National Pollutant Discharge Elimination System (NPDES) Permit Program

FACT SHEET

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

Public Notice No.: 07-10-026
Public Notice Date: October 16, 2007
Comment Period Ends: January 16, 2008

OEPA Permit No.: **1ID00001*KD**
Application No.: **OH0009997**

Name and Address of Applicant:

AK Steel Corporation
Middletown Works
1801 Crawford Street
Middletown, Ohio 45043

Name and Address of Facility Where Discharge Occurs:

AK Steel Corporation
Middletown Works
1801 Crawford Street
Middletown, Ohio 45043
Butler County

Receiving Water: **Dicks Creek, North Branch of Dicks Creek, Great Miami River**

Subsequent Stream Network: **Dicks Creek to Great Miami River to Ohio River**

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.

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

Ohio EPA reviews the need for water-quality-based limits on a pollutant-by-pollutant basis. Wasteload allocations are used to develop these limits based on the pollutants that have been detected in the discharge, and the receiving water's assimilative capacity. The assimilative capacity depends on the flow in the water receiving the discharge, and the concentration of the pollutant upstream. The greater the upstream flow, and the lower the upstream concentration, the greater the assimilative capacity is. Assimilative capacity may represent dilution (as in allocations for metals), or it may also incorporate the break-down of pollutants in the receiving water (as in allocations for oxygen-demanding materials).

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

Summary of Permit Conditions

Limits at final discharge points
AK Steel has made significant improvements with respect to pollutant concentrations in the final discharges. The company no longer has the reasonable potential to contribute to WQS exceedances from most outfalls, and therefore the following limits are proposed for removal in this draft permit:

- Zinc limits at the Dicks Creek outfalls; calculated compliance point 099 would be removed;
- Ammonia, cyanide and lead limits at Outfall 011;
- Toxicity limits at Outfall 004.

All of these pollutant parameters would continue to be monitored under the conditions of the draft permit.

Effluent data for Outfall 009 shows that hexavalent chromium exhibits the reasonable potential to exceed WQS. Ohio EPA has included a compliance schedule to allow the company time to meet this new limit.

Monitoring requirements at final discharges
There are some significant changes to the monitoring requirements in the permit, based on AK's reported effluent data for the last five years, and other data collected by the company and Ohio EPA. The

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Agency's approach to monitoring requirements in this permit is to retain relatively frequent monitoring for a few pollutants (principally zinc and oil&grease) at the final discharges as indicators of process pollutants, and have relatively infrequent sampling for parameters that are not normally associated with iron and steel processes. Listed below is a summary of monitoring conditions removed and added in this draft permit:

Monitoring conditions removed -

Outfall 002 - cyanide, PCBs, effluent toxicity
Outfall 003 - ammonia-nitrogen, iron, lead, PCBs, effluent toxicity
Outfall 004 - ammonia-nitrogen, copper, lead
Outfall 009 - arsenic, cadmium, copper, cyanide, lead, nickel, silver, effluent toxicity
Outfall 011 - copper
Outfall 015 - ammonia-nitrogen

Monitoring conditions added -

Outfall 002 - barium, dissolved solids, iron, strontium
Outfall 003 - barium, bis(2-ethylhexyl)phthalate, fluoride, dissolved solids, mercury
Outfall 004 - barium, cyanide, fluoride, iron
Outfall 009 - fluoride
Outfall 011 - dieldrin, dissolved solids, fluoride, mercury
Outfall 015 - aldrin, barium, bis(2-ethylhexyl)phthalate, copper, cyanide, DDT compounds, dissolved solids, fluoride, iron

The monitoring parameters to be added (except mercury) are all required by Ohio's permitting rules [OAC 3745-33-07(A)(2)]. Many of these parameters triggered monitoring requirements based on small data sets, and requirements may be modified based on additional data that becomes available.

In-plant sampling locations
The limits for these sampling stations are based on federal effluent guidelines and the alternative limits (bubbles) allowed by these rules. Essentially, the "bubble" provisions allow a company to move allowable load from one sampling location to another, as long as the total load for the facility meets the effluent guideline and each sampling station has fixed limits.

While most of the "bubble" limits are those suggested by AK Steel in their application, Ohio EPA disagreed with certain allowances for non-categorical wastewaters treated at outfall 613. Ohio EPA has proposed different allowances for lead and zinc for these discharges, based on the type of wastewater. The calculations are shown in the attachment to this fact sheet. For clarity of discussion, Ohio EPA has left the load allowance difference at outfall 613/001. Loading allowances for these discharges may be "bubbled" further after discussion with AK Steel.

Ohio EPA has added low-level mercury monitoring requirements at outfalls 613 and 631. Ohio EPA has been adding monitoring requirements for low-level mercury in industrial permits that have discharges that are likely to contain mercury. These include obvious sources, such as coal-fired power plants, processors of primary materials (such as primary metal processes and oil refining), and facilities that re-process scrap steel (mercury in automotive switches). Monitoring is proposed for outfall 613 because it is a primary metal process, and scrubbed air emissions are likely to contain some mercury; monitoring is

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proposed for outfall 631 because steelmaking processes use large amounts of scrap steel. This will provide data for Ohio EPA to use for reasonable potential determinations in the next permit renewal.

