National Pollutant Discharge Elimination System (NPDES) Permit Program

F A C T S H E E T

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for Englewood Wastewater Treatment Plant

Public Notice No.: 12-03-068
Public Notice Date: March 30, 2012
Comment Period Ends: April 30, 2012

OEPA Permit No.: 1PD00001*OD
Application No.: OH0025011

Name and Address of Applicant:

City of Englewood
800 Englewood Drive
Englewood, Ohio 45322

Name and Address of Facility Where Discharge Occurs:

Englewood Wastewater Treatment Plant
800 Englewood Drive
Englewood, Ohio

Receiving Water: Stillwater River

Subsequent Stream Network: Great Miami River, Ohio River

Introduction

Development of a Fact Sheet for NPDES permits is mandated by Title 40 of the Code of Federal Regulations, 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, 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 and Ohio Water Pollution Control Law (ORC 6111). Decisions to award variances to Water Quality Standards or promulgated effluent guidelines for economic or technological reasons will also be justified in the Fact Sheet where necessary.

Effluent limits based on available treatment technologies are required by Section 301(b) of the Clean Water Act. Many of these have already been established by 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 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 wasteload allocation for a pollutant to a measure of the effluent quality. The measure of effluent quality is called PEQ - Projected Effluent Quality. 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 current permit, although some monitoring frequencies have changed: flow, temperature, dissolved oxygen, $CBOD_5$, total suspended solids, ammonia-nitrogen, total phosphorus, nitrite+nitrate-nitrogen, oil and grease, pH, total residual chlorine, cadmium, chromium, copper, lead, mercury, nickel and zinc.

Final effluent limits are proposed for *Escherichia coli*. New water quality standards for *E. coli* became effective in March 2010. A compliance schedule is proposed for meeting these new final effluent limits. Based on best engineering judgment, it is proposed that the plant comply with its current fecal coliform limits during the interim period.

New monitoring is proposed for total Kjeldahl nitrogen, barium and total filterable residue (total dissolved solids) in the final effluent and for nitrite+nitrate-nitrogen and total phosphorus at the upstream and downstream stations.

Annual chronic toxicity monitoring with the determination of acute endpoints 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.

In Part II of the permit, special conditions are included that address sanitary sewer overflow reporting; operator certification, minimum staffing and operator of record; group 4 tracking provisions for copper; participation in the Great Miami River Watershed Water Quality Credit Trading Program; whole effluent toxicity testing; 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 and Compliance Section
P.O. Box 1049
Columbus, Ohio 43216-1049

The OEPA 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 Gary Stuhlfauth, (614) 644-2026, Gary.Stuhlfauth@epa.ohio.gov .

Location of Discharge/Receiving Water Use Classification

The Englewood wastewater treatment plant discharges at river mile 8.86 to the Stillwater River. The approximate location of the facility is shown in Figure 1.

This segment of the Stillwater River is described by Ohio EPA River Code: 14-200, U.S. EPA River Reach #: 05080001-14-06, County: Montgomery, Ecoregion: Eastern Corn Belt Plains. The Stillwater River is designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-21): Exceptional Warmwater Habitat (EWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and 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 water quality standards 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 Clean Water Act. Ohio WQS also include aquatic life use designations for waterbodies which can not meet the Clean Water Act goals because of human-caused conditions that can not 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 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 (Primary Contact) 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 agricultural and industrial water supply.

Facility Description

The Englewood wastewater treatment plant has an average daily design flow of 2.5 million gallons per day (MGD). Wet stream processes are bar racks, coarse and fine screening, grit removal, activated sludge aeration, final clarification, chlorination, dechlorination and post aeration. Solid stream processes are aerobic digestion, dewatering with a belt filter press, N-Viro Advanced Alkaline Biosolids Stabilization and disposal by land application or distribution and marketing.

The City has a separate sanitary sewer system and does not implement an Ohio EPA-approved industrial pretreatment program.

Description of Existing Discharge

Table 1 presents chemical specific data compiled from data collected by Ohio EPA.

Table 2 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 1PD00001001. Data are presented for the period May 2006 through April 2011, and current permit limits are provided for comparison.

Table 3 summarizes the chemical specific data for outfall 001 by presenting the average and maximum Projected Effluent Quality (PEQ) values.

Table 4 summarizes the results of acute screening whole effluent toxicity tests of the final effluent.

Under the provisions of 40 CFR 122.21(j), the Director has waived the requirement for submittal of expanded effluent testing data as part of the NPDES renewal application. Ohio EPA has access to substantially identical information through the submission of annual pretreatment program reports and/or from effluent testing conducted by the Agency.

