

National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for **New Philadelphia Wastewater Treatment Plant (WWTP)**

Public Notice No.: 15-04-031
Public Notice Date: April 15, 2015
Comment Period Ends: May 15, 2015

Ohio EPA Permit No.: **OPD00012*QD**
Application No.: **OH0026727**

Name and Address of Applicant:

City of New Philadelphia
150 East High Street
New Philadelphia, OH 44663

Name and Address of Facility Where
Discharge Occurs:

New Philadelphia WWTP
1422 Delaware Drive SE
New Philadelphia, OH 44663
Tuscarawas County

Receiving Water: Tuscarawas River

Subsequent Stream Network: Muskingum River, Ohio River

Introduction

Development of a Fact Sheet for NPDES permits is mandated by Title 40 of the Code of Federal Regulations (CFR), Section 124.8 and 124.56. This document fulfills the requirements established in those regulations by providing the information necessary to inform the public of actions proposed by the Ohio Environmental Protection Agency (Ohio EPA), as well as the methods by which the public can participate in the process of finalizing those actions.

This Fact Sheet is prepared in order to document the technical basis and risk management decisions that are considered in the determination of water quality based NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, instream biological, chemical and physical conditions, and the relative risk of alternative effluent limitations. This Fact Sheet details the discretionary decision-making process empowered to the Director by the Clean Water Act (CWA) and Ohio Water Pollution Control Law (Ohio Revised Code [ORC] 6111). Decisions to award variances to Water Quality Standards (WQS) or promulgated effluent guidelines for economic or technological reasons will also be justified in the Fact Sheet where necessary. No antidegradation review was necessary.

Effluent limits based on available treatment technologies are required by Section 301(b) of the CWA. Many of these have already been established by the United States Environmental Protection Agency (U.S. EPA) in the effluent guideline regulations (a.k.a. categorical regulations) for industry categories in 40 CFR Parts 405-499. Technology-based regulations for publicly-owned treatment works are listed in the Secondary Treatment Regulations (40 CFR Part 133). If regulations have not been established for a category of dischargers, the director may establish technology-based limits based on best professional judgment (BPJ).

Ohio EPA reviews the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations (WLAs) are used to develop these limits based on the pollutants that have been detected in the discharge, and the receiving water's assimilative capacity. The assimilative capacity depends on the flow in the water receiving the discharge, and the concentration of the pollutant upstream. The greater the upstream flow,

and the lower the upstream concentration, the greater the assimilative capacity is. Assimilative capacity may represent dilution (as in allocations for metals), or it may also incorporate the break-down of pollutants in the receiving water (as in allocations for oxygen-demanding materials).

The need for water-quality-based limits is determined by comparing the WLA for a pollutant to a measure of the effluent quality. The measure of effluent quality is called Projected Effluent Quality (PEQ). This is a statistical measure of the average and maximum effluent values for a pollutant. As with any statistical method, the more data that exists for a given pollutant, the more likely that PEQ will match the actual observed data. If there is a small data set for a given pollutant, the highest measured value is multiplied by a statistical factor to obtain a PEQ; for example if only one sample exists, the factor is 6.2, for two samples - 3.8, for three samples - 3.0. The factors continue to decline as samples sizes increase. These factors are intended to account for effluent variability, but if the pollutant concentrations are fairly constant, these factors may make PEQ appear larger than it would be shown to be if more sample results existed.

Summary of Permit Conditions

The effluent limits and monitoring requirements proposed for the following parameters are the same as in the previous permit, although some monitoring frequencies have changed: flow, temperature, precipitation, 5-day carbonaceous biochemical oxygen demand (CBOD₅), dissolved oxygen, *Escherichia coli* (*E. coli*), total phosphorus, ammonia, nitrate+nitrite, oil and grease, pH, cadmium, free cyanide, chromium, dissolved hexavalent chromium, copper, lead, nickel, total suspended solids, silver, and zinc.

Based on best engineering judgment (BEJ), monitoring is proposed for total filterable residue (total dissolved solids). No effluent data is available for this parameter, which is an emerging water quality issue for municipal wastewater treatment plants. The purpose of the monitoring is to obtain data on the level and variability of total filterable residue in the New Philadelphia WWTP effluent.

To be consistent with Ohio Administrative Code (OAC) 3745-33-05, the weekly average limit for mercury has been changed to a daily maximum limit. Silver and cadmium's monitoring frequency has been decreased.

Parts IV, V, and VI have been included with the draft permit to ensure that any storm water flows from the facility site are properly regulated and managed.

Annual acute toxicity monitoring is proposed for the life of the permit. This satisfies the minimum testing requirements of OAC 3754-33-07(B)(11) and will adequately characterize toxicity in the plant's effluent.

Phosphorus and nitrate+nitrite are being added to upstream monitoring station OPD00012801. The monitoring is to maintain a nutrient data set for use in the future Total Maximum Daily Load (TMDL) study. Temperature, dissolved oxygen, pH, and *Escherichia coli* have also been added for monitoring.

A compliance schedule is included for the City to develop a plan to discover and reduce infiltration and inflow (I/I) to the separate sewer system. A compliance schedule is also included for the City to submit an approvable collection system O/M Manual, which the permittee must follow once accepted.

This permit no longer authorizes the use of method 4500 CN-I from Standard Methods for free cyanide testing. As soon as possible, the permittee must begin using either ASTM D7237-10 or OIA-1677-09 both of which are approved methods for free cyanide listed in 40 CFR 136.

In Part II of the permit, special conditions are included that address sanitary sewer overflow (SSO) reporting; operator certification, minimum staffing and operator of record; whole effluent toxicity (WET) testing; pretreatment program requirements; and outfall signage.

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Procedures for Participation in the Formulation of Final Determinations

The draft action shall be issued as a final action unless the Director revises the draft after consideration of the record of a public meeting or written comments, or upon disapproval by the Administrator of the U.S. Environmental Protection Agency.

Within thirty days of the date of the Public Notice, any person may request or petition for a public meeting for presentation of evidence, statements or opinions. The purpose of the public meeting is to obtain additional evidence. Statements concerning the issues raised by the party requesting the meeting are invited. Evidence may be presented by the applicant, the state, and other parties, and following presentation of such evidence other interested persons may present testimony of facts or statements of opinion.

Requests for public meetings shall be in writing and shall state the action of the Director objected to, the questions to be considered, and the reasons the action is contested. Such requests should be addressed to:

**Legal Records Section
Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049**

Interested persons are invited to submit written comments upon the discharge permit. Comments should be submitted in person or by mail no later than 30 days after the date of this Public Notice. Deliver or mail all comments to:

**Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits Processing Unit
P.O. Box 1049
Columbus, Ohio 43216-1049**

The Ohio EPA permit number and Public Notice numbers should appear on each page of any submitted comments. All comments received no later than 30 days after the date of the Public Notice will be considered.