Permit term

This permit is proposed to be 3 years, to get AK Steel's next permit renewal in schedule with the rest of the major permits on the lower Great Miami River. The lower Great Miami River water quality analysis is done in one wasteload allocation from Huber Heights to Fernald. Due to the large number of dischargers in the segment, it is most practical for Ohio EPA to do one wasteload allocation every five years and renew all of the permits shortly thereafter.

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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
Permit and Compliance Section
P.O. Box 1049
Columbus, Ohio 43216-1049

The OEPA permit number and Public Notice numbers should appear on each page of any submitted comments. All comments received no later than 30 days after the date of the Public Notice will be considered.

Citizens may conduct file reviews regarding specific companies or sites. Appointments are necessary to conduct file reviews, because requests to review files have increased dramatically in recent years. The first 250 pages copied are free. For requests to copy more than 250 pages, there is a five-cent charge for each page copied. Payment is required by check or money order, made payable to Treasurer State of Ohio.

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Location of Discharge/Receiving Water Use Classification

AK Steel Corporation discharges at River Mile (RM) 51.45 to the Great Miami River (outfall 011). Outfalls 002, 003, 008, 009 and 015 discharge to Dicks Creek at RMs 2.92, 3.80, 3.9, 3.6 and 4.15, respectively. Outfall 004 discharges to the North Branch of Dicks Creek at RM 0.22. North Branch flows into Dicks Creek at RM 5.11; Dicks Creek enters the Great Miami River at RM 47.61. The approximate location of the facility is shown in Figure 1.

Dicks Creek is designated Modified Warmwater Habitat (MWH) from RM 5.4 (Cincinnati-Dayton Road) to RM 2.4 (Yankee Road); the rest of Dicks Creek is designated Warmwater Habitat (WWH). The entire length of Dicks Creek is designated Agricultural Water Supply (AWS), Industrial Water Supply (IWS) and Primary Contact Recreation (PCR). The North Branch of Dicks Creek is designated WWH from the headwaters to RM 1.0 (Breiel Boulevard), and MWH from RM 1.0 to the mouth. Again the entire length of North Branch is designated Agricultural Water Supply (AWS), Industrial Water Supply (IWS) and Primary Contact Recreation (PCR).

This segment of the Great Miami River is described by Ohio EPA River Code: 14-001, USEPA River Reach #: 05080002-006, County: Butler, Ecoregion: Eastern Corn Belt Plains. The Great Miami River is presently designated for the following uses: Warmwater Habitat (WWH), Agricultural Water Supply (AWS), Industrial Water Supply (IWS), and Primary Contact Recreation (PCR).

Use designations define the goals and expectations of a waterbody. These goals are set for aquatic life protection, recreation use and water supply use, and are defined in the Ohio WQS (OAC 3745-1-07). The use designations for individual waterbodies are listed in rules -08 through -32 of the Ohio WQS. Once the goals are set, numeric water quality standards are developed to protect these uses. Different uses have different water quality criteria.

Use designations for aquatic life protection include habitats for coldwater fish and macroinvertebrates, warmwater aquatic life and waters with exceptional communities of warmwater organisms. These uses all meet the goals of the federal Clean Water Act. Ohio WQS also include aquatic life use designations for waterbodies which can not meet the Clean Water Act goals because of human-caused conditions that can not be remedied without causing fundamental changes to land use and widespread economic impact. The dredging and clearing of some small streams to support agricultural or urban drainage is the most common of these conditions. These streams are given Modified Warmwater or Limited Resource Water designations.

Recreation uses are defined by the depth of the waterbody and the potential for wading or swimming. Uses are defined for bathing waters, swimming/canoeing (Primary Contact) and wading only (Secondary Contact - generally waters too shallow for swimming or canoeing).

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

The Middle Great Miami River study area is shown in Figure 2. The Dicks Creek study area is shown in Figure 3.

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Facility Description

AK Steel is a fully integrated steel plant producing flat rolled steel. AK produces intermediate products of pig iron and coke. The plant also conducts steel coating and finishing operations. The process operations performed at this facility are classified by the Standard Industrial Classification (SIC) codes 3312, "Steel Works, Blast Furnace, Rolling". Discharges resulting from process operations are therefore subject to Federal Effluent Guideline Limitations, contained in Chapter 40 of the Code of Federal Regulations, Part 420, "Iron and Steel Manufacturing" Industrial Category and Part 433, "Metal Finishing" Industrial Category.