Assessment of Impact on Receiving Waters

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 Water Quality Standards 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 Water Quality Standards (WQS; Ohio Administrative Code 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 meet the biocriteria or one of the organism groups reflects poor or very poor performance. 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 fact sheet Figure 2) 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 following is an excerpt from the report *Total Maximum Daily Loads for the Stillwater River Watershed, Final Report* (August 3, 2009; Ohio EPA):

> (In 1999) Approximately sixty-six miles of the Stillwater River were assessed for the status of aquatic life uses and attainability of those uses. The Stillwater River is designated Warmwater Habitat (WWH) from its headwaters to Biesner Road (RM 57.0), and Exceptional Warmwater Habitat (EWH) from Biesner Road to the confluence with the Great Miami River. The WWH designation is not attainable upstream from Woodington Run/Ansonia (RM 61.8) as the river there is under active channel maintenance. Therefore, the appropriate and attainable aquatic life use designation is Modified Warmwater Habitat (MWH). The WWH designated segment should be extended downstream to Shroeder Road (RM 52.0) as the stream between RMs 57 and 52 has been previously channelized and has not recovered enough warmwater habitat attributes, either over time or due to proximity to the actively maintained headwaters, to make EWH a realistic use. Based on these adjusted use recommendations, the attainment status for the sixty-six miles of Stillwater River mainstem are 3.3 miles not attaining, 8.2 miles partially attaining and 55.0 miles fully attaining aquatic life uses. Aquatic life use impairment in the headwaters upstream from Ansonia is being caused by organic enrichment from land applied manure combined with poor habitat. Impairment downstream from Ansonia is being caused by a combination of organic and nutrient enrichment from CSOs (Ansonia), wastewater loadings (Ansonia and Versailles) and manure (North Fork and Swamp Creek), and by the downstream footprint resulting from keeping the headwaters maintained in a channelized state.
>
> *In 1999, a small reach of partial attainment also existed in and downstream from the Englewood dam pool. The impairment in the dam pool was caused by nutrient enrichment and siltation. The impairment downstream of the dam was due to a combination of being immediately downstream from the Englewood dam and wastewater loadings from the treatment plant.*
>
> *In 2008, biological assessments were completed upstream of the impoundment, within the impoundment, and downstream of both the impoundment and Englewood WWTP. The 2008 assessment showed that there is minimal nutrient enrichment downstream of the Englewood WWTP as observed using dissolved oxygen traces and benthic algae sampling (chlorophyll a).*

The complete TMDL report is available at the following Ohio EPA web site:
http://www.epa.ohio.gov/dsw/tmdl/StillwaterRiverTMDL.aspx .

Ohio EPA conducted additional survey work in the vicinity of Englewood during 2010 and 2011 to assess the impact of the removal of the low-head dam. The following is an excerpt from the report *Biological and Habitat Study of the Stillwater River, 2008, 2010 and 2011, Five Rivers Metropark – Englewood Reserve Dam Removal* (February 17, 2012; Ohio EPA):

> Ohio EPA completed fish and macroinvertebrate sampling within the Englewood Reserve – Five Rivers Metropark low head dam pool, as well as upstream and downstream locations, in 2008 and 2010. During 2011 only fish sampling was conducted, and only at RM 9.5. Removal of the Englewood Reserve low head dam in September 2009 has resulted in improved habitat conditions for both macroinvertebrate and fish communities. The aquatic communities reflect the improved habitat conditions with significant increases in species/taxa richness and the associated biological community index scores (Tables 2 and 4). Physical habitat within the former dam pool improved as reflected by modest increases in Qualitative Habitat Evaluation Index (QHEI) scores pre- and post- removal at the former dam pool sampling location (Tables 2 and 3). Physical habitat scores within the dam pool improved from fair (QHEI = 53.0) to good (QHEI = 72.5) two years since the removal of the dam. QHEI scores should continue to improve to an excellent rating as the free-flowing habitat conditions evolve and stabilize within the prior impounded reach. With removal of the Englewood Reserve low head dam, full EWH aquatic life use attainment has been realized and the impairment of 1.3 miles within the former impoundment has been eliminated.
>
> In 2008, prior to the Englewood Reserve dam removal, the fish community within its dam pool (RM 9.5) included two pollution intolerant species while in 2011, 6 pollution intolerant species (black redhorse, river redhorse, river chub, silver shiner, rosyface shiner, and banded darter) were collected in the newly freeflowing reach (Table 4). Index of Biotic Integrity (IBI) scores improved from 40 in 2008 to 41 in 2010 and 45 in 2011 (Table 2). In 2008, the monotypic pool habitat did not provide diverse niches for a variety of species, and the total number of species collected was 24, while in the free-flowing upstream and downstream reaches (RMs 11.1 and 8.5) high quality habitat supported a total of 34 and 30 species, respectively. Though the habitat is still improving in the reach previously impounded by the Englewood Reserve dam (Table 3), the total number of fish species increased to 28 in 2011.
>
> The macroinvertebrate community showed a significant improvement with the removal of the Englewood Reserve dam (Tables 2 and 5). The impounded site (RM 9.5) improved from an Invertebrate Community Index (ICI) score of 34 in 2008 (pre-removal) to an ICI of 52 in 2010, one year after the Englewood Reserve dam was removed. Other significant macroinvertebrate improvements between 2008 and 2010 at the impounded site turned flee-flowing included: number of sensitive taxa increased from 15 to 25, total pollution tolerant taxa declined from 8 to 3, and Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa richness increased from 18 to 25 (Figure 2).

