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 **Rock-Tenn Company**

Public Notice No.: 13-05-014
Public Notice Date: May 3, 2013
Comment Period Ends: June 2, 2013

OEPA Permit No.: **0IA00005*MD**
Application No.: **OH0004235**

Name and Address of Applicant:

RockTenn CP, LLC
500 North Fourth
Street Coshocton, OH
43812

Name and Address of Facility Where Discharge Occurs:

RockTenn CP, LLC
500 North Fourth Street
Coshocton, OH 43812

Receiving Water: **Tuscarawas River**

Subsequent
Stream Network: **Muskingum River to 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

This draft permit contains several changes to the limits and monitoring requirements for the main process discharge, Outfall 003. Based on production increases at the facility, limits for 5-day biochemical oxygen demand (BOD5) and total suspended solids have been increased to the limits that were in effect 1992-2008. The permit contains requirements for the facility to meet a monthly mercury limit of 12 ng/l. A 36-month compliance schedule has been included to allow the facility time to meet the limit. The facility may try to justify an individual mercury variance if these limits cannot be met without causing economic harm to the area.

Limits for ammonia-nitrogen and copper at this outfall have been removed because the discharge no longer has the reasonable potential to contribute to excursions above water quality standards for these pollutants. Monitoring requirements for ammonia-N and copper remain in the permit. A new monitoring requirement for boron has been added. Monitoring for boron is required by Ohio's permit rule OAC 3745-33-07(A)(2).

For outfall 002 copper monitoring has been removed from the draft permit due to the low number of detections and low concentrations discharged with respect to the wasteload allocation. Monitoring for total dissolved solids has been added based on OAC Rule 3745-33-07(A)(2).

For outfall 004 copper monitoring has been removed from the draft permit due to few detections and low effluent concentrations with respect to the WLA. Limits for residual chlorine are included in the draft permit because this outfall has the reasonable potential to contribute to exceedances of inside-mixing zone maximum water quality standards. A 24-month compliance schedule is included in the permit to allow time for the facility to meet the limit.

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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 Eric Nygaard at (614) 644-2024 (eric.nygaard@epa.state.oh.us) or Aaron Pennington at (740) 380-5272 (aaron.pennington@epa.state.oh.us).

Location of Discharge/Receiving Water Use Classification

Rock-Tenn discharges to the Tuscarawas River at River Miles (RMs) 1.17 (Outfall 002), 1.04 (Outfall 003) and 0.4 (Outfall 004). Figure 1 shows the approximate location of the facility.

This segment of the the Tuscarawas River is described by Ohio EPA River Code: 17-500, U.S. EPA River Reach #: 05040001-001, County: Coshocton, Ecoregion: Western Allegheny Plateau. This segment of the Tuscarawas River is designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-24): 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

Rock-Tenn's Coshocton Mill makes corrugated papers from virgin wood chips and recycled fiber. Soda ash is used to cook the wood chips. The cooked chips and recycled fiber are blended and sent to one of two paper machines. Together, both machines produce about 940 tons of corrugated medium per day.

The process operations performed at this facility are classified by the Standard Industrial Classification (SIC) code 2631, "Paper Products". Discharges resulting from process operations are therefore subject to Federal Effluent Guideline Limitations, contained in Chapter 40 of the Code of Federal Regulations, Part 430, "Pulp and Paper Manufacturing" Industrial Category, specifically Subpart F, Semi-Chemical Subcategory.

Description of Existing Discharge

The process water discharge at Rock-Tenn is Outfall 003. This outfall contains treated process water from the paper machines. Treatment consists of grit removal, primary clarification, aerated settling basins, and secondary clarification. This outfall structure has a diffuser in the center of the Tuscarawas River flow to rapidly mix any darker colored effluent or acute toxicity that may occur. The plant water sources are groundwater wells and finished water from the City of Coshocton.

Sludge from the treatment plant is either burned in the boiler system or disposed at a solid waste landfill.

Outfalls 002 and 004 contain non-contact cooling water and storm water from the plant. Non-contact cooling waters are equipment cooling and other systems that do not come into contact with products or wastes at the plant.

Tables 1-3 present chemical specific data compiled from the NPDES renewal application and data collected by Ohio EPA.

Table 4 presents a summary of unaltered Discharge Monitoring Report (DMR) data for outfalls 002, 003 and 004. Data are presented for the period January 2007-August 2012, and current permit limits are provided for comparison.

Table 6 summarizes the chemical specific data for outfalls 002, 003 and 004 by presenting the average and maximum Projected Effluent Quality (PEQ) values.

Table 5 summarizes the results of acute whole effluent toxicity tests of the final effluent.

Assessment of Impact on Receiving Waters

There has not been any recent sampling in the Tuscarawas River in the immediate vicinity of Rock-Tenn Paper. The 2012 Integrated Water Quality Report reports that this segment of the Tuscarawas River has no aquatic life impairments, based on data collected in 2004-05. A summary of the attainment status for this segment of the Tuscarawas River is in the Attachment to this Fact Sheet.

In 2006, fish and macroinvertebrate communities were sampled in the upper Muskingum River just downstream of the Tuscarawas/Walhonding River confluence, several river miles downstream of the Rock–Tenn discharges. Results revealed full attainment of the Muskingum River WWH aquatic life use designation at sites located immediately downstream from the interactive segment which includes Rock-Tenn, Coshocton WWTP, AK Steel, and the Columbus Southern Power – Conesville Plant. Based on biological monitoring results from 2006, these facilities were not causing impairment to the Muskingum River biological communities.

Additional detail regarding the 2006 sampling can be found through the OEPA website at: http://www.epa.state.oh.us/dsw/document_index/psdindx.aspx.

Ohio EPA approved final TMDLs for the Tuscarawas River on July 27, 2009. This segment of the river had no TMDLs because there were no aquatic life or recreational impairments found in this segment. The TMDL did not address the noted fish tissue impairments due to PCB compounds and hexachlorobenzene.

Ohio EPA is not aware of any detections of these compounds at Rock-Tenn, or any information to suggest that the company's discharges contain either of these pollutants.

A copy of the Tuscarawas River TMDL report can be found on the Ohio EPA web site: http://epa.ohio.gov/portals/35/tmdl/TuscarawasRiverTMDL_final_jul09_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.

This facility is considered to be interactive for conservative parameters with AK Steel - Coshocton, the Coshocton WWTP and Columbus Southern Power - Conesville. All of these entities discharge to the Muskingum and the Tuscarawas River in the vicinity of Rock-Tenn Paper. The CONSWLA (conservative substance wasteload allocation) model was used to distribute effluent loadings between these entities.

Parameter Selection
Effluent data for Rock-Tenn Paper were used to determine what parameters should undergo wasteload allocation. The sources of effluent data are as follows:

Self-monitoring data (DMR)	January 2007 through April 2012
Application Form 2C	2012

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

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

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia-N	Average	Summer/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 8), and allocations cannot exceed the Inside Mixing Zone Maximum criteria. Effluent temperature measurements were evaluated and plant thermal loads meet Ohio WQS for temperature.

The data used in the WLA are listed in Tables 7 and 8. Flows for Rock-Tenn's outfalls are the 95th percentile of monthly average values for January 2007 to February 2012:

002 – 7.87 MGD
003 – 2.65 MGD
004 – 0.155 MGD

The wasteload allocation results to maintain all applicable criteria are presented in Table 9.

Reasonable Potential
The preliminary effluent limits are the lowest average WLA (average PEL) and the maximum WLA (maximum PEL). To determine the reasonable potential of the discharger to exceed the WLA for each parameter, the facility's effluent quality is compared to the preliminary effluent limits. The average PEQ value (Table 6) is compared to the average PEL, and the maximum PEQ value is compared to the maximum PEL. Based on the calculated percentage of the respective average and maximum comparisons, the parameters are assigned to "groups", as listed in Tables 10-12.