Description of Existing Discharge

AK Steel has seven outfalls - five discharge to Dicks Creek (outfalls 015, 003, 002, 008 and 009), one discharges to North Branch Dicks Creek (outfall 004) and one discharges to the Great Miami River (outfall 011). Various treatment systems discharge to outfalls 015, 003, 004 and 011; these treatment systems are designated in the NPDES permit as in-plant monitoring points that measure compliance with the federal effluent guideline limitations before mixing with other non-process wastewaters. These monitoring points are necessary because federal rules (40 CFR 125.3) forbid the use of dilution to meet these standards. Table 1 presents a detailed summary of AK's outfalls, types of wastewater, treatment systems used, and the discharge points. All of AK's sanitary wastewater and coke plant process water flow to the City of Middletown wastewater treatment plant (WWTP). Some of the wastewater generated (e.g. spent pickle liquor) is deep well injected.

Tables 2-7 present a summaries of analytical results for effluent samples compiled from the NPDES application, and from bioassay tests done by Ohio EPA. The monthly average PEQ_{avg} and daily maximum PEQ_{max} decision criteria are also included on this table.

Tables 8-20 present summaries of unaltered monthly operation report data for the period January 1996 to November 2001 for AK Steel as well as current permit limits, and monthly average PEQ_{avg} and daily maximum PEQ_{max} values.

Tables 21-27 present results from acute and chronic bioassay tests conducted in accordance with the NPDES permit. Pimephales promelas (fathead minnows), Daphnia magna (water flea), and Ceriodaphnia dubia (water flea) were the test organisms.

Table 28 presents results on the SARA toxic release inventory.

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, effluents, sediment, 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 and effluent and mixing zone bioassays conducted by Ohio EPA, the permittee, or U.S. EPA.

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The following discussion of biological data is taken from the Technical Support Document (TSD) "Biological and Water Quality Study of the Middle and Lower Great Miami River and Selected Tributaries, 1995". The full document can be obtained through the OEPA, Division of Surface Water website @ www.epa.state.oh.us/dsw/index .

Ohio EPA relies on a tiered approach in attempting to link administrative activity indicators (*i.e.*, permitting, grants, enforcement) with true environmental indicators (*i.e.*, stressor, exposure, and response indicators). Stressor indicators generally include activities which have the potential to degrade the aquatic environment such as pollutant discharges (permitted and unpermitted), land use effects, and habitat modifications. Exposure indicators include whole effluent toxicity tests, tissue residues, and biomarkers, each of which provides evidence of biological exposure to stressor or bioaccumulative agents. Response indicators include the more direct measures of community and population response and are represented here by the biological indices which comprise Ohio EPA's biological criteria. The key is in using the different types of indicators within the roles which are the most appropriate for each. Describing the causes and sources associated with observed impairments relies on an interpretation of multiple lines of evidence including the water chemistry data, sediment data, habitat data, effluent data, biomonitoring results, land use data, and biological response signatures within the biological data itself. Thus the assignment of principal causes and sources of impairment represents the association of impairments (defined by response indicators) with stressor and exposure indicators.

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 involves a primary reliance on the Ohio EPA biological criteria (OAC 3745-1-07; Table 7-14). These are confined to ambient assessments and apply to rivers and streams outside of mixing zones. Numerical biological criteria are based on multimetric biological indices which include 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 mactoinvertebrate community. Numerical endpoints are stratified by ecoregion, use designation, and stream or river size. 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 (see Table 29) 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.

Aquatic life use attainment status in the Great Miami River from Middletown to the Ohio River has also improved markedly since the 1980 and 1989 surveys due to the numerous WWTP upgrades and subsequent reductions in loadings of oxygen demanding wastes and ammonia-N, although recovery is not yet complete. The 2000 limited survey in the Middletown area showed continued improvement over the 1995 results. All ambient sites sampled in 2000 showed attainment of WWH biological criteria. The response of the macroinvertebrate community within the AK Steel 011 mixing zone (RM 51.4) continued to indicate highly toxic conditions. This appears to be a localized condition, with full attainment occurring downstream of the mixing zone to the Middletown WWTP.

Dicks Creek macroinvertebrates have improved dramatically since the last Ohio EPA survey in 1995 and collections by E.A. Engineering from 1998 and 1999. During those surveys, communities were

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consistently evaluated as poor both upstream and adjacent to the AK Steel complex. Response signatures indicated nutrient enrichment/low flow impacts in the watershed above AK Steel and a toxic response adjacent to and downstream from AK outfalls. Macroinvertebrates in 2000 and 2001 were performing for the first time near or at ecoregional expectations in the WWH and MWH segments. Only in short reaches in the vicinity of the North Branch and AK 015 and 003 outfalls did the macroinvertebrate community decline to just below the MWH biocriterion. Fish communities have fairly consistently met MWH benchmarks since Ohio EPA sampling in 1987 with more recent achievement of WWH biocriteria in the lower reaches of Dicks Creek. Attainment has remained inconsistent in the WWH reach upstream from AK Steel.