Citizens may conduct file reviews regarding specific companies or sites. Appointments are necessary to conduct file reviews, because requests to review files have increased dramatically in recent years. The first 250 pages copied are free. For requests to copy more than 250 pages, there is a five-cent charge for each page copied. Payment is required by check or money order, made payable to Treasurer State of Ohio.

For additional information about this fact sheet or the draft permit, contact Elizabeth Buening, (614) 644-2138, Elizabeth.buening@epa.ohio.gov.

Information Regarding Certain Water Quality Based Effluent Limits

This draft permit may contain proposed WQBELs for parameters that **are not** priority pollutants. (See the following link for a list of the priority pollutants:

http://epa.ohio.gov/portals/35/pretreatment/Pretreatment_Program_Priority_Pollutant_Detection_Limits.pdf .)

In accordance with ORC 6111.03(J)(3), the Director established these WQBELs after considering, to the extent consistent with the Federal Water Pollution Control Act, evidence relating to the technical feasibility and economic reasonableness of removing the polluting properties from those wastes and to evidence relating to conditions calculated to result from that action and their relation to benefits to the people of the state and to accomplishment of the purposes of this chapter. This determination was made based on data and information

available at the time the permit was drafted, which included the contents of the timely submitted NPDES permit renewal application, along with any and all pertinent information available to the Director.

This public notice allows the permittee to provide to the Director for consideration during this public comment period additional site-specific pertinent and factual information with respect to the technical feasibility and economic reasonableness for achieving compliance with the proposed final effluent limitations for these parameters. The permittee shall deliver or mail this information to:

**Ohio Environmental Protection Agency
Attention: Division of Surface Water
Permits Processing Unit
P.O. Box 1049
Columbus, Ohio 43216-1049**

Should the applicant need additional time to review, obtain or develop site-specific pertinent and factual information with respect to the technical feasibility and economic reasonableness of achieving compliance with these limitations, written notification for any additional time shall be sent to the above address no later than 30 days after the Public Notice Date on Page 1.

Should the applicant determine that compliance with the proposed WQBELs for parameters other than the priority pollutants is technically and/or economically unattainable, the permittee may submit an application for a variance to the applicable WQS used to develop the proposed effluent limitation in accordance with the terms and conditions set forth in OAC 3745-33-07(D). The permittee shall submit this application to the above address no later than 30 days after the Public Notice Date.

Alternately, the applicant may propose the development of site-specific WQS pursuant to OAC 3745-1-35. The permittee shall submit written notification regarding their intent to develop site specific WQS for parameters that are not priority pollutants to the above address no later than 30 days after the Public Notice Date.

Location of Discharge/Receiving Water Use Classification

New Philadelphia WWTP discharges to the Tuscarawas River at River Mile (RM) 53.63. Figure 1 shows the approximate location of the facility.

This segment of the Tuscarawas River is described by Ohio EPA River Code: 17-500, County: Tuscarawas, Ecoregion: Western Allegheny Plateau. The Tuscarawas River is designated for the following uses under Ohio's WQS (OAC 3745-1-07): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), Class A Primary Contact Recreation (PCR).

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (OAC 3745-1-07). The use designations for individual waterbodies are listed in rules -08 through -32 of the Ohio WQS. Once the goals are set, numeric WQS are developed to protect these uses. Different uses have different water quality criteria.

Use designations for aquatic life protection include habitats for coldwater fish and macroinvertebrates, warmwater aquatic life and waters with exceptional communities of warmwater organisms. These uses all meet the goals of the federal CWA. Ohio WQS also include aquatic life use designations for waterbodies which cannot meet the CWA goals because of human-caused conditions that cannot be remedied without causing fundamental changes to land use and widespread economic impact. The dredging and clearing of some small streams to support agricultural or urban drainage is the most common of these conditions. These streams are given Modified Warmwater [or MWH] or Limited Resource Water designations.

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (PCR) and wading only (Secondary Contact - generally waters too shallow for swimming or canoeing).

Water supply uses are defined by the actual or potential use of the waterbody. Public Water Supply designations apply near existing water intakes so that waters are safe to drink with standard treatment. Most other waters are designated for AWS and IWS.

Facility Description

New Philadelphia WWTP was constructed in 1953 and last upgraded in 2003. The average design flow is 4.5 million gallons per day (MGD) and the peak hydraulic capacity is 10.5 MGD. New Philadelphia WWTP has the following treatment processes which are shown on Figure 2:

- Influent pumping
- Bar screen
- Grit/Grease removal
- Fine screen
- Primary Sedimentation
- Activated Sludge
- Secondary Clarification
- Ultra-violet Disinfection

The City of New Philadelphia has 100 percent separated sewers in the collection system. The City of New Philadelphia does have an approved pretreatment program. The City of New Philadelphia has one categorical user that discharge 0.004 MGD of flow, five non-categorical users that discharge 0.096 MGD of flow, and two significant non-categorical users that discharge 0.4 MGD of flow.

New Philadelphia WWTP utilizes the following sewage sludge treatment processes:

- Aerobic Digestion
- Mechanical dewatering with a filter press
- Landfill or Sludge hauled to another NPDES permit holder

Treated sludge is disposed of in a municipal landfill. The last five years of sludge removed from New Philadelphia WWTP are: 423 dry tons in 2010, 379 dry tons in 2011, 315 dry tons in 2012, 367 dry tons in 2013, and 306 dry tons in 2014.

Description of Existing Discharge

New Philadelphia WWTP had several effluent violations which are shown on Table 1. These violations were not caused by a known process error or upset condition.

New Philadelphia WWTP estimates there is an infiltration/inflow (I/I) rate to the collection system of 0.3 MGD. The average annual effluent flow rate for New Philadelphia WWTP for the previous five years is presented on Table 2. New Philadelphia WWTP plans to initiate the following activities to minimize I/I: video monitoring, regular sewer inspections, and regular sewer repairs.

New Philadelphia WWTP reports SSOs at station 300. One SSO event was reported on September 17, 2009 and one SSO event was reported on March 29, 2011.

Table 3 presents chemical specific data compiled from data reported in annual pretreatment reports.

Table 4 presents chemical specific data compiled from data collected by Ohio EPA.

Table 5 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall OPD00012001. Data are presented for the period January 2010 through December 2014, and current permit limits are provided for comparison.

Table 6 summarizes the chemical specific data for outfall OPD00012001 by presenting the average and maximum PEQ values.

Table 7 summarizes the results of acute WET tests of the final effluent.

Table 8 summarizes the screening results of Ohio EPA bioassay sampling of the final effluent.

Assessment of Impact on Receiving Waters

The Tuscarawas River has been identified as a priority impaired water on Ohio's 303(d) list.

