National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

Regarding an NPDES Permit to Discharge to Waters of the State of Ohio
for the **Gary L. Kron Water Reclamation Facility**

Public Notice No.: 16-09-092
Public Notice Date: September 30, 2016
Comment Period Ends: October 30, 2016

OEPA Permit No.: 3PK00033*ND
Application No.: OH0043559

Name and Address of Applicant:

Lake County Board of Commissioners
105 Main Street
Painesville, Ohio 44077

Name and Address of Facility Where Discharge Occurs:

Gary L. Kron Water Reclamation Facility
8471 Lakeshore Boulevard
Mentor, Ohio 44060
Lake County

Receiving Water: **Lake Erie**

Subsequent Stream Network: **NA**

INTRODUCTION

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

This Fact Sheet is prepared in order to document the technical basis and risk management decisions that are considered in the determination of water quality based NPDES Permit effluent limitations. The technical basis for the Fact Sheet may consist of evaluations of promulgated effluent guidelines, existing effluent quality, instream biological, chemical and physical conditions, and the relative risk of alternative effluent limitations. This Fact Sheet details the discretionary decision-making process empowered to the Director by the Clean Water Act (CWA) and Ohio Water Pollution Control Law (Ohio Revised Code [ORC] 6111). Decisions to award variances to Water Quality Standards (WQS) or promulgated effluent guidelines for economic or technological reasons will also be justified in the Fact Sheet where necessary.

No antidegradation review was necessary.

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

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

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

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

SUMMARY OF PERMIT CONDITIONS

The effluent limits and monitoring requirements proposed for the following parameters are the same as in the current permit, although some monitoring frequencies may have changed: carbonaceous biochemical oxygen demand ($CBOD_5$), total suspended solids (TSS), ammonia (as N), phosphorus, oil and grease, pH, chlorine, E. coli, and acute and chronic toxicity.

The wasteload allocation placed free cyanide and mercury in Group 5. The data indicates that these parameters have the reasonable potential to exceed WQS and, therefore, limits are necessary.

The average concentration and loading limits for mercury are proposed to be decreased in accordance with the data presented as part of the facility's mercury variance renewal request.

New monitoring for total Kjeldahl nitrogen (TKN), total dissolved solids (TDS), and bis(2-ethylhexyl) phthalate have been added to the effluent monitoring requirements.

New monitoring for dissolved orthophosphate (as phosphorus) has been added to the effluent monitoring requirements. Dissolved orthophosphate is required by ORC 6111.03 and will occur on a monthly basis.

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

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

This permit renewal is proposed for a term of approximately 5 years.

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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 Jennifer Bennage (Jennifer.Bennage@epa.ohio.gov or at (330) 963-1200).

INFORMATION REGARDING CERTAIN WATER QUALITY BASED EFFLUENT LIMITS

This draft permit may contain proposed water-quality-based effluent limits (WQBELs) for parameters that **are not** priority pollutants. (See the following link for a list of the priority pollutants: http://epa.ohio.gov/portals/35/pretreatment/Pretreatment_Program_Priority_Pollutant_Detection_Limits.pdf .) In accordance with ORC 6111.03(J)(3), the Director established these WQBELs after considering, to the extent consistent with the Federal Water Pollution Control Act, evidence relating to the technical

feasibility and economic reasonableness of removing the polluting properties from those wastes and to evidence relating to conditions calculated to result from that action and their relation to benefits to the people of the state and to accomplishment of the purposes of this chapter. This determination was made based on data and information available at the time the permit was drafted, which included the contents of the timely submitted NPDES permit renewal application, along with any and all pertinent information available to the Director.

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

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

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

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

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

LOCATION OF DISCHARGE/RECEIVING WATER USE CLASSIFICATION

The Lake County Gary L. Kron Water Reclamation Facility (WRF) discharges to Lake Erie via a submerged, off-shore outfall (i.e. Outfall 3PK00033001) at approximately Lake Mile 1163 (41° 44' 03" N; 81° 20' 56" W). The approximate location of the facility is shown in Figure 1.

This segment of Lake Erie is described by Ohio EPA River Code: 24-800, County: Lake, Ecoregion: Erie-Ontario Lake Plains. Lake Erie is designated for the following uses under Ohio's Water Quality Standards (OAC 3745-1-31): Exceptional Warmwater Habitat (EWH), Superior High Quality Water, Agricultural Water Supply (AWS), Industrial Water Supply (IWS), Public Water Supply (PWS), and Bathing Waters (BW).

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 cannot meet the Clean Water Act 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 (Secondary Contact - generally waters too shallow for swimming or canoeing).

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

FACILITY DESCRIPTION

The Gary L. Kron WRF is designed to treat an average daily flow of 20 million gallons per day (MGD), with a peak design flow rate of 32 MGD and a hydraulic capacity of 55 MGD. The service area includes all or parts of the City of Mentor, City of Mentor on the Lake, City of Kirtland, Village of Fairport, Village of Grand River, Concord Township, and Painesville Township. The population of the service area is approximately 94,000 people. The primary water supply source for the area is Lake Erie.

The treatment plant was originally constructed in 1964, with the most recent upgrade occurring in 2000. The facility utilizes the following wet-stream treatment processes which are shown in Figure 2:

- Influent Pumping
- Mechanical Bar Screen
- Grit Removal
- Scum Removal
- Primary Clarification
- Primary and Secondary Flow Equalization
- Trickling Filter
- Activated Sludge Biological Treatment- Conventional Aeration
- Secondary Clarification
- Phosphorus Removal (Ferrous Chloride)
- Chlorination
- Dechlorination
- Post-Aeration
- Effluent Flow Monitoring
- Effluent Pumping
- Odor Control Processes

The treatment facility includes one internal bypass, which routes flow around the primary treatment and trickling filter; a previous emergency secondary bypass was sealed during the 1998 improvements. The diverted flow is directed to flow equalization and subsequently to the activated sludge treatment process. Hence, all flow to the Gary L Kron WRF receives the required level of secondary treatment.

Sewage sludge at the Gary L Kron WRF, as well as sludges from all of the County-owned facilities, is processed via anaerobic digestion, mechanical dewatering using a filter press, and windrow composting to produce an Exceptional Quality Biosolids (See Figures 3 and 4). This designation means the material meets U.S. EPA and Ohio EPA guidelines for land application. The compost from the facility is offered for sale under the tradename, Lake County Groganix. Table 1 lists the quantity of sewage sludge removed from the Gary L. Kron WRF for the past 4 years.

Gary L. Kron WRF's collection system is comprised of separate sanitary sewers. The NPDES application identifies 33 lift stations in the collection system. The County estimates the inflow and infiltration rate for the collection system at 250,000 gallons per day. In response to a USEPA Administrative Order, Lake County has begun implementation of a Capacity, Management, Operation and Maintenance (CMOM) program for its collection system.

Lake County implements an Ohio EPA-approved industrial pretreatment program. Based on information in the NPDES renewal application, industrial users contribute approximately 0.577 MGD of the flow received at the Gary L. Kron WRF. There are 11 categorical industrial users, discharging an average of 0.274 MGD, and 3 non-categorical significant industrial users (SIU), discharging an average of 0.304 MGD.