The complete report is available at the following Ohio EPA web site:
http://www.epa.ohio.gov/portals/35/documents/2009StillwaterTSD.pdf .

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.

Parameter Selection Effluent data for the Englewood wastewater plant were used to determine what parameters should undergo wasteload allocation. The parameters discharged are identified by the data available to Ohio EPA - Discharge Monitoring Report (DMR) data submitted by the permittee, compliance sampling data collected by Ohio EPA, and any other data submitted by the permittee, such as priority pollutant scans required by the NPDES application or by pretreatment, or other special conditions in the NPDES permit. The sources of effluent data used in this evaluation are as follows:

Self-monitoring data (DMR)	May 2006 through April 2011
Ohio EPA compliance sampling data	2010

The data were examined, and the following values were removed from the evaluation to give a more reliable projection of effluent quality: zinc – one very high value; total residual chlorine – 26 (out of 894) high values; mercury – six high values.

This data is evaluated statistically, and Projected Effluent Quality (PEQ) values are calculated for each pollutant. Average PEQ (PEQ_{avg}) values represent the 95^{th} percentile of monthly average data, and maximum PEQ (PEQ_{max}) values represent the 95^{th} percentile of all data points. The average and maximum PEQ values are presented in Table 3.

The PEQ values are used according to Ohio rules to compare to applicable water quality standards (WQS) and allowable wasteload allocation (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 wasteload allocation is done for that parameter. If either PEQ_{avg} or PEQ_{max} is greater than 25 percent of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 8 for a summary of the screening results.

Wasteload Allocation For those parameters that require a WLA, the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio Water Quality Standards (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. Wasteload allocations using this method are done using the following general equation: Discharger WLA = (downstream flow x WQS) - (upstream flow x background concentration). Discharger WLAs are divided by the discharge flow so that the allocations are expressed as concentrations.

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
Ammonia	Average	Summer 30Q10
		Winter 30Q10
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 6, and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

Ohio's water quality standard 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 water quality standards at the end-of-pipe, which is a monthly average of 12 ng/l in the Ohio River basin.

The data used in the WLA are listed in Tables 5 and 6. The wasteload allocation results to maintain all applicable criteria are presented in Table 7. The current ammonia limits have been evaluated using the wasteload allocation procedures and are protective of water quality standards for ammonia toxicity.

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.

Water quality standards 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). Wasteload allocations can then be calculated using TUs as if they were water quality criteria.

The wasteload allocation calculations for WET are similar to those for aquatic life criteria - using the chronic toxicity unit (TU_c) and 7Q10 flow for the average and the acute toxicity unit (TU_a) and 1Q10 flow for the maximum. These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For Englewood, the wasteload allocation values are 1.0 TU_a and 5.13 TU_c.

The chronic toxicity unit (TU_c) is defined as 100 divided by the 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):

$$TU_c = 100/\text{geometric mean of NOEC and LOEC}$$

The acute toxicity unit (TU_a) is defined as 100 divided by the 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 water quality standards must be determined. Each parameter is examined and placed in a defined "group". Parameters that do not have a water quality standard or do not require a wasteload allocation 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 wasteload allocations are selected from Table 7. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 3, and the PEL_{max} is compared to the PEQ_{max}. Based on the calculated percentage of the allocated value [($PEQ_{avg} \div PEL_{avg}$) X 100, or ($PEQ_{max} \div PEL_{max}$) X 100)], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 8.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 9 presents the final effluent limits and monitoring requirements proposed for Englewood outfall 1PD00001001 and the basis for their recommendation.

Based on best engineering judgment, it is proposed that the existing limits for dissolved oxygen, total suspended solids, ammonia-nitrogen and 5-day carbonaceous biochemical oxygen demand ($CBOD_5$) be continued. These limits are protective of water quality standards.