A TMDL report was approved for the Tuscarawas River watershed in September 15, 2009. An assessment of the impact of a permitted point source on the immediate receiving waters includes an evaluation of the available chemical/physical, biological, and habitat data which have been collected by Ohio EPA pursuant to the Five-Year Basin Approach for Monitoring and NPDES Reissuance. Other data may be used provided it was collected in accordance with Ohio EPA methods and protocols as specified by the Ohio WQS and Ohio EPA guidance documents. Other information which may be evaluated includes, but is not limited to: NPDES permittee self-monitoring data; effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

In evaluating this data, Ohio EPA attempts to link environmental stresses and measured pollutant exposure to the health and diversity of biological communities. Stresses can include pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. Indicators of exposure to these stresses include whole effluent toxicity tests, fish tissue chemical data, and fish health biomarkers (for example, fish blood tests).

Use attainment is a term which describes the degree to which environmental indicators are either above or below criteria specified by the Ohio WQS (OAC 3745-1). Assessing use attainment status for aquatic life uses primarily relies on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-15). These criteria apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on measuring several characteristics of the fish and macroinvertebrate communities; these characteristics are combined into multimetric biological indices including the Index of Biotic Integrity (IBI) and modified Index of Well-Being (MIwb), which indicate the response of the fish community, and the Invertebrate Community Index (ICI), which indicates the response of the macroinvertebrate community. Numerical criteria are broken down by ecoregion, use designation, and stream or river size. Ohio has five ecoregions defined by common topography, land use, potential vegetation and soil type.

Three attainment status results are possible at each sampling location -full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices fails meet the biocriteria. Nonattainment means that either none of the applicable indices meet the biocriteria or one of the organism groups indicates poor or very poor performance. An aquatic life use attainment table (see Table 9) is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (i.e., full, partial, or non), the Qualitative Habitat Evaluation Index (QHEI), and comments and observations for each sampling location.

The full TMDL report can be found at this website:

<http://www.epa.state.oh.us/dsw/tmdl/MuskingumRiver.aspx#120213158-tuscarawas-river>

The Tuscarawas River in the study area near New Philadelphia WWTP was evaluated by OEPA staff for aquatic life and recreational use potential during the 2003 to 2005 field seasons. This assessment included the collection of water chemistry and biological sampling at numerous sites in the mainstem Tuscarawas River and selected tributaries. A summary of the results from this assessment for the interactive segment covered in this report can be found in Table 13.

More information on the 2003 to 2005 sampling can be found in the OEPA document: "*Total Maximum Daily Loads for the Tuscarawas River Watershed*", OEPA, July 2009. This document is available through the OEPA, Division of Surface Water website: www.epa.state.oh.us/dsw/index.

Development of Water-Quality-Based Effluent Limits

Determining appropriate effluent concentrations is a multiple-step process in which parameters are identified as likely to be discharged by a facility, evaluated with respect to Ohio water quality criteria, and examined to determine the likelihood that the existing effluent could violate the calculated limits.

This facility is considered to be interactive with Greer Steel, Dover Municipal Power and Light, Dover WWTP, Arizona Chemical, and the Marlite Company. The CONSWLA (conservative substance wasteload allocation) model was used to distribute effluent loadings between these entities.

Parameter Selection

Effluent data for the New Philadelphia WWTP were used to determine what parameters should undergo wasteload allocation. The sources of effluent data are as follows:

The effluent data were checked for outliers and no values were removed. The average and maximum projected effluent quality (PEQ) values are presented in Table 6. For a summary of the screening results, refer to the parameter groupings at the end of this section.

The PEQ values are used according to Ohio rules to compare to applicable WQS and allowable WLA values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25 percent of the applicable WQS, the pollutant does not have the reasonable potential to cause or contribute to exceedances of WQS, and no WLA is done for that parameter. If either PEQ_{avg} or PEQ_{max} is greater than 25 percent of the applicable WQS, a WLA is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 13 for a summary of the screening results.

Reasonable Potential

The preliminary effluent limits are the lowest average WLA (average PEL) and the maximum WLA (maximum PEL). To determine the reasonable potential of the discharger to exceed the WLA for each parameter, the facility’s effluent quality is compared to the preliminary effluent limits. The average PEQ value (Table 6) is compared to the average PEL, and the maximum PEQ value is compared to the maximum PEL. Based on the calculated percentage of the respective average and maximum comparisons, the parameters are assigned to “groups”, as listed in Table 13.

Wasteload Allocation

The available assimilative capacity was distributed among them using the conservative substance wasteload allocation (CONSWLA) water quality model for conservative parameters. CONSWLA is the model Ohio EPA typically uses in multiple discharger situations. CONSWLA model inputs for flow are fixed at their critical low levels and inputs for effluent flow are fixed at their design or 50th percentile levels. Background concentrations are fixed at a representative value (generally a 50th percentile). A mass balancing method is then used to allocate effluent concentrations that maintain WQS under these conditions. This technique is appropriate when data bases are unavailable to generate statistical distributions for inputs and if the parameters modeled are conservative.

For those parameters that require a wasteload allocation (WLA), the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. The applicable waterbody uses for this facility’s discharge and the associated stream design flows are as follows:

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow (as specified in Table 11), and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

Ohio’s WQS implementation rules [OAC 3745-2-05(A)(2)(d)(iv)] required a phase out of mixing zones for bioaccumulative chemicals of concern (BCCs) as of November 15, 2010. This rule applied statewide. Mercury is a BCC. The mixing zone phase-out means that as of November 15, 2010 all dischargers requiring mercury limits in their NPDES permit must meet WQS at the end-of-pipe, which are 12 ng/l (average) and 1700 ng/l (maximum) in the Ohio River basin.

The data used in the WLA are listed in Tables 4 and 5. The wasteload allocation results to maintain all applicable criteria are presented in Table 12. The current permit limits for ammonia were evaluated and are adequate to maintain the WQS for ammonia. Therefore, ammonia will not be addressed further in this report.

Whole Effluent Toxicity WLA

Whole effluent toxicity (WET) is the total toxic effect of an effluent on aquatic life measured directly with a toxicity test. Acute WET measures short term effects of the effluent while chronic WET measures longer term and potentially more subtle effects of the effluent.

WQS for WET are expressed in Ohio's narrative "free from" WQS rule [OAC 3745-1-04(D)]. These "free froms" are translated into toxicity units (TUs) by the associated WQS Implementation Rule (OAC 3745-2-09). WLAs can then be calculated using TUs as if they were water quality criteria.

The allowable effluent toxicity (AET) is a factor considered in evaluating whole effluent toxicity. The AET calculations are similar to those for aquatic life criteria (using the chronic toxicity unit (TU_c) and 7Q10 for average and the acute toxicity unit (TU_a) and 1Q10 for maximum). For the New Philadelphia WWTP, the AET values are 1.0 TU_a and 36.5 TU_c .

