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 **Ormet Primary Aluminum Corporation**

Public Notice No.: 10-02-002
Public Notice Date: February 3, 2010
Comment Period Ends: March 3, 2010

OEPA Permit No.: **0IE00005*MD**
Application No.: **OH0011550**

Name and Address of Applicant:

Ormet Primary Aluminum Corporation
P.O. Box 176
Hannibal, Ohio 43931

Name and Address of Facility Where Discharge Occurs:

Ormet Primary Aluminum Corporation
State Route 7
Hannibal, Ohio 43931
Monroe County

Receiving Water: **Ohio River**

Subsequent Stream Network: **N/A**

Introduction

Development of a Fact Sheet for NPDES permits is required 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 and other treatment-technology based standards, existing effluent quality, instream biological, chemical and physical conditions, and the allocations of pollutants to meet Ohio Water Quality Standards. 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.

Table of Contents

List of Figures

List of Tables

Appendices

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. For questions or comments related to the draft permit or factsheet, contact **Mark Stump at either mark.stump@epa.state.oh.us or (614) 644-2028.**

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.

Location of Discharge/Receiving Water Use Classification

Ormet Primary Aluminum Corporation (Ormet) discharges to Ohio River at the following approximate River Mile (RM) locations for the primary outfalls of concern: Outfall 001 to RM 123.5, outfall 002 to RM 123.3, outfall 003 to RM 122.9, outfall 004 to RM 122.8 and outfall 017 to RM 124.2. The approximate location of the facility is shown in Figure 1.

This segment of the Ohio River is described by Ohio EPA River Code: 22-550, USEPA River Reach #: 05030201-051, County: Monroe, Ecoregion: Western Allegheny Plateau. The Ohio River is presently designated for the following uses: Warmwater Habitat (WWH), 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 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

Ormet owns and operates a primary aluminum reduction facility in Hannibal, Ohio. Process operations include primary smelting of aluminum and manufacture of billets and castings. The process operations are performed under the Standard Industrial Classification (SIC) code of 3334-"Primary Production of Aluminum". The discharges from the primary aluminum process operatioins are subject to Federal Effluent Guideline Limitations contained in the Code of Federal Regulations, Title 40, Part 421 for Non-ferrous Metals Manufacturing. Primarily the federal effluent guidelines applicable are direct chill casting subcategory 40 CFR 421.22 (BPT for Existing), 40 CFR 421.23q (BAT for direct chill casting for existing point source) and 40 CFR 421.24k (NSPS for direct chill casting for new point source).

Description of Existing Discharge

Ormet discharges via several wastewater outfalls from its operations. The following table identifies these

outfall numbers, sources of water/wastewater and approximate flowrates associated with the activities:

Outall Number	Water/Wastewater Source	Flow (MGD)
001	Direct Chill Casting wastewaters (internal outfalls 601 and 602), rectifier line 6 non-contact cooling water, air conditioner non-contact cooling water, storm water runoff. Dechlorination applied.	1.37
002	Internal outfall 603/605 from groundwater and seeps treatment, rectifier lis 1-5 non-contact cooling water, air conditioner cooling water, air compressor non-contact cooling water, storm water runoff. Dechlorination applied.	0.632
003	Steam condensate, air conditioner non-contact cooling water, compressed air condensate/blowdown, storm water runoff. Dechlorination applied.	0.028
004	Internal outfall 606 for treated seeps and stormwater runoff at Superfund site, furnace non-contact cooling water, air compresor non-contact cooling water, anode press non-contact cooling water, steam plant boiler blowdown, compressed air dryer condensate, steam condensate, auto shop wash water, pump seal water and storm water runoff. Dechlorination applied.	0.65
006, 007, 008, 009, 010, 011, 015, 016	Storm water runoff.	NA
017	Sewage treatment plant.	0.40
601	Internal outfall from Direct Chill Casting contact cooling water.	0.036
602	Internal outfall from Direct Chill Casting contact cooling water.	0.0016
603	Internal outfall from interceptor wells number 1 and 2 before treatment at groundwater treatment facility.	0.092
605	Internal outfall after treatment at groundwater treatment facility. Iron addition and precipitation for cyanide removal.	0.185
606	Internal outfall of treated seeps and storm water runoff from Superfund site. Activated carbon filtration applied.	0.00015

The draft permit contains monitoring and limits at internal stations 0IE00005601 and 0IE00005602. Effluent guideline limits are applied at these outfalls to ensure that these treatment standards are met prior to combining with other wastestreams. If monitoring was not done at this location, it would not be possible to verify compliance with these standards due to dilution. Federal rules [40 CFR 125.3(f)] prohibit attaining these standards by dilution.

Table 1 presents a summary of unaltered monthly operation report data for the period January 2004 to December 2008 for Ormet as well as current permit limits, and monthly average PEQ_{avg} and daily

maximum PEQ_{max} values, as appropriate, for NPDES sampling and monitoring provisions for all outfalls identified above.

Table 2 presents a summary of analytical results for outfalls 001, 002, 003, 004 and 017 effluent samples compiled from the NPDES application, from bioassay tests done by Ohio EPA and self monitoring reports for parameters of water quality concern and detected outside of the NPDES permit monitoring program. The monthly average PEQ_{avg} and daily maximum PEQ_{max} decision criteria are also included on this table.

Receiving Water Quality / Environmental Hazard Assessment

An assessment of the impact of a permitted point source on the immediate receiving waters includes an evaluation of the available chemical/physical (water column, effluent, and sediment chemistry, flows), biological (fish and macroinvertebrate assemblages), and habitat data which have been collected by Ohio EPA pursuant to the Five-Year Basin Approach for Monitoring and NPDES Reissuance. Other data may be used provided it was collected in accordance with Ohio EPA methods and protocols as specified by the Ohio Water Quality Standards and Ohio EPA guidance documents. Other information which may be evaluated includes, but is not limited to:

- NPDES permittee self-monitoring data;
- Effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

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

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

Three attainment status results are possible at each sampling location -full, partial, or non-attainment. Full attainment means that all of the applicable indices meet the biocriteria. Partial attainment means that one or more of the applicable indices meet the biocriteria or one of the organism groups reflects poor or very poor performance. An aquatic life use attainment table is constructed based on the sampling results and is arranged from upstream to downstream and includes the sampling locations indicated by river mile, the applicable biological indices, the use attainment status (*i.e.*, full, partial, or non), the Qualitative Habitat Evaluation Index (QHEI), and comments and observations for each sampling location.

There is no recent biological survey data in the Ohio River in the area of the Ormet discharges to evaluate the impact of the discharges on the river.

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 Ormet were used to determine what parameters should undergo wasteload allocation. The parameters discharged are identified by the data available to Ohio EPA - Monthly Operating Report (MOR) 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 (LEAPS)	January 2004 through December 2008
NPDES 2C Application data	January 2008
OEPA compliance sampling/bioassay data	May 7-8, 2007

This data is evaluated statistically, and Projected Effluent Quality (PEQ) values are calculated for each pollutant. PEQavg values represent the 95th percentile of monthly average data, and PEQmax values represent the 95th percentile of all data points.

The average and maximum projected effluent quality (PEQ) values are presented in Tables 1 and 2. For a summary of the screening results, refer to the parameter groupings at the end of this section.

PEQ values are used according to Ohio rules to compare to applicable WQS and allowable WLA values for each pollutant evaluated. Initially, PEQ values are compared to the applicable average and maximum WQS. If both PEQ values are less than 25% of the applicable WQS, the parameter 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 PEQavg or PEQmax is greater than 25% of the applicable WQS, a wasteload allocation is conducted to determine whether the parameter exhibits reasonable potential (and needs to be limited) or if monitoring is required.

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

The applicable waterbody uses for this facility's discharge and the associated stream design flows are as follows:

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 7Q10
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 4), and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

The data used in the WLA are listed in Tables 3 and 4. The wasteload allocation results to maintain all applicable criteria are presented in Table 5.

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 (Tables 1 and 2) 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 6, 7, 8, 9, and 10.