The limits recommended for suspended solids and the winter $CBOD_5$ limits are technology-based treatment standards included in 40 CFR Part 133, Secondary Treatment Regulation. Secondary treatment is defined by the Best Practicable Waste Treatment Technology criteria, which are minimum standards required of all publicly owned treatment works.

Limits proposed for oil and grease, pH, and *Escherichia coli* are based on Water Quality Standards (OAC 3745-1-07). Class A Primary Contact Recreation *E. coli* standards apply to the Stillwater River.

Water quality standards for *E. coli* became effective in March 2010, and a compliance schedule is proposed for meeting these new final effluent limits no later than May 1, 2013. The schedule provides time during the summer disinfection season for the plant to evaluate the ability of its existing disinfection system to achieve the new limits and to make operational changes or equipment upgrades if necessary. Based on best engineering judgment, it is proposed that the plant comply with its current fecal coliform limits during the interim period.

The proposed limit for total residual chlorine is based on wasteload allocation as limited by the inside mixing zone maximum (IMZM). The IMZM is a value calculated to avoid rapidly lethal conditions in the effluent mixing zone. This is a continuation of the existing permit limit.

A continuation of monitoring for total phosphorus and nitrite+nitrate-nitrogen, plus new monitoring for total Kjeldahl nitrogen are proposed based on best engineering judgment. In addition, monitoring for total phosphorus and nitrite+nitrate-nitrogen is proposed at the upstream and downstream stations, 801 and 901. The Englewood wastewater plant discharges to the Stillwater River, which is part of the Great Miami River basin. The purpose of the monitoring is to maintain a data base on nutrient loadings and ambient concentrations in the basin. This data will be available for future studies addressing nutrient-related water quality impairment.

The Ohio EPA risk assessment (Table 8) places mercury in group 5. This placement as well as the data in Tables 2 and 3 indicate 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 wasteload allocation. Pollutants that meet this requirement must have permit limits under OAC Rule 3745-33-07(A)(1). The proposed limits are based on wasteload allocation and are a continuation of existing permit conditions.

Based on the mercury data submitted on its monthly discharge monitoring reports, the Englewood wastewater plant might not be able to consistently comply with the proposed monthly average effluent limit of 12 ng/l. If the City decides to pursue coverage under Ohio's mercury variance rule after the effective date of the permit renewal, it must submit a mercury variance application, a permit modification request, an antidegradation addendum and the appropriate fees. Information on applying for mercury variance coverage is available at the following Ohio EPA web site: http://epa.ohio.gov/dsw/permits/technical_assistance.aspx .

Ohio EPA risk assessment (Table 8) places barium and copper in group 4. This placement as well as the data in Tables 1, 2 and 3 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 for Group 4 pollutants (where PEQ exceeds 50 percent of the WLA) is required by OAC Rule 3745-33-07(A)(2).

In addition, the copper effluent quality falls within 75 percent of the wasteload allocation. Under OAC 3745-33-07(A)(2), parameters in this range must have a tracking requirement in the permit that specifies reductions in pollutant concentrations if effluent concentrations exceed the WLA. The tracking/reduction requirements are included in Part II Item L of the draft permit.

Ohio EPA risk assessment (Table 8) places cadmium, total chromium, lead, nickel, zinc and total filterable residue (total dissolved solids) in groups 2 and 3. This placement as well as the data in Tables 1, 2 and 3 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 document that these pollutants continue to remain at low levels.

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

Additional monitoring requirements proposed at the final effluent, influent and upstream/downstream stations are included for all facilities in Ohio and vary according to the type and size of the discharge. In addition to permit compliance, this data is used to assist in the evaluation of effluent quality and treatment plant performance and for designing plant improvements and conducting future stream studies.

Whole Effluent Toxicity Reasonable Potential

Annual chronic toxicity monitoring with the determination of acute endpoints is proposed for the life of the permit. Evaluating the toxicity data presented in Table 4 and other pertinent data under the provisions of OAC 3745-33-07(B) placed the Englewood wastewater plant in Category 4 with respect to whole effluent toxicity. 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). The proposed monitoring will adequately characterize toxicity in the plant's effluent.

Other Requirements

Sanitary Sewer Overflow Reporting
Provisions for reporting sanitary sewer overflows (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
Operator certification requirements have been included in Part II, Item A of the permit in accordance with rules adopted in December 2006. These rules require the City of Englewood to have a Class III wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall 001.

Operator of Record
In December 2006, Ohio Administrative Code rule revisions became effective that affect the requirements for certified operators for sewage collection systems and treatment works regulated under NPDES permits. Part II, Item A of this NPDES permit is included to implement rule 3745-7-02 of the Ohio Administrative Code (OAC). It requires the permittee to designate one or more operator of record to oversee the technical operation of the treatment works.