The chronic toxicity unit (TU_c) is defined as 100 divided by the estimate of the effluent concentration which causes a 25% reduction in growth or reproduction of test organisms (IC_{25}):

$$TU_c = 100/IC_{25}$$

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations except when the following equation is more restrictive (*Ceriodaphnia dubia* only):

$$TU_c = 100/\text{geometric mean of No Observed Effect Concentration and Lowest Observed Effect Concentration}$$

The acute toxicity unit (TU_a) is defined as 100 divided by the concentration in water having 50% chance of causing death to aquatic life (LC_{50}) for the most sensitive test species:

$$TU_a = 100/LC_{50}$$

This equation applies outside the mixing zone for warmwater, modified warmwater, exceptional warmwater, coldwater, and seasonal salmonid use designations.

Reasonable Potential/ Effluent Limits/Hazard Management Decisions

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the WQS must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a WQS or do not require a WLA based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the preliminary effluent limits (PEL) based on the most restrictive average and maximum WLAs are selected from Table 6. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 6, and the PEL_{max} is compared to the PEQ_{max} . Based on the calculated percentage of the allocated value [$(PEQ_{avg} \div PEL_{avg}) \times 100$, or $(PEQ_{max} \div PEL_{max}) \times 100$], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 13.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 14 presents the final effluent limits and monitoring requirements proposed for New

Philadelphia WWTP outfall OPD00012001 and the basis for their recommendation. Unless otherwise indicated, the monitoring frequencies proposed in the permit are continued from the existing permit.

Water Temperature, Precipitation, and Flow Rate

Monitoring for these parameters is proposed to continue in order to evaluate the performance of the treatment plant.

Ammonia, Dissolved Oxygen, Total Suspended Solids, and 5-Day Carbonaceous Biochemical Oxygen Demand

The limits and monitoring proposed for dissolved oxygen, total suspended solids, and 5-day carbonaceous biochemical oxygen demand are all based on plant design criteria. These limits are protective of WQS. The limits proposed for ammonia are based on plant design criteria. The current ammonia limits have been evaluated using the WLA procedures and are protective of WQS for ammonia toxicity.

Oil & Grease, pH, and Escherichia coli

Limits proposed for oil and grease, pH, and *Escherichia coli* are based on WQS (OAC 3745-1-07). Class A PCR *E. coli* standards apply to the Tuscarawas River.

Nickel, Silver, Free Cyanide, Cadmium, Chromium, Zinc, Lead, and Dissolved Hexavalent Chromium

The Ohio EPA risk assessment (Table 13) places nickel, silver, free cyanide, cadmium, chromium, zinc, lead, and dissolved hexavalent chromium in groups 2 and 3. This placement, as well as the data in Tables 5 and 6, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring at a low frequency is proposed to continue from the existing permit and to document that these pollutants continue to remain at low levels.

Arsenic, Iron, Strontium, Molybdenum, Selenium, and Barium

The Ohio EPA risk assessment (Table 13) places arsenic, iron, strontium, molybdenum, selenium, and barium in groups 2 and 3. This placement, as well as the data in Tables 5 and 6, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. No new monitoring is proposed.

Total Filterable Residue

The Ohio EPA risk assessment (Table 13) places total filterable residue (total dissolved solids) in group 3. This placement, as well as the data in Tables 5 and 6, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. The purpose of the monitoring is to obtain data on the level and variability of total filterable residue in the effluent and because this parameter is an emerging water quality issue for municipal wastewater treatment plants.

Phosphorus and Nitrate+Nitrite

Monthly monitoring for phosphorus and nitrate+nitrite is proposed to continue based on BEJ. The purpose of the monitoring is to maintain a nutrient data set for use in the future TMDL study.

Copper

The Ohio EPA risk assessment (Table 13) places copper in group 5. This placement, as well as the data in Tables 5 and 6, indicates that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For this parameter, the PEQ is greater than 100 percent of the WLA or the PEQ is between 75 and 100 percent of the WLA and certain conditions exist that increase the risk to the environment. Pollutants that meet this requirement must have permit limits under OAC 3745-33-07(A)(1). The daily maximum concentration limit and daily maximum loading limit for copper is based on WQS.

Although the current WLA would allow slightly higher limits for copper, anti-backsliding provisions in the OAC prevent the imposition of less stringent limits than those in the existing permit unless specific conditions have been satisfied. In the case of the New Philadelphia WWTP, none of those conditions have been satisfied,

so the existing limits are proposed to continue. The anti-backsliding provisions of OAC 3745-33-05 require that an anti-degradation review must be completed before an existing permit limit can be made less stringent. The rule requires other conditions to be satisfied as well.

Mercury

The Ohio EPA risk assessment (Table 13) places mercury in group 5. This placement, as well as the data in Tables 5 and 6, indicates that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For these parameters, the PEQ is greater than 100 percent of the WLA or the PEQ is between 75 and 100 percent of the WLA and certain conditions exist that increase the risk to the environment. Pollutants that meet this requirement must have permit limits under OAC 3745-33-07(A)(1). To be consistent with OAC 3745-33-05, the weekly average limit for mercury has been changed to a daily maximum limit. The thirty day average concentration limit and the thirty day average loading limit for mercury is based on WQS. The daily maximum concentration limit and the daily maximum loading limit for mercury is based on WQS.

Whole Effluent Toxicity Reasonable Potential

Based on evaluating the WET data presented in Tables 7 and 8 and other pertinent data under the provisions of OAC 3745-33-07(B), the New Philadelphia WWTP is placed in Category 4 with respect to WET. While this indicates that the plant's effluent does not currently pose a toxicity problem, annual toxicity testing is proposed consistent with the minimum monitoring requirements at OAC 3754-33-07(B)(11). Annual acute toxicity monitoring is proposed for the life of the permit. The proposed monitoring will adequately characterize toxicity in the plant's effluent.

Additional Monitoring Requirements

Monitoring for phosphorus and nitrate + nitrite at the upstream station is proposed. The purpose of the monitoring is to maintain a nutrient data set for use in the future TMDL study.

Sludge

Limits and monitoring requirements proposed for the disposal of sewage sludge by the following management practices are based on OAC 3745-40: removal to sanitary landfill or transfer to another facility with an NPDES permit.

Other Requirements

Compliance Schedules

A 6 month compliance schedule is proposed for the City to submit a technical justification for either revising its local industrial user limits or retaining its existing local limits. If revisions to local limits are required, the City must also submit a pretreatment program modification request. Details are in Part I.C of the permit.

A compliance schedule is included for the City to develop a plan to discover and reduce infiltration and inflow (I/I) to the separate sewer system.

A compliance schedule is also included for the City to submit an approvable collection system O/M Manual and must follow it once approved.

Sanitary Sewer Overflow Reporting

Provisions for reporting SSOs are again proposed in this permit. These provisions include: the reporting of the system-wide number of SSO occurrences on monthly operating reports; telephone notification of Ohio EPA and the local health department, and 5-day follow up written reports for certain high risk SSOs; and preparation of an annual report that is submitted to Ohio EPA and made available to the public. Many of these provisions were already required under the "Noncompliance Notification", "Records Retention", and "Facility Operation and Quality Control" general conditions in Part III of Ohio NPDES permits.

