

National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit To Discharge to Waters of the State of Ohio
for **Ohio Paperboard Corporation**

Public Notice No.: 14-12-039

Public Notice Date: December 22, 2014

Comment Period Ends: January 22, 2015

Ohio EPA Permit No.: **4IA00001*JD**

Application No.: **OH0004961**

Name and Address of Applicant:

Newark Group Industries

310 Water Street

Baltimore, Ohio

Name and Address of Facility Where

Discharge Occurs:

Ohio Paperboard Corporation

West Rome Street

Baltimore, Ohio

Fairfield County

Receiving Water: **West Branch Pawpaw Creek**

Subsequent

Stream Network: **Pawpaw Creek, Walnut Creek, Scioto
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.

This permit did not need to undergo an antidegradation review.

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 the United States EPA (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 effluent limits (WQBELs) 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

Most effluent limits and monitoring requirements in the proposed permit are the same as in the current permit, although some monitoring frequencies have changed. Significant changes include:

Outfall 001

New WQBELs are proposed for phenol because the WLA demonstrates this parameter has reasonable potential to exceed WQS and that limits are necessary. A 36 month compliance schedule is included in Part I.C of the permit.

New monitoring is proposed for beta-lindane because the WLA demonstrates this parameter has reasonable potential to exceed WQS and monitoring is necessary.

Effluent limits are proposed to be removed for barium, free cyanide, and selenium because the WLA demonstrates these parameters do not have reasonable potential to exceed WQS. Monitoring is proposed at a reduced frequency to ensure these pollutants remain at low levels. A new analytical method has been approved for free cyanide and a condition is in Part II.

Monitoring for diethyl phthalate is proposed to be removed. The WLA demonstrates there is no reasonable potential to exceed WQS, and there were no detections of this parameter in the previous permit cycle.

Based on the results of acute and chronic whole effluent toxicity (WET) tests, it is strongly suspected the effluent is toxic to aquatic organisms. New limits are proposed. Quarterly monitoring with a trigger to perform a toxicity reduction evaluation (TRE) is proposed as the interim condition.

In Part II of the permit, special conditions are included that address WET testing; TRE; new free cyanide analytical method; chlorophenolic-containing biocides; 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 Sara Hise, (614) 644-4824, sara.hise@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 water quality based effluent limits 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 Ohio Administrative Code (OAC) Rule 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 Rule 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

Newark Group Industries does business as Ohio Paperboard Corporation (Ohio Paperboard). Ohio Paperboard discharges to West Branch Pawpaw Creek at River Mile (RM) 0.32. Figure 1 shows the approximate location of the facility.

This segment of the West Branch Pawpaw Creek is described by Ohio EPA River Code: 02-078, U.S. EPA River Reach #: 05060001, County: Fairfield, Ecoregion: Eastern Corn Belt Plains. The West Branch Pawpaw Creek is designated for the following uses under Ohio's WQS (OAC 3745-1-09): Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Secondary Contact Recreation (SCR).

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 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 (SCR - 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

Ohio Paperboard is a 100% recycled paperboard mill. Ohio Paperboard manufactures corrugating medium, high pressure laminates, and tubestock grade material from recycled corrugated boxes. The facility operates under the Standard Industrial Classification (SIC) Code 2631 – Paperboard Mills. Process wastewaters are regulated under 40 CFR Part 430: Pulp, Paper, and Paperboard Point Source Category, Subpart J. In accordance with the NPDES permit renewal application, the facility is producing approximately 269.5 tons of product daily. This production capacity will be utilized to calculate and evaluate Federal Effluent Guideline Limitations (ELGs).

Description of Existing Discharge

Ohio Paperboard has two outfalls, 001 and 002. The treatment system includes:

- Primary settling ponds
- Surface aerated lagoon
- Final settling ponds
- Activated sludge
- Sludge holding pond
- Post-aeration

Most process and wastewater flows associated with plant operations are discharged through outfall 001. The exception is the Mill Return Water, which is recirculated back into the mill process and does not charge to the wastewater treatment plant. Ohio Paperboard also recirculates water from the final settling ponds into the aeration pond to reduce ammonia concentrations in the final settling ponds. Outfall 001 and associated wastewater treatment plant receive leachate from the adjacent closed landfill own by Newark Group Industries.

There have been numerous effluent limit violations at outfall 001. Most effluent violations were five-day biochemical oxygen demand (BOD₅) loading limits; there have also been effluent violations of total suspended solids (TSS), ammonia, and dissolved oxygen.

The long term average flow rate for outfall 001 was reported on the NPDES permit application to be 0.1919 million gallons per day (MGD). The representative monthly average flow rate was calculated to be 0.2706 MGD.

The discharge from outfall 002 is well water that augments flow to West Branch Pawpaw Creek. This flow augmentation has been authorized in order to allow for the treatment being employed and to allow WQS to be met. The permit requires a minimum of 0.40 MGD to be discharged from Outfall 002 whenever there is a discharge from Outfall 001. A water line diagram is presented on Figure 2.

Table 1 presents chemical specific data compiled from the NPDES renewal application.

Table 2 presents chemical specific data collected by Ohio EPA.

Table 3 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfall 001. Data are presented for the period January 2009 through June 2014, and current permit limits are provided for comparison.

Table 4 summarizes the chemical specific data for outfall 001 by presenting the average and maximum PEQ values.

Table 5 summarizes the results of acute toxicity screening tests of the discharge from outfall 001.

Table 6 summarizes the results of acute and chronic WET of the discharges of outfalls 001 and 002.

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 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 5) 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.

In 2010, the U.S. EPA approved the *Total Maximum Daily Loads (TMDL) for the Walnut Creek Watershed*. Despite some organic enrichment from Ohio Paperboard, West Branch Pawpaw Creek was in full attainment for biological criteria but impaired for recreational uses (see Table 7). No recommendations were included for the discharge from Ohio Paperboard, but the stream has reached its assimilative capacity. Any additional pollutant loadings from new or existing sources will likely result in non-attainment. The full report can be found at this website:

http://epa.ohio.gov/portals/35/tmdl/WalnutCreekTMDL_final_feb10_wo_app.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 Ohio Paperboard were used to determine what parameters should undergo WLA. The parameters discharged are identified by the data available to Ohio EPA 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)	January 2009 through June 2014
NPDES Application data	2013
Ohio EPA compliance sampling data	February and November 2013

Outliers

The data were examined, and the following values were removed from the evaluation to give a more reliable PEQ: two values for arsenic of 107 µg/L (1/22/09) and 92 µg/L (2/19/09); two values for selenium of 77 µg/L (2/5/09) and 36 µg/L (1/22/09); two values for bis(2-ethylhexyl)phthalate of 67.4 µg/L (1/26/11) and 60.5 µg/L (2/16/11); one value for nickel of 145 µg/L (8/13/09); one value for diethyl phthalate of 107 µg/L (8/11/10) and one value for lead of 179 µg/L (2/5/09).

This data is evaluated statistically, and PEQ values are calculated for each pollutant. Average PEQ (PEQ_{avg}) values represent the 95th percentile of monthly average data, and maximum PEQ (PEQ_{max}) values represent the 95th percentile of all data points. The average and maximum PEQ values are presented in Table 4.