DESCRIPTION OF EXISTING DISCHARGE

The average design flow for the Gary L. Kron WRF is 20 MGD, but the actual daily flow based upon Discharge Monitoring Report (DMR) submittals is normally considerably less. The average annual effluent flow rate for City of Gary L. Kron WRF for the previous five years is presented in Table 2.

The Gary L. Kron WRF reports SSOs in the collection system at station 3PK00033300. The number of SSOs and dates recorded is presented in Table 3.

Table 4 summarizes chemical-specific data compiled from information contained in the facility's annual pretreatment reports.

Table 5 presents a summary of unaltered Discharge Monitoring Report (DMR). Data are presented for the period August 2011 – March 2016; the current permit limits are provided for comparison. Supplemental DMR data is also provided in Attachment 1 for the influent, sludge, bypass, and SSO monitoring stations.

Table 6 summarizes the chemical specific data for outfall 3PK00033001 by presenting the average and maximum PEQ values.

Table 7 summarizes the results of acute and chronic Whole Effluent Toxicity (WET) tests of the final effluent using the water flea (*Ceriodaphnia dubia*) and fathead minnow (*Pimephales promelas*) as the test organisms.

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

ASSESSMENT OF IMPACT ON RECEIVING WATERS

The *Ohio 2014 Integrated Water Quality Monitoring and Assessment Report* lists the Lake Erie Central Basin Shoreline as impaired for the aquatic life, recreation and fish consumption uses. Monitoring to develop a comprehensive Lake Erie nearshore monitoring program was funded by a Great Lakes Restoration Initiative grant conducted from 2011-2013. Fish community sampling results were used to update assessment unit status for the 2014 *Integrated Report*. Because data assessment and analyses were still underway for this project, causes and sources were retained from the previous report and include: siltation, nutrients, exotic species and direct habitat alterations (causes) and municipal point sources, urban runoff/storm sewers, habitat modifications other than hydromodification, combined sewer overflows, streambank modification/destabilization and non-irrigated crop production (sources).

The 2014 report is available at this Ohio EPA web site:

http://epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx#123143421-2014

DEVELOPMENT OF WATER-QUALITY-BASED EFFLUENT LIMITS

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

Parameter Selection

Effluent data for the Gary L. Kron WRF were used to determine what parameters should undergo wasteload allocation. The parameters discharged are identified by the data available to the Ohio EPA, e.g. 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)	August 2011 through March 2016
Pretreatment data	2011, 2012, 2013, 2014 , 2015

The data were examined for potential statistical outliers and other non-representative values. No values were removed from the evaluation.

This data is evaluated statistically, and Projected Effluent Quality (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 PEQ_{avg} and PEQ_{max} values are presented in Table 6.

The PEQ values are used according to Ohio rules to compare to applicable water quality standards (WQS) and allowable wasteload allocation (WLA) values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25 percent of the applicable WQS, the pollutant does not have the reasonable potential to cause or contribute to exceedances of WQS, and no wasteload allocation is done for that parameter. If either PEQ_{avg} or PEQ_{max} is greater than 25 percent of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential and needs to have a limit or if monitoring is required. See Table 6 for a summary of the screening results.

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 the Gary L. Kron WRF, the wasteload allocation values are 1.0 TU_a and 11.0 TU_c.

The chronic toxicity unit (TU_c) is defined as 100 divided by the IC_{25}:

$TU_c = 100/IC_{25}$

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

TU_c = 100/geometric mean of NOEC (No Observed Effect Concentration) and LOEC (Lowest Observed Effect Concentration)

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.

Wasteload Allocation

For those parameters that require a wasteload allocation, the results are based on the uses assigned to the receiving waterbody in OAC 3745-1. Dischargers are allocated pollutant loadings/concentrations based on the Ohio Water Quality Standards (OAC 3745-1). Most pollutants are allocated by a mass-balance method because they do not degrade in the receiving water.

WLAs for direct discharges to lakes, e.g. Lake Erie, are done using the following equation for average criteria: WLA = (11 x Water Quality Criteria) – (10 x Background Concentration). Allocations for maximum criteria are set equal to the Inside Mixing Zone Maximum (IMZM) values. The values for the OMZM are left blank in Table 10 to indicate that any limits based upon a maximum WLA are actually represented by the Inside Mixing Zone Maximum criteria. The wasteload allocation values in Table 10 would allow the Gary L. Kron WRF to maintain all applicable water quality criteria. 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 pollutants designated as bioaccumulative chemicals of concern (BCCs) as of November 15, 2010. This rule applied statewide. Mercury is a BCC. The mixing zone phase-out means that all dischargers requiring mercury limits in their NPDES permit must meet WQS at the end-of-pipe. The applicable WQS are 12 ng/L (average) and 1700 ng/L (maximum) in the Ohio River basin and 1.3 ng/L (average) and 1700 ng/L (maximum) in the Lake Erie basin.

The data used in the WLA are listed in Table 8 and Table 9 The wasteload allocation results to maintain all applicable criteria are presented in Table 10.

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 10. 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 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 the Gary L. Kron WRF Outfall 3PK00033001. The limits and monitoring requirements for outfall 001 are as follows:

Flow Rate, Water Temperature, and Dissolved Oxygen

Monitoring is proposed to continue for flow rate, water temperature, and dissolved oxygen to assist in the evaluation of effluent quality and treatment plant performance. This is in accordance with Ohio EPA guidance.

Oil & Grease, pH, and E. coli

Limits proposed for oil and grease, pH, and E. coli are based on Water Quality Standards (OAC-3745-1). Monitoring is proposed to continue for these parameters.

TSS, $CBOD_5$, and Ammonia

The limits for total suspended solids (TSS), 5-day carbonaceous biochemical oxygen demand ($CBOD_5$), and ammonia have been continued from the existing permit. These limits are based on plant design criteria. Monitoring is proposed to continue for these parameters. The monitoring frequency for CBOD5 will be decreased to 3/week in accordance with new monitoring guidelines.

Total Residual Chlorine

The limit for total residual chlorine is proposed to continue from the existing permit as a plant design value and is necessary to protect the inside mixing zone maximum (IMZM) standard. The IMZM is the WQS value calculated to avoid rapidly lethal conditions in the effluent mixing zone. The effluent limit for chlorine at outfall 001 is less than the quantification level of 0.050 mg/L. However, a pollutant minimization program is not required because the dosing rate of dechlorination chemicals ensures that

the water quality based effluent limit is being met. Monitoring is only required during periods of chlorine usage.

Phosphorus

Limits for phosphorus are based upon phosphorus treatment standards in OAC 3745-33-06 (C). Monitoring is proposed to continue.