Fish and macroinvertebrate communities have remained fairly stable in the reach of the North Branch which has been sampled since 1987 (RMs 1.0-0.0; MWH). With the exception of 1995, when poor and very poor macroinvertebrate communities were collected, ICI scores have reflected fair quality communities with more recent data near or at the MWH biocriterion. Fish communities have consistently been good to very good quality in this reach since 1987. Results of chemical sampling downstream from the AK 004 outfall indicated large increases in conductivity, TDS, and hardness (3-4 times above background). Similar increases occurred in concentrations of Mg, Ca, Na, chlorides, and sulfates (2-15 times above background). Most of these parameters remained elevated at these levels throughout Dicks Creek to the mouth. Fish and macroinvertebrate communities in the WWH reach of the North Branch reflected depressed conditions typical of an urban influenced stream.

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.

The assimilative capacity was divided among several facilities in order to account for possible interactivity of the discharges. The CONSWLA model was used to distibute the loads of those conservative parameters requiring allocation. The study area is depicted in Figures 1 and 2.

Parameter Selection

Effluent data for AK Steel were used to determine what parameters should undergo wasteload allocation. The sources of effluent data are as follows:

Self-monitoring data (SWIMS)	January 2002 through February 2007
2C data	2001
Ohio EPA data (compliance, survey)	2000-01

The data were evaluated for outliers, and the following values were removed from the data set:

Outfall 002 - zinc (412 ug/l), free cyanide (5.44 ug/l, 21 ug/l)
Outfall 003 - ammonia-N (0.05 mg/l), lead (7 ug/l, 27 ug/l)
Outfall 004 - copper (12 ug/l), zinc (1160 ug/l, 2 values <40 ug/l)
Outfall 009 - COD (225 mg/l), selenium (10 ug/l)
Outfall 011 - ammonia-N (0.05 mg/l), copper (41 ug/l), lead (202 ug/l)
Outfall 015 - lead (4, 5, 31 ug/l)

Wasteload Allocation

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

Aquatic life (WWH)		
Toxics (metals, organics, etc.)	Average	Annual 7Q10
	Maximum	Annual 1Q10
Ammonia-N	Average	Summer/winter 30Q10
Agricultural Water Supply		Harmonic mean flow
Human Health (nondrinking)		Harmonic mean flow

Allocations are developed using a percentage of stream design flow (as specified in Tables 34 and 35), and allocations cannot exceed the Inside Mixing Zone Maximum criteria.

The data used in the WLA are listed in Tables 32 through 35. The wasteload allocation results to maintain all applicable criteria are presented in Tables 36 through 42. The current permit limits for NH_3-N were evaluated and are adequate to maintain the WQS for NH_3-N. Therefore, NH_3-N will not be addressed further in this report.

Reasonable Potential

The preliminary effluent limits are the lowest average WLA (average PEL) and the maximum WLA (maximum PEL). To determine the reasonable potential of the discharger to exceed the WLA for each parameter, the facility's effluent quality is compared to the preliminary effluent limits. The average PEQ value (Table 31) 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 43 through 49.

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Whole Effluent Toxicity

The allowable effluent toxicity (AET) is a factor considered in evaluating whole effluent toxicity. The AET calculations 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). For AK Steel, the AET values are presented in the following table:

	TU_C	TU_A
002	6.87	0.3
003	2.91	0.3
004	1.0	0.3
007	105.6	0.3
009	160.8	0.3
011	31.0	1.0
015	5.19	0.3

Effluent Limits/Hazard Management Decisions

Final Outfalls / Water Quality Based Permit Limits

After appropriate effluent limits are calculated, the reasonable potential of the discharger to violate the WLA (and the WQS) must be determined. Each parameter is examined and ranked or "grouped" based on a comparison of effluent quality to levels needed to protect WQS. Parameters that do not have a WQS or do not require a WLA based on the initial screening are assigned to either group 1 or 2. For the allocated parameters, the Preliminary Effluent Limit (PEL) for the most restrictive average and maximum WLA were selected from Tables 36-42. The PEL_{avg} was compared to the PEQ_{avg} value for the same outfall from Table 30, and the PEL_{max} was compared to the PEQ_{max} value. Based on the calculated percentage of the allocated value, the parameters are assigned to group 3, 4 or 5. The listing in Tables 43-49 reflect the hazard assessment done according to WLA procedures. Tables 50-63 show the draft NPDES limits for AK Steel.

For this fact sheet, a discussion of final outfalls and water quality-based limits is followed by a discussion of the in-plant monitoring locations, and the treatment standards that apply at those locations.

For all final outfalls, limits proposed for oil and grease and pH are based on Water Quality Standards (OAC 3745-1). Also, monitoring is proposed at all final outfalls for zinc. Zinc is the most commonly detected process water pollutant in Iron and Steel wastewaters and storm waters.

Ohio EPA's approach to monitoring in this permit is to require frequent monitoring for a short list of characteristic pollutants at each outfall, and less frequent monitoring of pollutant parameters that must be monitored according to Ohio rules; these mandatory parameters often result from projections of effluent values from small data sets. Small data sets require larger uncertainty factors when judging effluent quality, to evaluate all reasonably potential data maximums; these uncertainty factors cause effluent values appear to be higher than they likely would be if more data were available (because we are looking at a larger range of effluent values than are likely to occur). The permit does contain relatively infrequent monitoring of these parameters, enough to be certain of effluent characteristics for the next permit renewal.