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 Rock-Tenn Paper, the wasteload allocation values are:

Outfall 002; 1.0 TU_a and 23.37 TU_c
Outfall 003; 6.6 TU_a and 70.13 TU_c
Outfall 004; 1.0 TU_a and 1130. TU_c

The WLA values for Outfall 003 reflect the initial dilution caused by the diffuser structure.

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 9. The average PEL (PEL_{avg}) is compared to the average PEQ (PEQ_{avg}) from Table 6, and the PEL_{max} is compared to the PEQ_{max}. Based on the calculated percentage of the allocated value [($PEQ_{avg} \div PEL_{avg}$) 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 Tables 10-12.

The final effluent limits are determined by evaluating the groupings in conjunction with other applicable rules and regulations. Tables 13-14 present the final effluent limits and monitoring requirements proposed for Rock-Tenn outfalls 002, 003 and 004 and the basis for their recommendation.

Outfall 002
Most of the monitoring requirements at this outfall would remain the same in the draft permit – Testing for Temperature, dissolved oxygen, 5-day biochemical oxygen demand (BOD5), total suspended solids and flow would continue in this permit. None of these pollutants have the reasonable potential to contribute to excursions from WQS, nor do any treatment-technology-based controls apply.

Limits proposed for pH are based on Water Quality Standards (OAC 3745-1-07).

Ohio EPA risk assessment (Table 10) places total dissolved solids (total filterable residue) in group 4. This placement as well as the data in Tables 1, 4 and 6 support that this parameter does 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).

Monitoring requirements for copper are not being continued in the draft permit because this discharge does not have the reasonable potential to contribute to copper WQS exceedances. The DMR record (Tables 4 and 6) show few detections of copper at Outfall 002.

Outfall 003
The current limits and monitoring requirements for pH and dissolved oxygen, based on WQS, would be retained in the draft permit. Monitoring requirements for temperature and phosphorus would continue in the new permit.

The Ohio EPA risk assessment (Table 11) places mercury in group 5. This placement as well as the data in Tables 2, 4 and 6 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For mercury, 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 final limits are based on water quality standards at the discharge.

Rock-Tenn cannot currently meet these limits and would be granted a compliance schedule to meet the lower limits. Rock-Tenn was granted a mercury variance in the last permit, and conducted a Pollutant Minimization Program to reduce the level of mercury in the discharge. The company has reduced the PEQavg values from 67 nanograms per liter (ng/l) to 53 ng/l, and annual average values have dropped from approximately 30 ng/l to near 12 ng/l. Rock-Tenn has met the 12 ng/l rolling annual average requirement of the mercury variance at times – November 2012 to February 2013 in particular; however, the company is not confident that this level can be consistently achieved.

As a result, Rock-Tenn submitted an individual variance application in December 2012; however, this variance application did not address the site-specific treatment and cost analyses required by the individual variance rule, and cannot be approved as it is. The permit contains a 36 month compliance schedule to allow the company to evaluate treatment alternatives and meet the WQ-based limit. They may update the variance request during this time if they wish. All individual variance applications must be approved by U.S. EPA Region V.

Ohio EPA risk assessment (Table 11) places barium, boron, copper and total dissolved solids in group 4. This placement as well as the data in Tables 2, 4 and 6 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. Monitoring for Group 4 pollutants (where PEQ exceeds 50 percent of the WLA) is required by OAC Rule 3745-33-07(A)(2).

Monitoring requirements for ammonia-nitrogen and phosphorus would continue in the new permit to track nutrient discharges. The company adds these nutrients to the treatment system to assist with biological treatment; paper wastewater is deficient in these nutrients and treatment would not occur efficiently without them.

Temperature monitoring would also be continued to monitor the thermal load from the plant.

BCT treatment-technology-based limits for the Pulp and Paper Industry, found in 40 CFR Part 430, are based on the kilograms of pollutant allowed to be discharged per 1000 kg. of production. The plant production rates used are the maximum 30-day average rates for the past five years. Limits are calculated as follows: BOD5 limits (kg./day) = BCT (kg./kkg.) x production (kkg./day). As an example, the 30-day BOD5 BCT is calculated as:

BCT = 4.35 kg/kkg x 940 tons/day x 0.908 kkg/ton = 3713 kg/day.

BCT allocations for maximum BOD5 limits and TSS limits are calculated in the same way. All of the calculations are shown in Appendix 2 of this fact sheet.

The limits for total suspended solids and BOD5 are based on Ohio's Antidegradation Rule and past BCT calculations; these limits are protective of Ohio WQS. The BCT limits calculated based on current production rates are higher than the current permit limits due to increased production. The Agency may increase limits under Ohio's Antibacksliding Rule [OAC 3745-33-05(F)] because updated production information is new information under this rule, and therefore a basis to increase limits.

Because Rock-Tenn has not requested additional load in their application, Ohio EPA cannot use the BCT allowances as permit limits. The Agency can, however, allow limits associated with "previously authorized or documented production or treatment capacity" without going through an Antidegradation Rule review [see OAC 3745-1-05(B)(2)(b)(i)]. Specifically, the draft limits are permit limits that were in effect from August 1992 through July 2008, based on BCT calculations at that time. These limits are the highest BCT limits that the Agency has authorized during the time that BCT treatment has been available at this plant (from June 1980 to the present). These limits were reviewed under the antidegradation rules or procedures at the time they were approved, and are exempt from further antidegradation review. A brief history of Rock-Tenn's limits for this period is shown in Table A. below:

Table A. Limits History for BOD5 and TSS at Outfall 0IA00005003.

Time Period	Parameter	Avg. Limit (kg/day)	Max. Limit (kg/day)
6/80 – 4/84	BOD5	2969	5938
	TSS	3754	7508
5/84 – 9/90	BOD5	3199	6398
	TSS	4045	8089
10/90 – 7/92	BOD5	3199	5560
	TSS	4045	8089
8/92 – 7/08	BOD5	3559	7118
	TSS	4500	9000
8/08 - current	BOD5	3413	6827
	TSS	4316	8632

BAT standards exist for trichlorophenol and pentachlorophenol. These apply to plants that use chlorophenolic biocides. As an alternative to monitoring these parameters, permittees may certify that they do not use these materials. Rock-Tenn has certified this in their application. In place of monitoring and limits for these biocides, the permit contains a prohibition on the discharge of chlorphenolic biocides in Part II of the permit.

Outfall 004

Most of the monitoring requirements at this outfall would remain the same in the draft permit – Testing for Temperature, dissolved oxygen, 5-day biochemical oxygen demand (BOD5), total suspended solids and flow would continue in this permit. None of these pollutants have the reasonable potential to contribute to excursions from WQS. The current limits for total suspended solids would be continued in the new permit.

Limits proposed for pH are based on Water Quality Standards (OAC 3745-1-07).

The Ohio EPA risk assessment (Table 11) places chlorine in group 5. This placement as well as the data in Tables 3, 4 and 6 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For chlorine, the wasteload is based on WQS to meet the inside- mixing-zone maximum WQS. Ohio EPA recognizes that this limit is less than the analytical quantification level for the chlorine test method. Part II, Item H contains the quantification level used as the compliance level for chlorine.

Monitoring requirements for copper are not being continued in the draft permit because this discharge does not have the reasonable potential to contribute to copper WQS exceedances. The DMR record (Tables 4 and 6) show few detections of copper at Outfall 002.

Whole Effluent Toxicity Reasonable Potential
Based on evaluating the whole effluent toxicity data presented in Table 5 and other pertinent data under the provisions of OAC 3745-33-07(B), the Rock-Tenn Outfall 003 discharge is placed in Category 3 with respect to whole effluent toxicity. While most of the toxicity metrics show no issues with this discharge, the frequency of toxicity detected indicates that infrequent testing should continue to be required to ensure that toxicity remains within WLA values.