Whole Effluent Toxicity WLA

Whole effluent toxicity or "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 for average and the acute toxicity unit (TU_a) and 1Q10 for maximum). These values are the levels of effluent toxicity that should not cause instream toxicity during critical low-flow conditions. For Ormet, the wasteload allocation values are:

Outfall	TU_c	TU_a
001	278.36	1.0
002	602.23	1.0
003	13580.68	1.0
004	583.18	1.0
017	949.39	1.0

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

$$TU_c = \frac{100}{IC_{25}}$$

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):

$$TUc = \frac{100}{\text{geometric mean of NOEC and LOEC}}$$

The acute toxicity unit (TU_a) is defined as 100 divided by the LC50 for the most sensitive test species:

$$TU_a = \frac{100}{LC50}$$

Effluent Limits/Hazard Management Decisions

Federal and State laws/regulation require that dischargers meet both treatment technology-based limits and any more stringent standards needed to comply with state WQS. Permit limits are based on the more restrictive of the two. The listing in Tables 6, 7, 8, 9 and 10 reflects the hazard assessment (or "groupings") done according to WLA procedures. Tables 11, 12, 13, 14 and 15 shows the proposed draft NPDES limits for Ormet. The draft limits include consideration of treatment technology-based limits, whole effluent toxicity reasonable potential evaluations and other portions of NPDES rules, as well as the water quality-based limits.

Outfall 001

The Ohio EPA risk assessment (Table 6) places free cyanide in group 5. This placement as well as the data in Tables 1 and 2 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For this parameter PEQ is greater than 100% of the wasteload allocation. Pollutants that meet this requirement must have permit limits under OAC Rule 3745-33-07(A)(1). The daily maximum limit for free cyanide is based on wasteload allocation as limited by the inside mixing zone maximum (IMZM). The IMZM is a value calculated to avoid rapidly lethal conditions in the effluent mixing zone.

Ohio EPA risk assessment (Table 6) places total recoverable copper in group 4. This placement as well as the data in Tables 1 and 2 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% of the WLA) is required by OAC Rule 3745-33-07(A)(2).

Ohio EPA risk assessment (Table 6) places total residual chlorine and total recoverable zinc in group 3. This placement as well as the data in Tables 1 and 2 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 total recoverable zinc is not being proposed based upon this finding. However, continued monitoring for total residual chlorine at this outfall is proposed because this parameter/chemical is present and used onsite and to document that this pollutant continues to remain at low levels.

Total residual oxidants monitoring is recommended to be continued from the existing permit. Ormet uses both chlorine and bromine as a cooling water additive at the site. Since bromine and chlorine are analyzed utilizing the same method the results cannot be distinquished from one another and total residual oxidants shall be measured when bromine is used at the outfall.

pH limits are based upon past permit practices and a historic study on mixing performed by Ormet. Total suspended solids monitoring is recommended due to the influence of site operations/management/housekeeping and this outfall contains the federal guideline regulated processes for which total suspended solids is a parameter of concern.

Semi-annual monitoring of mercury at low levels is being recommended in the draft permit to characterize the discharge since such is impacted by primary manufacturing processes. In November

2010, the use of mixing zones to determine the waste load allocation for bioaccumulative chemicals of concern (BCCs) will no longer be allowed. This means that limits for BCCs after November 2010 must meet water quality standards with no allowances for dilution. Since mercury is considered a BCC, discharges must comply with water quality standards at that time. In order to obtain mercury effluent data which can be compared to the water quality standards, the permittee must use a low level method for mercury sampling and analysis.

Outfall 002/012

Outfalls 002 and 012 are actually the same outfall, however split tables are proposed to continue from the previous permit requiring separate sampling events during dry weather and rainfall related conditions. The purpose is to further characterize the impact of storm related events to the discharges of pollutants and further provide Ormet with data to utilize in pollutant reduction efforts. Existing data shows that there is a wide variation in the impact of pollutant levels based upon rainfall and further characterization is necessary.

Ohio EPA risk assessment (Table 7) places free cyanide, total recoverable copper and total residual chlorine in group 4. This placement as well as the data in Tables 1 and 2 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% of the WLA) is required by OAC Rule 3745-33-07(A)(2).

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

Aluminum monitoring at this outfall is recommended to continue from the previous permit due to the widespread dispersion of this processing pollutant throughout the facility.

Total residual oxidants monitoring is recommended to be continued from the existing permit. Ormet uses both chlorine and bromine as a cooling water additive at the site. Since bromine and chlorine are analyzed utilizing the same method the results cannot be distinquished from one another and total residual oxidants shall be measured when bromine is used at the outfall.

pH limits are based upon past permit practices and a historic study on mixing performed by Ormet. Total suspended solids monitoring is recommended due to the influence of site operations/management/housekeeping.

Semi-annual monitoring of mercury at low levels is being recommended in the draft permit to characterize the discharge since such is impacted by primary manufacturing processes. In November 2010, the use of mixing zones to determine the waste load allocation for bioaccumulative chemicals of concern (BCCs) will no longer be allowed. This means that limits for BCCs after November 2010 must meet water quality standards with no allowances for dilution. Since mercury is considered a BCC, discharges must comply with water quality standards at that time. In order to obtain mercury effluent data which can be compared to the water quality standards, the permittee must use a low level method for mercury sampling and analysis.

Outfall 003/013

Outfalls 003 and 013 are actually the same outfall, however split tables are proposed to continue from the previous permit requiring separate sampling events during dry weather and rainfall related conditions. The purpose is to further characterize the impact of storm related events to the discharges of pollutants and further provide Ormet with data to utilize in pollutant reduction efforts. Existing data shows that there is a wide variation in the impact of pollutant levels based upon rainfall and further characterization is necessary.

The Ohio EPA risk assessment (Table 8) places total residual chlorine and total recoverfable copper in group 5. This placement as well as the data in Tables 1 and 2 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For these parameters PEQ is greater than 100% of the wasteload allocation. Pollutants that meet this requirement must have permit limits under OAC Rule 3745-33-07(A)(1). The daily maximum limit for for both of these parameters ares based on wasteload allocation as limited by the inside mixing zone maximum (IMZM). The IMZM is a value calculated to avoid rapidly lethal conditions in the effluent mixing zone.

Ohio EPA risk assessment (Table 8) places barium, total recoverable iron, total recoverable nickel, total recoverable zine, free cyanide and dibromochloromethane in group 3. This placement as well as the data in Tables 1 and 2 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. However, monitoring for free cyanide is recommended to continue at this outfall since it is a pollutant of consistant presence at the facility due to operations.

Aluminum monitoring at this outfall is recommended to continue from the previous permit due to the widespread dispersion of this processing pollutant throughout the facility.

Total residual oxidants monitoring is recommended to be continued from the existing permit. Ormet uses both chlorine and bromine as a cooling water additive at the site. Since bromine and chlorine are analyzed utilizing the same method the results cannot be distinquished from one another and total residual oxidants shall be measured when bromine is used at the outfall.

pH limits are based upon past permit practices and a historic study on mixing performed by Ormet. Total suspended solids monitoring is recommended due to the influence of site operations/management/housekeeping.

Semi-annual monitoring of mercury at low levels is being recommended in the draft permit to characterize the discharge since such is impacted by primary manufacturing processes. In November 2010, the use of mixing zones to determine the waste load allocation for bioaccumulative chemicals of concern (BCCs) will no longer be allowed. This means that limits for BCCs after November 2010 must meet water quality standards with no allowances for dilution. Since mercury is considered a BCC, discharges must comply with water quality standards at that time. In order to obtain mercury effluent data which can be compared to the water quality standards, the permittee must use a low level method for mercury sampling and analysis.

Outfall 004/014

Outfalls 004 and 014 are actually the same outfall, however split tables are proposed to continue from the previous permit requiring separate sampling events during dry weather and rainfall related conditions. The purpose is to further characterize the impact of storm related events to the discharges of pollutants

and further provide Ormet with data to utilize in pollutant reduction efforts. Existing data shows that there is a wide variation in the impact of pollutant levels based upon rainfall and further characterization is necessary.

Ohio EPA risk assessment (Table 9) places total recoverable copper and free cyanide in group 4. This placement as well as the data in Tables 1 and 2 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% of the WLA) is required by OAC Rule 3745-33-07(A)(2). In addition, free cyanide and total recoverable copper effluent quality falls within 75% of the wasteload allocation. Under OAC 3745-33-07(A)(2), parameters in this range must have a tracking requirement in the permit that specifies reductions in pollutant concentrations if effluent concentrations exceed the WLA. The tracking/reduction requirements are included in Part II Item M of the draft permit.