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 11 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 WQS (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water. WLAs 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 Ohio Paperboard discharge to West Branch Pawpaw Creek and the Baltimore Wastewater Treatment Plant discharge to Walnut Creek are considered interactive. The available assimilative capacity was distributed between the two using the conservative substance wasteload allocation (CONSWLA) water quality model for conservative parameters. The study area is presented in Figure 3.

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia	Average	Summer 30Q10
		Winter 30Q10
AWS		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow as specified in Table 9, 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 and beta-lindane are BCCs. The mixing zone phase-out means that as of November 15, 2010 all dischargers requiring limits in their NPDES permit must meet WQS at the end-of-pipe.

The data used in the WLA are listed in Tables 8 and 9. The WLA results to maintain all applicable criteria are presented in Table 10. The current ammonia limits have been evaluated using the WLA procedures and are protective of WQS 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.

WQS for WET are expressed in Ohio's narrative "free from" WQS rule [OAC 3745-1-04(D)]. These "free from" 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 WLA 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 Ohio Paperboard, the WLA values are 0.90 TU_a and 3.02 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 (IC₂₅):

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

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 (LC₅₀) 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.

When the acute WLA is less than 1.0 TU_a, it may be defined as:

<u>Dilution Ratio</u> (downstream flow to discharger flow)	<u>Allowable Effluent Toxicity</u> (percent effects in 100% effluent)
up to 2 to 1	30
greater than 2 to 1 but less than 2.7 to 1	40
2.7 to 1 to 3.3 to 1	50

The acute WLA for outfall 001 is 30 percent mortality in 100 percent effluent based on the dilution ratio of 3 to 1.

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 10. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 4, and the PEL_{max} is compared to the PEQ_{max}. Based on the calculated percentage of the allocated value [(PEQ_{avg} ÷ PEL_{avg}) X 100, or (PEQ_{max} ÷ PEL_{max}) X 100], the parameters are assigned to group 3, 4, or 5. The groupings are listed in Table 11.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Table 12 presents the final effluent limits and monitoring requirements proposed for Ohio Paperboard outfalls 001 and 002 and the basis for their recommendation. Unless otherwise indicated, the monitoring frequencies proposed in the permit are continued from the existing permit.

Outfall 001

Flow Rate

Monitoring for this parameter is proposed to continue in order to assess the treatment system and to calculate concentration limits from ELGs.

Dissolved Oxygen, pH, Oil & Grease

The limits are based on WQS and are proposed to continue.

Ammonia

The limits for ammonia were evaluated and determined to be adequate to maintain water quality in the receiving streams. The loading limits could be reduced based on reduced flow rate, but since the limits are protective of water quality, no reduction is proposed. Therefore, all limits are proposed to be continued from the previous permit.

Antimony, Arsenic, Beryllium, Cadmium, Chromium, Iron, Mercury, Nitrate+Nitrite, Strontium, Silver, Thallium, Zinc

The Ohio EPA risk assessment (Table 11) places these parameters in groups 2 and 3. This placement, as well as the data in Tables 1 - 4, 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.

Barium, Bis(2-ethylhexyl)phthalate, Copper, Cyanide – Free, Diethyl Phthalate, Lead, Nickel, Selenium

The Ohio EPA risk assessment (Table 11) places these parameters in groups 2 and 3. This placement, as well as the data in Tables 1 - 4, support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality.

Barium, copper, and lead monitoring is proposed to continue at a reduced frequency to document that these pollutants continue to remain at low levels.

Limits for bis(2-ethylhexyl)phthalate, cyanide – free, and selenium are proposed to be removed and monitoring at a reduced frequency is proposed to document that these pollutants continue to remain at low levels. A new analytical method has been approved for free cyanide and is described in more detail under “Other Requirements.”

Monitoring for diethyl phthalate is proposed to be removed from the permit.

Total Filterable Residue and beta-Lindane.

The Ohio EPA risk assessment (Table 11) places these parameters in group 4. This placement, as well as the data in Tables 1 - 4, 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 3745-33-07(A)(2). The monitoring frequency for total filterable residue is proposed to be increased in order to collect more data on the variation of this parameter in the effluent.

Phenol

The Ohio EPA risk assessment (Table 11) places this parameter in group 5. This placement, as well as the data in Tables 1 - 4, 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. Pollutants that meet this requirement must have permit limits under OAC 3745-33-07(A)(1). New monthly average and daily maximum concentration and loading limits are proposed. A 36 month compliance schedule is detailed in Part I.C of the permit.

Pentachlorophenol and Trichlorophenol

Technology-based limits for these parameters are required by 40 CFR 430.104 unless chlorophenolic-containing biocides are not used. Ohio Paperboard has provided certification that these chemicals are not used and will not be used in the future. The calculations are presented for reference in Attachment 1.

Biochemical Oxygen Demand (5 day) and Total Suspended Solids

Technology-based limits for these parameters are required by 40 CFR 430.102. The ELGs are based on the kilograms of pollutant allowed to be discharged per 1000 kg of production. The plant production flow rate utilized in the calculation is the 95th percentile of monthly average flow rates. The production value is 269.5 tons/day (244.6 kkg/day). Limits are calculated as follows:

$$\text{Average TSS limit (kg/day)} = 4.6 \text{ kg/kkg} \times 244.6 \text{ kkg/day} = 1125 \text{ kg/day}$$

This procedure is performed for each regulated pollutant in 40 CFR 430.102. The calculated ELGs are compared to the existing permit and WLA values; the most stringent value is recommended as the permit limit. The existing permit limits for TSS and BOD5 are more stringent than those required under 40 CFR 430.102. In accordance with the antibacksliding provisions of OAC 3745-33-05, these limits are recommended to be continued in the permit. The BOD5 effluent limits were previously developed based on stream evaluations to consider the discharge's influence on instream dissolved oxygen and were determined to meet the appropriate standards. These limits were supported by a 2006 stream survey. No stream surveys or dissolved oxygen studies have been conducted since then to re-evaluate the limits; therefore, they are proposed to continue.

Outfall 002

Flow Rate

Flow rate monitoring is recommended to continue at outfall 002. The discharge is well water and is free of process contaminants. The purpose of the discharge is to augment the stream flow in order to assimilate the discharge from outfall 001. Whenever there is a discharge from outfall 001, outfall 002 is to have a minimum discharge of 0.040 MGD.

Whole Effluent Toxicity Reasonable Potential

Based on evaluating the WET data presented in Tables 5 and 6, the number of effluent limit violations, and other pertinent data under the provisions of OAC 3745-33-07(B), Ohio Paperboard is placed in Category 2 with respect to WET. Limits for chronic and acute toxicity are proposed. Quarterly monitoring with a trigger to conduct a TRE will be the interim condition. The trigger value will be 1.0 TU_a for acute WET and 3.02 TU_c for chronic WET. Details are included in Part I.C and Part II of the permit. Chronic and acute WET monitoring with no trigger value is proposed to continue at outfall 002. If the permittee believes the interim data shows no reasonable potential to cause toxicity, the permittee may apply for a permit modification to remove the WET limits.

