on observed ORP DMR values

+ Interpolated value between June and August 2006. No DMR data available for TP or ORP.

## 2. Table 5-6

- A. Averaging the monthly TP values shown in table 5-1 does not produce exactly the same value as presented in the Baseline TP concentration column of Table 5-6.
- B. The Allocated TP WLA in lbs./yr. was not calculated using the Effluent Discharge Rate as defined on page 59, even though the Effluent Discharge Rate as was used to calculate the Baseline TP Load. The Baseline Load and Allocated Load appear numerous places throughout the document, yet the math supporting the calculation of these values is not identified in a form where it can be verified. This is misleading. The WLA for each WWTP needs to be re-calculated using the allocated TP concentration and the Effluent Discharge Rate as defined on page 59. The term effluent discharge rate on page 70 seems to have a different meaning than the definition stated on page 59.
- C. The Allocated TP WLA in Table 5-6 means that the WWTPs will either have to flow at less than their presently permitted annual average flow or discharge at less than the stated concentration in order to comply with the annual allocated load. This should have been plainly and clearly presented. For example, if Ambler has a WLA of 798.63 lbs./year of TP, then at its effluent discharge rate of 6.5 MGD, the annual average concentration of TP must be less than 0.04 mg/l TP. That is a 30% reduction from the Allocated TP concentration listed in Table 5-6. Conversely, the Allocated TP WLA for the Ambler WWTP should be increased to 1,136 lbs/yr.
- D. Table 5-6, and all other tables within the TMDL, should be revised and re-issued for public comment with the correct Allocated TP WLAs for the WWTPs.

**WLA: Industrial and Private/Public Sewerage Permitted Facilities**

From Page 70

For four of the selected NPDES permitted facilities in the ~~Wissahickon Creek Watershed~~, the phosphorus WLAs were defined by the facilities' effluent discharge rate in 2005-2006, and loads were reduced to provide assimilative capacity for additional sources. The North Wales WWTP was characterized by observed DMR data for both flow and TP, as effluent discharge rate for the 2005-2006 time period was not available. Table 5-6 shows the baseline and TMDL concentrations and loads for each facility.

**Table 5-6. Annual WWTP baseline conditions and allocations.**

Permit	Facility	Baseline TP concentration (µg/L)	Allocated TP Concentration (µg/L)	Baseline TP Load (lbs/year)	Allocated TP WLA (lbs/year)	Percent Reduction (%)
PA0029441	Upper Dublin	2877.2	71.9	9634.00	171.47	98.2
PA0026867	Abington	3842.6	38.4	45734.00	361.45	99.2
PA0026603	Ambler	4099.3	57.4	81115.00	798.63	99.0
PA0023256	Upper Gwynedd	2726.7	32.7	47311.00	282.58	99.4
PA0022586	North Wales	2932.6	35.2	3976.08	47.71	98.8
<b>Total WLA for WWTPs</b>				<b>187770.08</b>	<b>1661.84</b>	<b>99.1</b>

3. Figure 5-2 versus most Tables in the TMDL

- A. This figure is the only place within the TMDL that seems to accurately portray the contribution of TP to the Wissahickon Creek from the WWTPs in 2005 and 2006. The figure clearly shows that the WWTPs were only 44% of the TP load, or 126,300 lbs./year TP. Everywhere else in the Draft TMDL the artificially calculated Baseline value of 187,770.08 lbs./year TP is stated. This overstates the TP from WWTPs 61,500 lbs/year, or 150%
- B. A 30% to 40% reduction in TP from the WWTPs has occurred since 2009/2010. Therefore, the overall TP to the Creek is presently approximately 80,000 lbs. The value stated in the TMDL exceeds reality by more than 200%.
- C. The present day TP load in the Creek from WWTPs is approximately 1/3 of the total TP load. In all tables within the draft TMDL, the TP load from WWTPs is presented as 55% of the total TP Load.
- D. Using actual historic values to calculate the model is understandable. However, the draft TMDL should not artificially overstate the TP load entering the Creek.