Ohio EPA risk assessment (Table 9) places barium, total residual chlorine, dissolved solids and total recoverable zinc in group 3. This placement as well as the data in Tables 1 and 2 support that these parameters do not have the reasonable potential to contribute to WQS exceedances, and limits are not necessary to protect water quality. However, monitoring of total residual chlorine will be continued since this pollutant is regularly utilized in process operations at the facility.

Aluminum monitoring at this outfall is recommended to continue from the previous permit due to the widespread dispersion of this processing pollutant throughout the facility.

Total residual oxidants monitoring is recommended to be continued from the existing permit. Ormet uses both chlorine and bromine as a cooling water additive at the site. Since bromine and chlorine are analyzed utilizing the same method the results cannot be distinquished from one another and total residual oxidants shall be measured when bromine is used at the outfall.

pH limits are based upon past permit practices and a historic study on mixing performed by Ormet. Total suspended solids monitoring is recommended due to the influence of site operations/management/housekeeping.

Semi-annual monitoring of mercury at low levels is being recommended in the draft permit to characterize the discharge since such is impacted by primary manufacturing processes. In November 2010, the use of mixing zones to determine the waste load allocation for bioaccumulative chemicals of concern (BCCs) will no longer be allowed. This means that limits for BCCs after November 2010 must meet water quality standards with no allowances for dilution. Since mercury is considered a BCC, discharges must comply with water quality standards at that time. In order to obtain mercury effluent data which can be compared to the water quality standards, the permittee must use a low level method for mercury sampling and analysis.

Outfall 005

This outfall is actually a ficticious outfall where the sum of all total suspended solids loadings from outfalls 001, 002, 003 and 004 are added together and compared to the plant-wide limits specified in the draft permit of 810 kg/day (30 day average) and 2130 kg/day (daily maximum). These limits are being carried over from previous permit recommendations and is at least as restrictive as the BPT loading limits allowed under 40 CFR 421 for this facility. In general, this limit is equivalent to that allowable effluent loadings permitted under 40 CFR 421 (See attachment A) and an additionaly loading derived from allowing a limit of 20mg/l for the remaining flow at the facility from these outfalls.

Outfalls 006, 007, 008, 009, 010, 011, 015, 016

These outfalls are storm water related outfalls. Various baseline monitoring at each of these outfalls is being recommended in this draft permit to characterize the discharge associated with housekeeping activities at the facility. Baseline monitoring will be for copper, aluminum, zinc and fluoride.

Outfall 017

Limits proposed for total suspended solids (TSS) and carbonaceous biochemical oxygen demand ($CBOD_5$) are technology-based treatment standards included in 40 CFR Part 133, Secondary Treatment Regulation. Secondary treatment is defined by Best Practicable Waste Treatment Technology criteria, which are required of all publicly owned treatment works discharging to effluent limited stream segments (with respect to conventional pollutants). For a facility to meet secondary treatment standards, monitoring of ammonia-nitrogen is appropriate and is proposed. Though this is not a publicly owned treatment works, it is appropriate to limit the discharge similarly to a sewage treatment plant of similar size and activity.

The Ohio EPA risk assessment (Table 10) places total residual copper in group 5. This placement as well as the data in Tables 1 and 2 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. For these parameters PEQ is greater than 100 % of the wasteload allocation. Pollutants that meet this requirement must have permit limits under OAC Rule 3745-33-07(A)(1). The daily maximum limit for total recoverable copper is based on wasteload allocation as limited by the inside mixing zone maximum (IMZM). The IMZM is a value calculated to avoid rapidly lethal conditions in the effluent mixing zone.

Fecal coliform and oil and grease limits are recommended based upon Ohio WQS. pH limits are based upon past permit practices and a historic study on mixing performed by Ormet.

Semi-annual monitoring of mercury at low levels is being recommended in the draft permit to characterize the discharge. Limited data exists at this outfall and the results appear to be questionable. Addtional data is necessary. In November 2010, the use of mixing zones to determine the waste load allocation for bioaccumulative chemicals of concern (BCCs) will no longer be allowed. This means that limits for BCCs after November 2010 must meet water quality standards with no allowances for dilution. Since mercury is considered a BCC, discharges must comply with water quality standards at that time. In order to obtain mercury effluent data which can be compared to the water quality standards, the permittee must use a low level method for mercury sampling and analysis.

Outfalls 601/602/607

Outfalls 601 and 602 are the sampling points for the direct chill casting wastewaters. Outfall 601 is for the existing source activities and regulated under 40 CFR 421.22 (Best Practicable Technology) and 40 CFR 421.23q (Best Available Technology). Outfall 602 is for the new source activities and is regulated under 40 CFR 421.24k (New Source Performance Standard). Production at the facility for direct chill casting has not fluctuated over the last several years and the production reported under the current NPDES permit application is reflective of those levels. Therefore, the production values previously applied to these outfalls and sources were continued in this permit--approximately 0.754 million pounds aluminum daily for existing source activities out of Outfall 601 and 0.0787 million pounds daily for new source activities. Production effluent limit calculations will remain the same as those in current NPDES.

Federal effluent guideline limitations applicable are included in attachment A. Each outfall 601 and 602 has effluent limitations recommended for pH and total suspended solids. Additionally, outfall 602 will be limited for oil and grease. Effluent limitations at outfall 607 will be for flouride, aluminum, antimony and nickel and will be based upon past permit requirements, federal effluent limit calculaions and/or antibacksliding. Again, compliance with these limitations will be based upon adding up loads from those pollutants at outfalls 601 and 602.

Outfalls 603/605

Outfalls 603 and 605 are the influent and effluent sampling points from the cyanide treatment unit, respectively. This unit is used to treat contaminated groundwater at the site. Limitations at outfall 605 are recommended for total cyanide, total flouride, total recoverable nickel, aluminum and pH based upon best professional judgement, antibacksliding and plant design specifications.

Outfall 606

This is an internal outfall which monitors another groundwater treatment unit. Target parameters for cleanup are recommended for monitoring (PCBs and total cyanide) and is to continue from previous permit requirements to keep track of plant operations.

Miscellaneous

Part II of the permit includes requirements for signs to be placed at each outfall to the Ohio River, providing information about the discharge. Signage at outfalls is required pursuant to Ohio Administrative Code 3745-33-08(A).

Operator certification requirements have been included in Part II, Item S of the permit in accordance with rules adopted in December 2006. These rules require the Ormet Primary Aluminum Corporation to have a Class II wastewater treatment plant operator in charge of the sewage treatment plant operations discharging through outfall 017. A schedule of compliance is incorporated in the draft NPDES permit allowing the Ormet Primary Aluminum Corporation up to twelve months to obtain the services of such an operator.

A sludge/biosolids monitoring and reporting station is also included in the draft NPDES permit to report and track solids removed from the wastewater treatment plant treating domestic sewage in accordance with the federal 40 CFR 503 regulations.

Whole Effluent Toxicity Reasonable Potential

WET values are compared to wasteload allocation values. This comparison along with an assessment of the instream community are two ways in which whole effluent toxicity is evaluated. For Oremt the chronic and acute WLAs are:

Outfall	TU_c	TU_a
001	278.36	1.0
002	602.23	1.0
003	13580.68	1.0
004	583.18	1.0
017	949.39	1.0

Ohio EPA evaluated acute toxicity at outfalls 003 and 004 in May 7-8, 2007. Additionally, the existing NPDES permit requires acute toxicity testing at both of these outfalls (and outfall 002 since 2007 modification).

For outfall 003, 50% of the available toxicity tests show an exceedence of the 1.0 TU_a limit included in the existing NPDES permit and 3 of 5 samples exceeded the limit since its compliance date of April 1, 2007. Since this outfall continues to demonstrate acute toxicity, the effluent limit of 1.0 TU_a is recommended to continue in the draft permit.

Additionally, toxicity testing at outfall 004 shows tests in exceedence of the allowable wasteload limit approximately 40% of the time, however, a significant change in characteristics of this outfall has taken place and only continued acute toxicity tests are being recommended to characterize this outfall to the Ohio River.

Outfall 002 has not expressed toxicity in past tests but only a limited number of tests have been taken and since the modification of this outfall in 2008 (in conjunction with the modification of outfall 004 characteristics identified above) continued acute toxicity testing is being recommended.