Other Requirements

Compliance Schedule

Phenol - A 36 month compliance schedule is proposed to meet the new phenol limits. It is detailed in Part I.C of the permit.

WET - Limits for chronic and acute toxicity are proposed. Quarterly monitoring with a trigger to conduct a TRE will be the interim condition. A 36 month compliance schedule is included in Part I.C of the permit.

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, Ohio Paperboard 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) Ohio Paperboard 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 place and maintain a sign at each outfall to the West Branch Pawpaw Creek providing information about the discharge. Signage at outfalls is required pursuant to OAC 3745-33-08(A).

Figure 1. Approximate Location of Facility

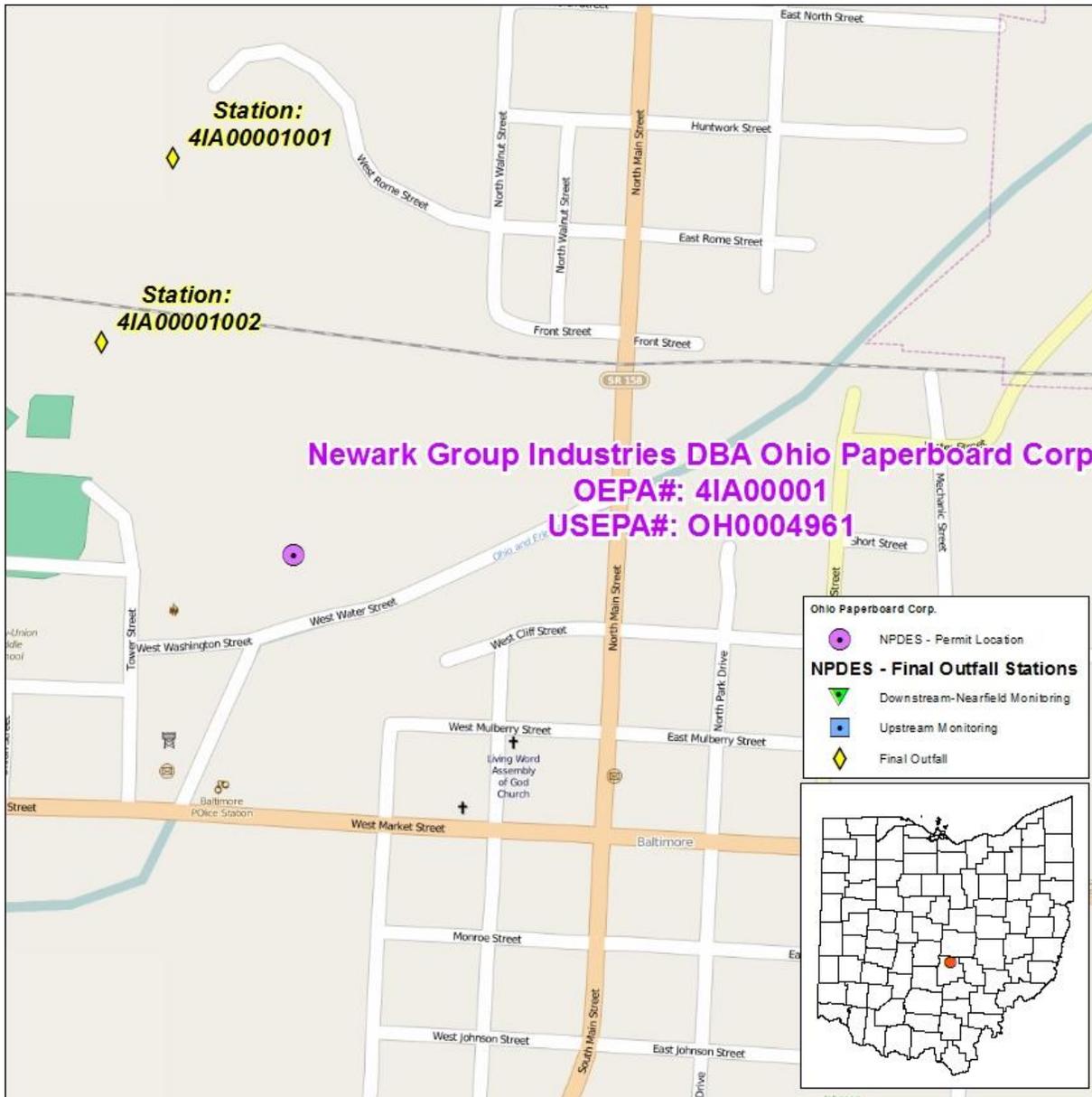
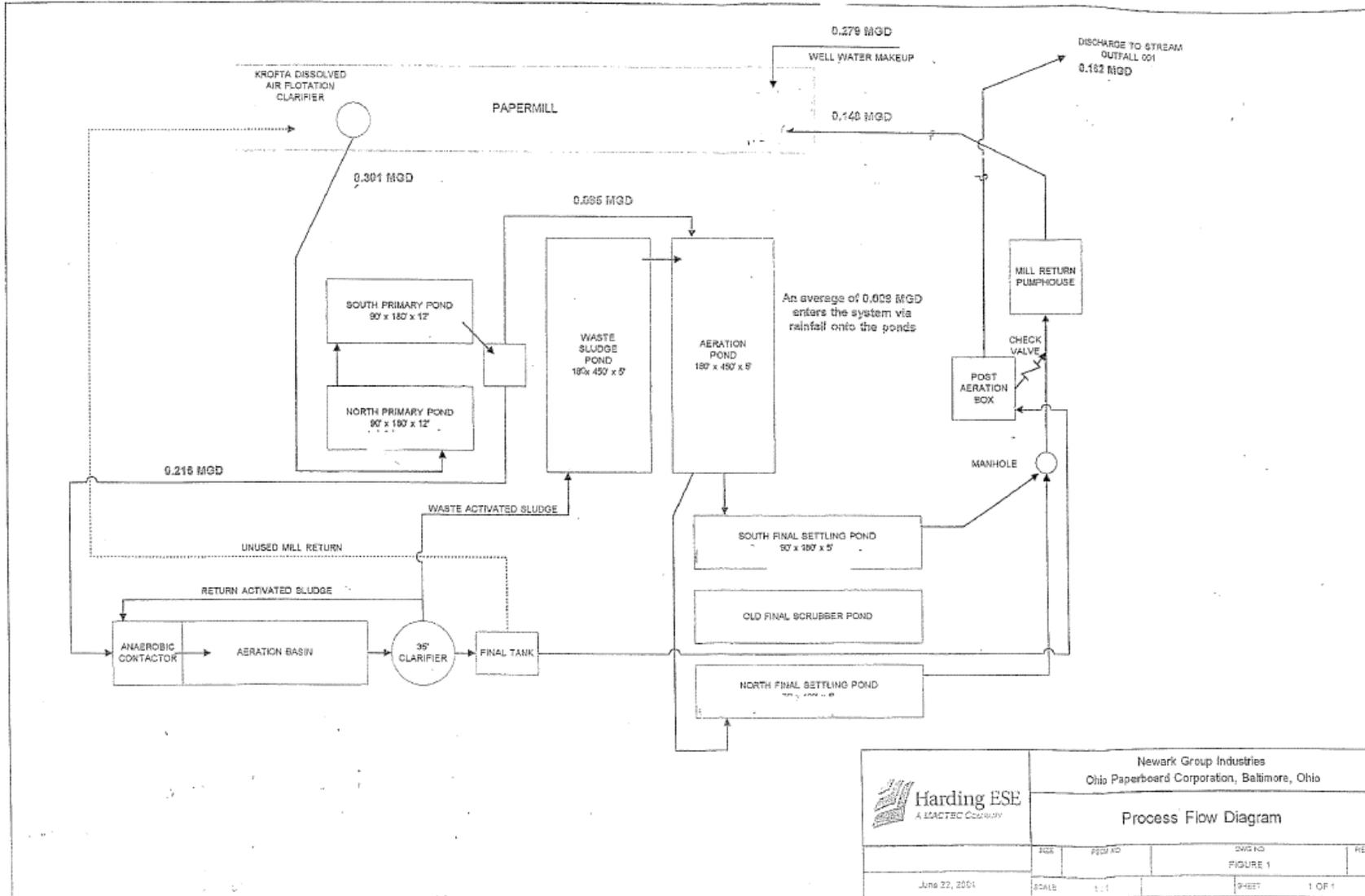