Outfall 002 Conditions

The Ohio EPA risk assessment (Table 43) places barium and dissolved solids in group 5 which

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recommends limits to protect water quality. The small data set for these parameters indicates that the PEQ values for these parameters may not be representative of the discharge. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), we are proposing monitoring, rather than limits, for these pollutants

Ohio EPA risk assessment (Table 43) places iron and strontium in group 4. This placement as well as the data in Tables 2, 9 and 31 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, the iron 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 _ of the draft permit.

The draft permit would continue monitoring requirements for ammonia and zinc, as these are process pollutants associated with the coke plant area, and could potentially be present in storm water.

Effluent toxicity 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 outfall 002 the chronic WLA is 6.87 TU_c and acute WLA is 0.3 TU_a.

None of the toxicity tests for this outfall (21 acute, 18 chronic) showed statistically significant toxicity to test organisms (see Tables 21 and 26). This outfall does not have the reasonable potential to contribute to exceedances of WQS, and toxicity monitoring is not proposed for this outfall.

Outfall 003 Conditions
The Ohio EPA risk assessment (Table 44) places barium and bis(2-ethylhexyl)phthalate in group 5 which recommends limits to protect water quality. The small data set for these parameters indicates that the PEQ values for these parameters may not be representative of the discharge. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), we are proposing monitoring, rather than limits, for these pollutants.

Ohio EPA risk assessment (Table 44) places fluoride and dissolved solids in group 4. This placement as well as the data in Tables 3, 10 and 31 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, the effluent quality for fluoride and dissolved solids 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 _ of the draft permit.

The draft permit would continue monitoring requirements for zinc.

The WLA for outfall 003 also contains an additivity factor equation. The WLA additivity equation deals with additive effects from bis(2-ethylhexyl)phthalate and hexachlorobenzene. The WLA for hexachlorobenzene (0.035 ug/l) is less than the minimum concentration that can be measured for the

chemical (0.25 ug/l). If this chemical were left in the equation, any detection of it would cause two violations of essentially the same limit. Using the discretion allowed the director under OAC Rule 3745-33-07(A)(8)(b), we are removing hexachlorobenzene from the additivity equation. The additivity equation is therefore not needed for this discharge.

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 AK Steel outfall 003, the chronic WLA is 2.91 TU_c and acute WLA is 0.3 TU_a.

The current permit requires monthly acute screening toxicity tests for this outfall. These tests are pass/ fail tests that will show a toxic effect, if present, but will not indicate the level of toxicity. None of the 91 screening tests conducted at this outfall showed any acute toxicity (Table 22). Ohio EPA is therefore proposing to remove toxicity testing requirements for this outfall.

Outfall 004 conditions
The Ohio EPA risk assessment (Table 45) places total dissolved solids in group 5. This placement as well as the data in Tables 4 and 31 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. The thirty day average limit for TDS is based on the current wasteload allocation for Dick's Creek. Limits are being required, even with a small data set, because all available data values exceed the wasteload allocation, and TDS is commonly elevated in discharges of steel finishing wastewater.

This outfall does not currently meet this limit. We have included a compliance schedule that provides the company time to meet the limit, or to demonstrate an alternative limit that protects against chronic toxicity.

The Ohio EPA risk assessment (Table 45) places iron in group 5 which recommends limits to protect water quality. There is a very small data set for iron at this outfall, and none of the measured values exceed the wasteload allocation; therefore, the PEQ value may not be representative of the discharge. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), we are proposing monitoring, rather than limits, for these pollutants.

Ohio EPA risk assessment (Table 45) places barium, free cyanide and fluoride in group 4. This placement as well as the data in Tables 4, 11 and 31 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, the effluent quality for barium and fluoride 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 _ of the draft permit.

The draft permit would also continue monitoring requirements for zinc.

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 AK Steel outfall 004, the chronic WLA is 1.0 TU_c and acute WLA is 0.3 TU_a.

Of the 36 acute toxicity results available for this outfall, only one result from 2000 showed any acute toxicity. Several samples since that time tested by AK and Ohio EPA have found no acute toxicity. As a result, this one result is considered unrepresentative of the discharge. None of the 33 chronic tests showed toxicity to test organisms.

Based on these results, there is no reasonable potential for this discharge to cause or contribute to exceedances of toxicity standards in the creeks; therefore, we are proposing to remove the toxicity limits. We are proposing to continue the chronic testing requirement for the water flea *Daphnia magna* for the following reasons: (1) AK Steel appears to be meeting this toxicity measure through management of wastewater flows at outfall 004 and the internal stations tributary to it (stations 641 and 642). No Permit-to-Install was submitted for treatment improvements in this area during that time; and (2) the 2000 biological results, taken as these measures were being finalized, showed some residual impairment of macroinvertebrate communities in North Branch of Dick's Creek. Continued monitoring is needed to monitor the status of these controls.