It does not appear that any of the acute tests exceeded the 6.6 TUa WLA for this outfall, although one test showed an indeterminate toxicity to fathead minnows (>1.0 TUa). The only near-field test was taken on this occasion and showed insignificant levels of toxicity (10% acute effect). None of the chemical data suggests a source of toxicity. The discharge did show at least low levels of acute toxicity on four occasions (40%, 30%, 100%, and 25% mortality in 100% effluent). With acute toxicity present in one-third of the samples, continuing semi-annual acute toxicity testing is justified. Chronic testing is not being required; based on the wasteload allocations, it seems clear that acute toxicity standards are more limiting for this discharge.

Outfalls 002 and 004 have not shown toxicity in previous tests. A review of chemical data for these outfalls indicates that toxicity should not be present in these outfalls.

Other Requirements

Compliance Schedule
A 36 month compliance schedule is proposed for the company to meet mercury limits.

A 24-month compliance schedule is proposed for the company to meet the residual chlorine limit at Outfall 004.

Storm Water Compliance
The draft permit contains revised Parts IV, V and VI to address storm water controls and best management practices. The updated language is based on Ohio's Multi-Sector Industrial Storm Water General Permit, with more detailed requirements for storm water. Ohio EPA believes that storm water controls should be the same, regardless of whether covered under a general permit or an individual permit.

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

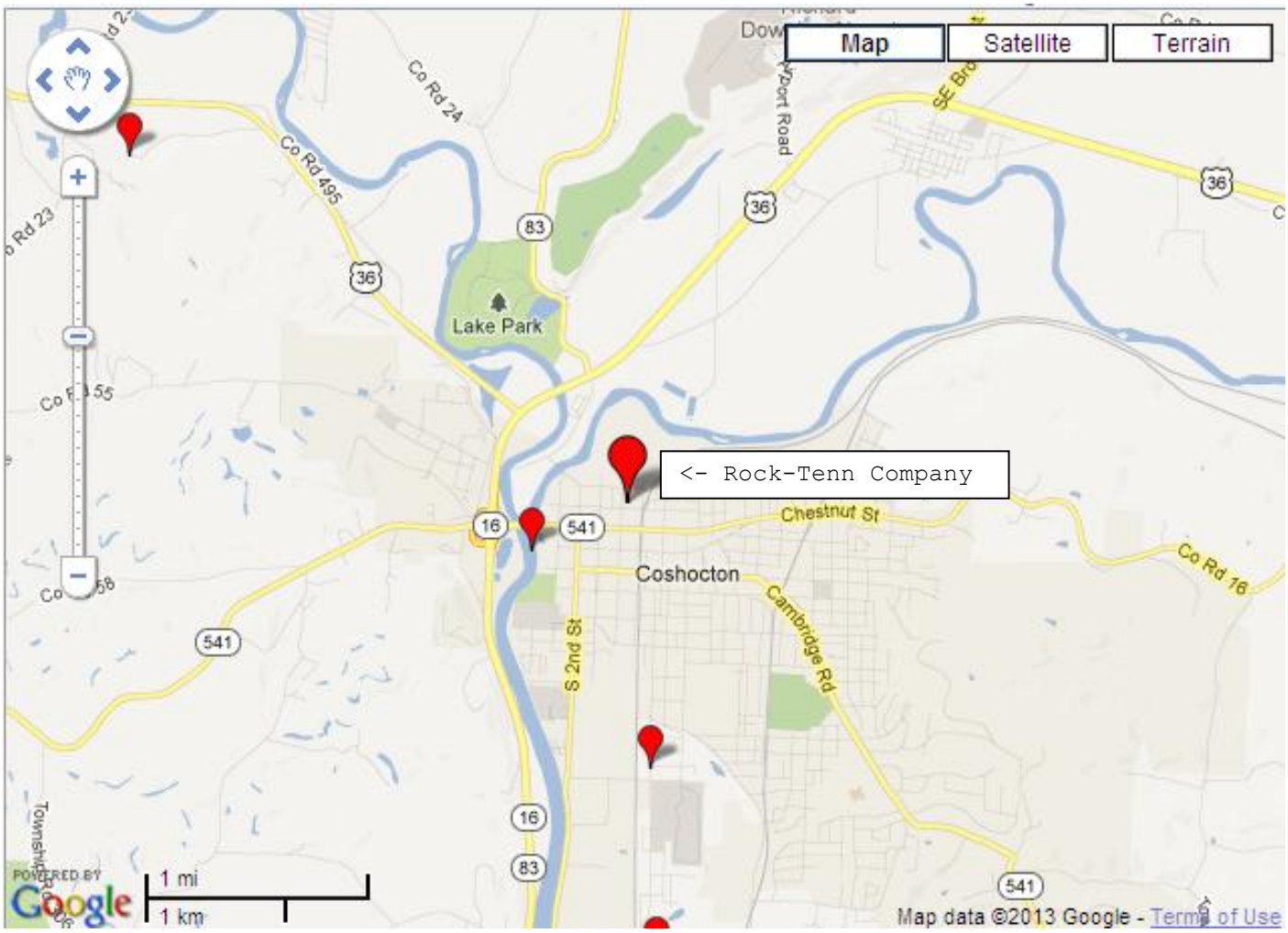

Figure 1. Approximate location of the Rock-Tenn Company Coshocton Plant.