Figure 2. Facility Water Line Diagram



 Harding ESE A MACVAC COMPANY	Newark Group Industries			
	Ohio Paperboard Corporation, Baltimore, Ohio			
Process Flow Diagram				
	DATE	FIG. NO.	DWG. NO.	REV.
June 22, 2001	SCALE	1:1	FIGURE 1	SHEET 1 OF 1

Figure 3. West Branch Pawpaw Creek/Walnut Creek Study Area

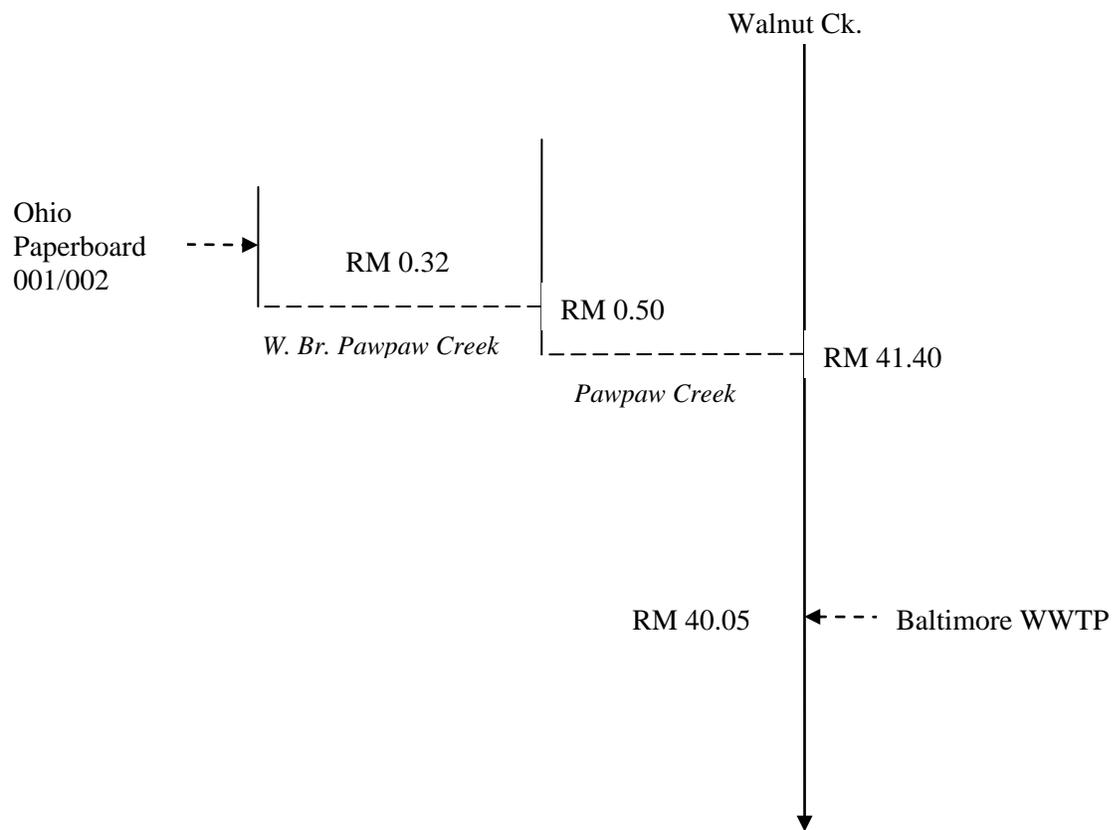


Table 1. Effluent Characterization of Outfall 001 Using Form 2C

Parameter	Units		Max daily		30 day max		Long term avg		No. of Analyses
	Conc	Mass	Conc	Mass	Conc	Mass	Conc	Mass	
Biological Oxygen Demand	mg/L	kg/d	173.95	258.39	173.95	258.39	40.15	29.16	124
Chemical Oxygen Demand	mg/L	kg/d	1095	260.69	1095	260.69	438.18	18.24	690
Total Organic Carbon	mg/L	kg/d	130	--	--	--	--	--	1
Total Suspended Solids	mg/L	kg/d	255	372.99	255	372.99	80.93	58.77	124
Ammonia	mg/L	kg/d	1.27	0.427	1.27	0.427	0.45	0.325	124
Flow	MGD	--	0.545		0.545		0.1919	--	62
Temperature (Winter)	°C	--	29		28.1		18.62	--	136
Temperature (Summer)	°C	--	34.3		32.53		26.96	--	151
pH	SU	--	7.75 - 8.3		7.75 - 8.3		--	--	62
Bromide	mg/L	kg/d	1.16	--	--	--	--	--	1
Chlorine, Total Residual	mg/L	kg/d	--	--	--	--	--	--	--
Fluoride	mg/L	kg/d	< 0.50	--	--	--	--	--	1
Nitrate+Nitrite	mg/L	kg/d	--	--	--	--	--	--	--
Total Organic Nitrogen	mg/L	kg/d	10.5	--	--	--	--	--	1
Oil & Grease	mg/L	kg/d	< 8.3	< 0.346	< 8.3	< 0.346	< 5.2	< 0.214	33
Phosphorus	mg/L	kg/d	0.32	--	--	--	--	--	1
Sulfate	mg/L	kg/d	484	--	--	--	--	--	1
Sulfide	mg/L	kg/d	< 0.1	--	--	--	--	--	1
Sulfite	mg/L	kg/d	0.64	--	--	--	--	--	1
Surfactants	mg/L	kg/d	0.63	--	--	--	--	--	1
Aluminum	µg/L	kg/d	482	--	--	--	--	--	1
Barium	µg/L	kg/d	317	0.24	317	0.24	186	0.135	31
Boron	µg/L	kg/d	--	--	--	--	--	--	--
Cobalt	µg/L	kg/d	--	--	--	--	--	--	--
Iron	µg/L	kg/d	502	--	--	--	--	--	1
Magnesium	mg/L	kg/d	30	--	--	--	--	--	1
Molybdenum	µg/L	kg/d	--	--	--	--	--	--	--
Manganese	µg/L	kg/d	508	--	--	--	--	--	1
Tin	µg/L	kg/d	--	--	--	--	--	--	--
Titanium	µg/L	kg/d	--	--	--	--	--	--	--
Antimony	µg/L	kg/d	--	--	--	--	--	--	--
Arsenic	µg/L	kg/d	6	--	3.75	--	3.12	--	48
Beryllium	µg/L	kg/d	--	--	--	--	--	--	--
Cadmium	µg/L	kg/d	--	--	--	--	--	--	--
Chromium	µg/L	kg/d	--	--	--	--	--	--	--
Copper	µg/L	kg/d	42.5	0.023	42.5	0.023	18.8	0.014	30