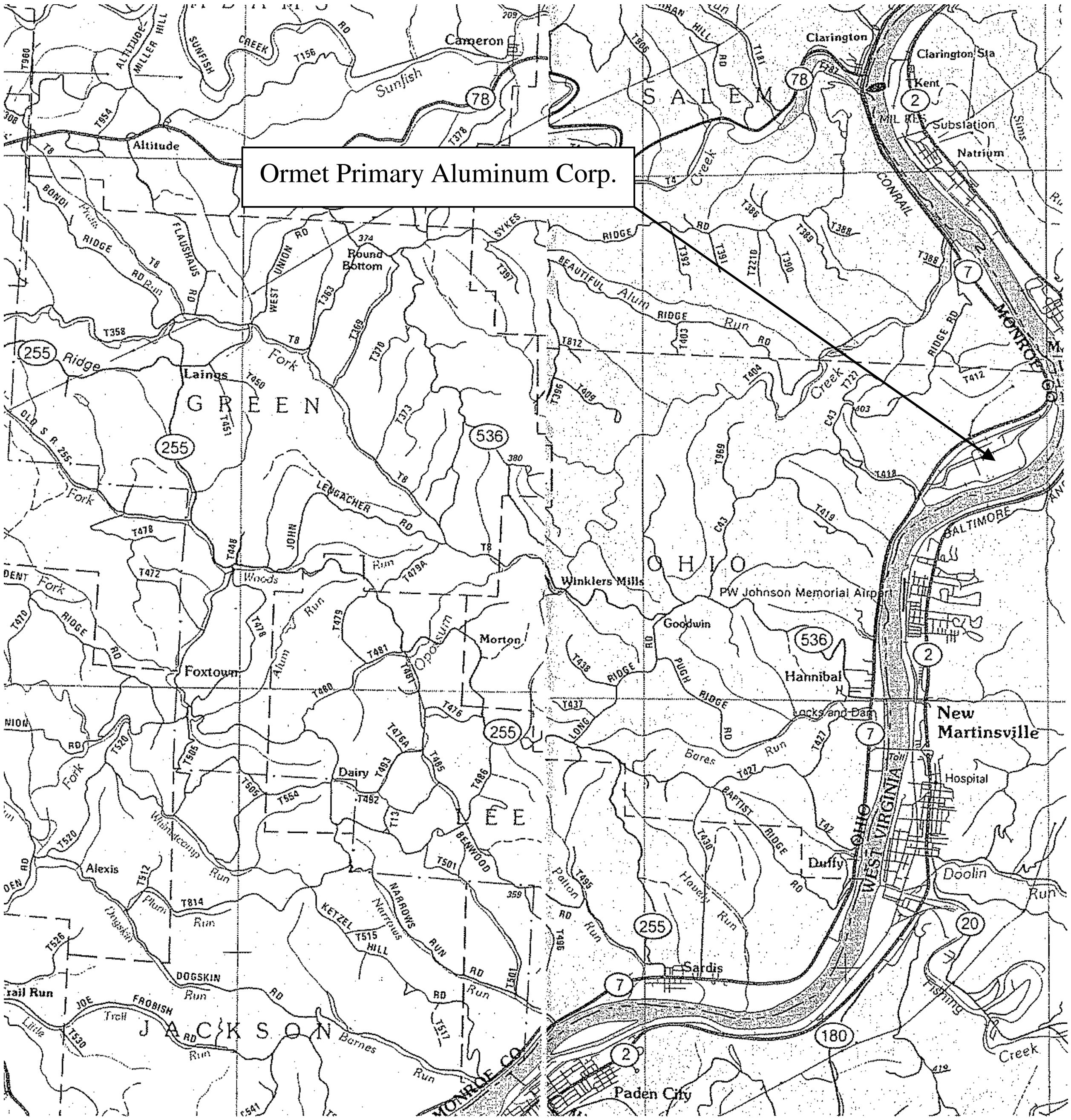

Figure 1. Approximate location of the Ormet Primary Aluminum Corporation.

Table 1. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for Ormet Primary Aluminum Corporation outfalls 001, 002, 003, 004, 005, 012, 013, 014, 017, 601, 602, 603, 605 and 606. 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; A = 7 day average. 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 001											
pH	Annual	S.U.	6.0 (min)	9.0 (max)	262	7.3	7.9	6.33-8.4	262	7.5919	7.8933
Total Suspended Solids	Annual	mg/l	---	--	262	0	31.1	0-194	262	41.309	37.456
Cyanide, Weakacid Dissociable	Annual	mg/l	--	--	13	0.01	0.024	0.01-0.03	13	0.03504	0.048
Zinc, Total Recoverable	Annual	ug/l	--	--	7	0	41.1	0-49.3	7	71.98	98.6
Aluminum, Total Recoverable	Annual	ug/l	--	--	13	250	2770	0-5340	12	1226	1680
Copper, Total Recoverable	Annual	ug/l	--	--	262	1.8	21.2	0-153	262	17.778	21.926
Manganese, Total Recoverable	Annual	ug/l	--	--	7	1000	2010	770-2390	8	3315	4541
Oxidants, Total Residual	Annual	mg/l	--	--	354	0	0	0-0.003	18	0.01022	0.014
Flow Rate	Annual	MGD	--	--	1827	0.923	1.37	0-2.44	1827	1.1235	2.2302
Chlorine, Total Residual	Annual	mg/l	--	--	520	0	0.01	0-0.64	519	0.006498	0.009461
Outfall 002											
pH	Annual	S.U.	6.0 (min)	9.0 (max)	262	7.3	7.9	6.7-8.6	262	7.6306	7.9252
Total Suspended Solids	Annual	mg/l	--	--	262	0	17.2	0-68	262	20.121	22.95
Cyanide, Weakacid Dissociable	Annual	mg/l	--	0.044	262	0.0055	0.0269	0-0.25	262	0.026689	0.038237
Aluminum, Total Recoverable	Annual	ug/l	--	--	262	111	2600	0-8310	262	1858.7	2173.3
Copper, Total Recoverable	Annual	ug/l	--	36	52	6.4	27.5	0-37	52	27.01	37
Manganese, Total Recoverable	Annual	ug/l	--	--	7	1010	1060	781-1060	8	1470	2014
Oxidants, Total Residual	Annual	mg/l	--	--	113	0	0.00226	0-0.14	113	0.01815	0.008032
Flow Rate	Annual	MGD	--	--	1827	0.475	0.977	0-1.04	1827	0.63485	1.2458
Chlorine, Total Residual	Annual	mg/l	--	0.038	520	0	0.01	0-0.14	518	0.0219	0.03

Acute Toxicity, Ceriodaphnia dubia	Annual	TUa	--	--	2	0	0	0-0	2	--	--
Outfall 003											
pH	Annual	S.U.	6.0 (min)	9.0 (max)	61	7.3	7.9	6.8-8.2	61	7.6679	7.9952
Total Suspended Solids	Annual	mg/l	--	--	60	3.4	68.5	0-221	60	112.57	129.91
Cyanide, Weakacid Dissociable	Annual	mg/l	--	--	60	0	0.01	0-0.061	58	0.00949	0.013
Zinc, Total Recoverable	Annual	ug/l	--	--	57	19	65.9	0-149	57	60.546	96.452
Aluminum, Total Recoverable	Annual	ug/l	--	--	60	1280	16000	0-36400	60	23853	30064
Copper, Total Recoverable	Annual	ug/l	--	--	57	10.4	134	0-356	58	141.11	189.15
Manganese, Total Recoverable	Annual	ug/l	--	--	3	214	862	79-934	5	1568	2148
Flow Rate	Annual	MGD	--	--	1827	0.019	0.0934	0-0.181	1827	0.05153	0.12332
Chlorine, Total Residual	Annual	mg/l	--	0.038	134	0	0	0-1.5	134	0.876	1.2
Acute Toxicity, Ceriodaphnia dubia	Annual	TUa	--	1.0	11	1.17	2.87	0-2.9	11	3.3025	5.9441
Outfall 004											
pH	Annual	S.U.	6.0 (min)	9.0 (max)	262	7.2	7.7	6-8.13	262	7.488	7.785
Total Suspended Solids	Annual	mg/l	--	--	262	6	49.5	0-86	262	39.123	53.322
Cyanide, Weakacid Dissociable	Annual	mg/l	--	0.044	262	0.006	0.027	0-0.12	262	0.024212	0.035348
Silver, Total Recoverable	Annual	ug/l	--	--	13	0	0	0-0	13	--	--
Zinc, Total Recoverable	Annual	ug/l	--	--	7	39.8	51.6	0-54.1	7	78.99	108.2
Aluminum, Total Recoverable	Annual	ug/l	--	--	261	107	883	0-5620	261	874.26	1165.7
Copper, Total Recoverable	Annual	ug/l	--	36	249	5.6	24.9	0-200			
Manganese, Total Recoverable	Annual	ug/l	--	--	7	1050	1090	807-1100	9	1564	2142
PAHs	Annual	ug/l	--	--	3	0	0	0-0	3	--	--
Oxidants, Total Residual	Annual	mg/l	--	--	390	0	0	0-0.69	390	0.02615	0.015865
Flow Rate	Annual	MGD	--	--	1827	0.575	0.974	0-1.99	1827	0.73606	1.4024
Chlorine, Total Residual	Annual	mg/l	--	0.038	519	0	0.01	0-0.69	518	0.023235	0.017341
Acute Toxicity, Ceriodaphnia dubia	Annual	TUa	--	--	10	0	1.77	0-2.11	10	2.619	3.587
Copper, Total Recoverable	Annual	ug/l	--	--	7	0	17.7	0-25.3			
Outfall 005											
Total Suspended Solids	Annual	mg/l	--	--	263	10.1	81.1	0-221			
Flow Rate	Annual	MGD	--	--	1827	1.9	2.75	0.124-4.74			