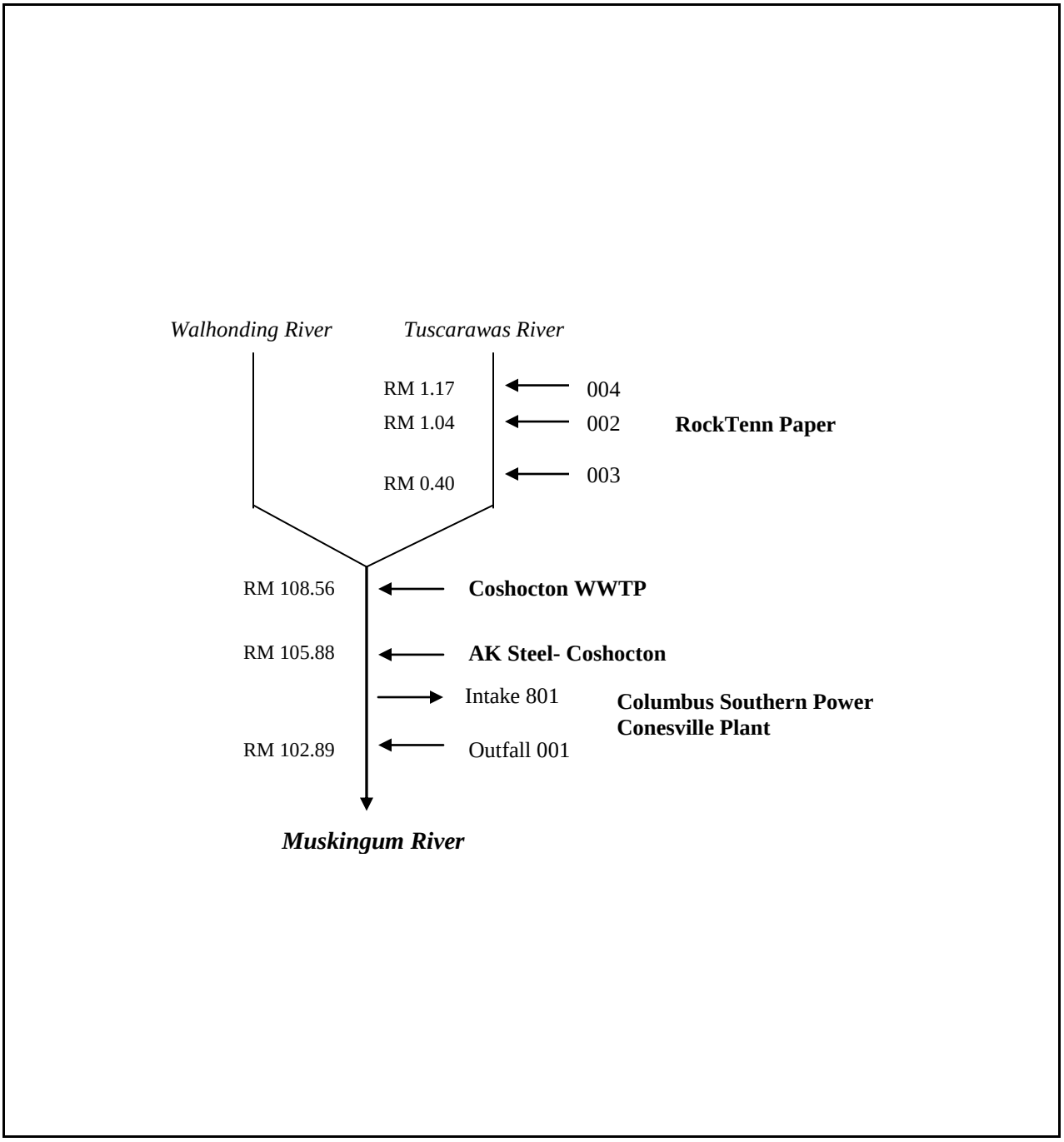

Figure 2. Coshocton Study Area.

Table 1. Effluent Characterization Using Ohio EPA Data and Application Data

Summary of analytical results for Rock-Tenn Company outfall 0IA00005002. All values are in ug/l unless otherwise indicated. OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results.

	OEPA		Rock-Tenn Application			DECISION CRITERIA	
PARAMETER	04/05/11		N	mean	maximum	PEQ_{avg}	PEQ_{max}
BOD5 mg/l	<2.0		12	0.95	1.5		
Dissolved Solids mg/l 510		NA	NA	NA	2308	3162	
Suspended Solids mg/l	<5		12	1.18	2.9		
Temp. Summer ^{o}C	NA		127	27.1	38		
Temp. Winter ^{o}C	NA		124	21	25.8		
Fluoride mg/l	NA		1	--	0.166	0.751	1.029
Sulfate mg/l	NA		1	--	129	583.9	799.8
Nitrate/Nitrite-N mg/l NA		1	--	0.431	1.951	2.672	
Organic N mg/l	NA		1	--	0.964		
Phosphorus mg/l	NA		1	--	0.074	0.335	0.459
Hardness mg/l	333		NA	NA	NA		
Aluminum	<200		1	--	167	463.3	634.6
Barium	69		1	--	<100	153.3	210
Iron	292		1	--	159	810	1110
Magnesium mg/l	22		1	--	16.8	61.03	83.6
Manganese	335		1	--	495	1373	1881
Nickel	3.1		1	--	20	55.48	76.0
Potassium mg/l	4		NA	NA	NA	18.1	24.8
Strontium	236		NA	NA	NA	1068	1463
Tin	NA		1	--	23	104.1	142.6

Table 2. Effluent Characterization Using Ohio EPA Data and Application Data

Summary of analytical results for Rock-Tenn Company outfall 0IA00005003. All values are in ug/l unless otherwise indicated. OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results; * = CBOD result; duplicate values are grab sample results from the sampling period.

	OEPA	Rock-Tenn Application			DECISION CRITERIA	
PARAMETER	04/05/11	N	mean	maximum	PEQ_{avg}	PEQ_{max}
BOD5 mg/l	13*	136	80	225		
COD mg/l	21	NA	NA	NA		
Dissolved Solids mg/l	2520 NA	NA	NA	2677	3020	
Suspended Solids mg/l	76	136	226	763		
Temp. Summer ^{o}C	NA	127	26	30		
Temp. Winter ^{o}C	23.00/10.44	124	16.3	20.3		
Chloride mg/l	107	NA	NA	NA	484.3	663.4
Fluoride mg/l	NA	1	--	1.12	1.87	2.56
Ammonia-N mg/l	0.052	23	0.56	1.19	0.937	1.473
Nitrate/Nitrite-N mg/l	0.18 1	--	3.93	10.9	14.93	
Organic N mg/l	9.49	1	--	20.6		
Phosphorus mg/l	4.73	131	4.56	11	15.11	21.25
Surfactants mg/l	NA	1	--	20.5		
Hardness mg/l	288	NA	NA	NA		
Aluminum	1100	1	--	1595	4425	6061
Arsenic	13.6	1	--	22	61.03	83.6
Barium	204	48	227.6	375	299.6	369.6
Boron	NA	1	--	1570	7106	9734
Chromium	10.8	1	--	21	58.25	79.8
Copper	9.5	48	19	36	30.94	41.9
Iron	573	1	--	1125	3121	4275
Lead	6.4	1	--	13	20.44	33.21
Magnesium mg/l	19	1	--	21.2	58.81	80.56
Manganese	196	1	--	237	657.4	900.6
Nickel	5.1	1	--	40	111	152
Potassium mg/l	66	NA	NA	NA	298.7	409.2
Strontium	285	NA	NA	NA	538.7	738
Tin	NA	1	--	15	67.89	93.0
Titanium	NA	1	--	33	149.4	204.6
Zinc	50	1	--	62	123.9	181
Cyanide, T.	14	1	--	<20	55.48	76.0
Phenolics, T.	92.8	1	--	105	291.3	399
Chloromethane	1.12	1	--	<5	5.069	6.944

Table 3. Effluent Characterization Using Ohio EPA Data Ohio EPA Data and Application Data

Summary of analytical results for Rock-Tenn Company outfall 0IA00005004. All values are in ug/l unless otherwise indicated. OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results.

	OEPA		Rock-Tenn Application			DECISION CRITERIA	
PARAMETER	04/05/11		N	mean	maximum	PEQ_{avg}	PEQ_{max}
BOD5 mg/l	<2.0		48	0.92	4.6		
Dissolved Solids mg/l 166		NA	NA	NA	751.3	1029	
Suspended Solids mg/l	26		48	6.3	34.3		
Temp. Summer ^{o}C	NA		127	22.9	30		
Temp. Winter ^{o}C	NA		124	19.6	26		
Chlorine Res. mg/l	NA		1	--	1.24	5.612	7.688
Fluoride mg/l	NA		1	--	0.759	3.435	4.706
Sulfate mg/l	NA		1	--	33	149.4	204.6
Nitrate/Nitrite-N mg/l NA		1	--	0.76	3.44	4.712	
Organic N mg/l	NA		1	--	1.03		
Phosphorus mg/l	NA		1	--	0.727	3.29	4.507
Surfactants mg/l	NA		1	--	1.4		
Hardness mg/l	101		NA	NA	NA		
Aluminum	540		1	--	1049	2910	3986
Barium	37		1	--	<100	167.5	229.4
Copper	6.9		13	<10	<10	17.08	23.4
Iron	1530		1	--	2020	5603	7676
Lead	3.1		1	--	4	11.1	15.2
Magnesium mg/l	10		1	--	9.4	27.74	38.0
Manganese	71		1	--	101	280.2	383.8
Nickel	2.4		1	--	<20	10.86	14.88
Potassium mg/l	2		NA	NA	NA	9.052	12.4
Strontium	96		NA	NA	NA	434.5	595.2
Tin	NA		1	--	19	85.99	117.8
Titanium	NA		1	--	21	95.05	130.2
Zinc	56		1	--	59	163.7	224.2

Table 4. Effluent Characterization Using Self-Monitoring Data

Summary of current permit limits and unaltered discharge monitoring report (DMR) data for Rock-Tenn outfalls 0IA00005002, 0IA00005003 and 0IA00005004. All values are based on annual records unless otherwise indicated. N = Number of Analyses. * = For pH, 5th percentile shown in place of 50th percentile; ** = For dissolved oxygen, 5th percentile shown in place of 95th percentile. Decision Criteria: PEQ_{avg} = monthly average; PEQ_{max} = daily maximum analytical results.