Operator Certification and Operator of Record

Operator certification requirements have been included in Part II of the permit in accordance with rules adopted in December 2006 (OAC 3745-7-02). These rules require the New Philadelphia WWTP to have a Class III wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall 001. These rules also require the permittee to designate one or more operator of record to oversee the technical operation of the treatment works.

Low-Level Free Cyanide Testing

Currently there are two approved methods for free cyanide listed in 40 CFR 136.3 that have quantification levels lower than any water quality-based effluent limits:

- ASTM D7237-10 and OIA-1677-09 - Flow injection followed by gas diffusion amperometry

These methods will allow Ohio EPA make more reliable water quality-related decisions regarding free cyanide. Because the quantification levels are lower than any water quality-based effluent limits, it will also be possible to directly evaluate compliance with free cyanide limits.

New NPDES permits no longer authorize the use of method 4500 CN-I from Standard Methods for free cyanide testing. The new permits require permittees to begin using one of these approved methods as soon as possible. If a permittee must use method 4500 CN-I during the transition to an approved method, they are instructed to report the results on their DMR and enter "Method 4500 CN-I" in the remarks section.

Storm Water Compliance

Parts IV, V, and VI have been included with the draft permit to ensure that any storm water flows from the facility site are properly regulated and managed. As an alternative to complying with Parts IV, V, and VI, the New Philadelphia WWTP may seek permit coverage under the general permit for industrial storm water (permit # OHR000005) or submit a "No Exposure Certification." Parts IV, V, and VI will be removed from the final permit if: 1) the New Philadelphia WWTP submits a Notice of Intent (NOI) for coverage under the general permit for industrial storm water or submits a No Exposure Certification, 2) Ohio EPA determines that the facility is eligible for coverage under the general permit or meets the requirements for a No Exposure Certification, and 3) the determination by Ohio EPA can be made prior to the issuance of the final permit.

Outfall Signage

Part II of the permit includes requirements for the permittee to maintain a sign at each outfall to the Tuscarawas River providing information about the discharge. Signage at outfalls is required pursuant to OAC 3745-33-08(A).