Outfall 012

Total Precipitation	Annual	Inches	---	--	19	0.21	0.882	0.1-0.9	19	0.71464	1.2281
Dry Days Preceeding Precipitation Event	Annual	Number	--	--	19	6	11	3-20	19	10.731	16.175
pH	Annual	S.U.	--	--	19	7.29	7.92	6.6-8.1	19	7.8948	8.5103
Total Suspended Solids	Annual	mg/l	--	--	19	4.4	103	0-552	19	669.27	702.77
Cyanide, Weakacid Dissociable	Annual	mg/l	--	--	19	0.0048	0.0353	0-0.056	19	0.046303	0.078613
Aluminum, Total Recoverable	Annual	ug/l	--	--	19	1750	37400	0-171000	19	471260	434970
Duration of Discharge	Annual	Hours	--	--	19	3.5	8.2	0.5-10	19	8.7776	14.765

Outfall 013

Total Precipitation	Annual	Inches	--	--	52	0.1	0.663	0-0.9	52	0.71631	1.0581
Dry Days Preceeding Precipitation Event	Annual	Number	--	--	23	6	10	3-20	23	10.467	15.405
pH	Annual	S.U.	--	--	21	7.1	8.19	6.1-8.2	21	7.9466	8.771
Total Suspended Solids	Annual	mg/l	--	--	20	11.3	182	0-220	20	368.69	510.25
Cyanide, Weakacid Dissociable	Annual	mg/l	--	--	20	0.0019	0.0111	0-0.031	20	0.026412	0.042217
Fluoride, Total (F)	Annual	mg/l	--	--	20	13.6	69.3	2-112	20	99.094	172.78
Zinc, Total Recoverable	Annual	ug/l	--	--	20	22.3	92.3	0-157	20	160.74	276.79
Aluminum, Total Recoverable	Annual	ug/l	--	--	20	2400	51600	0-65300	20	153670	191940
Copper, Total Recoverable	Annual	ug/l	--	--	20	32.7	364	0-443	20	500.07	763.83
Acute Toxicity, Ceriodaphnia dubia	Annual	TUa	--	--	9	0	5.45	0-7.6	9	9.986	13.68
Duration of Discharge	Annual	Hours	--	--	23	3	7.8	0.5-10	23	8.1946	13.569

Outfall 014

Total Precipitation	Annual	Inches	--	--	19	0.21	0.882	0.1-0.9	19	0.71464	1.2281
Dry Days Preceeding Precipitation Event	Annual	Number	--	--	19	6	11	3-20	19	10.731	16.175
pH	Annual	S.U.	--	--	19	7.22	7.94	6.5-8.3	19	7.8326	8.4648
Total Suspended Solids	Annual	mg/l	--	--	19	12.4	92.4	0-226	19	291.9	420.13
Cyanide, Weakacid Dissociable	Annual	mg/l	--	--	19	0.0062	0.0361	0-0.037	19	0.054362	0.093346
Zinc, Total Recoverable	Annual	ug/l	--	--	19	31.1	238	0-527	19	239.77	416.13
Aluminum, Total Recoverable	Annual	ug/l	--	--	19	231	15200	0-48200	19	45141	47420
Copper, Total Recoverable	Annual	ug/l	--	--	19	14.2	125	0-338	19	205.56	326.4

Duration of Discharge	Annual	Hours	--	--	19	3.5	8.2	0.5-10	19	8.7776	14.765
Outfall 017											
Dissolved Oxygen	Annual	mg/l	--	--	250	5.7	7.6	3.3-8.6	250	6.1893	8.0881
pH	Annual	S.U.	6.0 (min)	9.0 (max)	250	7.4	7.67	6.64-8.79	250	7.4821	7.7719
Total Suspended Solids	Annual	mg/l	30	45	52	0	11.2	0-35.6	52	12.065	18.849
Oil and Grease, Total	Annual	mg/l	--	20	12	0	0	0-0	12	--	--
Nitrogen, Ammonia (NH3)	Annual	mg/l	--	--	52	2	3.05	0.041-3.6	52	4.3219	6.8627
Copper, Total Recoverable	Annual	ug/l	--	36	11	12.2	22	2.8-23.3	11	32.524	59.294
Fecal Coliform	Summer Winter	#/100 ml	200 1000	400 2000	52	210	2570	0-92000	52	8780.4	8743.8
Flow Rate	Annual	MGD	--	--	366	0.229	0.29	0.113-0.318	366	0.24573	0.30326
Mercury, Total (Low Level)	Annual	ng/l	--	--	4	0	0.0485	0-0.057	3	0.1248	0.171
CBOD 5 day	Annual	mg/l	25	40	48	1.95	5.43	0-16.1	48	5.2489	8.3318
Outfall 601											
pH	Annual	S.U.	6.0 (min)	9.0 (max)	47	7.33	8.2	6.7-8.6			
Total Suspended Solids	Annual	mg/l	--	--	47	3.6	17.9	0-54.4			
Fluoride, Total (F)	Annual	mg/l	--	--	47	2.1	2.94	0.53-3.1			
Nickel, Total (Ni)	Annual	ug/l	--	--	47	1.4	2.88	0-3.7			
Aluminium, Total (Al)	Annual	ug/l	--	--	47	432	777	144-925			
Flow Rate	Annual	MGD	--	--	1430	0.029	0.06	0-0.702			
Outfall 602											
pH	Annual	S.U.	6.0 (min)	10 (max)	3	8	8.27	8-8.3			
Total Suspended Solids	Annual	mg/l	--	--	3	0	0	0-0			
Oil and Grease, Total	Annual	mg/l	--	--	3	0	0	0-0			
Fluoride, Total (F)	Annual	mg/l	--	--	3	1.6	2.05	0.93-2.1			
Nickel, Total (Ni)	Annual	ug/l	--	--	3	0	0	0-0			
Aluminium, Total (Al)	Annual	ug/l	--	--	3	1750	2180	467-2230			
Flow Rate	Annual	MGD	--	--	153	0.002	0.0034	0-0.033			
Outfall 603											
pH	Annual	S.U.	--	--	18	7.35	7.98	7.1-9			
Residue, Total Dissolved	Annual	mg/l	--	--	19	556	760	282-761			