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range	Decision Criteria		
			30 day	Daily		50th	95th		# Obs.	PEQ_{ave}	PEQ_{max}
Outfall 002											
Water Temperature	Annual	C		Monitor	1418	27	33	9-46			
Dissolved Oxygen	Summer	mg/l		Monitor	34	7.15	7.81	3.6-8.9			
Dissolved Oxygen	Winter	mg/l		Monitor	34	7.55	8.94	4-9.5			
Biochemical Oxygen Demand, 5 Day	Summer	mg/l		Monitor	34	0	1.31	0-2.6			
Biochemical Oxygen Demand, 5 Day	Winter	mg/l		Monitor	34	0.15	1.47	0-2.2			
Biochemical Oxygen Demand, 5 Day	Summer	kg/day	--	--	34	0	30.1	0-54			
Biochemical Oxygen Demand, 5 Day	Winter	kg/day	--	--	34	2.48	39.7	0-49.2			
pH	Annual	S.U.		6.5 to 9.0	1418	7.5	7.7	6.5-9.3			
Total Suspended Solids	Annual	mg/l		Monitor	68	0.95	2.5	0-4.3			
Total Suspended Solids	Annual	kg/day	--	--	68	20	51.6	0-132			
Barium Total (Ba)	Annual	ug/l	--	--	19	0	15	0-150	20	153	210
Barium Total (Ba)	Annual	kg/day	--	--	19	0	0.288	0-2.88			
Copper, Total (Cu)	Annual	ug/l		Monitor	69	0	0	0-81	24	9.49	13.0
Copper, Total (Cu)	Annual	kg/day	--	--	69	0	0	0-2.71			
Zinc, Total Recoverable	Annual	ug/l	--	--	19	0	15.5	0-20	19	15.48	21.2
Zinc, Total Recoverable	Annual	kg/day	--	--	19	0	0.296	0-0.315			
Flow Rate	Annual	MGD		Monitor	2054	5.97	8.83	0.054-10.1			

Outfall 003

Water Temperature	Annual	C		Monitor	1422	21.3	29.3	10-31.9			
Total Precipitation	Annual	Inches		Monitor	1435	0	0.9	0-3.5			
Dissolved Oxygen	Summer	mg/l	--	5.0	401	6.5	8.4	5-13.3			
Dissolved Oxygen	Winter	mg/l	--	5.0	406	7.1	9.58	5-12.9			
Biochemical Oxygen Demand, 5 Day	Summer	mg/l		Monitor	392	45.6	109	10-280			
Biochemical Oxygen Demand, 5 Day	Winter	mg/l		Monitor	404	124	292	7.5-461			
Biochemical Oxygen Demand, 5 Day	Summer	kg/day	3413	6827	392	408	944	33.7-1980			
Biochemical Oxygen Demand, 5 Day	Winter	kg/day	3413	6827	404	1140	2560	61.7-4640			
pH	Annual	S.U.	6.5 to 9.0		1422	8.1	8.4	7.2-8.6			
Residue, Total Dissolved	Annual	mg/l		Monitor	798	2520	2980	1130-3810	283	2677	3020
Residue, Total Dissolved	Annual	kg/day	--	--	798	22700	27400	4470-40000			
Total Suspended Solids	Annual	mg/l		Monitor	799	199	614	41.3-1090			
Total Suspended Solids	Annual	kg/day	4316	8632	799	1800	5190	139-11000			
Nitrogen, Ammonia (NH3)	Summer	mg/l	11.7	--	135	0.45	3.28	0-10	32	0.937	1.473
Nitrogen, Ammonia (NH3)	Winter	mg/l	11.7	--	1	0.3	0.3	0.3-0.3	1	1.358	1.86
Nitrogen, Ammonia (NH3)	Summer	kg/day	106.3	--	135	4.17	23.7	0-79			
Nitrogen, Ammonia (NH3)	Winter	kg/day	106.3	--	1	2.98	2.98	2.98-2.98			
Phosphorus, Total (P)	Annual	mg/l		Monitor	215	3.5	13.5	0.15-20.5	40	15.11	21.25
Phosphorus, Total (P)	Annual	kg/day	--	--	215	30.3	118	1.29-173			
Fluoride, Total (F)	Annual	mg/l	--	--	6	0.991	1.18	0.88-1.22	6	1.87	2.562
Fluoride, Total (F)	Annual	kg/day	--	--	6	9.62	11.3	7.8-11.5			
Barium, Total Recoverable	Annual	ug/l		Monitor	269	250	380	0-510	94	299.6	369.6
Barium, Total Recoverable	Annual	kg/day	--	--	269	2.21	3.5	0-5.19			
Copper, Total (Cu)	Annual	ug/l	76	78	269	20	35	0-54	94	30.94	41.9
Copper, Total (Cu)	Annual	kg/day	0.69	0.708	269	0.171	0.294	0-0.609			
Lead, Total (Pb)	Annual	ug/l	--	--	19	9	21.7	0-28	20	20.44	33.21
Lead, Total (Pb)	Annual	kg/day	--	--	19	0.0779	0.234	0-0.316			
Strontium, Total (Sr)	Annual	ug/l	--	--	6	315	366	294-369	7	538.7	738
Strontium, Total (Sr)	Annual	kg/day	--	--	6	2.94	3.77	2.6-3.96			

Zinc, Total Recoverable	Annual	ug/l	--	--	19	69	129	37-216	20	123.9	181
Zinc, Total Recoverable	Annual	kg/day	--	--	19	0.687	1.32	0.341-2.44			
Flow Rate	Annual	MGD	Monitor		2058	2.37	2.75	0.009-3.18			
Mercury, Total (Low Level)	Annual	ng/l	64	1700	103	21.4	48.9	0-73.7	16	53.1	87.7
Mercury, Total (Low Level)	Annual	kg/day	0.00058	0.015	103	0.000191	0.000421	0-0.000651			
Acute Toxicity, Ceriodaphnia dubia	Annual	TUa	Monitor		11	0	0.4	0-0.8			
Acute Toxicity, Pimephales promelas	Annual	TUa	Monitor		11	0	0.55	0-0.6			

Outfall 004

Water Temperature	Annual	C	Monitor		1348	23	29	13-50			
Dissolved Oxygen	Summer	mg/l	Monitor		133	7.8	8.8	5.2-9.2			
Dissolved Oxygen	Winter	mg/l	Monitor		122	8.05	9.1	5.7-9.6			
Biochemical Oxygen Demand, 5 Day	Summer	mg/l	Monitor		133	0	2.82	0-5.8			
Biochemical Oxygen Demand, 5 Day	Winter	mg/l	Monitor		122	0	2.58	0-11.1			
Biochemical Oxygen Demand, 5 Day	Summer	kg/day	--	--	133	0	1.27	0-3.8			
Biochemical Oxygen Demand, 5 Day	Winter	kg/day	--	--	122	0	1.27	0-6.01			
pH	Annual	S.U.	6.5 to 9.0		1345	7.2	8.4	6-9.5			
Total Suspended Solids	Annual	mg/l	30	70	256	2.1	21	0-56.8			
Total Suspended Solids	Annual	kg/day	30.6	71.4	256	0.866	12.7	0-35.7			
Cyanide, Free	Annual	mg/l	--	--	18	0	0	0-0	18	0	0
Cyanide, Free	Annual	kg/day	--	--	18	0	0	0-0			
Copper, Total (Cu)	Annual	ug/l	Monitor		68	0	0	0-39	25	17.08	23.4
Copper, Total (Cu)	Annual	kg/day	--	--	68	0	0	0-0.0143			
Flow Rate	Annual	MGD	Monitor		1915	0.11	0.175	0.002-0.365			

Table 5. Summary of effluent acute toxicity test results for Rock-Tenn Outfall 003**.**