Table 1. Effluent Characterization of Outfall 001 Using Form 2C

Parameter	Units		Max daily		30 day max		Long term avg		No. of Analyses
	Conc	Mass	Conc	Mass	Conc	Mass	Conc	Mass	
Lead	µg/L	kg/d	29	0.018	29	0.018	4.4	0.003	33
Mercury	ng/L	kg/d	--	--	--	--	--	--	--
Nickel	µg/L	kg/d	322	--	92	--	20	--	48
Selenium	µg/L	kg/d	3.6	0.007	3.6	0.007	0.7	0.0005	33
Silver	µg/L	kg/d	--	--	--	--	--	--	--
Thallium	µg/L	kg/d	--	--	--	--	--	--	--
Zinc	µg/L	kg/d	--	--	--	--	--	--	--
Cyanide	µg/L	kg/d	0.023	0.01	0.023	0.01	0.007	0.005	49
Phenols	µg/L	kg/d	2010	0.958	2010	0.958	296	0.215	10
Bis(2-ethylhexyl)phthalate	µg/L	kg/d	44.94	0.015	44.94	0.015	9.35	0.007	36
Diethyl phthalate	µg/L	kg/d	107	0.053	407	0.053	12.95	0.009	10

Table 2. Effluent Characterization of Outfall 001 Using Ohio EPA Data

Parameter	Units	2/20/2013	11/13/2013
Aluminum	µg/L	489	481
Ammonia	mg/L	AA (0.05)	AA (0.05)
Arsenic	µg/L	5.4	5.8
Barium	µg/L	268	288
beta-Lindane	µg/L	NA	0.052
Cadmium	µg/L	AA (2)	AA (0.2)
Calcium	mg/L	392	406
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	150	28
Chemical Oxygen Demand	mg/L	625	273
Chloride	mg/L	154	165
Chromium	µg/L	5.5	4.1
Copper	µg/L	6.4	9
Cyanide, free	µg/L	AA (5)	AA (50)
Iron	µg/L	229	215
Lead	µg/L	AA (2)	AA (2)
Magnesium	mg/L	40	40
Manganese	µg/L	1700	1480
Mercury	µg/L	NA	AA (0.2)
Nickel	µg/L	12.1	10.4
Nitrate+nitrite	mg/L	0.12	AA (0.1)
Oil & Grease	mg/L	AA (2.3)	5
Phenol	µg/L	4.7	AA (2.2)
Phosphorus	mg/L	1.8	1.63
Potassium	mg/L	27	31
Selenium	µg/L	3.4	3.5
Sodium	mg/L	437	498
Strontium	µg/L	5230	5930
Total Filterable Residue	mg/L	3170	2920
Total Kjeldahl Nitrogen	mg/L	5.63	7.71
Total Suspended Solids	mg/L	82	58
Zinc	µg/L	AA (10)	19

AA = not detected (analytical laboratory method detection limit)

Table 3. Effluent Characterization Using Self-Monitoring Data

			Current Permit Limits		# Obs.	Percentiles		Data Range
Parameter	Season	Units	30 day	Daily		50th	95th	
<u>Outfall 001</u>								
Dissolved Oxygen	Summer	mg/L	6.0 minimum		286	7.36	8.88	0.2-12.5
	Winter	mg/L	6.0 minimum		292	8.93	10.9	6.08-15.4
Biochemical Oxygen Demand, 5 Day								
	Summer	mg/L	140	270	252	15.3	74.8	1.82-590
		kg/day	27	41	--	--	--	--
	Winter	mg/L	360	710	264	46	369	4-590
		kg/day	117	175	--	--	--	--
	March	mg/L	360	710	--	--	--	--
		kg/day	54	82	--	--	--	--
November	mg/L	360	710	--	--	--	--	
	kg/day	50	75	--	--	--	--	
pH	Annual	S.U.	6.5 - 9.0		582	8	8.35	6.65-8.93
Total Filterable Residue	Annual	mg/L	----- Monitor -----		265	2990	4350	780-5620
Total Suspended Solids	Annual	mg/L	237	355	539	48	260	6-720
		kg/day	269	403	--	--	--	--
Oil and Grease	Annual	mg/L	10 maximum		67	0	0	0-0
Ammonia	Summer	mg/L	2.2	3.3	387	0.267	1.57	0-15.1
		kg/day	2.5	3.7	--	--	--	--
	Winter	mg/L	2.2	3.3	412	0.105	1.01	0-2.95
		kg/day	2.5	3.7	--	--	--	--
Cyanide, Free	Annual	mg/L	0.018	0.092	264	0	0.022	0-0.037
		kg/day	0.0204	0.104	--	--	--	--
Selenium	Annual	µg/L	7.5	--	265	0	0	0-77
		kg/day	0.0085	--	--	--	--	--
Barium	Annual	µg/L	----- Monitor -----		265	165	264	48.7-432
Lead	Annual	µg/L	----- Monitor -----		123	0	11.2	0-179
Copper	Annual	µg/L	----- Monitor -----		265	11	26.6	0-54
Diethyl phthalate	Annual	µg/L	----- Monitor -----		16	0	26.8	0-107
Phenol	Annual	µg/L	----- Monitor -----		34	51.5	2070	0-2570
Bis(2-ethylhexyl) Phthalate	Annual	µg/L	13	2100	67	0	6.35	0-67.4
		kg/day	0.015	2.38	--	--	--	--
Flow Rate	Annual	MGD	----- Monitor -----		1982	0.124	0.322	0.0001-0.967
Whole Effluent Toxicity - Acute								
<i>Ceriodaphnia dubia</i>	Annual	TU _a	----- Monitor -----		22	1	1.82	0-18.3
<i>Pimephales promelas</i>	Annual	TU _a	----- Monitor -----		22	1	2.68	0.3-2.82