Dissolved Orthophosphate (aka Dissolved Reactive Phosphorus)

New monthly monitoring is proposed for dissolved orthophosphate (as P). This monitoring is required by Ohio Senate Bill 1, which was signed by the Governor on April 2, 2015 and incorporated into ORC 6111.03. Monitoring for orthophosphate is proposed to further develop nutrient datasets for dissolved reactive phosphorus and to assist in stream and watershed assessments and studies. Ohio EPA monitoring, as well as other in-stream monitoring, are generally performed via the collection of grab samples. Thus, orthophosphate is proposed to be collected by grab sample to maintain consistent data to support watershed and stream surveys. The grab sample must be filtered within 15 minutes of collection using a 0.45-micron filter. The filtered sample must be analyzed within 48 hours of sample collection.

Mercury

The Ohio EPA risk assessment (Table 11) places mercury in group 5. This placement, as well as the data in Table 5 and Table 6, indicates that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For this parameter, the PEQ is greater than 100 percent of the WLA. Pollutants that meet this requirement must have permit limits under OAC 3745-33-07(A)(1).

The existing NPDES permit includes a variance-based limit of 5.2 ng/L for mercury. Based on available monitoring data and new application information, the Gary L. Kron WRF has determined that the facility cannot meet the 30-day average permit limit of 1.3 ng/L. However, the effluent data shows that the permittee can meet the mercury annual average value of 12 ng/L. Gary L. Kron WRF submitted information supporting the renewal of the variance. The Pollutant Minimization Program (PMP) schedule developed from the original variance continues to be implemented, and further reductions in mercury may be possible.

Ohio EPA has reviewed the mercury variance information and has determined that it meets the requirements of the OAC. The permittee's application has also demonstrated to the satisfaction of Ohio EPA that there is no readily apparent means of complying with the WQBEL without constructing prohibitively expensive end-of-pipe controls for mercury. Based upon these demonstrations, the Gary L. Kron WRF is eligible for renewal of the mercury variance under OAC 3745-33-07(D)(8).

A condition in Part II of the NPDES permit lists the provisions of the mercury variance renewal, and includes the following requirements:

- A lower variance-based monthly average effluent limit of 2.7 ng/L, based on the review of the facility's monitoring data, i.e. 95th percentile of the reported DMR data (See Table 5);

- A requirement that the permittee make reasonable progress to meet the WQBEL for mercury by implementing the plan of study, which has been developed as part of the PMP;
- Low-level mercury monitoring of the plant's influent and effluent;
- A requirement that the annual average mercury effluent concentration is less than or equal to 12 ng/L as specified in the plan of study;
- A requirement to submit an annual report on implementation of the PMP; and
- A requirement for submittal of a certification stating that all permit conditions related to implementing the plan of study and the PMP have been satisfied, but that compliance with the monthly average WQBEL for mercury has not been achieved.

Free Cyanide

The Ohio EPA risk assessment (Table 11) places this parameter in group 5. This placement, as well as the data in Table 5 and Table 6, indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. Based on a review of the DMR data, a compliance schedule is not necessary for this parameter. Monitoring for this parameter is recommended to remain at 1/2 weeks.

Bis(2-ethylhexyl) phthalate

The Ohio EPA risk assessment (Table 11) places this parameter in group 4. This placement, as well as the data in Table 4 and Table 6, support that the 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 3745-33-07(A)(2). Based on the small dataset used in the analysis, however, monthly monitoring is recommended.

Copper, Lead, Nickel, and Zinc

The Ohio EPA risk assessment (Table 11) places these parameters in group 3. This placement, as well as the data in Table 4, Table 5, and Table 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. Continued monitoring is proposed to document that these pollutants remain at low levels.

Arsenic, Cadmium, Chromium, Hexavalent Chromium (Dissolved), Total Dissolved Solids (Total Filterable Residue), Molybdenum, Nitrate-N + Nitrite-N, Silver, and Selenium

The Ohio EPA risk assessment (Table 11) places these parameters in group 2. This placement, as well as the data in Table 4, Table 5, and Table 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. Continued monitoring is recommended for nitrate+nitrite. Monitoring at reduced frequencies is recommended for cadmium, chromium, and hexavalent chromium in order to document that these pollutants continue to remain at low levels. No new monitoring is proposed for arsenic, molybdenum, silver, and selenium.

Total Kjeldahl Nitrogen (TKN)

Nutrients are a source of impairment to the Lake Erie Basin Shoreline. Based on Best Technical Judgment (BTJ), monitoring is proposed for total Kjeldahl nitrogen.

Whole Effluent Toxicity Reasonable Potential

Evaluating the acute and chronic toxicity results for the test organisms in Table 7 under the provisions of 40 CFR Part 132, Appendix F, Procedure 6, indicates that reasonable potential for toxicity is not demonstrated with respect to *C. dubia* or *P. promelas*. All of the reported analytical results for *P. promelas*, as well as the acute toxicity results for *C. dubia*, were below the applicable method detection limits. Of the ten (10) chronic toxicity test results for *C. dubia*, two (2) tests did show some evidence of potential toxicity. The resultant PEQ value of 7.1 TUc, however, does not exceed the WLA of 11.0 TUc.

While this indicates that the plant's effluent does not currently pose a toxicity problem, annual toxicity testing is proposed consistent with the minimum monitoring requirements at OAC 3754-33-07(B)(11). Annual chronic toxicity monitoring with the determination of acute endpoints is proposed for the life of the permit. The proposed monitoring will adequately characterize toxicity in the plant's effluent.

Additional Monitoring Requirements

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

Sludge

Limits and monitoring requirements proposed for the reuse and/or disposal of sewage sludge by the following management practices are based on OAC 3745-40: land application/beneficial use of exceptional quality biosolids (Station 3PK00033584) and removal to an authorized solid waste landfill (Station 3PK00033586).

OTHER REQUIREMENTS

Compliance Schedule(s)

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

Phosphorus Optimization - The permittee shall prepare and submit a Phosphorus Discharge Optimization Evaluation plan to Ohio EPA Northeast District Office. The plan shall be completed and submitted to Ohio EPA no later than 12 months from the effective date of this permit. Details are in Part I.C of the permit.

Sanitary Sewer Overflow Reporting

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

Operator Certification and Operator of Record

Operator certification requirements have been included in Part II of the permit in accordance with OAC 3745-7-02. These rules require the Gary L. Kron WRF to have a Class IV wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through Outfall 3PK00033001. These rules also require the permittee to designate one or more operator of record to oversee the technical operation of the "treatment works" and/or "sewerage system".

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 to 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.

Outfall Signage

Pursuant to OAC 3745-33-08(A), NPDES permits generally include a requirement for the permittee to place and maintain a sign at each outfall providing information about the discharge. Signs are not required at in-plant sampling outfalls or at outfalls that are not accessible to the public by land or by recreational use of the water body. Given that the off-shore outfall for the Gary L. Kron WRF is submerged at a significant distance in Lake Erie (2,000 – 2,200 feet), a sign is not required.

Part III

Part III of the permit details standard conditions that include monitoring, reporting requirements, compliance responsibilities, and general requirements.