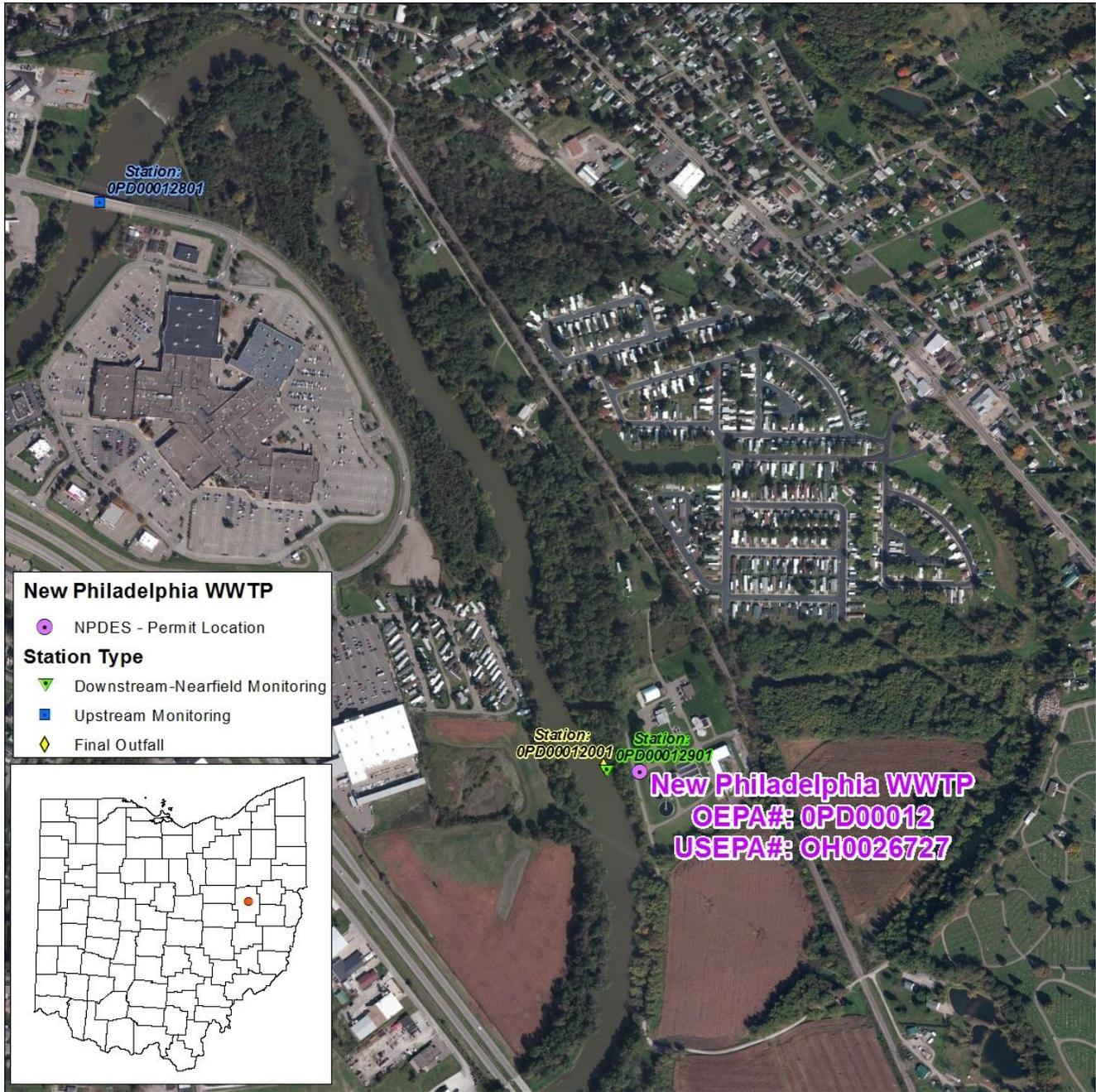


Figure 1. Location of New Philadelphia Wastewater Treatment Plant

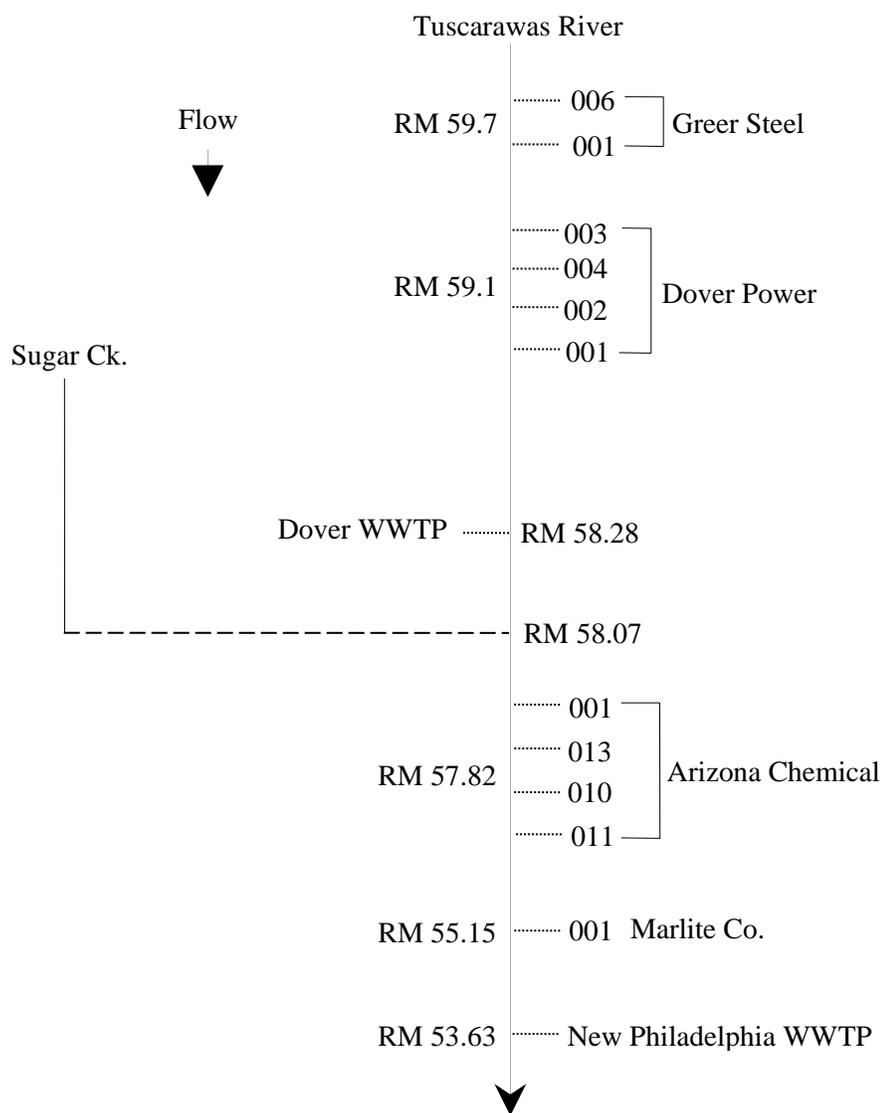


Figure 2. Tuscarawas River Study Area

Table 1. Effluent Violations for Outfall OPD00012001

Parameter	2010	2011	2012	2013	2014
E. Coli	0	1	0	0	0
Mercury	0	0	3	0	2
pH (minimum)	0	1	0	0	0
<i>Total</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>0</i>	<i>2</i>

Table 2. Average Annual Effluent Flow Rates

Year	Annual Flow in MGD		
	50th Percentile	95th Percentile	Maximum

2010	2.585	3.4022	5.219
2011	3.2115	4.167	5.494
2012	2.67	3.3645	4.687
2013	2.822	3.3907	6.517
2014	3.0065	3.8864	7.605

MGD = million gallons per day

Table 3. Effluent Characterization Using Pretreatment Data

Parameter (µg/L)	11/20/2013	11/13/2012	10/12/2010	11/12/2009
Arsenic	AA (10)	AA (10)	AA (10)	AA (10)
Cadmium	AA (10)	AA (10)	AA (10)	AA (10)
Chromium	AA (10)	AA (10)	AA (10)	AA (10)
Copper	AA (10)	20	76	AA (10)
Lead	79	AA (10)	AA (10)	AA (10)

Nickel	AA (10)	AA (10)	AA (10)	AA (10)
Selenium	AA (10)	AA (10)	AA (10)	AA (10)
Silver	AA (10)	AA (10)	AA (10)	AA (10)
Zinc	21	70	105	33.4

AA = not-detected (analytical method detection limit)

Table 4. Effluent Characterization Using Ohio EPA Data

Parameter	Units	Outfall 0PD00012001
Aluminum	mg/L	AA (200)
Ammonia	mg/L	0.061
Arsenic	µg/L	2.0
Barium	µg/L	39
Cadmium	µg/L	AA (0.2)
Calcium	mg/L	68
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	AA (2.0)
Chloride	mg/L	163

Chromium	µg/L	AA (2.0)
Copper	µg/L	5.1
Cyanide, Free	µg/L	AA (5.0)
Iron	mg/L	62
Lead	µg/L	AA (2.0)
Magnesium	µg/L	16
Manganese	µg/L	13
Mercury	µg/L	AA (0.2)
Nickel	µg/L	2.3
Nitrate+Nitrite	mg/L	9.92
Oil & Grease	mg/L	AA (2.1)
Phosphorus	mg/L	1.31
Selenium	µg/L	AA (2.0)
Silver	µg/L	0.24
Strontium	µg/L	121
Total Filterable Residue (Dissolved Solids)	mg/L	796
Total Kjeldahl Nitrogen	mg/L	1.72
Total Suspended Solids	mg/L	AA (5.0)
Zinc	µg/L	59

AA = not-detected (analytical method detection limit)

Table 5. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered discharge monitoring report for New Philadelphia outfall OPD00012001 (January 2010 - December 2014). All values are based on annual records unless otherwise indicated.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
Water Temperature	Annual	°C	--	Monitor	1826	16	22	9-23
Total Precipitation	Annual	Inches	--	Monitor	1823	0	0.7	0-2.47
Dissolved Oxygen	Summer	mg/L	--	Monitor	920	4.9	6.01	1.2-7.1
Dissolved Oxygen	Winter	mg/L	--	Monitor	905	6.3	7.6	1.9-75

Total Suspended Solids	Annual	mg/L	24	36 ^a	772	7	11	1-30
Total Suspended Solids	Annual	kg/day	409	613 ^a	749	75.8	141	11.2-358
Oil and Grease	Annual	mg/L	--	10 max	108	0	2.77	0-5.3
Ammonia	Annual	mg/L	10	15 ^a	773	0.53	3.404	0.01-6
Ammonia	Annual	kg/day	170	255 ^a	750	5.6989	39.481	0.069-70.84
Nitrate+Nitrite	Annual	mg/L	Monitor	--	60	10.3	23.7	0.42-24.5
Phosphorus	Annual	mg/L	Monitor	--	60	2.15	4.74	0.15-10.2
Cyanide, Free	Annual	mg/L	Monitor	--	18	0	0	0-0
Nickel	Annual	µg/L	Monitor	--	20	0	0	0-0
Silver	Annual	µg/L	Monitor	--	60	0	0	0-0
Zinc	Annual	µg/L	Monitor	--	20	40	57.4	0-65
Cadmium	Annual	µg/L	Monitor	--	60	0	0	0-0
Lead	Annual	µg/L	Monitor	--	20	0	90.4	0-173