Storm Water Compliance
To comply with industrial storm water regulations, the permittee submitted a form for "No Exposure Certification", which was accepted on October 18, 2011. Compliance with the industrial storm water regulations must be re-affirmed every five years. No later than October 18, 2016, the permittee must submit a new form for "No Exposure Certification" or make other provisions to comply with the industrial storm water regulations.

Outfall Signage
Part II of the permit includes requirements for the permittee to place a sign at each outfall to the Stillwater River providing information about the discharge. Signage at outfalls is required pursuant to Ohio Administrative Code 3745-33-08(A).

Water Quality Trading
The permittee is a voluntary participant in the Great Miami River Watershed Water Quality Credit Trading Program that is managed through The Miami Conservancy District (MCD), a political subdivision of the State of Ohio. A special condition is included in Part II of the permit regarding the permittee's participation in the MCD trading program. The Operations Manual and other information about the trading program are available through this Ohio EPA Web page: http://epa.ohio.gov/dsw/WQ_trading/index.aspx .

Figure 1. Location of Englewood wastewater treatment plant.

Table 1. Effluent Characterization Using Ohio EPA Data

Summary of analytical results for Englewood outfall 1PD00001001. Units ug/l unless otherwise noted; OEPA = data from analyses by Ohio EPA; NA = not analyzed; ND = not detected (detection limit).

PARAMETER	OEPA 05/18/10	OEPA 01/12/10
Aluminum	1310*	ND(200)
Barium	4160*	117
Chromium, total	3.7	2.0
Copper	141*	8.8
Dissolved solids, total (mg/l)	850	964
Iron	1390*	110
Lead	3.7	ND(2.0)
Magnesium (mg/l)	36	39
Manganese	43	26
Nickel	5.0	12.1
Nitrate+nitrite	0.39	0.24
Phosphorus, total	1.79	0.35
Strontium	420	395
Zinc	2170*	37
Toluene	1.98	NA

* Not representative. Not used in calculation of Projected Effluent Quality values

Table 2. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered discharge monitoring report data for Englewood outfall 1PD00001001 (May 2006 – April 2011). All values are based on annual records unless otherwise indicated. * = 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.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50th	95th	
Water Temperature	Annual	C	Monitor		1826	18	25	10-30
Dissolved Oxygen	Summer	mg/l		6.0 min	920	7.4	6.7**	4.9-9.2
Dissolved Oxygen	Winter	mg/l		5.0 min	906	8.4	7.45**	5.2-10
Total Suspended Solids	Annual	mg/l	30	45[a]	783	8	24	0-128
Oil and Grease, Hexane	Annual	mg/l		10	39	0	0	0-0
Nitrogen, Ammonia (NH3)	Summer	mg/l	2.0	4.0[a]	394	1.12	3.92	0.13-6.48
Nitrogen, Ammonia (NH3)	Winter	mg/l	15	22.5[a]	389	1.37	3.86	0.16-5.59
Nitrogen Kjeldahl, Total	Annual	mg/l	--		60	2.91	11.2	0.74-19.5
Nitrite Plus Nitrate, Total	Annual	mg/l	Monitor		60	4.04	8.31	0.2-9.55
Phosphorus, Total (P)	Annual	mg/l	Monitor		261	0.61	2.77	0-7.12
Nickel, Total Recoverable	Annual	ug/l	Monitor		20	0	0	0-0
Zinc, Total Recoverable	Annual	ug/l	Monitor		20	36.1	72.9	0-556
Cadmium, Total Recoverable	Annual	ug/l	Monitor		20	0	0	0-0
Lead, Total Recoverable	Annual	ug/l	Monitor		20	0	0.18	0-3.6
Chromium, Total Recoverable	Annual	ug/l	Monitor		20	0	0	0-0
Copper, Total Recoverable	Annual	ug/l	Monitor		20	8.19	51	0-79.5
Chromium, Dissolved Hexavalent	Annual	ug/l	--		14	0	0	0-0
Fecal Coliform	Summer	#/100 ml	1000	2000[a]	394	86.5	4180	1-11200
Flow Rate	Summer	MGD	Monitor		920	1.2	2.39	0.466-4.02
Flow Rate	Winter	MGD	Monitor		906	1.62	3.45	0.717-7.99
Flow Rate	Annual	MGD	Monitor		1826	1.38	3.04	0.466-7.99
Chlorine, Total Residual	Annual	mg/l	Monitor		920	0.02	0.03	0-0.55
Mercury, Total (Low Level)	Annual	ng/l	12	1700	60	6.77	70	0-313
pH, Maximum	Annual	S.U.		9.0	1826	7.7	7.8	7.3-8.2
pH, Minimum	Annual	S.U.		6.5	1826	7.3*	7.7	6.8-7.9
CBOD 5 day	Summer	mg/l	15	22.5[a]	394	5	9.35	4-20
CBOD 5 day	Winter	mg/l	25	40[a]	389	5	9.6	2-26