Storm Water Compliance

Parts IV, V, and VI have been included with the draft permit to ensure that any storm water flows from the facility site are properly regulated and managed. As an alternative to complying with Parts IV, V, and VI, the facility may seek permit coverage under the general permit for industrial storm water (Permit # OHR000005 or subsequent renewal) or submit a "No Exposure Certification." Parts IV, V, and VI will be removed from the final permit if: 1) the facility 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.

Figure 1. Location of the Lake County Gary L. Kron Water Reclamation Facility

Figure 2. Diagram of Wastewater Treatment System

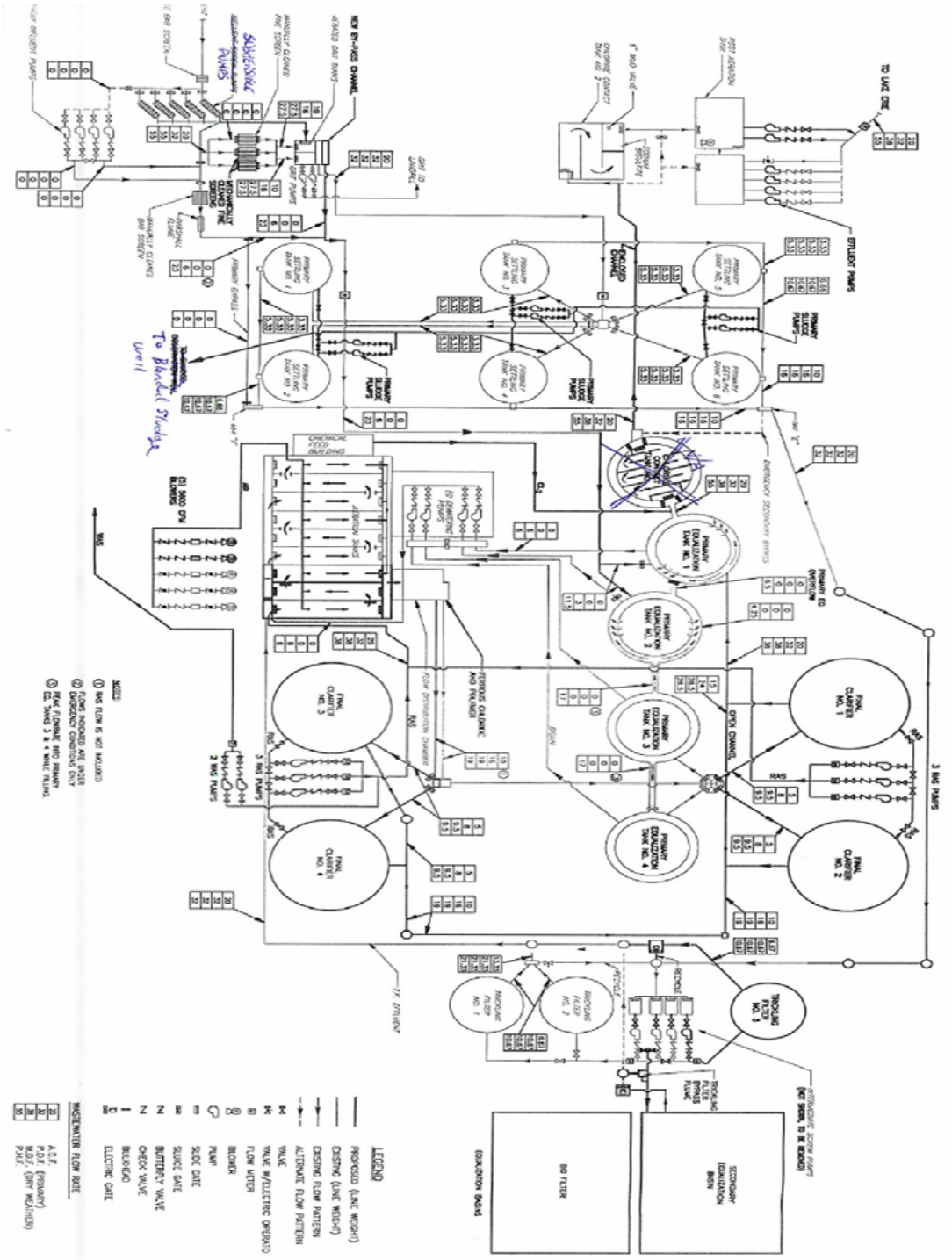

Figure 3. Diagram of Sludge Handling Process

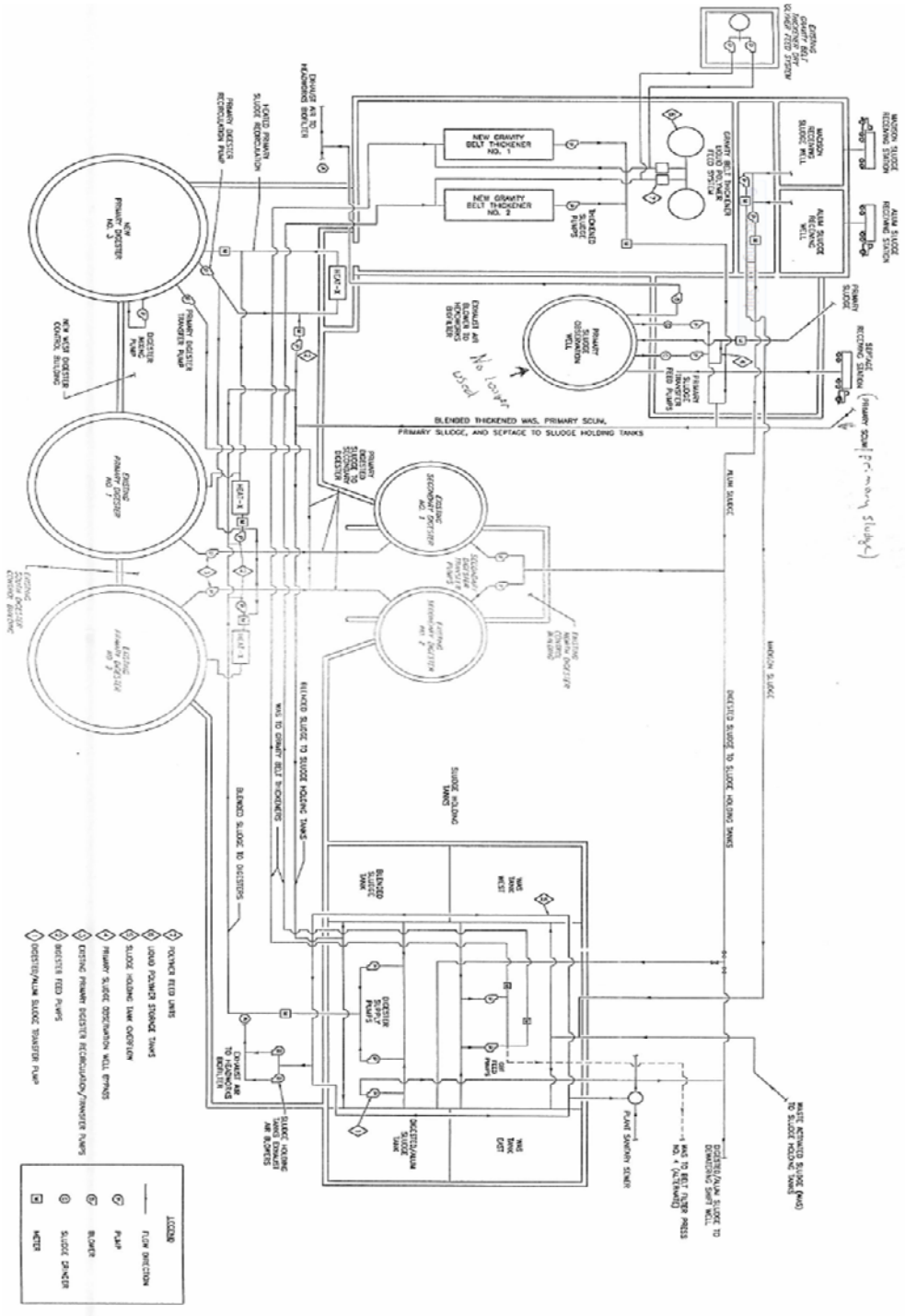

Figure 4. Diagram of Composting Process

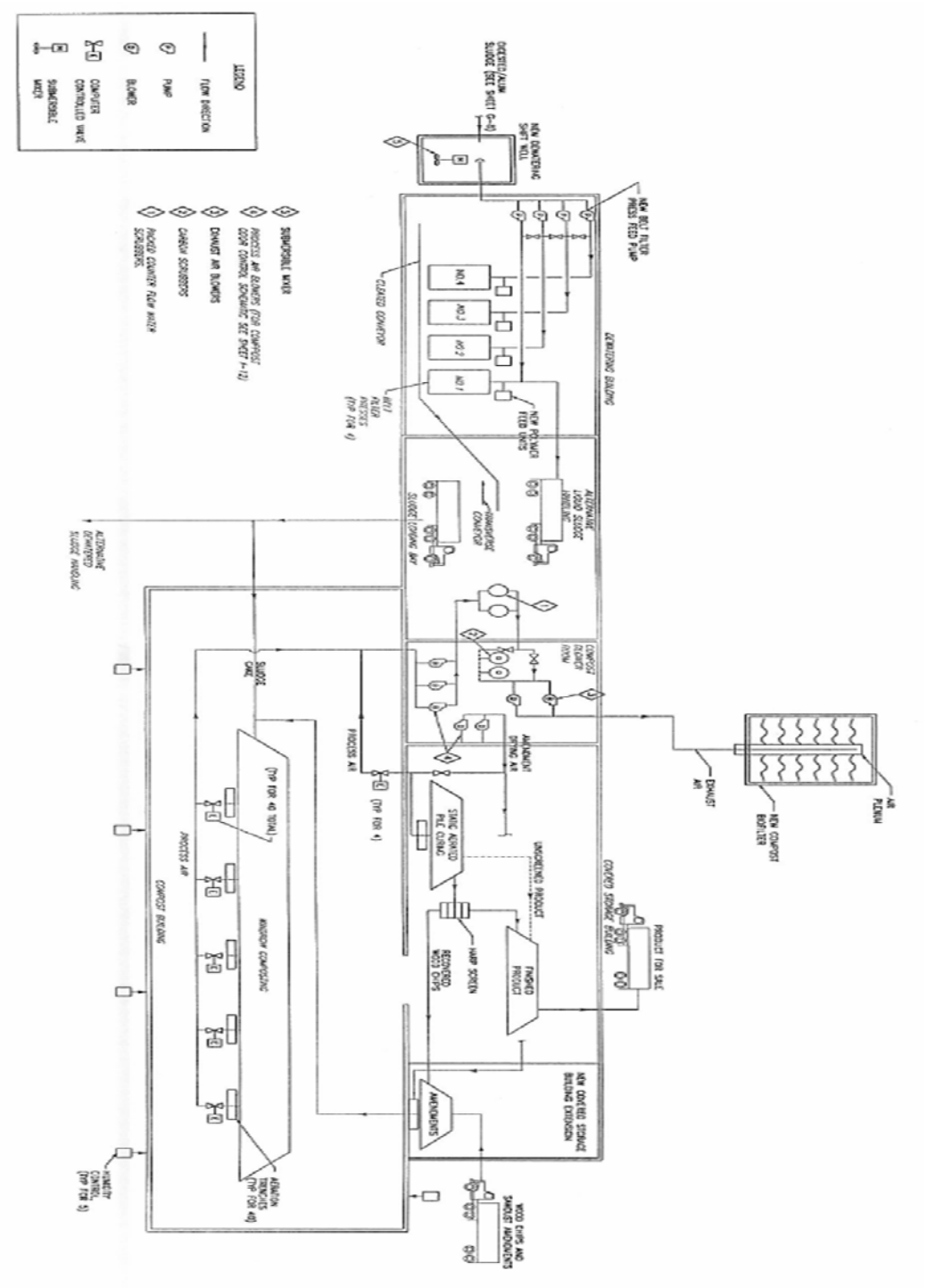

Table 1. Sewage Sludge Removal

Year	Dry Tons Removed (*) (Station 3PE00002584)
2012	2326.56
2013	2288.64
2014	2364.75
2015	1975.15

(*) – Fee Weight

Table 2. Average Annual Effluent Flow Rates

Year	Annual Flow in MGD			
	50th Percentile	95th Percentile	Maximum	Average