Test Date(a)	*Ceriodaphnia dubia 48 hours*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[e]	TUa[f]	NF[g]	UP[b]	C[c]	LC_{50}[d]	%M[e]	TUa[f]	NF[g]
06/12/07 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	10	0.2	NT
12/11/07 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	0	<1.0	NT
06/11/08 (E)	NR	NR	>100	40	0.8	NT	NR	NR	>100	0	<1.0	NT
10/29/08 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	10	0.2	NT
06/17/09 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	0	<1.0	NT
10/21/09 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	30	0.6	NT
06/09/10 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	0	<1.0	NT
10/05/10 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	0	<1.0	NT
04/05/11 (O)	0	50	100	40-55	1.0	5	0	0	<100	90-100	>1.0	10
06/06/11 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	0	<1.0	NT
10/04/11 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	25	0.5	NT
06/04/12 (E)	NR	NR	>100	0	<1.0	NT	NR	NR	>100	10	0.2	NT

Table 5. Summary of effluent acute toxicity test results - continued**.**

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[g] NF = near field sample – manual 1:1 effluent/upstream
[d] LC_{50} = median lethal concentration
[e] %M = percent mortality in 100% effluent
[f] TUa = acute toxicity units
NR = not reported in OEPA database
NT = not tested
[c] C = laboratory water control

Table 6. Effluent Data for Rock-Tenn Paper

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Outfall 002					
Self-Monitoring (DMR) Data					
Barium	µg/l	20	2	153.3	210.
Copper	µg/l	24	1	9.49	13.0
Zinc	µg/l	19	9	15.48	21.20
Form 2.C. Application Data					
TDS	mg/l	1	1	2308.	3162.
Fluoride	µg/l	1	1	751.3	1029.
Sulfate	mg/l	1	1	583.9	799.8
NO_3+NO_2	mg/l	1	1	1.951	2.672
Phosphorus	mg/l	1	1	0.335	0.459
Aluminum	µg/l	2	1	463.3	634.6
Iron	µg/l	2	2	810.	1110.
Magnesium	mg/l	2	2	61.03	83.6
Manganese	µg/l	2	2	1373.	1881.
Nickel	µg/l	2	2	55.48	76.0
Potassium	mg/l	1	1	18.1	24.8
Strontium	µg/l	1	1	1068.	1463.
Tin	µg/l	1	1	104.1	142.6

Table 6. Effluent Data for Rock-Tenn Paper – Continued.

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Outfall 003					
Self-Monitoring (DMR) Data					
TDS	mg/l	283	283	2677.	3020.
Ammonia – S	mg/l	32	32	0.937	1.473
Ammonia – W	mg/l	1	1	1.358	1.86
Phosphorus	mg/l	40	40	15.11	21.25
Fluoride	µg/l	6	6	1.87	2.562
Barium	µg/l	94	94	299.6	369.6
Copper	µg/l	94	89	30.94	41.90
Lead	µg/l	20	18	20.44	33.21
Strontium	µg/l	7	7	538.7	738.0
Zinc	µg/l	20	20	123.9	181.0
Mercury	ng/l	16	16	53.10	87.70
Form 2.C. Application Data					
Chloride	mg/l	1	1	484.3	663.4
NO_3+NO_2	mg/l	2	2	10.90	14.93
Surfactants	mg/l	1	1	92.78	127.1
Aluminum	µg/l	2	2	4425.	6061.
Arsenic	µg/l	2	2	61.03	83.60
Boron	µg/l	1	1	7106.	9734.
Chromium, tot.	µg/l	2	2	58.25	79.80
Iron	µg/l	2	2	3121.	4275.
Magnesium	mg/l	2	2	58.81	80.56
Manganese	µg/l	2	2	657.4	900.6
Nickel	µg/l	2	2	111.0	152.0
Potassium	mg/l	1	1	298.7	409.2
Tin	µg/l	1	1	67.89	93.0
Titanium	µg/l	1	1	149.4	204.6
Cyanide, tot.	mg/l	2	1	55.48	76.0
Phenolics	µg/l	2	2	291.3	399.0
Chloromethane	µg/l	2	1	5.069	6.944

Table 6. Effluent Data for Rock-Tenn Paper – Continued.

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Outfall 004					
Self-Monitoring (DMR) Data					
Cyanide, free	µg/l	18	0	--	--
Copper	µg/l	25	2	17.08	23.40
Form 2.C. Application Data					
TDS	mg/l	1	1	751.3	1029.
Chlorine, tot. res.	µg/l	1	1	5612.	7688.
Fluoride	µg/l	1	1	3435.	4706.
Sulfate	mg/l	1	1	149.4	204.6
NO_3+NO_2	mg/l	1	1	3.440	4.712
Phosphorus	mg/l	1	1	3.290	4.507
Surfactants	mg/l	1	1	6.336	8.680
Aluminum	µg/l	2	2	2910.	3986.
Barium	µg/l	2	1	167.5	229.4
Iron	µg/l	2	2	5603.	7676.
Lead	µg/l	2	2	11.10	15.20
Magnesium	mg/l	2	2	27.74	38.0
Manganese	µg/l	2	2	280.2	383.8
Nickel	µg/l	2	1	10.86	14.88
Potassium	mg/l	1	1	9.052	12.40
Strontium	µg/l	1	1	434.5	595.2
Tin	µg/l	1	1	85.99	117.8
Titanium	µg/l	1	1	95.05	130.2
Zinc	µg/l	2	2	163.7	224.2

Table 7. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria: Average: Human Health	Average: Agri-culture	Average: Aquatic Life	Maximum: Aquatic Life	Inside Mixing Zone Maximum
Antimony	µg/l	4300.	--	190.	900.	1800.
Arsenic	µg/l	--	100.	150.	340.	680.
Barium	µg/l	--	--	220.	2000.	4000.
Beryllium	µg/l	280.	100.	49.	420.	840.
Bis(2-Ethylhexyl)phthalate	µg/l	59.	--	8.4	1100.	2100.
Boron	µg/l	--	--	3900.	33000.	65000.
Cadmium	µg/l	--	50.	5.1	13.	26.
Chlorine, tot. res.	µg/l	--	--	11.	19.	38.
Chromium^{+6}, diss.	µg/l	--	--	11.	16.	31.
Chromium, tot.	µg/l	--	100.	190.	3900.	7800.
Cobalt	µg/l	--	--	24.	220.	440.
Copper	µg/l	1300.	500.	21.	34.	68.
Cyanide, free	µg/l	--	--	12.	46.	92.
Fluoride	µg/l	--	2000.	--	--	--
Iron	µg/l	--	5000.	--	--	--
Lead	µg/l	--	100.	21.	400.	810.
Mercury [A]	ng/l	12.	10000.	910.	1700.	3400.
Molybdenum	µg/l	--	--	20000.	190000.	4700.
Naphthalene	µg/l	--	--	21.	170.	340.
Nickel	µg/l	4600.	200.	120.	1000.	2100.
NO_3+NO_2	mg/l	--	100.	--	--	--
Selenium	µg/l	11000.	50.	5.0	--	--
Silver	µg/l	--	--	1.3	8.0	16.0
Strontium	µg/l	--	--	21000.	40000.	81000.
Tetrachloroethylene	µg/l	89.	--	53.	430.	850.
Thallium	µg/l	6.3	--	17.	79.	160.
Tin	µg/l	--	--	180.	1600.	3200.
Toluene	µg/l	200000.	--	62.	560.	1100.
Total Dissolved Solids (TDS)	mg/l	--	--	1500.	--	--
Zinc	µg/l	69000.	25000.	260.	260.	530.