Table 3. Projected Effluent Quality Values

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Ammonia-S	mg/l	262	262	2.3	4.59
Ammonia-W	mg/l	193	193	2.37	4.88
Barium - TR	ug/l	1	1	529.542	725.4
Cadmium - TR	ug/l	20	0	--	--
Chlorine - TRes	mg/l	894	851	0.01752	0.024
Chromium - TR	ug/l	11	2	6.205	8.5
Chromium VI - Diss	ug/l	14	0	--	--
Copper - TR	ug/l	21	16	40.2	70.4
Dissolved solids (ave)	mg/l	2	2	2674.136	3663.2
Iron - TR	ug/l	1	1	497.86	682
Lead - TR	ug/l	8	2	5.1319	7.03
Nickel - TR	ug/l	22	2	11.4829	15.73
Nitrate-N + Nitrite-N	mg/l	60	60	6.9715	9.55
Strontium - TR	ug/l	2	2	1165.08	1596
Toluene	ug/l	1	1	8.96148	12.276
Zinc - TR	ug/l	20	19	45.3	57.8
Mercury - TR	ng/l	54	53	31.4	48.8

Table 4 Summary of Acute Toxicity Test Results

Test Date(a)	*Ceriodaphnia dubia 48 hours*								*Fathead Minnows 96 hours*							
	UP[b]	C[c]	LC_{50}[d]	EC_{50}[e]	%A[f]	%M[g]	TUa[h]	NF[i]	UP[b]	C[c]	LC_{50}[d]	EC_{50}[e]	%A[f]	%M[g]	TUa[h]	NF[i]
1/12, 13/10(O)*	NT	0	>100	>100	0	0	BD	0	NT	0	>100	>100	0	0	BD	0
1/13/10(O)**	NT	0	>100	>100	0	0	BD	NT	NT	0	>100	>100	0	0	BD	NT
5/18, 19/10(O)*	0	5/0	>100	>100	0/5	0/5	BD	0	0	0	>100	>100	0/5	0/5	BD	0
5/19/10(O)**	NT	0	>100	>100	5	5	BD	NT	NT	0	>100	>100	5	5	BD	NT
2/16/11(E)#	NT	0	>100	>100	0	0	BD	NT	NT	0	>100	>100	0	0	BD	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = median lethal concentration
[e] EC_{50} = median effects concentration
NT = not tested
[f] %A = percent adversely affected in 100% effluent
[g] %M = percent mortality in 100% effluent
[h] TUa = acute toxicity units
[i] NF = 1:1 manual mixing zone sample
ND = not determined
BD = below detection
* = 48 hr screening test, day1 and day 2 grab samples
** = 48 hr screening test, day 1 – day 2 composite sample
# = 48 hour screening test

Table 2. Aquatic life use attainment status for sampling locations in the Stillwater River at Englewood, Ohio, 2008, 2010, and 2011. Data from 2008 reflect conditions at sampling locations prior to the removal of the Englewood Reserve dam while 2010 and 2011 results reflect post-removal aquatic life conditions. The Index of Biotic Integrity (IBI), Modified Index of Well-being (MIwb), and Invertebrate Community Index (ICI) scores are based on the performance of the biological community. The Qualitative Habitat Evaluation Index (QHEI) is a measure of the ability of the physical habitat to support a biological community. Sampling locations were evaluated using Exceptional Warmwater Habitat (EWH) biocriteria codified in the Ohio Administrative Code (OAC 3745-1-07, Table 7-15) for the Eastern Corn Belt Plains (ECBP) ecoregion of Ohio. If biological impairment has occurred, the cause(s) and source(s) of the impairment are noted.

Sample Location River Mile (RM)	Aquatic Life Use Designation	Aquatic Life Use Attainment Status	IBI	MIwb	ICI	QHEI	Aquatic Life Use Impairment Cause(s) / Source(s)
Stillwater River 2008							
11.1	EWH	**FULL**	58	10.5	44^{ns}	83.0	
9.5 Impounded	EWH	**NON**	40*	8.4*	34*	53.0	Direct Habitat Alterations, Flow Regime Alterations/ Englewood Reserve Low Head Dam
8.5	EWH	**FULL**	57	10.6	50	87.0	
Stillwater River 2010							
11.1	EWH	**FULL**	60	10.3	48	85.0	
9.5 Free-Flowing	EWH	**PARTIAL**	41*	8.6*	52	66.0	Comment: Englewood Reserve dam removed in September 2009
8.5	EWH	**FULL**	57	10.6	E^{1}	91.0	
Stillwater River 2011							
9.5 Free-Flowing	EWH	**FULL**	45^{ns}	9.6	-	72.5	Comment: Full attainment 2 years after dam removal