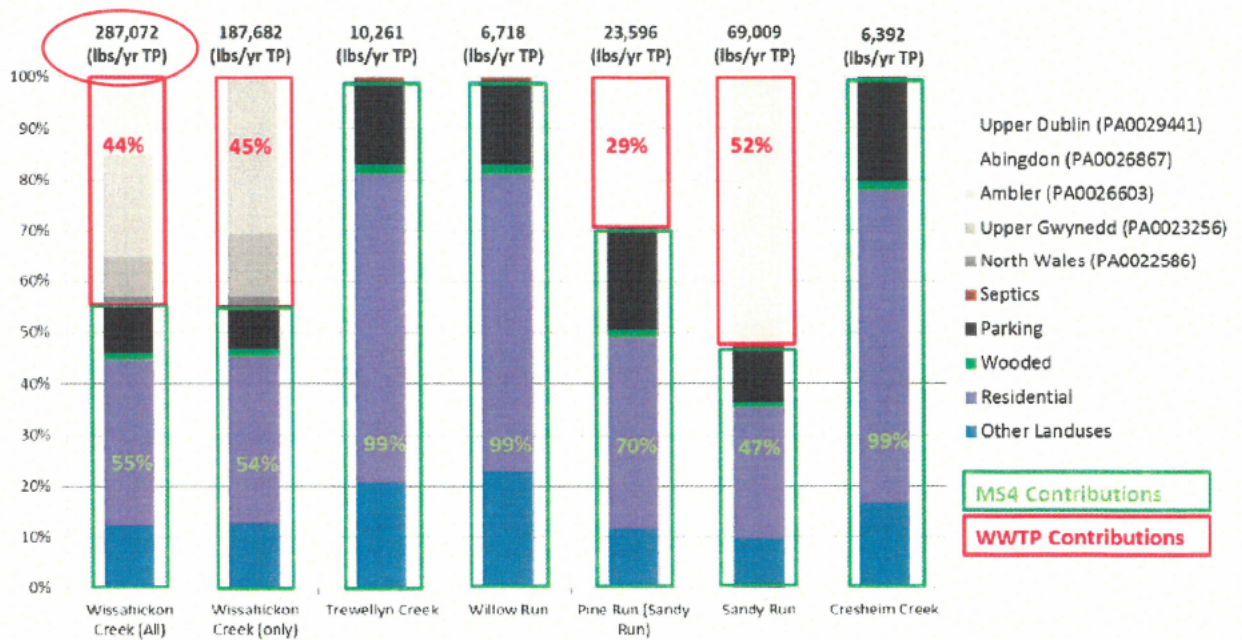


Figure 5-2. Distribution of existing TP loads by source and Allocation Group.

4. Table E-1

- A. The Baseline TP Load stated in all tables in the TMDL does not represent existing TP loadings from 2005-2006. It is an artificially calculated value, as correctly noted in the text at the bottom of the table and the definition of Effluent Discharge Rate stated

on page 59. Instead of using actual flow, the effluent discharge rate (annual average flow) for each WWTP was used. This overstates the TP from WWTPs 61,500 lbs/year, or 150%.

- B. As previously stated, the Allocated TP Load for the WWTPs were not calculated using the effluent discharge rate (annual average design flow) as defined on page 59, which EPA acknowledges is the flow rate used to establish NPDES permit limits. Instead, EPA utilized the actual historic 2005-2006 flow. There is a contradiction between page 59 and page 70 in the use of the term effluent discharge rate. Furthermore, actual historic flow rates should not be utilized to calculate future loading rates.
- C. The Total Point Source WWTP load should be 126,300 lbs./year as shown in Figure 5-2. In all tables, it should be clear that the WWTPs are less than half of the annual TP load to the Creek.