[A] Bioaccumulative Chemical of Concern (BCC)

Table 8. Instream Conditions and Discharger Flow

Parameter	Units		Value	Basis
Tuscarawas River				
7Q10	cfs	annual	271.	USGS gage #03129000, 1937-97 data
1Q10	cfs	annual	258.	USGS gage #03129000, 1937-97 data
30Q10	cfs	summer	310.	USGS gage #03129000, 1937-97 data
		winter	549.	USGS gage #03129000, 1937-97 data
Harmonic Mean Flow	cfs	annual	1092.	USGS gage #03129000, 1937-97 data
Mixing Assumption	%	average	97	Stream-to-discharge ratio
	%	maximum	97	Stream-to-discharge ratio
Walhonding River				
7Q10	cfs	annual	233.	USGS gage #03138500, 1937-91 data
1Q10	cfs	annual	94.1	USGS gage #03138500, 1937-91 data
30Q10	cfs	summer	279.	USGS gage #03138500, 1937-91 data
		winter	417.	USGS gage #03138500, 1937-91 data
Harmonic Mean Flow	cfs	annual	836.	USGS gage #03138500, 1937-91 data
Mixing Assumption	%	average	97	Stream-to-discharge ratio
	%	maximum	97	Stream-to-discharge ratio
Instream Hardness	mg/l			
Tusc. below RockTenn Paper		annual	255.	STORET; 12 values, 2003-05
Muskingum comb. stations		annual	255.	STORET; 25 values, 2006
Discharge Flows	cfs	outfall #		
Coshocton WWTP		001	6.81	Design
AK Steel		001	3.96	DSW
CSP -Conesville		001	243.	DSW
		801 (Intake)	209.	CSP
Rock-Tenn Paper		002	12.2	DSW
		003	4.10	DSW
		004	0.240	DSW

Table 8. Instream Conditions (continued).

Parameter	Units	Value	Basis
Background Water Quality			

All Segments				
Bis(2-Ethylhexyl) Phthalate	µg/l	annual	0.	No representative data available.
Boron	µg/l	annual	0.	No representative data available.
Chlorine, total res	µg/l	annual	0.	No representative data available.
$Chromium^{+6}$, diss	µg/l	annual	0.	No representative data available.
Cyanide, free	µg/l	annual	0.	No representative data available.
Fluoride	µg/l	annual	0.	No representative data available.
Molybdenum	µg/l	annual	0.	No representative data available.
Naphthalene	µg/l	annual	0.	No representative data available.
Silver	µg/l	annual	0.	No representative data available.
Strontium	µg/l	annual	0.	No representative data available.
Tetrachloroethylene	µg/l	annual	0.	No representative data available.
Thallium	µg/l	annual	0.	No representative data available.
Tin	µg/l	annual	0.	No representative data available.
Tuscarawas River				
Arsenic	µg/l	annual	2.	STORET; 8 values, 3<MDL, 2003-04
Barium	µg/l	annual	57.	STORET; 8 values, 0<MDL, 2003-04
Cadmium	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
Chromium, tot.	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
Copper	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
Iron	µg/l	annual	2175.	STORET; 8 values, 0<MDL, 2003-04
Lead	µg/l	annual	2.2	STORET; 8 values, 5<MDL, 2003-04
Nickel	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
NO_3+NO_2	mg/l	annual	1.65	STORET; 8 values, 0<MDL, 2003-04
Selenium	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2003-04
TDS	mg/l	annual	396.	STORET; 8 values, 0<MDL, 2003-04
Zinc	µg/l	annual	16.3	STORET; 8 values, 3<MDL, 2003-04
Walhonding River				
Arsenic	µg/l	annual	2.7	STORET; 6 values, 0<MDL, 2007
Barium	µg/l	annual	60.8	STORET; 6 values, 0<MDL, 2007
Cadmium	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
Chromium, tot.	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
Copper	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
Iron	µg/l	annual	848.	STORET; 6 values, 0<MDL, 2007
Lead	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
Nickel	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
NO_3+NO_2	mg/l	annual	1.2	STORET; 6 values, 0<MDL, 2007
Selenium	µg/l	annual	0.	STORET; 6 values, 6<MDL, 2007
TDS	mg/l	annual	296.	STORET; 6 values, 0<MDL, 2007
Zinc	µg/l	annual	8.0	STORET; 6 values, 4<MDL, 2007

Table 9. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

Parameter	Units	Average Human Health	Average Agri Supply	Average Aquatic Life	Maximum Aquatic Life	Inside Mixing Zone Maximum
Outfall 002						
Barium	µg/l	--	--	521.	4530.[A]	4000.
Copper	µg/l	10570.[A]	4066.[A]	60.	78.[A]	68.
Fluoride	µg/l	--	34770.	--	--	--
Nickel	µg/l	312800.[A]	13600.[A]	2117.[A]	14020.[A]	2100.
TDS	mg/l	--	--	3645.	--	--
Tin	µg/l	--	--	3129.	26560.[A]	4000.
Outfall 003						
Ammonia – S	mg/l	--	--	139.	--	--
Ammonia – W	mg/l	--	--	414.	--	--
Arsenic	µg/l	--	17480.[A]	7143.[A]	11630.[A]	680.
Barium	µg/l	--	--	521.	4530.[A]	4000.
Boron	µg/l	--	--	12210.	83110.[A]	65000.
Chromium, tot.	µg/l	--	13150.[A]	6789.	99510.[A]	7800.
Copper	µg/l	10570.[A]	4066.[A]	60.	78.[A]	68.
Fluoride	µg/l	--	34770.	--	--	--
Iron	µg/l	--	12080.	--	--	--
Lead	µg/l	--	17290.[A]	940.[A]	13420.[A]	810.
Mercury [C]	ng/l	12.	10000.[A]	910.	1700.	3400.
Nickel	µg/l	312800.[A]	13600.[A]	2117.[A]	14020.[A]	2100.
TDS	mg/l	--	--	3645.	--	--
Tin	µg/l	--	--	3129.	26560.[A]	4000.
Zinc	µg/l	8927000.[A]	3233000.[A]	8714.[A]	6183.[A]	530.

Table 9. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria – Continued.

Parameter	Units	Average Human Health	Average Agri Supply	Average Aquatic Life	Maximum Aquatic Life	Inside Mixing Zone Maximum
Outfall 004						
Barium	µg/l	--	--	521.	4530.[A]	4000.
Chlorine, tot. res.	µg/l	--	--	34.	47.[A]	38.
Copper	µg/l	10570.[A]	4066.[A]	60.	78.[A]	68.
Fluoride	µg/l	--	34770.	--	--	--
Iron	µg/l	--	12080.	--	--	--
Lead	µg/l	--	17290.[A]	940.[A]	13420.[A]	810.
TDS	mg/l	--	--	3645.	--	--
Tin	µg/l	--	--	3129.	26560.[A]	4000.
Zinc	µg/l	8927000.[A]	3233000.[A]	8714.[A]	6183.[A]	530.

[A] Allocation must not exceed the Inside Mixing Zone Maximum.

[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 3745-2-08.

Table 10. Parameter Assessment for Outfall 002

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

Aluminum	Magnesium	Manganese
Phosphorus	Potassium	Sulfate

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

Iron	NO_3+NO_2	Strontium
Zinc		

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

Barium	Copper	Fluoride
Nickel	Tin	

Group 4: $PEQ_{max} \geq$ 50% but <100% of the maximum PEL or $PEQ_{avg} \geq$ 50% but < 100% of the average PEL. Monitoring is appropriate.

TDS

Group 5: Maximum PEQ $\geq$ 100% of the maximum PEL or average PEQ $\geq$ 100% of the average PEL,or either the average or maximum PEQ is between 75 and 100% of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.

No parameters meet the criteria of this group.

Table 11. Continued - Parameter Assessment for Outfall 003

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

Aluminum	Chloride	Chloromethane
Cyanide, tot.	Magnesium	Manganese
Phenolics	Phosphorus	Potassium
Surfactants	Titanium	

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

NO_3+NO_2	Strontium

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

Ammonia S&W	Arsenic	Chromium, tot.
Fluoride	Iron	Lead
Nickel	Tin	Zinc

Group 4: $PEQ_{max} \geq$ 50% but <100% of the maximum PEL or $PEQ_{avg} \geq$ 50% but < 100% of the average PEL. Monitoring is appropriate.