2012	11.215	20.885	43.62	12.82
2013	13.15	22.348	56	14.015
2014	12.7	22.214	40.2	13.881
2015	11.73	21.772	35.62	12.855

MGD = million gallons per day.

Table 3. Sanitary Sewer Overflows (SSO Station 3PK00033300)

Year	No. of SSO Events
2012	18
2013	19
2014	10
2015	15

Table 4. Effluent Characterization Based on Pretreatment data

Parameter (µg/L)	11/15/2011	11/14/2012	11/26/2013	11/4/2014	11/3/2015
Antimony	AA (10)	AA (10)	AA (20)	AA (10)	AA (10)
Arsenic	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)
Beryllium	AA (1.0)	AA (1.0)	AA (1.0)	AA (1.0)	AA (1.0)
Cadmium	AA (1.0)	AA (1.0)	AA (1.0)	AA (1.0)	AA (1.0)
Chromium	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)
Copper	AA (20)	AA (20)	AA (20)	AA (20)	AA (20)
Lead	AA (10)	25.3 (10)	AA (10)	AA (10)	AA (10)
Nickel	9.54 (5.0)	5.57 (5.0)	9.14 (5.0)	20.1 (5.0)	12.6 (5.0)
Selenium	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)
Silver	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)
Thallium	AA (10)	AA (10)	AA (10)	AA (10)	AA (10)
Zinc	37.4 (10)	42.2 (10)	171 (10)	60.9 (10)	59.2 (10)
Bis(2-ethylhexyl) phthalate	AA (10)	16 (10)	27 (10)	27 (10)	28 (10)