BIOCRITERIA (ECBP)		
INDEX - Site Type	WWH	EWH
IBI: Boat	42	48
MIwb: Boat	8.5	9.6
ICI	36	46

* Significant departure from ecoregion biocriterion; poor and very poor results are underlined.
ns Nonsignificant departure from biocriterion (≤4 IBI or ICI units and 0.5 MIwb units).
1 E = Exceptional

Figure 2. Aquatic life use attainment table from the report *Biological and Habitat Study of the Stillwater River, 2008, 2010 and 2011, Five Rivers Metropark – Englewood Reserve Dam Removal* (February 17, 2012; Ohio EPA)

Table 5. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria: Average: Human Health	Outside Mixing Zone Criteria: Average: Agri-culture	Outside Mixing Zone Criteria: Average: Aquatic Life	Outside Mixing Zone Criteria: Maximum Aquatic Life	Inside Mixing Zone Maximum
Ammonia-S	mg/l	--	--	0.6	--	--
Ammonia-W	mg/l	--	--	3	--	--
Barium - TR	ug/l	--	--	220	2000	4000
Cadmium - TR	ug/l	--	50	5.6	15	30
Chlorine - TRes	mg/l	--	--	0.011	0.019	0.038
Chromium - TR	ug/l	--	100	200	4300	8500
Chromium VI - Diss	ug/l	--	--	11	16	31
Copper - TR	ug/l	1300	500	23	38	75
Dissolved solids (ave)	mg/l	--	--	1500	--	--
Iron - TR	ug/l	--	5000	--	--	--
Lead - TR	ug/l	--	100	24	470	930
Nickel - TR	ug/l	4600	200	130	1100	2300
Nitrate-N + Nitrite-N	mg/l	--	100	--	--	--
Strontium - TR	ug/l	--	--	21000	40000	81000
Toluene	ug/l	200000	--	62	560	1100
Zinc - TR	ug/l	69000	25000	290	290	580
Mercury - TR	ng/l	12	10000	910	1700	3400

Table 6. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Stream Flows				
1Q10	cfs	annual	11	USGS 03266000
7Q10	cfs	annual	16	USGS 03266000
30Q10	cfs	summer	22	USGS 03266000
		winter	55	USGS 03266000
Harmonic Mean	cfs	annual	107	USGS 03266000
Mixing Assumption	%	average	100	
	%	maximum	100	
Hardness	mg/l	annual	286	Station 901, 2006-11, n = 60
pH	S.U.	summer	8.15	Station 901, 2006-11, n = 20
		winter	8.05	Station 901, 2006-11, n = 15
Temperature	C	summer	25.2	Station 901, 2006-11, n = 20
		winter	6.5	Station 901, 2006-11, n = 15
Englewood WWTP flow	cfs	annual	3.87	2A application
Background Water Quality				
Ammonia-S	mg/l		0.155	Study; 2011; n=34; Englewood and Ohio EPA
Ammonia-W	mg/l		0.155	Study; 2011; n=34; Englewood and Ohio EPA
Barium - TR	ug/l		79.8	STORET; 1999; n=5; Station H06S11
Cadmium - TR	ug/l		0	STORET; 1999; n=5; Station H06S11
Chlorine - TRes	mg/l		0	No representative data available.
Chromium - TR	ug/l		0	STORET; 1999; n=5; Station H06S11
Chromium VI - Diss	ug/l		0	No representative data available.
Copper - TR	ug/l		6.2	STORET; 1999; n=5; Station H06S11
Dissolved solids (ave)	mg/l		358	STORET; 1999; n=5; Station H06S11
Iron - TR	ug/l		757	STORET; 1999; n=5; Station H06S11
Lead - TR	ug/l		0	STORET; 1999; n=5; Station H06S11
Nickel - TR	ug/l		0	STORET; 1999; n=5; Station H06S11
Nitrate-N + Nitrite-N	mg/l		0.959	STORET; 1999; n=5; Station H06S11
Strontium - TR	ug/l		670	STORET; 1999; n=5; Station H06S11
Toluene	ug/l		0	No representative data available.
Zinc - TR	ug/l		10	STORET; 1999; n=5; Station H06S11
Mercury - TR	ng/l		0	No representative data available.