**Table E-1. Annual TMDL loads for TP for the Wissahickon Creek watershed.**

Source Group	Allocation Type	Source	Baseline TP Load* (lbs/year)	Allocated TP Load (lbs/year)	Percent Reduction (%)
Point Sources: WWTP	WLA	Upper Dublin (PA0029441)	9634.00	171.47	98.2
		Abington (PA0026867)	45734.00	361.45	99.2
		Ambler (PA0026603)	81115.00	798.63	99.0
		Upper Gwynedd (PA0023256)	47311.00	282.58	99.4
		North Wales (PA0022586)	3976.08	47.71	98.8
Point Sources: MS4	WLA	Abington (PAG130012)	9574.45	209.60	97.8
		Ambler (PAG130036)	2707.77	79.37	97.1
		Cheltenham (PAG130054)	576.99	27.82	95.2
		Horsham (PAG130157)	563.86	15.28	97.3
		Lansdale (PAG130038)	1912.30	26.03	98.6
		Lower Gwynedd (PAG130072)	23505.76	1458.61	93.8
		Montgomery (PAG130016)	5143.51	119.85	97.7
		North Wales (PAG130005)	1639.47	27.01	98.4
		Philadelphia (PA0054712)	24799.61	2404.14	90.3
		Springfield (PAG130130)	15038.23	641.87	95.7
		Upper Dublin (PAG130075)	30535.65	1587.65	94.8
		Upper Gwynedd (PAG130031)	12149.69	458.51	96.2
		Upper Moreland (PAG130019)	156.50	1.78	98.9
		Whitemarsh (PAG130103)	16595.84	1373.25	91.7
		Whitpain (PAG130137)	12295.91	784.40	93.6
Worcester (PAG130026)	314.64	9.82	96.9		
Nonpoint Sources	LA	Septics	2289.11	274.69	88.0
<b>Total Point Sources: WWTP</b>			<b>187770.08</b>	<b>1661.84</b>	<b>99.1</b>
<b>Total Point Sources: MS4</b>			<b>157510.18</b>	<b>9224.99</b>	<b>94.1</b>
<b>Total Nonpoint Sources</b>			<b>2289.11</b>	<b>274.69</b>	<b>88.0</b>
<b>Total</b>			<b>347569.37</b>	<b>11161.52</b>	<b>96.8</b>

\*For septics and MS4s, the baseline TP load represents existing TP loadings from 2005-2006. For WWTPs, baseline TP loads are calculated using observed phosphorus data and effluent discharge rate, or the flow used to calculate effluent limitations for a National Pollutant Discharge Elimination System (NPDES) permit.

5. EPA did not publish the output files from the model(s). EPA did make the input files available on its website, but there was not adequate time to obtain the files and verify the model was being run correctly, nor was there a way to know that the output generated matched the output from TetraTech. The Point Source data files do indicate that daily flow rates and effluent concentrations were entered for the WWTPs; however, EPA posted monthly average data for the WWTPs on its website. EPA did not furnish data to allow independent verification of the model input parameters.
6. The entire DRAFT Wissahickon Creek TMDL should be withdrawn, revised, and re-published for public comment for the following reasons:
  - A. The document artificially overstates the 2005-2006 TP load from WWTPs by 150%. Actual flows and actual concentrations should be used to calculate the actual baseline TP load from WWTPs;
  - B. The TP load from the WWTPs as stated in the DRAFT TMDL is 200+% the present annual TP load;
  - C. The TMDL uses the term Effluent Discharge Rate two different ways. On page 50 it means annual average flow as used to establish NPDES permit limits, but on page 70 and in Table 5-6 it means actual historic flow rates from 2005-2006;
  - D. Table 5-6 in its present form is misleading. Effluent Discharge Rate, as defined on page 59, is the appropriate flow rate to use for the Allocated TP values. The Allocated TP WLA needs to be increased for each WWTP; and,
  - E. The model should be re-run, and the TP Load from the North Wales WWTP should be allocated to one or more of the four WWTPs. A TMDL that allocates a load to a plant decommissioned two years ago does not represent reality.

EEMA appreciates the opportunity to submit these comments to EPA.

Very truly yours,  
Environmental Engineering &  
Management Associates, Inc.



William A. Brown II, P.E.  
Principal Engineer

Cc: Mary Aversa, Ambler Borough Manager