AA = non-detection

Table 5. **Effluent Characterization Based on Self-Monitoring Data for Outfall 3PK00033001**

Parameter	Season	Units	Current Permit Limits		# Obs.	Percentiles		Data Range
			30 day	Daily		50th	95th	
Water Temperature	Annual	C	--	--	1701	16	22	1-23
Dissolved Oxygen	Summer	mg/L	--	--	828	7.2	7.5	0.4-8
Dissolved Oxygen	Winter	mg/L	--	--	877	7.2	7.7	5.9-8.5
Total Suspended Solids	Annual	mg/L	18	27 [a]	1165	6	14	0-990
Oil and Grease, Hexane Extr Method	Annual	mg/L	--	10	222	0	0	0-5
Nitrogen, Ammonia (NH3)	Summer	mg/L	13.1	19.6 [a]	572	0.5	4.3	0-10.6
Nitrogen, Ammonia (NH3)	Winter	mg/L	13.6	20.4 [a]	592	0.8	5.24	0-10.2
Nitrogen Kjeldahl, Total	Annual	mg/L	--	--	6	1.9	3.1	1-3.2
Nitrite Plus Nitrate, Total	Annual	mg/L	--	--	56	13.8	21.3	5-24
Phosphorus, Total (P)	Annual	mg/L	1.0	1.5 [a]	457	0.6	0.9	0.04-1.8
Cyanide, Free	Annual	mg/L	--	--	112	0	0	0-0.06
Nickel, Total Recoverable	Annual	µg/L	--	--	56	9	25.3	0-42
Zinc, Total Recoverable	Annual	µg/L	--	--	56	62	87.8	27-120
Cadmium, Total Recoverable	Annual	µg/L	--	--	56	0	0	0-0
Lead, Total Recoverable	Annual	µg/L	--	--	56	0	0	0-6
Chromium, Total Recoverable	Annual	µg/L	--	--	56	0	0	0-2
Copper, Total Recoverable	Annual	µg/L	--	--	112	0	7.9	0-15
Chromium, Dissolved Hexavalent	Annual	µg/L	--	--	56	0	0	0-0
E. coli	Annual	#/100 ml	126	284 [a]	571	53	610	0-24400
Flow Rate	Summer	MGD	--	--	828	11.3	22.2	7.53-56
Flow Rate	Winter	MGD	--	--	877	13.8	23.9	8.15-45.1
Flow Rate	Annual	MGD	--	--	1705	12.6	23.1	7.53-56
Chlorine, Total Residual	Annual	mg/L		0.038	828	0	0	0-0.08
Mercury, Total (Low Level)	Annual	ng/L	5.2	1700	112	0.8	2.69	0-4.6
Acute Toxicity, Ceriodaphnia dubia	Annual	TUa	--	--	14	0	0	0-0
Chronic Toxicity, Ceriodaphnia dubia	Annual	TUc	--	--	10	0	4.4	0-5.7
Acute Toxicity, Pimephales promelas	Annual	TUa	--	--	9	0	0	0-0
Chronic Toxicity, Pimephales promelas	Annual	TUc	--	--	9	0	0	0-0
pH, Maximum	Annual	S.U.	--	9.0	1705	7.1	7.98	6.7-8.4
pH, Minimum	Annual	S.U.	--	6.5	1705	6.9	7.56	6.5-8.2
CBOD 5 day	Summer	mg/L	14	21 [a]	573	3	8	0-230
CBOD 5 day	Winter	mg/L	14	21 [a]	591	4	8	0-34

* = For minimum pH, 5th percentile shown in place of 50th percentile.
** = For dissolved oxygen, 5th percentile shown in place of 95th percentile.
[a] = weekly average.

Table 6. Projected Effluent Quality for Outfall 3PK00033001

Parameter	Units	Number of Samples (*)	Number > MDL	PEQ Average	PEQ Maximum
Arsenic - TR	µg/L	5	0	--	--
Bis(2-ethylhexyl) phthalate	µg/L	5	4	47.012	64.4
Cadmium - TR	µg/L	61	0	--	--
Chlorine, Total Residual	mg/L	827	3	0.035	0.048
Chromium - TR	µg/L	56	0	--	--
Hexavalent Chromium (Dissolved)	µg/L	56	0	--	--
Copper - TR	µg/L	117	19	6.2588	9.5557
Cyanide - free	mg/L	112	1	0.03942	0.054
Dissolved Solids	mg/L	--	--	--	--
Lead - TR	µg/L	61	2	18.469	25.3
Mercury	ng/L	112	109	1.7672	2.534
Molybdenum	µg/L	--	--	--	--
Nickel - TR	µg/L	61	49	20.277	30.795
Nitrate-N + Nitrite-N	mg/L	56	56	20.46	27.844
Silver	µg/L	5	0	--	--
Zinc - TR	µg/L	61	61	83	106.13
Selenium - TR	µg/L	5	0	--	--

(*) – Includes pretreatment data
MDL = analytical method detection limit
PEQ = projected effluent quality

Table 7. Summary of Effluent Toxicity Results

Date	*Ceriodaphnia Dubia*		*Pimephales promelas*	
	TU_a	**TU_c**	**TU_a**	**TU_c**
8/5/2011	AA	AA	--	--
9/23/2011	AA	--	AA	AA
10/13/2011	AA	--	--	--
11/17/2011	AA	--	--	--
12/9/2011	AA	AA	--	--
1/10/2012	AA		--	--
6/15/2012	AA	AA	--	--
7/15/2012	--	--	AA	AA
12/7/2012	AA	2.82	AA	AA
6/16/2013	AA	AA	AA	AA
12/13/2013	AA	AA	AA	AA
6/24/2014	AA	AA	AA	AA
12/8/2014	AA	5.7	AA	AA
6/19/2015	AA	AA	AA	AA
12/1/2015	AA	AA	AA	AA

AA = non-detection; analytical method detection limit of 0.2 TU_a, 1.0 TU_c
TU_a = acute toxicity unit
TU_c = chronic toxicity unit

Table 8. **Water Quality Criteria in the Study Area**

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Average				Maximum Aquatic Life	
		Wildlife	Human Health	Agri-culture	Aquatic Life		
Arsenic - TR	µg/L	--	580	100	150	340	680
Bis(2-ethylhexyl) phthalate	µg/L	--	32[c]	--	8.4	1100	2100
Cadmium - TR	µg/L	--	730	50	2.8	5.5	11
Chlorine, Total Residual	mg/L	--	--	--	0.011	0.019	0.038
Chromium - TR	µg/L	--	14000	100	99	2100	4200
Hexavalent Chromium (Dissolved)	µg/L	--	14000	--	11	16	31
Copper - TR	µg/L	--	64000	500	11	16	33
Cyanide - free	mg/L	--	48	--	0.0052	0.022	0.044
Dissolved Solids	mg/L	--	--	--	1500	--	--
Lead - TR	µg/L	--	--	100	8	150	310
Mercury	ng/L	1.3	3.1	10000	910	1700	3400
Molybdenum	µg/L	--	10000	--	20000	190000	370000
Nickel - TR	µg/L	--	43000	200	60	540	1100
Nitrate-N + Nitrite-N	mg/L	--	--	100	--	--	--
Silver	µg/L	--	11000	--	1.3	2.2	4.3
Zinc - TR	µg/L	--	35000	25000	140	140	280
Selenium - TR	µg/L	--	3100	50	5	--	--