Outfall 009 conditions
The Ohio EPA risk assessment (Table 47) places hexavalent chromium in group 5. This placement as well as the data in Tables 5 and 31 indicate that the reasonable potential to exceed WQS exists and limits are necessary to protect water quality. The daily maximum limit for hexavalent chromium is based on the inside-mixing-zone maximum water quality standard, and dilution from upstream outfalls on Dick's Creek.

The Ohio EPA risk assessment (Table 47) places fluoride in group 5 which recommends limits to protect water quality. The small data set for these parameters indicates that the PEQ values for these parameters may not be representative of the discharge. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), we are proposing monitoring, rather than limits, for these pollutants.

The draft permit would also continue monitoring requirements for ammonia and zinc.

Outfall 011 Conditions
The Ohio EPA risk assessment (Table 48) places dieldrin, dissolved solids and fluoride in group 5 which recommends limits to protect water quality. The small data set for these parameters indicates that the PEQ values for these parameters may not be representative of the discharge. Using the discretion allowed the director under OAC 3745-33-07(A)(5), we are proposing monitoring, rather than limits, for these pollutants.

Ohio EPA risk assessment (Table 48) places lead in group 4. This placement as well as the data in Tables 6, 14 and 31 support that lead 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).

The draft permit would also continue monitoring requirements for ammonia, free cyanide and zinc. The ammonia limits have been removed because effluent data shows that the discharge no longer has the reasonable potential to contribute to WQS exceedances.

The WLA for outfall 011 contains an additivity factor equation. Additivity is the combined toxic effect of carcinogenic (cancer-causing) pollutants. This section evaluates each quotient in the additivity factor equation to determine whether an additivity factor equation is necessary in the permit to limit the total

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carcinogen risk to 1 x 10^{-5} (1 in 100,000) or whether additivity is insignificant or "de minimis".

Outfall 011 has discharged a few chemicals classified as carcinogens. Ohio Rule 3745-33-07(A)(8) requires that Ohio EPA assess the additive carcinogenic effect of these chemicals to determine whether this addivite effect needs to be limited. The WLA additivity equation in Table 48 would limit the additive effects from dieldrin, heptachlor and hexachlorobenzene.

The above rule allows Ohio EPA to remove chemicals from this equation if the limit for the chemical is less than the analytical quantification level (that is, if the test method can not reliably measure down to the limit); if these chemicals were left in the equation, any detection of them would cause two violations of essentially the same limit. The WLA for hexachlorobenzene (0.2 ug/l) is less than the minimum concentration that can be measured for the chemical (0.25 ug/l - also known as the quantification level). Using the discretion allowed the director under OAC Rule 3745-33-07(A)(8)(b), we are removing hexachlorobenzene from the additivity equation.

For the combined effect of dieldrin and heptachlor, outfall 011does not have the reasonable potential to contribute to an exceedance of the carcinogen risk standard. Using the projected effluent (PEQ) data for these chemicals, we can show that the sum of the PEQs do not exceed the carcinogen standard:

$$\frac{\text{PEQdieldrin}}{0.063\ \text{ug/l}} + \frac{\text{PEQheptachlor}}{0.2\ \text{ug/l}} = \frac{0.0244\ \text{ug/l}}{0.063\ \text{ug/l}} + \frac{0.0064\ \text{ug/l}}{0.2\ \text{ug/l}} < 1.0$$

Acute toxicity is only rarely present in outfall 011. Only one result in several years of sampling showed toxicity. The biological survey results from 2000 continue to show toxicity to invertebrates; however, the biological results do not readily distinguish acute from chronic toxicity. The most logical conclusion from this data is that the survey results are showing a chronic effect from the 011 discharge. Chronic effects within mixing zone / near-field areas are not exceedances of water quality standards, which prohibit only rapidly lethal, or acutely toxic conditions.

As a result of this, the draft permit contains minimal toxicity testing requirements, designed to show that acute toxicity standards continue to be met. Acute testing with both fish and invertebrates would be required twice/per year.

Outfall 015 conditions

The Ohio EPA risk assessment (Table 49) places aldrin, barium, bis(2-ethylhexyl)phthalate, fluoride, iron and total dissolved solids in group 5 which recommends limits to protect water quality. The small data set for these parameters indicates that the PEQ values for these parameters may not be representative of the discharge. Using the discretion allowed the Director under OAC 3745-33-07(A)(5), we are proposing monitoring, rather than limits, for these pollutants.

Ohio EPA risk assessment (Table 49) places copper, free cyanide, 4,4'-DDD and strontium in group 4. This placement as well as the data in Tables 7, 15 and 31 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, the effluent quality for free cyanide 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

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specifies reductions in pollutant concentrations if effluent concentrations exceed the WLA. The tracking/reduction requirements are included in Part II Item _ of the draft permit.

The draft permit also would continue monitoring requirements for zinc.