Table 5. (Continued)

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50 th	95 th	
Chromium	Annual	µg/L	Monitor	--	20	0	0.65	0-13
Copper	Annual	µg/L	--	66 max	60	0	27.4	0-64
Copper	Annual	kg/day	--	1.12	56	0	0.304	0-0.723
Dissolved Hexavalent Chromium	Annual	µg/L	Monitor	--	56	0	0	0-10
E. coli	Annual	#/100 mL	126	284 ^a	352	26	163	2-356
Flow Rate	Summer	MGD	--	Monitor	871	2.81	3.71	1.51-7.61
Flow Rate	Winter	MGD	--	Monitor	898	2.88	3.91	1.01-6.52
Flow Rate	Annual	MGD	--	Monitor	1769	2.84	3.79	1.01-7.61

Mercury	Annual	ng/L	12	1700 max	56	1.87	15.5	0-27.9
Mercury	Annual	kg/day	0.0002	0.029	52	0.0000206	0.000141	0-0.000231
pH, Maximum	Annual	S.U.	--	9.0	1826	7.3	7.6	6.9-8.2
pH, Minimum	Annual	S.U.	--	6.5	1826	7.2	7.5	6.4-7.9
CBOD ₅	Annual	mg/L	20	30 ^a	741	2.6	5	0.69-10
CBOD ₅	Annual	kg/day	341	511 ^a	720	28.045	59.41	6.42-123.62

* = For minimum pH, 5th percentile shown in place of 50th percentile

** = For dissolved oxygen, 5th percentile shown in place of 95th percentile

a = weekly average

CBOD₅ = 5-day carbonaceous biochemical oxygen demand

MGD = Million gallons per day

Table 6. Projected Effluent Quality

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia (Summer)	mg/L	311	311	2.634	5.708
Ammonia (Winter)	mg/L	217	217	1.054	2.212
Arsenic	µg/L	5	1	5.548	7.6
Barium	µg/L	1	1	176.5	241.8
Cadmium	µg/L	69	0	--	--
Chromium	µg/L	21	1	12.34	16.9
Dissolved Hexavalent Chromium	µg/L	57	1	7.3	10
Copper	µg/L	71	8	55.48	76
Cyanide, Free	mg/L	17	0	--	--
Total Filterable Residue	mg/L	1	1	3603	4935
Iron	µg/L	1	1	280.6	384.4
Lead	µg/L	23	4	164.2	224.9

Mercury	ng/L	57	47	10.35	15.36
Magnesium	mg/L	1	1	72.42	99.2
Manganese	mg/L	1	1	58.84	80.6
Nickel	µg/L	22	1	9.49	13
Nitrate+Nitrite	mg/L	70	70	23.85	37.4
Phosphorus	mg/L	70	70	4.71	7.243
Silver	µg/L	69	0	--	--
Strontium	µg/L	1	1	547.7	750.2
Zinc	µg/L	27	26	79.05	117.9

PEQ = Projected Effluent Quality

Table 7. Summary of Acute Toxicity Test Results

Date	<i>Ceriodaphnia Dubia</i>	<i>Pimephales promelas</i>
	Acute Toxicity (TU _a)	Acute Toxicity (TU _a)
5/19/2010	AA (0.2)	AA (0.2)
5/12/2011	0.3	AA (0.2)
5/9/2012	AA (0.2)	AA (0.2)
5/8/2013	AA (0.2)	AA (0.2)
5/20/2014	AA (0.2)	AA (0.2)

AA = non-detection; analytical method detection limit of 0.2 TU_a, 1.0 TU_c

Table 8. Ohio EPA Toxicity Screening Results for Outfall OPD00012001

Collection Date	<i>Ceriodaphnia dubia</i>								<i>Pimephales promelas</i>							
	24 Hours				48 Hours				24 Hours				48 Hours			
	UP	C	%M	TU _a	UP	C	%M	TU _a	UP	C	%M	TU _a	UP	C	%M	TU _a
2/25/2013	0	0	0	ND	0	0	0	ND	0	0	0	ND	0	0	0	ND
2/26/2013	0	0	0	ND	0	5	0	ND	0	0	0	ND	0	0	0	ND
2/25/13- 2/26/13 ^a	0	0	0	ND	0	0	0	ND	0	0	0	ND	0	0	0	ND

^a = 24-hour composite sample

C = laboratory control water

%M = percent mortality in 100% effluent

ND = not determined

TU_a = acute toxicity units

UP = percent mortality in upstream control water

Table 9. Use Attainment Table

Tuscarawas River			
River Mile	Aquatic Life Use Designation	Attainment Status	Location
63.1	WWH	FULL	Downstream of Dover Dam
61.9	WWH	FULL	Upstream of State Route 10
55.6	WWH	FULL	Upstream of Broadway Ave.; Downstream of Dover WWTP
54.2	WWH	FULL	Upstream of New Philadelphia WWTP
53.5	WWH	FULL	Downstream of New Philadelphia WWTP

WWH = Warmwater Habitat

WWTP = Wastewater Treatment Plant

Table 10. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
		Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Arsenic	µg/L	--	100	150	340	680
Barium	µg/L	--	--	220	2000	4000
Cadmium	µg/L	--	50	5.3	14	27
Chromium	µg/L	--	100	190	4000	8100
Dissolved Hexavalent Chromium	µg/L	--	--	11	16	31
Copper	µg/L	1300	500	22	35	71
Cyanide, Free	mg/L	220	--	0.012	0.046	0.092
Total Filterable Residue	mg/L	--	--	1500	--	--
Iron	µg/L	--	5000	--	--	--
Lead	µg/L	--	100	22	430	850
Mercury	ng/L	12	10000	910	1700	3400
Molybdenum	µg/L	--	--	20000	190000	370000
Nickel	µg/L	4600	200	120	1100	2100
Nitrate+Nitrite	mg/L	--	100	--	--	--
Selenium	µg/L	11000	50	5	--	--
Silver	µg/L	--	--	1.3	8.6	17
Strontium	µg/L	--	--	21000	40000	81000
Zinc	µg/L	69000	25000	270	270	550