[c] = carcinogen

Table 9. Instream Conditions and Discharger Flow

Parameter	Units	Season	Value	Basis
Hardness, OMZ	mg/L	annual	119	n = 21: Lake Erie Storet Station 301255, 301256: 2011-2013
Hardness, IMZ	mg/L	annual	119	n = 21: Lake Erie Storet Station 301255, 301256: 2011-2013
Gary L. Kron WRF flow	cfs	annual	30.945	NPDES Application
Background Water Quality				
Arsenic - TR	µg/L		0	Ohio EPA; 2010-2015; n=15; 15<MDL; Lake Erie Storet Station 300894 and 301256; Median value
Bis(2-ethylhexyl) phthalate	µg/L		0	No representative data available.
Cadmium - TR	µg/L		0	Ohio EPA; 2010-2015; n=15; 15<MDL; Lake Erie Storet Station 300894 and 301256; Median value
Chlorine, Total Residual	mg/L		0	No representative data available.
Chromium - TR	µg/L		0	Ohio EPA; 2010-2015; n=15; 15<MDL; Lake Erie Storet Station 300894 and 301256; Median value
Hexavalent Chromium (Dissolved)	µg/L		0	No representative data available.
Copper - TR	µg/L		2	Ohio EPA; 2010-2015; n=15; 14<MDL; Lake Erie Storet Station 300894 and 301256; Median value
Cyanide - free	mg/L		0	No representative data available.
Dissolved Solids	mg/L		172	Ohio EPA; 2010-2015; n=28; 0<MDL; Lake Erie Storet Station 300894 and 301256; Median value
Lead - TR	µg/L		0	Ohio EPA; 2010-2015; n=15; 15<MDL; Lake Erie Storet Station 300894 and 301256; Median value
Mercury	ng/L		0	No representative data available.
Molybdenum	µg/L		0	No representative data available.
Nickel - TR	µg/L		2	Ohio EPA; 2010-2015; n=15; 13<MDL; Lake Erie Storet Station 300894 and 301256; Median value
Nitrate-N + Nitrite-N	mg/L		0.51	Ohio EPA; 2010-2015; n=29; 2<MDL; Lake Erie Storet Station 300894 and 301256; Median value
Silver	µg/L		0	No representative data available.
Zinc - TR	µg/L		10	Ohio EPA; 2010-2015; n=15; 12<MDL; Lake Erie Storet Station 300894 and 301256; Median value
Selenium - TR	µg/L		0	Ohio EPA; 2010-2015; n=15; 15<MDL; Lake Erie Storet Station 300894 and 301256; Median value

Table 10. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria

Parameter	Units	Outside Mixing Zone Criteria					Inside Mixing Zone Maximum
		Average				Maximum	
		Wildlife	Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Arsenic - TR	µg/L	--	6380	1100	1650	--	680
Bis(2-ethylhexyl) phthalate	µg/L	--	352	--	92	--	2100
Cadmium - TR	µg/L	--	8030	550	31	--	11
Chlorine, Total Residual	mg/L	--	--	--	0.12	--	0.038
Chromium - TR	µg/L	--	154000	1100	1089	--	4200
Hexavalent Chromium (Dissolved)	µg/L	--	154000	--	121	--	31
Copper - TR	µg/L	--	703980	5480	101	--	33
Cyanide - free	mg/L	--	528	--	0.057	--	0.044
Dissolved Solids	mg/L	--	--	--	14780	--	--
Lead - TR	µg/L	--	--	1100	88	--	310
Mercury	ng/L	1.3	3.1	10000	910	--	3400
Molybdenum	µg/L	--	110000	--	220000	--	370000
Nickel - TR	µg/L	--	472980	2180	640	--	1100
Nitrate-N + Nitrite-N	mg/L	--	--	1095	--	--	--
Silver	µg/L	--	121000	--	14	--	4.3
Zinc - TR	µg/L	--	384900	274900	1440	--	280
Selenium - TR	µg/L	--	34100	550	55	--	--

Table 11. Parameter Assessment

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

No parameters placed into this group

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

Arsenic - TR	Cadmium - TR	Chromium - TR
Hexavalent Chromium (Dissolved)	Total Dissolved Solids	Molybdenum
Nitrate-N + Nitrite-N	Silver	Selenium - TR

Group 3: PEQmax < 50 percent of maximum PEL and PEQavg < 50 percent of average PEL.
No limit recommended; monitoring optional.

Copper - TR	Lead - TR	Nickel - TR
Zinc - TR		

Group 4: PEQmax >= 50 percent, but < 100 percent of the maximum PEL or
PEQavg >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

Bis(2-ethylhexyl) phthalate

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

Limits to Protect Numeric Water Quality Criteria

		Recommended Effluent Limits	
Parameter	*Units*	*Average*	*Maximum*
Chlorine, Total Residual	mg/L	--	0.038
Cyanide - free	mg/L	--	0.044
Mercury	ng/L	1.3	1700

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

Table 12. Final Effluent Limits for Outfall 3PK00033001

Parameter	Units	Concentration		Loading (kg/day)[a]		Basis[b]
		30 Day Average	Daily Maximum	30 Day Average	Daily Maximum	
Water Temperature	°C	- - - - - - - - - - Monitor - - - - - - - - - - -				M[c]
Flow Rate	MGD	- - - - - - - - - - Monitor - - - - - - - - - - -				M[c]
pH	SU	6.5 - 9.0		--	--	WQS
Dissolved Oxygen	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				M[c]
Total Suspended Solids	mg/L	18	27[d]	1370	2050[d]	PD
Oil & Grease	mg/L	--	10	--	--	PD
Ammonia (as N) – Summer	mg/L	13.1	19.6[d]	992	1490[d]	PD
Ammonia (as N) - Winter	mg/L	13.6	20.4[d]	1030	1550[d]	PD
Total Kjeldahl Nitrogen	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Nitrate+Nitrite (as N)	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Phosphorus	mg/L	1.0	1.5[d]	75.7	114[d]	PD/PTS
Dissolved Orthophosphate (as P)	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				SB1
Total Filterable Residue	mg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Nickel	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Zinc	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Cadmium	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Lead	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Chromium	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Copper	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Hexavalent Chromium (Dissolved)	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				BTJ
Bis(2-ethylhexyl) phthalate	µg/L	- - - - - - - - - - Monitor - - - - - - - - - - -				RP
Mercury	ng/L	2.7	1700	0.0002	0.129	VAR
Free Cyanide	µg/L	--	44	--	3.3	WLA/RP
Chlorine	mg/L	--	0.038	--	--	PD
E. coli	#/100 mL	126	284[d]	--	--	WQS
Carbonaceous Biochemical Oxygen Demand (5 day)	mg/L	14	21[d]	1060	1590[d]	PD
Acute Toxicity						
Ceriodaphnia dubia	TU_a	--	--	--	--	WET
Pimephales promelas	TU_a	--	--	--	--	WET
Chronic Toxicity						
Ceriodaphnia dubia	TU_c	--	--	--	--	WET

Pimephales promelas	TU_c	--	--	--	--	WET

[a] Effluent loadings based on average design discharge flow of 20.0 MGD.