Table 3. Effluent Characterization Using Self-Monitoring Data

			Current Permit Limits		# Obs.	Percentiles		Data Range
Parameter	Season	Units	30 day	Daily		50th	95th	
Whole Effluent Toxicity - Chronic								
<i>Ceriodaphnia dubia</i>	Annual	TU _c	----- Monitor -----		22	1.82	15.5	1-57.7
<i>Pimephales promelas</i>	Annual	TU _c	----- Monitor -----		22	1	15.7	1-57.7
<u>Outfall 002</u>								
Flow Rate	Annual	MGD	----- Monitor -----		2006	0.4	0.41	0.12-0.488
Whole Effluent Toxicity - Acute								
<i>Ceriodaphnia dubia</i>	Annual	TU _a	----- Monitor -----		16	1	1	0-1
<i>Pimephales promelas</i>	Annual	TU _a	----- Monitor -----		16	1	1	0-1
Whole Effluent Toxicity - Chronic								
<i>Ceriodaphnia dubia</i>	Annual	TU _c	----- Monitor -----		16	1	8.33	0-16
<i>Pimephales promelas</i>	Annual	TU _c	----- Monitor -----		16	1	1.82	0-1.82

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

Table 4. Projected Effluent Quality for Outfall 001

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
<u>Discharge Monitoring Report Data</u>					
Total Filterable Residue	mg/L	267	267	2869	3931
Ammonia (Summer)	mg/L	254	254	0.832	1.791
Ammonia (Winter)	mg/L	205	205	0.49	0.998
Cyanide - free	µg/L	264	125	17.57	24.57
Arsenic	µg/L	72	37	26.28	36
Selenium	µg/L	265	13	3.581	4.258
Barium	µg/L	267	267	236.6	305.3
Nickel	µg/L	73	27	13.24	18.27
Strontium	µg/L	74	74	5006	6858
Lead	µg/L	122	20	12.16	14.65
Copper	µg/L	267	158	21.34	30.46
Diethyl phthalate	µg/L	15	0	--	--
Phenol	µg/L	36	22	2064	2827
Pentachlorophenol ^C	µg/L	6	0	--	--
Bis(2-ethylhexyl)phthalate ^C	µg/L	50	3	7.957	10.9
<u>Ohio EPA and Permit Application Form 2C</u>					
Aluminum	µg/L	3	3	1071	1467
beta-Lindane ^C	µg/L	1	1	0.235	0.322
Bromide	mg/L	1	1	5.25	7.192
Chlorides	mg/L	2	2	457.7	627
Chromium	µg/L	2	2	15.26	20.9
Iron	µg/L	3	3	1099	1506
Magnesium	mg/L	3	3	87.6	120
Manganese	µg/L	3	3	3723	5100
Nitrate + Nitrite	mg/L	2	2	0.333	0.456
Phosphorus	mg/L	3	3	3.942	5.4
Potassium	mg/L	2	2	86	117.8
Sodium	mg/L	2	2	1381	1892
Sulfate	mg/L	1	1	2191	3001
Sulfite	mg/L	1	1	2.897	3.968
Surfactants	mg/L	1	1	2.851	3.906
Zinc	µg/L	2	2	52.71	72.2

^C = carcinogen

MDL = analytical laboratory method detection limit

Ohio EPA = Ohio Environmental Protection Agency

PEQ = projected effluent quality

Table 5. Self-Reported Acute and Chronic Whole Effluent Toxicity Results for Outfall 001

Date	Outfall 001				Outfall 002			
	<i>Ceriodaphnia dubia</i> Acute (TU _a)	<i>Ceriodaphnia dubia</i> Chronic (TU _c)	<i>Pimephales promelas</i> Acute (TU _a)	<i>Pimephales promelas</i> Chronic (TU _c)	<i>Ceriodaphnia dubia</i> Acute (TU _a)	<i>Ceriodaphnia dubia</i> Chronic (TU _c)	<i>Pimephales promelas</i> Acute (TU _a)	<i>Pimephales promelas</i> Chronic (TU _c)
3/28/2009	1	1.82	1	1	NA	NA	NA	NA
6/6/2009	1	1	1	1	NA	NA	NA	NA
8/22/2009	1.82	1.82	1	1	NA	NA	NA	NA
12/19/2009	1.82	1.82	1	1.82	NA	NA	NA	NA
3/6/2010	18.25	57.73	2.82	57.73	NA	NA	NA	NA
6/19/2010	1	1	1	1	NA	NA	NA	NA
8/27/2010	0.2	1.56	0.3	9.26	AA	AA	AA	AA
12/11/2010	1	1.82	1	1	1	1.82	1	1
3/19/2011	1.82	1.82	1	1	1	1.82	1	1.82
6/6/2011	1	1.82	1	1	1	1	1	1
8/22/2011	1	1.82	1	1	1	1	1	1
12/10/2011	1	5.77	1	1.82	1	1	1	1
3/24/2012	1	1.82	1	1	1	1	1	1
6/18/2012	1	1.82	1	1	1	5.77	1	1.82
9/17/2012	1	1.95	1	1	1	1	1	1
12/3/2012	1	1.99	1	1.14	1	1	1	1
3/4/2013	1	1.82	1	1	1	1	1	1
6/2/2013	1	1	1	1	1	1	1	1
8/18/2013	1	1.06	1	1	1	1	1	1
12/9/2013	1	2.05	1	1	1	1	1	1
3/16/2014	0.2	16	1.53	4.07	AA	16	AA	AA
6/24/2014	AA	1.69	2.74	16	AA	1.41	AA	AA

AA = not detected (analytical laboratory detection limit: 0.2 TU_a, 1.0 TU_c)

NA = not analyzed

TU_a = acute toxicity unit

TU_c = chronic toxicity unit

Table 6. Ohio EPA Toxicity Screening Data

Date	<i>Pimephales promelas</i>		<i>Ceriodaphnia dubia</i>	
	%M		%M	
	24 hours	48 hours	24 hours	48 hours
2/19/2013	0	0	0	5
2/20/2013	0	0	20	40
2/19/13-2/20/13 ^C	5	10	0	0
11/12/2013	0	0	0	0
11/13/2013	0	10	0	0
11/12/13-11/13/13 ^C	0	5	0	0

^C = composite sample
 %M = percent mortality

Table 7. Walnut/Pawpaw Creek Study Area Use Designation Status

Location	RM	Use Designation	Attain. Status	Causes of Impairment	Sources of Impairment
W. Br. Pawpaw upst Ohio Paperboard 001	1.3	WWH	FULL		
W. Br. Pawpaw dst Ohio Paperboard 001	0.1	WWH	FULL ^A	Organic Enrichment	Minor industrial point source
Pawpaw Ck upst W.Br. Pawpaw trib	0.8	WWH	FULL		
Pawpaw Ck dst W.Br. Pawpaw trib	0.3	WWH	FULL		
Walnut Creek upst Pawpaw Creek	45.4	WWH	FULL		
Walnut Creek dst Pawpaw Creek	41.2	WWH	FULL		
Walnut Creek dst Pawpaw Creek	36.9	WWH	FULL		

A = nonsignificant departure from biocriteria.
 Ck = creek
 dst = downstream
 RM = river mile
 trib = tributary
 W. Br. Pawpaw = West Branch Pawpaw Creek
 WWH = warmwater habitat
 upst = upstream