Cyanide, Weakacid Dissociable	Annual	mg/l	---	--	38	0.023	0.0558	0-0.25
Cyanide, Total	Annual	mg/l	--	--	902	2.4	4	0-5.6
Fluoride, Total (F)	Annual	mg/l	--	--	42	14.5	16.4	3.2-24
Nickel, Total Recoverable	Annual	ug/l	--	--	19	1.9	2.67	0-3.3
Aluminium, Total (Al)	Annual	ug/l	--	--	19	246	1020	0-1480
Flow Rate	Annual	MGD	--	--	1508	0.102	0.131	0-0.148
Cyanide, Total	Annual	mg/l	--	--	63	3.8	4.49	0.22-4.7
Outfall 605								
pH, Maximum	Annual	S.U.	--	9.0	91	6.58	6.97	6.33-7.28
pH, Minimum	Annual	S.U.	6.0	--	91	6.37	6.73	3-6.79
Residue, Total Dissolved	Annual	mg/l	--	--	13	2040	2190	1220-2200
Cyanide, Total	Annual	mg/l	0.485	0.907	384	0.26	0.98	0-2.7
Fluoride, Total (F)	Annual	mg/l	26.4	59.5	204	8.8	14	1.2-16.5
Iron, Total Recoverable	Annual	ug/l	--	--	13	22500	71400	7960-74400
Nickel, Total Recoverable	Annual	ug/l	370	549	205	43.2	293	0-833
Aluminium, Total (Al)	Annual	ug/l	2700	6110	205	65.4	548	0-24900
Flow Rate	Annual	MGD	--	--	1498	0.131	0.17	0-0.53
Outfall 606								
Flow Rate	Annual	GPD	--	--	1615	32.7	805	0-3710
Residue, Total Dissolved	Annual	mg/l	--	--	3	1210	1760	1030-1820
Cyanide, Total	Annual	mg/l	--	--	54	0.17	0.498	0-0.82
Fluoride, Total (F)	Annual	mg/l	--	--	3	38.1	51.9	27.4-53.4
PAHs	Annual	ug/l	--	--	3	0	0	0-0
PCB 1016	Annual	ug/l	--	--	57	0	0	0-0
PCB 1221	Annual	ug/l	--	--	57	0	0	0-0
PCB 1232	Annual	ug/l	--	--	57	0	0	0-0
PCB 1242	Annual	ug/l	--	--	57	0	0	0-0
PCB 1248	Annual	ug/l	--	--	57	0	0	0-0
PCB 1254	Annual	ug/l	--	--	57	0	0	0-0
PCB 1260	Annual	ug/l	--	--	57	0	0	0-0

Outfall 607

Fluoride, Total (F)	Annual	mg/l	--	--	48	2.1	2.87	0.53-3
Nickel, Total (Ni)	Annual	ug/l	--	--	48	1.4	2.86	0-3.7
Aluminum, Total Recoverable	Annual	ug/l	--	--	48	433	773	144-925
Flow Rate	Annual	MGD	--	--	1461	0.0293	0.071	0-1.16

Table 2. Effluent Data for the Ormet Primary Aluminum

Parameter	Units	Number of Samples	Number > MDL	PEQ Average	PEQ Maximum
Outfall 001					
Aluminum	ug/l	12	7	1226.4	1680
Chlorine (wwh) - TRes	mg/l	519	30	0.006498	0.009461
Copper - TR	ug/l	262	180	17.778	21.926
Cyanide - free	mg/l	13	13	0.03504	0.048
Manganese - TR	ug/l	8	8	3314.93	4541
Zinc - TR	ug/l	7	2	71.978	98.6
Outfall 002					
Aluminum	ug/l	262	232	1858.7	2173.3
Chlorine (wwh) - TRes	mg/l	518	29	0.0219	0.03
Copper - TR	ug/l	52	44	27.01	37
Cyanide - free	mg/l	262	190	0.026689	0.038237
Manganese - TR	ug/l	8	8	1470.22	2014
Outfall 003					
Aluminum	ug/l	60	59	23853	30064
Barium	ug/l	1	1	226.3	310
Bromoform (Tribromomethane)	ug/l	1	1	2.53456	3.472
Chlorine (wwh) - TRes	mg/l	134	4	0.876	1.2
Copper - TR	ug/l	58	54	141.11	189.15
Cyanide - free	mg/l	58	22	0.00949	0.013
Dibromochloromethane	ug/l	1	1	2.30826	3.162
Iron - TR	ug/l	1	1	70605.6	96720
Manganese - TR	ug/l	5	5	1568.186	2148.2
Nickel - TR	ug/l	1	1	280.612	384.4
Strontium	ug/l	1	1	814.68	1116
Zinc - TR	ug/l	57	51	60.546	96.452
Outfall 004					
Aluminum	ug/l	261	227	874.26	1165.7
Barium	ug/l	1	1	357.554	489.8
Chlorine (wwh) - TRes	mg/l	518	38	0.023235	0.017341
Copper - TR	ug/l	256	214	28.994	40.729

Cyanide - free	mg/l	262	188	0.024212	0.035348
Dissolved solids (ave)	mg/l	1	1	2344.468	3211.6
Manganese - TR	ug/l	9	9	1563.66	2142
Polynuclear aromatic hydrocarbons (PAHs)	ug/l	3	0	--	--
Silver (wwh)	ug/l	13	0	--	--
Strontium	ug/l	1	1	905.2	1240
Zinc - TR	ug/l	7	5	78.986	108.2
Outfall 017					
Copper - TR	ug/l	11	11	32.524	59.294
Mercury - TR (BPO)	ng/l	3	1	0.12483	0.171
Mercury - TR (APO)	ng/l	3	1	0.12483	0.171

Table 3. Water Quality Criteria in the Study Area

Parameter	Units	Outside Mixing Zone Criteria: Average: Human Health	Outside Mixing Zone Criteria: Average: Agri-culture	Outside Mixing Zone Criteria: Aquatic Life	Outside Mixing Zone Criteria: Maximum Aquatic Life	Inside Mixing Zone Maximum
Outfall 001						
Aluminum	ug/l	--	--	--	--	--
Chlorine (wwh) - TRes	mg/l	--	--	0.011	0.019	0.038
Copper - TR	ug/l	1300	500	11	17	56
Cyanide - free	mg/l	0.7	--	0.0052	0.022	0.044
Manganese - TR	ug/l	--	--	--	--	--
Zinc - TR	ug/l	9100	25000	140	140	450
Outfall 002						
Aluminum	ug/l	--	--	--	--	--
Chlorine (wwh) - TRes	mg/l	--	--	0.011	0.019	0.038
Copper - TR	ug/l	1300	500	11	17	66
Cyanide - free	mg/l	0.7	--	0.0052	0.022	0.044
Manganese - TR	ug/l	--	--	--	--	--
Outfall 003						
Aluminum	ug/l	--	--	--	--	--
Barium	ug/l	--	--	220	2000	4000
Bromoform (Tribromomethane)	ug/l	43c	--	230	1100	2200
Chlorine (wwh) - TRes	mg/l	--	--	0.011	0.019	0.038
Copper - TR	ug/l	1300	500	11	17	49
Cyanide - free	mg/l	0.7	--	0.0052	0.022	0.044
Dibromochloromethane	ug/l	4.1c	--	--	--	--
Iron - TR	ug/l	--	5000	--	--	--
Manganese - TR	ug/l	--	--	--	--	--
Nickel - TR	ug/l	610	200	61	550	1600
Strontium	ug/l	--	--	21000	40000	81000
Zinc - TR	ug/l	9100	25000	140	140	400
Outfall 004						
Aluminum	ug/l	--	--	--	--	--
Barium	ug/l	--	--	220	2000	4000
Chlorine (wwh) - TRes	mg/l	--	--	0.011	0.019	0.038
Copper - TR	ug/l	1300	500	11	17	49
Cyanide - free	mg/l	0.7	--	0.0052	0.022	0.044
Dissolved solids (ave)	mg/l	--	--	1500	--	--
Manganese - TR	ug/l	--	--	--	--	--
Polynuclear aromatic	ug/l	--	--	--	--	--

hydrocarbons (PAHs)						
Silver (wwh)	ug/l	50	--	1.3	2.2	9
Strontium	ug/l	--	--	21000	40000	81000
Zinc - TR	ug/l	9100	25000	140	140	400
Outall 017						
Copper - TR	ug/l	1300	500	11	17	33
Mercury - TR (BPO)	ng/l	12	10000	910	1700	3400
Mercury - TR (APO)	ng/l	12	10000	910	1700	3400