Barium	Boron	Copper
TDS		

Group 5: Maximum PEQ $\geq$ 100% of the maximum PEL or average PEQ $\geq$ 100% of the average PEL,or either the average or maximum PEQ is between 75 and 100% of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Mercury	ng/l	annual	12.	1700.

Table 12. Continued - Parameter Assessment for Outfall 004

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

Aluminum	Magnesium	Manganese
Phosphorus	Potassium	Sulfate
Surfactants	Titanium	

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

Cyanide, free	Nickel	NO_3+NO_2
Strontium		

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

Barium	Copper	Fluoride
Iron	Lead	TDS
Tin	Zinc	

Group 4: $PEQ_{max} \geq$ 50% but <100% of the maximum PEL or $PEQ_{avg} \geq$ 50% but < 100% of the average PEL. Monitoring is appropriate.

No parameters meet the criteria of this group.

Group 5: Maximum PEQ ≥ 100% of the maximum PEL or average PEQ ≥ 100% of the average PEL,or either the average or maximum PEQ is between 75 and 100% of the PEL and certain conditions that increase the risk to the environment are present. Limit recommended.

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Chlorine, tot. res.	µg/l	annual	34.	38.

Table 13. Final effluent limits and monitoring requirements for Rock-Tenn outfalls 0IA00005002 and 0IA00005004 and the basis for their recommendation.

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Outfall 002						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Temperature	°C	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Dissolved Oxygen	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
BOD_5	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Dissolved Solids	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/RP[c]
Suspended Solids	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
pH	S.U.	- - - - - - - - - - - -	6.5 to 9.0	- - - - - - - - - - - - - - -		WQS
Outfall 004						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Temperature	°C	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Dissolved Oxygen	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
BOD_5	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Suspended Solids	mg/l	30	70	30.6	71.4	ABS/EP
pH	S.U.	- - - - - - - - - - - - -	6.5 to 9.0	- - - - - - - - - - - - -		WQS
Chlorine Residual	mg/l	--	0.038	--	--	WLA/IMZM

[a] Outfall 004 effluent loadings based on average design discharge flow of 0.27 MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BPJ = Best Professional Judgment; EP = Existing Permit; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); WQS = Ohio Water Quality Standards (OAC 3745-1).

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Table 14. Final effluent limits and monitoring requirements for Rock-Tenn outfall 0IA00005003 and the basis for their recommendation.

		Effluent Limits				
		Concentration		Loading (kg/day)[a]		
Parameter	Units	30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	Basis[b]
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Precipitation	inches	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Temperature	°C	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Dissolved Oxygen	mg/l	--	5.0 min.	--	--	EP
BOD_5	mg/l	--	--	3559	7118	AD/BCT
Dissolved Solids	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/RP[c]
Suspended Solids	mg/l	--	--	4500	9000	AD/BCT
Ammonia-N	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Phosphorus	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
pH	S.U.	- - - - - - - - - - - -	6.5 to 9.0	- - - - - - - - - - - - - - -		WQS
Barium, T. R.	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/RP[c]
Boron, T. R.	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/RP[c]
Copper, T. R.	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/RP[c]
Mercury, T.	ng/l	12	1700	0.00012	0.017	WLA
Whole Effluent Toxicity						
Acute	TUa	- - - - - - - -	Monitor (w/o trigger)	- - - - - - - - - -		M[c]

[a] Effluent loadings for mercury based on average design discharge flow of 2.65 MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); BCT = Best Conventional Pollutant Control Technology, 40 CFR Part 430.63, Pulp and Paper Effluent Guidelines, Semi-Chemical Subcategory, Sodium Process; EP = Existing Permit; M = Monitoring; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); VAR = Variance from WQBEL under OAC 3745-33-07(D); WET = Whole Effluent Toxicity (OAC 3745-33-07(B)) ; 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).

[c] Monitoring of flow and other indicator parameters is specified to assist in the evaluation of effluent quality and treatment plant performance.

Attachment 1 – Integrated Report Summary for the Lower Tuscarawas River

Division of Surface Water Large River Assessment Unit Summary

Overview Information

Waterbody: Tuscarawas River
Segment: Stillwater Creek to Muskingum River
Length: 47.05 miles
Priority Points: 8
Monitoring Scheduled: 2017
TMDL Scheduled: 2020

Aquatic Life Use Assessment

Reporting Category: 1
Aquatic Life Uses: EWH
Sampling Years: 2004, 2005
Sites Monitored: 10
Total Miles Monitored: 47.0
Assessment Unit Score: 100
Miles in Full Attainment: 47.0 (100.0%)
Miles in Partial Attainment: 0.0 (0.0%)
Miles in Non Attainment: 0.0 (0.0%)

Most Recent Data:

Year Assessed	Station Name	River Mile	Drainage Area	Aquatic Life Use	Attainment Status
2005	TUSCARAWAS R. DST. TUSCARAWAS @ END OF CO. RD. 61	43.9	2365.0	EWH	Full
2005	TUSCARAWAS R. AT GNADENHUTTEN, 50 YDS. DST. ALSCO 001	38.7	2381.0	EWH	Full
2005	TUSCARAWAS R. DST. GNADENHUTTEN @ JCT. CO. RD. 10/CO. RD. 16	37.4	2383.0	EWH	Full
2005	TUSCARAWAS R. AT PORT WASHINGTON @ CO. RD. 14	30.9	2399.0	EWH	Full
2005	TUSCARAWAS R. AT NEWCOMERSTOWN @ RIVER ST.	21.2	2443.0	EWH	Full

2005	TUSCARAWAS R. DST. NEWCOMERSTOWN, 0.5 MI. DST BLUE RIDGE RUN	17.6	2474.0	EWH	Full
2005	TUSCARAWAS R. UPST. WEST LAFAYETTE	13.0	2507.0	EWH	Full
2005	TUSCARAWAS R. W OF WEST LAFAYETTE, ADJ. U.S. RT. 36	6.9	2574.0	EWH	Full
2005	TUSCARAWAS R. SW OF CANAL LEWISVILLE	3.0	2592.0	EWH	Full
2005	TUSCARAWAS R. AT COSHOCTON @ KIA BRIDGE	0.3	2596.0	EWH	Full

Causes of Impairment:

- None listed

Sources of Impairment:

- None listed

Comments: TMDLs for pollutants impairing designated aquatic life uses in the Tuscarawas River basin were approved by the U.S. EPA on September 15, 2009. The TMDL report is available at http://www.epa.ohio.gov/dsw/tmdl/TuscarawasRiverTMDL.aspx. Comprehensive chemical, physical, and biological monitoring in support of TMDL development was conducted in 2003, 2004, and 2005. No aquatic life use impairment was documented in this mainstem assessment unit.

Recreation Use Assessment

Reporting Category: 5h
Assessment Unit Score: 37.5

Assessment Details: Geometric Mean of *E. Coli* Samples (colony forming units/100ml)

Station ID	Station Name	Rec. Use Class	2006	2007	2008	2009	2010

Public Drinking Water Supply Assessment

Reporting Category: No active intakes
Cause of Impairment:
Nitrate Watch List:
Pesticide Watch List:

Fish Tissue Assessment

Reporting Category: 5
Causes of Impairment: PCBs, HCB
PCB Concentration: 1321.0 ppb

Attachment 2 – Effluent Guideline Calculations for Rock-Tenn Company

Effluent Guideline Calculations for Rock-Tenn Company Outfall 003

	Semi-Chemical Subcategory Guidelines 430.63 (sodium)/430.64 kg/kkg		Semi-Chemical Production tons/day: 940	Outfall 003 Loading kg/day	
	30-day	Daily		30-day	Daily
BOD5	4.35	8.7		3713	7426
TSS	5.5	11		4694	9389
Pentachlorophenol		0.0012			1.0
Trichlorophenol		0.0043			0.37