The WLA for outfall 015 contains an additivity factor equation. Additivity is the combined toxic effect of carcinogenic (cancer-causing) pollutants. This section evaluates each quotient in the additivity factor equation to determine whether an additivity factor equation is necessary in the permit to limit the total carcinogen risk to 1 x 10^{-5} (1 in 100,000) or whether additivity is insignificant or "de minimis".

Outfall 015 has discharged several chemicals classified as carcinogens. Ohio Rule 3745-33-07(A)(8) requires that Ohio EPA assess the additive carcinogenic effect of these chemicals to determine whether this addivite effect needs to be limited. The WLA additivity equation in Table 48 would limit the additive effects from aldrin, bis(2-ethylhexyl)phthalate, 4,4'-DDD, gamma-BHC and heptachlor.

The above rule allows Ohio EPA to remove chemicals from this equation if the limit for the chemical is less than the analytical quantification level (that is, if the test method can not reliably measure down to the limit); if these chemicals were left in the equation, any detection of them would cause two violations of essentially the same limit. The WLA for aldrin (0.011 ug/l) is less than the minimum concentration that can be measured for the chemical using standard federal methods (0.02 ug/l - also known as the quantification level). Using the discretion allowed the director under OAC Rule 3745-33-07(A)(8)(b), we are removing aldrin from the additivity equation.

For the combined effect of the remaining four chemicals, outfall 015 appears to have the reasonable potential to contribute to an exceedance of the carcinogen risk standard. However, as pointed out above, the PEQ values for these chemicals may not be representative of the discharge. Using the discretion in OAC Rule 3745-33-07(A)(5), the draft permit contains a source evaluation for these pollutants, rather than a limit on carcinogen additivity.

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 AK outfall 015 the chronic WLA is 5.19 TU_c and acute WLA is 0.3 TU_a.

None of the three acute tests conducted on this discharge showed acute toxicity. There is no reasonable potential for this discharge to contribute to exceedances of acute toxicity WQS, and Ohio EPA is not proposing toxicity testing at this outfall.

Internal and Calculated Outfalls / Treatment Technology Based Limits

The internal sampling stations and calculated compliance points are included in this permit to track compliance with federal treatment technology standards, also called effluent guideline limitations. Limitations are placed at these internal points (mostly at the outlet of treatment systems) to monitor the discharges for compliance before they are diluted by other waters. Federal NPDES regulations prohibit meeting these standards by dilution [40 CFR 125.3(f)].

Treatment standards for Iron and Steel Manufacturing processes apply at internal outfalls 005, 613, 614, 631 and 641, and also at calculated compliance point 001 (which is the sum load of internal outfalls 613

and 614). Treatment standards for Metal Finishing processes apply at internal outfall 642.

Treatment-technology-based limits for the Iron and Steel industry, found in 40 CFR Part 420, are based on the kilograms of pollutant allowed to be discharged per 1000 kg. of production. The plant production rates used are the maximum 30-day average rates for the past five years. Effluent guideline calculations are shown in the attachment to this fact sheet.

Some of the Iron and Steel process loadings are applied directly at the related outfall; some pollutant loads are based on effluent guideline loads shifted from outfall to outfall, as allowed by the federal Iron and Steel effluent guidelines [40 CFR 420.03]. AK Steel has proposed to shift, or bubble, loading limits for total suspended solids, lead and zinc among outfalls 613/001, 631, 641 and 005 to comply with applicable BPT and BAT guidelines.

The bubble rule allows AK Steel to add up all of the allowable load for TSS, lead and zinc for all of the outfalls, and re-assign load limits to the outfalls, as long as the total facility loadings are met for each pollutant. Each process is allowed a loading per ton of production for each pollutant. The loading allowances are calculated as follows: load limits (kg./day) = federal effluent guideline (kg./kkg.) x production (tons/day) x 0.908 kkg/ton. As an example, the average TSS loading for the blast furnace treatment system discharge (outfall 613) would be calculated as: 0.026 kg/kkg x 7176 tons/day x 0.908 kkg/ton = 169 kg/day. The load allowances for each process are added together to get the total load allowed for a given outfall.

The calculations are shown in the attachment to this fact sheet. The effect of the bubble is to move allowable load from the upstream Dicks Creek outfalls (641/004 and 005/015) to outfalls further down Dicks Creek (outfall 631/003) and to the Great Miami River (outfall 613/001/011).

The bubble calculations presented are generally those developed by AK Steel and submitted in their NPDES application. While Ohio EPA accepts the bubble approach, we disagree with the BPJ allowances for lead and zinc that AK Steel requested for non-categorical process waters treated at outfall 613. The differences are reflected in the limits for outfall 001 for clarity. It is possible that AK will request that loads be adjusted again, based on these differences.

The federal rules clearly allow for BPJ allowances; however, federal guidance on these rules indicates that the BPJ allowances should reflect the wastestreams treated, and should not be assumed to have the same characteristics as Iron and Steel process wastewaters (Development Document for Final Effluent Limitations Guidelines and Standards for the Iron and Steel Manufacturing Point Source Category, April 2002, p.16-13).