Table 4. **Instream Conditions and Discharger Flow**

Parameter	Units	Season	Value	Basis
Stream Flows				
1Q10	cfs	annual	5880	ORSANCO
7Q10	cfs	annual	5880	ORSANCO
Harmonic Mean	cfs	annual	20500	ORSANCO
Mixing Assumption	%	average	10	(***WLAs for non-carcinogens are developed using 100 percent of the 7Q10.)
	%	maximum	1	
Hardness	mg/l	annual	120	ORSANCO
Effluent Hardness for IMZM				
Outfall 001	mg/l		210	2C Application
Outfall 002	mg/l		25	2C Application
Outfall 003	mg/l		183	2C Application
Outfall 004	mg/l		182	2C Application
Ormet Primary Aluminum flow	cfs	annual		
Outfall 001			2.12	95-th %tile MOR data
Outfall 002			0.978	Long term average 2C
Outfall 003			0.0433	Long term average 2C
Outfall 004			1.01	Long term average 2C
Outfall 017			0.62	Design flow
Background Water Quality				
Aluminum	ug/l		179	ORSANCO; 2000-07; n=35; <MDL; Median
Barium	ug/l		46.335	ORSANCO; 2000-07; n=35; <MDL; Median
Chlorine (wwh) - TRes	mg/l		0	No representative data available.
Copper - TR	ug/l		3.096	ORSANCO; 2000-07; n=35; <MDL; Median
Cyanide - free	mg/l		0	No representative data available.
Dissolved solids (ave)	mg/l		382	Statewide Background Water Quality; Thru February 1988; n=3755; <MDL; 50-th percentile
Manganese - TR	ug/l		89.96	ORSANCO; 2000-07; n=35; <MDL; Median
Polynuclear aromatic hydrocarbons (PAHs)	ug/l		0	No representative data available.
Silver (wwh)	ug/l		0.014	ORSANCO; 2000-07; n=35; <MDL; Median
Strontium	ug/l		0	No representative data available.
Zinc - TR	ug/l		6.21	ORSANCO; 2000-07; n=35; <MDL; Median
Bromoform (Tribromomethane)	ug/l		0	No representative data available.
Dibromochloromethane	ug/l		0	No representative data available.

Iron - TR	ug/l	410	ORSANCO; 2000-07; n=35; <MDL; Median
Nickel - TR	ug/l	3.162	ORSANCO; 2000-07; n=35; <MDL; Median

Table 5. Summary of Effluent Limits to Maintain Applicable WQ Criteria

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
		Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Outfall 001						
Aluminum	ug/l	--	--	--	--	--
Chlorine (wwh) - TRes	mg/l	--	--	3.1	0.55	0.038
Copper - TR	ug/l	3598373	480997	2203	403	56
Cyanide - free	mg/l	1942	--	1.4	0.63	0.044
Manganese - TR	ug/l	--	--	--	--	--
Zinc - TR	ug/l	25231499	24193523	37248	3851	450
Outfall 002						
Aluminum	ug/l	--	--	--	--	--
Chlorine (wwh) - TRes	mg/l	--	--	6.6	1.2	0.038
Copper - TR	ug/l	7798637	1042068	4763	853	66
Cyanide - free	mg/l	4209	--	3.1	1.3	0.044
Manganese - TR	ug/l	--	--	--	--	--
Outfall 003						
Aluminum	ug/l	--	--	--	--	--
Barium	ug/l	--	--	2358535	2655014	4000
Bromoform (Tribromomethane)	ug/l	2035840	--	3123556	1494864	2200
Chlorine (wwh) - TRes	mg/l	--	--	149	26	0.038
Copper - TR	ug/l	176116670	23525978	107345	18898	49
Cyanide - free	mg/l	95058	--	71	30	0.044
Dibromochloromethane	ug/l	194115	--	--	--	--
Iron - TR	ug/l	--	217314469	--	--	--
Manganese - TR	ug/l	--	--	--	--	--
Nickel - TR	ug/l	82407248	9319320	785482	743138	1600
Strontium	ug/l	--	--	285194210	54358707	81000
Zinc - TR	ug/l	1234916379	1183333764	1816965	181822	400
Outfall 004						
Aluminum	ug/l	--	--	--	--	--
Barium	ug/l	--	--	101324	115738	4000
Chlorine (wwh) - TRes	mg/l	--	--	6.4	1.1	0.038
Copper - TR	ug/l	7551593	1009068	4613	826	49
Cyanide - free	mg/l	4076	--	3	1.3	0.044
Dissolved solids (ave)	mg/l	--	--	652375	--	--
Manganese - TR	ug/l	--	--	--	--	--

Polynuclear aromatic hydrocarbons (PAHs)	ug/l	--	--	--	--	--
Silver (wwh)	ug/l	291058	--	750	129	9
Strontium	ug/l	--	--	12246743	2368713	81000
Zinc - TR	ug/l	52951165	50754970	78030	7929	400
Outfall 017						
Copper - TR	ug/l	12300970	1643489	7507	1336	33
Mercury - TR (BPO)	ng/l	93144	33067308	861875	162719	3400
Mercury - TR (APO)	ng/l	12	10000	910	1700	3400

Table 6. Parameter Assessment Outfall 001

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

Aluminum Manganese - TR

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

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

Chlorine (wwh) - TRes Zinc - TR Copper - TR

Group 4: PEQ_{max} >= 50 percent, but < 100 percent of the maximum PEL or
PEQ_{avg} >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

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

Limits to Protect Numeric Water Quality Criteria

			Recommended Effluent Limits	
Parameter	Units	Period	Average	Maximum
Cyanide - free	mg/l		--	0.044

Table 7. Parameter Assessment Outfall 002

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

Aluminum Manganese - TR

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

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

Group 4: PEQ_{max} >= 50 percent, but < 100 percent of the maximum PEL or
PEQ_{avg} >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

Chlorine (wwh) - TRes Cyanide - free Copper - TR

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

Limits to Protect Numeric Water Quality Criteria

			Recommended Effluent Limits	
Parameter	Units	Period	Average	Maximum

Table 8. Parameter Assessment Outfall 003

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

Aluminum	Manganese - TR

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

Bromoform (Tribromomethane)	Strontium

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

Barium	Cyanide - free	Dibromochloromethane
Iron - TR	Nickel - TR	Zinc - TR

Group 4: PEQ_{max} >= 50 percent, but < 100 percent of the maximum PEL or
PEQ_{avg} >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

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

Parameter	Units	Period	Recommended Effluent Limits Average	Maximum
Chlorine (wwh) - TRes	mg/l		--	0.038
Copper - TR	ug/l		--	49

Table 9. Parameter Assessment Outfall 004

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

Aluminum	Manganese - TR	Polynuclear aromatic hydrocarbons (PAHs)

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

Silver (wwh)	Strontium

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

Barium	Chlorine (wwh) - TRes	Dissolved solids (ave)
Zinc - TR		

Group 4: PEQ_{max} >= 50 percent, but < 100 percent of the maximum PEL or PEQ_{avg} >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

Cyanide - free	Copper - TR

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

Limits to Protect Numeric Water Quality Criteria

			Recommended Effluent Limits	
Parameter	Units	Period	Average	Maximum

Table 10. Parameter Assessment Outfall 017

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

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

Mercury - TR (BPO) Mercury - TR (APO) Copper - TR

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

Group 4: PEQ_{max} >= 50 percent, but < 100 percent of the maximum PEL or
PEQ_{avg} >= 50 percent, but < 100 percent of the average PEL. Monitoring is appropriate.