Table 7. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

		Outside Mixing Zone Criteria				Inside
		Average			Maximum	Mixing
Parameter	Units	Human Health	Agri-culture	Aquatic Life	Aquatic Life	Zone Maximum
Ammonia-S	mg/l	--	--	3.13	--	--
Ammonia-W	mg/l	--	--	43.43	--	--
Barium - TR	ug/l	--	--	800	7458*	4000
Cadmium - TR	ug/l	--	1432*	29	58*	30
Chlorine - TRes	mg/l	--	--	0.056*	0.073*	0.038
Chromium - TR	ug/l	--	2865	1027	16522*	8500
Chromium VI - Diss	ug/l	--	--	56*	61*	31
Copper - TR	ug/l	37072*	14153*	92*	128*	75
Dissolved solids (ave)	mg/l	--	--	6221	--	--
Iron - TR	ug/l	--	122313	--	--	--
Lead - TR	ug/l	--	2865*	123	1806*	930
Nickel - TR	ug/l	131783*	5730*	667	4227*	2300
Nitrate-N + Nitrite-N	mg/l	--	2838	--	--	--
Strontium - TR	ug/l	--	--	105052*	151791*	81000
Toluene	ug/l	5729716*	--	318	2152*	1100
Zinc - TR	ug/l	1976475*	715938*	1448*	1086*	580
Mercury - TR	ng/l	12	10000*	910	1700	3400

* = cannot exceed Inside Mixing Zone Maximum

Table 8. Parameter Assessment

Group 1: Due to a lack of criteria, the following parameters could not be evaluated at this time.

Group 2: PEQ < 25 percent of WQS or all data below minimum detection limit.
WLA not required. No limit recommended; monitoring optional.

Cadmium - TR	Chromium - TR	Chromium VI - Diss
Iron - TR	Lead - TR	Nickel - TR
Nitrate-N + Nitrite-N	Strontium - TR	Toluene
Zinc - TR		

Group 3: PEQ_{max} < 50 percent of maximum PEL and PEQ_{avg} < 50 percent of average PEL.
No limit recommended; monitoring optional.

Dissolved solids (ave)

Group 4: 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.

Barium	Chlorine - TRes	Copper - TR

Group 5: 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

			Recommended Effluent Limits	
Parameter	Units	Period	Average	Maximum
Mercury - TR	ng/l	Annual	12	1700

Table 9. Final Effluent Limits and Monitoring Requirements

		Effluent Limitations				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Basis[b]
Temperature	°C	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Dissolved Oxygen	mg/l	6.0 minimum		--	--	BEJ, EP
Summer		5.0 minimum		--	--	BEJ, EP
Winter						
Suspended Solids	mg/l	30	45[c]	284	426[c]	BEJ, BPT, EP
Oil and Grease	mg/l	--	10.0	--	--	WQS, EP
Ammonia-N	mg/l					
Summer		2.0	4.0[c]	19	37.9[c]	BEJ, EP
Winter		15	22.5[c]	142	213[c]	BEJ, EP
Total Kjeldahl-N	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Nitrite(N) + Nitrate(N)	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Phosphorus, Total	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Barium, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				RP
Nickel, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Zinc, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Cadmium, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Lead, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Chromium, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Copper, T. R.	µg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				RP
Fecal Coliform						
Summer Only (Interim)	#/100ml	1000	2000[c]	--	--	BEJ, EP
E. coli						
Summer Only (Final)	#/100ml	126	284[c]	--	--	WQS
Flow	MGD	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
Chlorine, Total Residual						
Summer	mg/l	--	0.038	--	--	WLA/IMZM, EP
Mercury, T.	ng/l	12	1700	0.000114	0.0161	WLA, EP
Whole Effluent Toxicity						
Acute	TUa	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				WET
Chronic	TUc	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				WET
pH	S.U.	- - - - - - - - - - - 6.5 to 9.0 - - - - - - - - - - -			WQS, EP	
Total Filterable Residue (Dissolved Solids)	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - -				M
$CBOD_5$	mg/l					
Summer		15	22.5[c]	142	213[c]	BEJ, EP
Winter		25	40[c]	237	379[c]	BEJ, BPT, EP

Table 9. Final Effluent Limits and Monitoring Requirements (continued)

[a] Effluent loadings based on average design discharge flow of 2.5 MGD.

[b] Definitions: BEJ = Best Engineering Judgment; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation; EP = Existing Permit; M = BEJ of 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 [OAC 3745-33-07(A)]; WET = Minimum testing requirements for whole effluent toxicity [OAC 3745-33-07(B)(11)]; WLA = Wasteload Allocation procedures (OAC 3745-2); WLA/IMZM = Wasteload Allocation limited by Inside Mixing Zone Maximum; WQS = Ohio Water Quality Standards (OAC 3745-1-07).

[c] Weekly average limit.