Table 8. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum Aquatic Life	
		Human Health	Agri-culture	Aquatic Life		
Antimony	µg/L	4300	--	190	900	1800
Arsenic	µg/L	--	100	150	340	680
beta-Lindane ^A	µg/L	0.46	--	--	--	--
Barium	µg/L	--	--	220	2000	4000
Beryllium	µg/L	280	100	76	650	1300
Bis(2-ethylhexyl)phthalate ^C	µg/L	59	--	8.4	1100	2100
Cadmium	µg/L	--	50	6.3	18	35
Chromium	µg/L	--	100	230	4800	9700
Copper	µg/L	1300	500	26	44	87
Cyanide - free	µg/L	220000	--	12	46	92
Iron	µg/L	--	5000	--	--	--
Lead	µg/L	--	100	30	570	1100
Mercury ^A	ng/L	12	10000	910	1700	3400
Nickel	µg/L	4600	200	140	1300	2600
Nitrate + Nitrite	mg/L	--	100	--	--	--
Phenol	µg/L	4600000	--	400	4700	9400
Selenium	µg/L	11000	50	5	--	--
Silver	µg/L	--	--	1.3	13	25
Strontium	µg/L	--	--	21000	40000	81000
Total Filterable Residue	mg/L	--	--	1500	--	--
Thallium	µg/L	6.3	--	17	79	160
Zinc	µg/L	69000	25000	330	330	670

A = bioaccumulative chemical of concern

C = carcinogen

Table 9. Instream Conditions and Discharger Flow

Parameter	Season	Value	Basis
<u>Receiving Stream Flows (cfs)</u>			
<i>West Branch Pawpaw Creek</i>			
1Q10	annual	0.22	USGS gage # 03229750
7Q10	annual	0.23	USGS gage # 03229750
Harmonic Mean Flow		0.9	USGS gage # 03229750
<i>Pawpaw Creek</i>			
1Q10	annual	0.32	USGS gage # 03229750
7Q10	annual	0.34	USGS gage # 03229750
Harmonic Mean Flow		1.33	USGS gage # 03229750
<i>Walnut Creek</i>			
1Q10	annual	1.35	USGS gage # 03229750
7Q10	annual	1.42	USGS gage # 03229750
Harmonic Mean Flow		5.33	USGS gage # 03229750
<u>Discharger Flows (cfs)</u>			
<i>Ohio Paperboard</i>			
Outfall 001		0.42	DSW
Outfall 002		0.62	DSW
Baltimore WWTP		1.56	DSW
<u>Mixing Assumption</u>			
% average		100	Stream-to-discharge ratio
% maximum		100	Stream-to-discharge ratio
<u>Instream Hardness (mg/L)</u>			
West Branch Pawpaw Creek		334	STORET; 6 values, 0<MDL, 2005
Pawpaw Creek		383	STORET; 6 values, 0<MDL, 2005
Walnut Creek		277	STORET; 6 values, 0<MDL, 2005
<u>Background Water Quality (µg/L)</u>			
<i>West Branch Pawpaw Creek</i>			
Antimony		0	No representative data available.
Arsenic		3.6	STORET; 6 values, 0<MDL, 2005 data
Barium		71	STORET; 6 values, 0<MDL, 2005 data
Beryllium		0	No representative data available.
Bis(2-ethylhexyl)phthalate		0	No representative data available.

Table 9. Instream Conditions and Discharger Flow

Parameter	Season	Value	Basis
Cadmium		0	STORET; 6 values, 6<MDL, 2005 data
Chromium		0	STORET; 6 values, 6<MDL, 2005 data
Copper		0	STORET; 6 values, 6<MDL, 2005 data
Cyanide - free		0	No representative data available.
Lead		0	STORET; 6 values, 6<MDL, 2005 data
Nickel		0	STORET; 6 values, 6<MDL, 2005 data
Phenol		0	No representative data available.
Selenium		0	STORET; 6 values, 6<MDL, 2005 data
Silver		0	No representative data available.
Total Filterable Residue (mg/L)		441	STORET; 6 values, 0<MDL, 2005 data.
Thallium		0	No representative data available.
Zinc		0	STORET; 6 values, 6<MDL, 2005 data
<i>Pawpaw Creek</i>			
Antimony		0	No representative data available.
Arsenic		2.95	STORET; 6 values, 2<MDL, 2005 data
Barium		83	STORET; 6 values, 0<MDL, 2005 data
Beryllium		0	No representative data available.
Bis(2-ethylhexyl)phthalate		0	No representative data available.
Cadmium		0	STORET; 6 values, 6<MDL, 2005 data
Chromium		0	STORET; 6 values, 6<MDL, 2005 data
Copper		0	STORET; 6 values, 6<MDL, 2005 data
Cyanide - free		0	No representative data available.
Lead		1.5	STORET; 6 values, 5<MDL, 2005 data
Nickel		0	STORET; 6 values, 6<MDL, 2005 data
Phenol		0	No representative data available.
Selenium		0	STORET; 6 values, 6<MDL, 2005 data
Silver		0	No representative data available.
Total Filterable Residue (mg/L)		653	STORET; 6 values, 0<MDL, 2005 data.
Thallium		0	No representative data available.
Zinc		13.8	STORET; 6 values, 5<MDL, 2005 data
<i>Walnut Creek</i>			
Antimony		0	No representative data available.
Arsenic		6.4	STORET; 6 values, 0<MDL, 2005 data
Barium		89	STORET; 6 values, 0<MDL, 2005 data
Beryllium		0	No representative data available.
Bis(2-ethylhexyl)phthalate		0	No representative data available.
Cadmium		0	STORET; 6 values, 6<MDL, 2005 data

Table 9. Instream Conditions and Discharger Flow

Parameter	Season	Value	Basis
Chromium		0	STORET; 6 values, 6<MDL, 2005 data
Copper		0	STORET; 6 values, 6<MDL, 2005 data
Cyanide - free		0	No representative data available.
Lead		0	STORET; 6 values, 6<MDL, 2005 data
Nickel		0	STORET; 6 values, 6<MDL, 2005 data
Phenol		0	No representative data available.
Selenium		0	STORET; 6 values, 6<MDL, 2005 data
Silver		0	No representative data available.
Total Filterable Residue (mg/L)		556	STORET; 6 values, 0<MDL, 2005 data.
Thallium		0	No representative data available.
Zinc		8.2	STORET; 6 values, 5<MDL, 2005 data

DSW = Information supplied by the Division of Surface Water

MDL = analytical laboratory method detection limit

STORET = United States Environmental Protection Agency Storage and Retrieval Database

USGS = United States Geological Survey

WWTP = wastewater treatment plant

Table 10. 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		
Antimony ^B	µg/L	19860. ^A	--	575	2700. ^A	1800
Arsenic	µg/L	--	454	452	1018. ^A	680
beta-Lindane ^C	µg/L	0.46	--	--	--	--
Barium	µg/L	--	--	626	5963. ^A	4000
Beryllium ^B	µg/L	1293	462	230	1950. ^A	1300
Bis(2-ethylhexyl)phthalate	µg/L	273	--	25	3300. ^A	2100
Cadmium ^B	µg/L	--	231. ^A	19	54. ^A	35
Chromium ^B	µg/L	--	462	695	14400. ^A	9700
Copper	µg/L	6005. ^A	2310. ^A	51	84	87
Cyanide - free	µg/L	1016000. ^A	--	36	138. ^A	92
Lead	µg/L	--	462	53	1020	1100
Mercury ^{B,C}	ng/L	12	10000. ^A	910	1700	3400
Nickel ^B	µg/L	21250. ^A	924	278	2494	2600
Pentachlorophenol ^B	µg/L	7.4	--	54	72	48
Phenol	µg/L	21300000 ^A	--	1210	14100. ^A	9400
Selenium	µg/L	50810	231	15	--	--
Silver ^B	µg/L	--	--	3.9	39. ^A	25
Total Filterable Residue	mg/L	--	--	4294	--	--
Thallium ^B	µg/L	29	--	51	237. ^A	160
Trichlorophenol ^B	µg/L	878	--	15	117	79
Zinc ^B	µg/L	318700. ^A	115500. ^A	641	627	670

A = Allocation must not exceed the Inside Mixing Zone Maximum.