Table 11. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
1Q10	cfs	annual	83	USGS Station 03122500; 1937-1991 data
7Q10	cfs	annual	203	USGS Station 03122500; 1937-1991 data
Harmonic Mean	cfs	annual	658	USGS Station 03122500; 1937-1991 data
Mixing Assumption	%	average	100	Stream-to-discharge ratio
Mixing Assumption	%	maximum	100	Stream-to-discharge ratio
Instream Hardness	mg/L	annual	266	STORET; 23 values, 0<MDL, 2012-2013
New Philadelphia WWTP flow	cfs	annual	6.96	NPDES Renewal Application
Arsenic	µg/L	annual	2.9	STORET; 9 values, 7<MDL, 2012
Barium	µg/L	annual	60.4	STORET; 9 values, 0<MDL, 2012
Cadmium	µg/L	annual	0	STORET; 9 values, 9<MDL, 2012
Chromium	µg/L	annual	0	STORET; 9 values, 7<MDL, 2012
Dissolved Hexavalent Chromium	µg/L	annual	0	No representative data available.
Copper	µg/L	annual	1.3	STORET; 9 values, 0<MDL, 2012
Cyanide, Free	mg/L	annual	0	No representative data available.
Total Filterable Residue	mg/L	annual	534	STORET; 9 values, 0<MDL, 2012
Lead	µg/L	annual	0	STORET; 9 values, 9<MDL, 2012
Mercury	ng/L	annual	0	No representative data available.
Molybdenum	µg/L	annual	0	No representative data available.
Nickel	µg/L	annual	7.6	STORET; 9 values, 0<MDL, 2012
Nitrate+Nitrite	mg/L	annual	1.9	STORET; 9 values, 4<MDL, 2012
Selenium	µg/L	annual	0	No representative data available.
Silver	µg/L	annual	0	No representative data available.
Strontium	µg/L	annual	0	No representative data available.
Zinc	µg/L	annual	9	STORET; 9 values, 0<MDL, 2012

WWTP = Wastewater Treatment Plant

DMR = Discharge Monitoring Report

USGS = United States Geological Survey

MDL = Method Detection Limit

STORET = United States Environmental Protection Agency STORage and RETrieval Data Warehouse

Table 12. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum Aquatic Life	
		Human Health	Agri-culture	Aquatic Life		
Arsenic	µg/L	--	5929	2790	3576	680
Barium	µg/L	--	--	3273	20760	4000
Cadmium	µg/L	--	3030	100	148	27
Chromium	µg/L	--	6003	3568	42260	8000
Dissolved Hexavalent Chromium	µg/L	--	--	208	169	31
Copper	µg/L	77989	29870	371	353	70
Cyanide, Free	mg/L	13330	--	0.23	0.49	0.092
Total Filterable Residue	mg/L	--	--	20640	--	--
Lead	µg/L	--	6060	415	4544	850
Mercury	ng/L	12	10000	910	1700	3400
Molybdenum	µg/L	--	--	377400	2008000	370000
Nickel	µg/L	278400	11770	2176	11590	2100
Selenium	µg/L	666600	3030	94	--	--
Silver	µg/L	--	--	25	91	17
Zinc	µg/L	418100	1515000	4991	2807	550

Table 13. Parameter Assessment

<i>Group 1:</i>	Due to a lack of criteria, the following parameters could not be evaluated at this time.			
	Phosphorus	Magnesium	Manganese	
<i>Group 2:</i>	PEQ < 25 percent of WQS or all data below minimum detection limit. WLA not required. No limit recommended; monitoring optional.			
	Arsenic	Chromium	Nitrate+Nitrite	Iron
	Molybdenum	Nickel	Silver	Selenium
	Cyanide, Free	Cadmium	Strontium	
<i>Group 3:</i>	PEQ _{max} < 50 percent of maximum PEL and PEQ _{avg} < 50 percent of average PEL. No limit recommended; monitoring optional.			
	Dissolved Hexavalent Chromium		Lead	Ammonia
	Total Filterable Residue		Barium	Zinc
<i>Group 4:</i>	PEQ _{max} >= 50 percent, but < 100 percent of the maximum PEL or PEQ _{avg} >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.			
	No Parameters meet these criteria			
<i>Group 5:</i>	Maximum PEQ >= 100 percent of the maximum PEL or average PEQ >= 100 percent of the average PEL, or either the average or maximum PEQ is between 75 and 100 percent of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.			

Limits to Protect Numeric Water Quality Criteria

<u>Parameter</u>	<u>Units</u>	<u>Period</u>	<u>Recommended Effluent Limits</u>	
			<u>Average</u>	<u>Maximum</u>
Copper	µg/L	annual	--	70

Mercury

ng/L

annual

12

1700

PEQ = Projected Effluent Quality

PEL = Projected Effluent Limit

WLA = wasteload allocation

WQS = water quality standard

Table 14. Final Effluent Limits for Outfall OPD00012001

Parameter	Units	Concentration		Loading (kg/day) ^a		Basis ^b
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Acute Toxicity						
<i>Ceriodaphnia dubia</i>	TU _a	----- Monitor -----				WET
<i>Pimephales promelas</i>	TU _a	----- Monitor -----				WET
Ammonia	mg/L	10	15 ^c	170	255 ^c	EP, PD
Cadmium	µg/L	----- Monitor -----				EP, M
CBOD ₅	mg/L	20	30 ^c	341	511 ^c	EP, PD
Chromium	µg/L	----- Monitor -----				EP, M
Copper	µg/L	--	66	--	1.12	EP, RP
Cyanide, Free	mg/L	----- Monitor -----				EP, M
Dissolved Oxygen	mg/L	----- Monitor -----				EP, PD
<i>E. coli</i> (Final)						
Summer Only	#/100 mL	126	284 ^c	--	--	WQS, EP
Flow Rate	MGD	----- Monitor -----				EP, M
Dissolved Hexavalent Chromium	µg/L	----- Monitor -----				EP, M
Lead	µg/L	----- Monitor -----				EP, M
Mercury	ng/L	12	1700	0.00020	0.029	EP, RP
Nickel	µg/L	----- Monitor -----				EP, M
Nitrate+Nitrite	mg/L	----- Monitor -----				EP, M
Oil & Grease	mg/L	--	10	--	--	WQS, EP
pH	SU	6.5 - 9.0		--	--	WQS, EP
Phosphorus	mg/L	----- Monitor -----				EP, M
Silver	µg/L	----- Monitor -----				EP, M
Total Filterable Residue	mg/L	----- Monitor -----				BEJ
Total Precipitation	Inches	----- Monitor -----				EP, M
Total Suspended Solids	mg/L	24.0	36 ^c	409	613 ^c	EP, PD
Water Temperature	°C	----- Monitor -----				EP, M
Zinc	µg/L	----- Monitor -----				EP, M

a = Effluent loadings based on average design discharge flow of 4.5 MGD.

b = Definitions

BEJ = Best Engineering Judgment

EP = Existing Permit

M = BEJ of Division of Surface Water NPDES Permit Guidance 1: Monitoring frequency requirements for Sanitary Discharges

RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A))

WET = Whole Effluent Toxicity (CFR 40 part 132, Great Lakes Initiative procedure 6 and OAC 3745-33-07(B))

WQS = Ohio Water Quality Standards (OAC 3745-1)

c = Weekly average limit

CBOD₅ = 5-day carbonaceous biochemical oxygen demand

PD = Plant Design

MGD = Million gallons per day

S.U. = Standard Units

TU_a = acute toxicity units