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

Limits to Protect Numeric Water Quality Criteria

			Recommended Effluent Limits	
Parameter	Units	Period	Average	Maximum
Copper - TR	ug/l		--	33

Table 11. Final effluent limits and monitoring requirements for Ormet Primary Aluminum outfalls 0IE00005001 through 0IE00005005 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 001						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Total Suspended solids	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/M/BPJ
pH	S.U.	- - - - - - - - - - - - -	6.0 to 9.0	- - - - - - - - - - - - -		WQS/EP/Study
Chlorine Residual	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M
Total Residual Oxidants	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP/BPJ
Cyanide, Free	mg/l	--	0.044	--	0.228	WLA/IMZM
Copper, T. R.	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BPJ/RP
Mercury, T. (low level)	ng/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BPJ/WQS
Outall 002						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Total Suspended solids	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/M/BPJ
pH	S.U.	- - - - - - - - - - - - -	6.0 to 9.0	- - - - - - - - - - - - -		WQS/EP/Study
Chlorine Residual	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/RP
Total Residual Oxidants	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP/BPJ
Cyanide, Free	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BPJ/RP
Copper, T. R.	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		WLA/RP/BPJ
Mercury, T. (low level)	ng/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BPJ/WQS
Aluminum, T.R.	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BPJ/EP
Whole Effluent Toxicity						
Acute	TUa	- - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		WET
Outfall 003						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Total Suspended solids	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/M/BPJ
pH	S.U.	- - - - - - - - - - - - -	6.0 to 9.0	- - - - - - - - - - - - -		WQS/EP/Study
Chlorine Residual	mg/l	--	0.038	--	--	WLA/IMZM
Total Residual Oxidants	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP/BPJ
Cyanide, Free	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BPJ
Copper, T. R.	µg/l	--	49	--	0.0052	WLA/IMZM
Mercury, T. (low level)	ng/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BPJ/WQS
Aluminum, T.R.	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BPJ/EP
Whole Effluent Toxicity						
Acute	TUa	--	1.0	--	--	WET
Outfall 004						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Total Suspended solids	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/M/BPJ
pH	S.U.	- - - - - - - - - - - - -	6.0 to 9.0	- - - - - - - - - - - - -		WQS/EP/Study

Chlorine Residual	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/RP
Total Residual Oxidants	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP/BPJ
Cyanide, Free	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BPJ/RP
Copper, T. R.	µg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		WLA/RP/BPJ
Mercury, T. (low level)	ng/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BPJ/WQS
Aluminum, T.R.	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BPJ/EP
Whole Effluent Toxicity						
Acute	TUa	- - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		WET
Outfall 005						
Total Suspended Solids	mg/l	--	--	810	2130	Calculated EP/BPJ/BPT/ABS

[a] Effluent loadings based on average design discharge flow of: 001 - 1.37 MGD
002 - 0.632 MGD
003 – 0.028 MGD
004 – 0.65 MGD

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); BPJ = Best Professional Judgment; BPT = Best Practicable Waste Treatment Technology, 40 CFR 421; 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)); 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.

Table 12. Final effluent limits and monitoring requirements for Ormet Primary Aluminum outfall 0IE00005017 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]
pH	S.U.	- - - - - - - - - - - - - 6.0 to 9.0 - - - - - - - - - - - - -				WQS/EP/Study
Dissolved Oxygen	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				BPJ/EP
$CBOD_5$	mg/l	25	40	37.8	60.6	EP/BPT/PD
Suspended Solids	mg/l	30	45	45.4	68.1	EP/BPT/PD
Ammonia-N	mg/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				BPJ/EP
Oil and Grease	mg/l	--	10	--	--	WQS/BPJ
Fecal coliform	#/100ml					
Summer		200	400	--	--	WQS/PD
Winter		1000	2000	--	--	WQS/PD
Copper, T. R.	µg/l	--	33	--	0.050	WLA/IMZM
Mercury, T. (low level)	ng/l	- - - - - - - - - - - - Monitor - - - - - - - - - - - - - - -				BPJ/WQS

[a] Effluent loadings based on average design discharge flow of 0.40 MGD

[b] Definitions: BPJ = Best Professional Judgment; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 133, Secondary Treatment Regulation; EP = Existing Permit; M = Monitoring; PD = Plant Design Criteria; RP = Reasonable Potential for requiring water quality-based effluent limits and monitoring requirements in NPDES permits (3745-33-07(A)); 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.

Table 13. Final effluent limits and monitoring requirements for Ormet Primary Aluminum outfalls 0IE00005601, 0IE00005602 and 0IE00005607 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 601						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Total Suspended solids	mg/l	--	--	513.5	1026.9	BPT/BPJ
Aluminum, T.R.	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BPT/BPJ
Nickel, T.R.	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BAT/BPJ
Antimony, Total	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		BAT/BPJ
Fluoride, Total	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BAT/BPJ
pH	S.U.	- - - - - - - - - - - - -	6.0 to 9.0	- - - - - - - - - - - - -		BPT/EP
Outfall 602						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M[c]
Total Suspended solids	mg/l	--	--	0.569	0.712	NSPS/EP/BPJ
Aluminum, T.R.	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BPT/BPJ
Nickel, T.R.	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BPT/BPJ
Oil and Grease	mg/l	--	--	0.474	0.474	NSPS/EP/BPJ
Antimony, Total	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		NSPS/BPJ
Fluoride, Total	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		EP/BPT/BPJ
pH	S.U.	- - - - - - - - - - - - -	6.0 to 10.0	- - - - - - - - - - - - -		NSPS/EP
Outfall 607						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		Calculated
Aluminum, T.R.	ug/l	--	--	0.449	1.012	Calculated/ABS/EP
Nickel, T.R.	ug/l	--	--	0.061	0.091	Calculated/ABS/EP
Fluoride, Total	mg/l	--	--	4.372	9.852	Calculated/ABS/EP
Antimony, Total	ug/l	--	--	0.432	0.970	Calculated/BAT/NSPS

[a] Effluent loadings based on average design discharge flow: N/A

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); BPJ = Best Professional Judgment; BPT = Best Practicable Waste Treatment Technology, 40 CFR 421.22; BAT = Best Available Technology, 40 CFR 421.23q; NSPS + New Source Performance Standards, 40 CFR 421.24k; EP = Existing Permit; M = Monitoring;

[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 Ormet Primary Aluminum outfalls 0IE00005603 and 0IE00005605 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 603						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP[c]
Total dissolved solids	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
Cyanide, Free	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
Cyanide, Total	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
Aluminum, T.R.	ug/ll	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
Nickel, T.R.	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
Fluoride, Total	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
pH	S.U.	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
Outfall 605						
Flow	MGD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP[c]
Cyanide, Total	mg/l	0.485	0.907	--	--	EP/ABS/PD
Aluminum, T.R.	ug/ll	2700	6110	--	--	EP/ABS/PD
Nickel, T.R.	ug/l	370	549	--	--	EP/ABS/PD
Fluoride, Total	mg/l	26.4	59.5	--	--	EP/ABS/PD
Iron, T.R.	ug/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
pH	S.U.	- - - - - - - - - -	6.0 to 9.0	- - - - - - - - - - - - - - - - -		EP/ABS/PD

[a] Effluent loadings based on average design discharge flow: N/A

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); EP = Existing Permit; M = Monitoring; PD = Plant Design.

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

Table 15. Final effluent limits and monitoring requirements for Ormet Primary Aluminum outfall 0IE00005606 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 606						
Flow	GPD	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP[c]
Cyanide, Total	mg/l	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
PCB 1016	ug/ll	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
PCB 1221	ug/ll	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
PCB 1232	ug/ll	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
PCB 1242	ug/ll	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
PCB 1248	ug/ll	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
PCB 1254	ug/ll	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP
PCB 1260	ug/ll	- - - - - - - - - - - -	Monitor	- - - - - - - - - - - - - - -		M/EP

[a] Effluent loadings based on average design discharge flow: N/A

[b] Definitions: EP = Existing Permit; M = Monitoring.

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

Attachment A: Applicable Federal Regulations for Primary Aluminum Manufacturing

40 CFR 421.22 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	Metric units_kg/ kkg of product English units_lbs/ thousand lbs of product	
Fluoride	2.0	1.0
Total Suspended solids	3.0	1.5
pH	(\1\)	\1\)

\1\ Within the range of 6 to 9 at all times.

40 CFR 421.23(q) Subpart B—Direct Chill Casting Contact Cooling.
BAT Effluent Limitations

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pound per million pounds) of aluminum product from direct chill casting	
Benzo(a)pyrene	(\1\)	(\1\)
Antimony	2.565	1.143
Nickel	.731	.492
Aluminum	8.120	3.602
Fluoride	79.080	35.090

\1\ There shall be no discharge allowance for this pollutant.

40 CFR 421.24(k) Subpart B—Direct Chill Casting Contact Cooling. NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pound per million pounds) of aluminum product from direct chill casting	
Benzo(a)pyrene	(\1\)	(\1\)
Antimony	2.565	1.143
Nickel	.731	.492
Aluminum	8.120	3.602
Fluoride	79.080	35.090
Oil and grease	13.290	13.290
Total suspended solids	19.940	15.950
pH	(\2\)	(\2\)

\1\ There shall be no discharge allowance for this pollutant.
\2\ The pH shall be maintained within the range of 7.0 to 10.0 at all times except for those situations when this waste is discharged separately and without commingling with any other waste-water in which case the pH shall be within the range of 6.0 to 10.0 at all times.