B = Parameter would not require a WLA based on reasonable potential procedures; allocation requested.

C = Bioaccumulative Chemical of Concern (BCC); criteria must be met at end-of-pipe unless the requirements for an exclusion are met as listed in OAC 3745-2-08.

Table 11. Parameter Assessment for Outfall 001

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

Aluminum	Bromide	Chlorides
Magnesium	Manganese	Phosphorus
Potassium	Sodium	Sulfate
Sulfite	Surfactants	

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

Antimony	Beryllium	Cadmium
Chromium	Diethyl Phthalate	Iron
Mercury	Nitrate+Nitrite	Nickel
Pentachlorophenol	Strontium	Zinc
Silver	Thallium	

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

Arsenic	Barium	Selenium
Copper	Cyanide-free	Lead
Bis(2ethylhexyl)phthalate		

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.

beta-Lindane	Total Filterable Residue
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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

<i>Parameter</i>	<i>Units</i>	<i>Period</i>	<u>Recommended Effluent Limits</u>	
			<i>Average</i>	<i>Maximum</i>
Phenol	µg/L	annual	1210	9400

PEL = preliminary effluent limit
 PEQ = projected effluent quality
 WLA = wasteload allocation
 WQS = water quality standard

Table 12. Final Effluent Limits for Outfalls 001 and 002

Parameter	Units	Concentration		Loading (kg/day) ^a		Basis ^b
		30 day Average	Daily Maximum	30 day Average	Daily Maximum	
<u>Outfall 001</u>						
Dissolved Oxygen	mg/L	6.0 minimum		--	--	EP/WQS
Biochemical Oxygen Demand (5 day)						
Dec. - Feb.	mg/L	360	710	117	175	ABS/EP
March	mg/L	360	710	54	82	ABS/EP
Apr. - Oct.	mg/L	140	270	27	41	ABS/EP
November	mg/L	360	710	50	75	ABS/EP
pH	SU	6.5 - 9.0		--	--	EP/WQS
Total Suspended Solids	mg/L	237	355	269	403	ABS/EP
Oil & Grease	mg/L	10 maximum		--	--	EP/WQS
Ammonia	mg/L	2.2	3.3	3.7	2.5	EP
Selenium	µg/L	----- Monitor -----				WLA
Barium	µg/L	----- Monitor -----				EP
Lead	µg/L	----- Monitor -----				EP
Copper	µg/L	----- Monitor -----				EP
Phenol	µg/L	1210	9400	1.24	9.63	WLA
beta-Lindane	µg/L	----- Monitor -----				WLA
Bis(2-ethylhexyl)phthalate	µg/L	----- Monitor -----				WLA
Flow Rate	MGD	----- Monitor -----				EP/M
Cyanide, Free	µg/L	----- Monitor -----				WLA
Whole Effluent Toxicity - Acute						
<i>Ceriodaphnia dubia</i>	TU _a	--	1.0	--	--	WLA
<i>Pimephales promelas</i>	TU _a	--	1.0	--	--	WLA
Whole Effluent Toxicity - Chronic						
<i>Ceriodaphnia dubia</i>	TU _c	3.02	--	--	--	WLA
<i>Pimephales promelas</i>	TU _c	3.02	--	--	--	WLA
Total Filterable Residue	mg/L	----- Monitor -----				WLA
<u>Outfall 002</u>						
Flow Rate	MGD	----- Monitor -----				EP/M ^c
Whole Effluent Toxicity - Acute						
<i>Ceriodaphnia dubia</i>	TU _a	----- Monitor -----				WLA
<i>Pimephales promelas</i>	TU _a	----- Monitor -----				WLA
Whole Effluent Toxicity - Chronic						
<i>Ceriodaphnia dubia</i>	TU _c	----- Monitor -----				WLA

<i>Pimephales promelas</i>	TU _c	----- Monitor -----	WLA
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^a Effluent loadings for ammonia are based on a flow rate of 0.30 MGD. Effluent loadings for phenol are based on a flow rate of 0.27 MGD.

- ^b Definitions:
- ABS** = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l))
 - BEJ** = Best Engineering Judgment
 - EP** = Existing Permit
 - M** = BEJ of Permit Guidance 2: Determination of Sampling Frequency Formula for Industrial Waste Discharges
 - WLA** = Wasteload Allocation procedures (OAC 3745-2)
 - WQS** = Ohio Water Quality Standards (OAC 3745-1)

^c Monitoring of flow is specified to assist in the evaluation of effluent quality and treatment plant performance.

Attachment 1. Federal Effluent Guideline Limitation Calculations

Federal effluent guideline limitations for 40 CFR 430 (Pulp, Paper, and Paperboard Point Source Category), Subpart J (Secondary Fiber Non-Deink Subcategory):

BPT - 40 CFR 430.102

<i>Units</i>	<i>kg/kg</i>		<i>kg/day</i>		<i>mg/L</i>	
	<i>30 day</i>	<i>Daily max</i>	<i>30 day</i>	<i>Daily max</i>	<i>30 day</i>	<i>Daily max</i>
<i>Parameters</i>						
BOD ₅	2.8	5.7	685	1394	669	1361
TSS	4.6	9.2	1125	2250	1099	2197

BAT - 40 CFR 430.104

<i>Units</i>	<i>kg/kg</i>		<i>kg/day</i>		<i>mg/L</i>	
	<i>30 day</i>	<i>Daily max</i>	<i>30 day</i>	<i>Daily max</i>	<i>30 day</i>	<i>Daily max</i>
<i>Parameters</i>						
Pentachlorophenol	--	0.00087	--	0.2128	--	0.2078
Trichlorophenol	--	0.0003	--	0.0734	--	0.0716

Production = (269.5 tons/day) * (2000 lbs/ton) * (1 kg/2.204 lbs) * (1 kkg/1000 kg) = 244.6 kkg/day

Flow rate = 0.27 MGD

BAT = Best available technology economically achievable for secondary fiber non-deink facilities where paperboard from wastepaper is produced.

BOD₅ = biochemical oxygen demand (5 day)

BPT = Best practicable control technology for secondary fiber non-deink facilities where paperboard from wastepaper is produced – corrugating medium finish subdivision.

TSS = total suspended solids