[b] Definitions:
BTJ = Best Technical Judgment
M = Division of Surface Water NPDES Permit Guidance 1: Monitoring frequency requirements for Sanitary Discharges
OAC = Ohio Administrative Code
PD = Plant Design (OAC 3745-33-05(E))
PTS = Phosphorus Treatment Standards (OAC 3745-33-06 (C))
RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in permits (OAC 3745-33-07(A))
SB1 = Implementation of Senate Bill 1 [ORC 6111.03]
VAR = Mercury variance (OAC 3745-33-07(D)(10)(a))
WET = Whole Effluent Toxicity (OAC 3745-33-07(B))
WLA = Wasteload Allocation procedures (OAC 3745-2)
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.

[d] 7 day average limit.

Attachment 1. Supplemental Discharge Monitoring Report (DMR) Data

Parameter	Season	Units	# Obs.	Percentiles		Data Range
				50th	95th	
Sludge Station 3PK00033581						
Nitrogen Kjeldahl, Total In Sludge	Annual	mg/kg	6	32800	38000	26400-39100
Arsenic, Total In Sludge	Annual	mg/kg	6	13	15.5	11-16
Cadmium, Total In Sludge	Annual	mg/kg	6	2.3	3.63	1.5-3.9
Copper, Total In Sludge	Annual	mg/kg	6	640	675	570-680
Lead, Total In Sludge	Annual	mg/kg	6	35	43.3	32-44
Nickel, Total In Sludge	Annual	mg/kg	6	52	55.3	51-56
Zinc, Total In Sludge	Annual	mg/kg	6	1450	1900	800-1900
Selenium, Total In Sludge	Annual	mg/kg	6	2.5	5.75	0-6
Fecal Coliform in Sludge	Annual	MPN/G	6	164000	174000	41100-177000
Sludge Fee Weight	Annual	dry tons	6	0	0	0-0
Sludge Weight	Annual	Dry Tons	6	0	0	0-0
Mercury, Total In Sludge	Annual	mg/kg	6	0.55	0.975	0.4-1.1
Molybdenum In Sludge	Annual	mg/kg	6	26	27.8	22-28
Nitrogen, Ammonia In Sludge	Annual	mg/kg	6	4920	7060	4000-7400
Sludge Station 3PK00033584						
Ammonia (NH3) In Sludge	Annual	mg/kg	25	12100	17400	7700-17900
Nitrogen Kjeldahl, Total In Sludge	Annual	mg/kg	31	24700	38100	21200-39200
Nitrite Plus Nitrate, Total In Sludge	Annual	mg/kg	6	2600	12000	1800-15000
Phosphorus, Total In Sludge	Annual	mg/kg	25	21900	29500	12000-36100
Potassium In Sludge	Annual	mg/kg	25	1900	2180	1200-2400
Arsenic, Total In Sludge	Annual	mg/kg	31	9	11	5-12
Cadmium, Total In Sludge	Annual	mg/kg	31	1.4	1.9	0.7-2
Copper, Total In Sludge	Annual	mg/kg	31	460	590	310-630
Lead, Total In Sludge	Annual	mg/kg	31	26	32.5	17-43
Nickel, Total In Sludge	Annual	mg/kg	31	54	110	22-120
Zinc, Total In Sludge	Annual	mg/kg	31	1100	1300	900-1400
Selenium, Total In Sludge	Annual	mg/kg	31	4	10	0-11
Fecal Coliform in Sludge	Annual	MPN/G	41	0	130	0-140
Sludge Fee Weight	Annual	dry tons	31	376	436	83.9-480
Sludge Weight	Annual	Dry Tons	31	268	551	0-838
Mercury, Total In Sludge	Annual	mg/kg	31	0.6	0.8	0.3-0.8
Molybdenum In Sludge	Annual	mg/kg	31	18	33	11-42
Nitrogen, Ammonia In Sludge	Annual	mg/kg	6	7450	7800	6400-7800

Parameter	Season	Units	# Obs.	Percentiles		Data Range
				50th	95th	
Sludge Station 3PK00033586						
Sludge Fee Weight	Annual	dry tons	5	2290	2390	367-2410
Influent Station 3PK00033601						
Total Suspended Solids	Annual	mg/L	1165	320	728	40-1540
Cyanide, Total	Annual	mg/L	56	0	0	0-0
Nickel, Total Recoverable	Annual	µg/L	56	31	113	6-200
Zinc, Total Recoverable	Annual	µg/L	56	280	605	110-750
Cadmium, Total Recoverable	Annual	µg/L	56	0	0.6	0-2
Lead, Total Recoverable	Annual	µg/L	56	5	29.3	0-44
Chromium, Total Recoverable	Annual	µg/L	56	15	46.3	2-58
Copper, Total Recoverable	Annual	µg/L	56	120	230	26-530
Chromium, Dissolved Hexavalent	Annual	µg/L	56	0	0	0-0
Mercury, Total (Low Level)	Annual	ng/L	56	105	275	9.7-410
pH, Maximum	Annual	S.U.	1697	7.5	8.2	6.6-9
pH, Minimum	Annual	S.U.	1697	7.3	7.92	6-8.4
CBOD 5 day	Summer	mg/L	573	150	270	29-540
CBOD 5 day	Winter	mg/L	591	140	260	36-490

Addendum 1. Acronyms

ABS	Anti-backsliding
BPJ	Best professional judgment
CFR	Code of Federal Regulations
CMOM	Capacity Management, Operation, and Maintenance
CONSWLA	Conservative substance wasteload allocation
CSO	Combined sewer overflow
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DMT	Dissolved metal translator
IMZM	Inside mixing zone maximum
LTCP	Long-term Control Plan
MDL	Analytical method detection limit
MGD	Million gallons per day
NPDES	National Pollutant Discharge Elimination System
OAC	Ohio Administrative Code
Ohio EPA	Ohio Environmental Protection Agency
ORC	Ohio Revised Code
ORSANCO	Ohio River Valley Water Sanitation Commission
PEL	Preliminary effluent limit
PEQ	Projected effluent quality
PMP	Pollution Minimization Program
PPE	Plant performance evaluation
SSO	Sanitary sewer overflow
TMDL	Total Daily Maximum Load
TRE	Toxicity reduction evaluation
TU	Toxicity unit
U.S. EPA	United States Environmental Protection Agency
WET	Whole effluent toxicity
WLA	Wasteload allocation
WPCF	Water Pollution Control Facility
WQBEL	Water-quality-based effluent limit
WQS	Water Quality Standards
WWTP	Wastewater Treatment Plant