The additional wastewaters treated at outfall 613 are water treatment plant and boiler blowdown wastewaters. These utility-type wastewaters were considered by U.S. EPA in developing the Steam Electric Power Generating effluent guidelines (40 CFR 423). Those guidelines include these wastewaters in the definition of "Low volume wastewater". Ohio EPA looked at data for low volume wastewaters in developing BPJ values. For lead, effluent data from the Steam Electric Power development document was used to calculate PEQ values. These PEQ values were used as BPJ limits for lead.

For zinc, Ohio EPA found discharge data from a treatment plant discharging low volume wastewater only. The PEQ values for this discharge were used as BPJ allowances for AK Steel's utility wastewaters.

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This data was used instead of the Steam Electric Power development document information because the effluent data was a much larger data set.

Outfall 613 conditions
The limits for total cyanide and total phenolics at this outfall are effluent guideline limits for blast furnace wastewaters directly applied. Limits are calculated as follows: cyanide limits (kg./day) = BAT (kg./kkg.) x production (tons/day) x 0.908 kkg/ton, or for average cyanide limits - 0.000876 kg/kkg x 7176 tons/day x 0.908 kkg/ton = 5.71 kg/day. Maximum limits for cyanide, and average and maximum limits for phenolics are calculated using the same formulas. All of the effluent guideline calculations are shown in the attachment to this fact sheet.

The limits for ammonia at outfall 613 are based on a continuation of the plant's 301(g) variance. Section 301(g) of the Clean Water Act allows a facility a variance from Best Available Treatment requirements for ammonia and certain other pollutants. To be approved under this variance, a facility must be able to show that it can meet both BPT treatment standards and water quality standards. USEPA grants these variances, with state concurrence.

AK Steel has made this demonstration with their current application. Ohio EPA has recommended the variance limits to USEPA, and USEPA is proposing to approve the variance with this permit. The analysis showing that the variance limits meet BPT and water quality standards is in the attachment to this fact sheet.

AK Steel had also requested a continuation of the 301(g) variance limits for total phenolic compounds. Ohio EPA has recommended that USEPA not approve this variance because the treatment system at outfall 613 has been able to maintain compliance with BAT limitations over the last permit cycle.

The limits for total suspended solids, lead and zinc at outfall 613 are part of the bubble proposed by AK Steel. These limits are expressed at outfall 001 to reflect the sum of process wastewaters discharged from outfalls 613 and 614.

Outfall 614 conditions
The limits for naphthalene and tetrachloroethylene are based on BAT effluent guidelines for the Iron and Steel Industry (Cold Forming Subcategory). Like other Iron and Steel guideline limits, these are production based. Calculations are shown the attachment to this fact sheet. The pH limits are BPT effluent guidelines.

Outfall 001 conditions
Outfall 001 does not physically exist; it is a reporting station included in the permit to track compliance with limits that represent the sum of allowable loadings for outfalls 613 and 614. The limits for TSS, lead and zinc are from the bubble calculations. The oil&grease limits are the effluent guideline limits for outfall 614.

Outfall 005 conditions
Outfall 005 is an internal outfall tributary to outfall 015. The limits for TSS, lead and zinc are from the bubble calculations. The oil&grease limits are the existing permit limits. These limits were based on best professional judgment, and are being continued in the current permit based on state and federal antibacksliding rules [OAC 3745-33-05(E) and 40 CFR 122.45]. The pH limits are based on BPT

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effluent guidelines.

Outfall 641 conditions
The limits for TSS, lead and zinc are based on the bubble calculations. The limits for oil&grease and pH are based on BPT effluent guidelines. The limits for naphthalene and tetrachloroethylene are based on BAT effluent guidelines. All effluent guideline calculations are shown in the attachment to this fact sheet.

Outfall 642 conditions
Outfall 642 is the treatment system for the electrogalvanizing process, tributary to outfall 004. Electrogalvanizing is covered under the Metal Finishing effluent guidelines (40 CFR 433), rather than the Iron and Steel guidelines. The Metal Finishing guidelines are expressed as concentrations of pollutants in treated process wastewater, rather than loading per ton of production. Typically, concentrations are multiplied by the wastewater flow to ensure than dilution is not being substituted for treatment. In previous permits, AK Steel has agreed to a flow limitation, rather than loading limitations for Metal Finishing pollutant parameters. We are continuing this approach in the draft permit.

The effluent limits for TSS, oil&grease, pH and zinc are based on New Source Performance Standards from the Metal Finishing guidelines. The effluent limits for chromium, nickel and Total Toxic Organics (TTO) are antidegradation-based limits from the current permit. They are being continued in the draft permit based on the antibacksliding rule.

The Metal Finishing regulations also include limits for cadmium, copper, lead, silver and cyanide. While these pollutants are part of the regulation, AK Steel does not use these materials in the electrogalvanizing process, and effluent concentrations for these pollutants are expected to be close to background levels. As a result, we have included a monitoring waiver for these pollutants at outfall 642.

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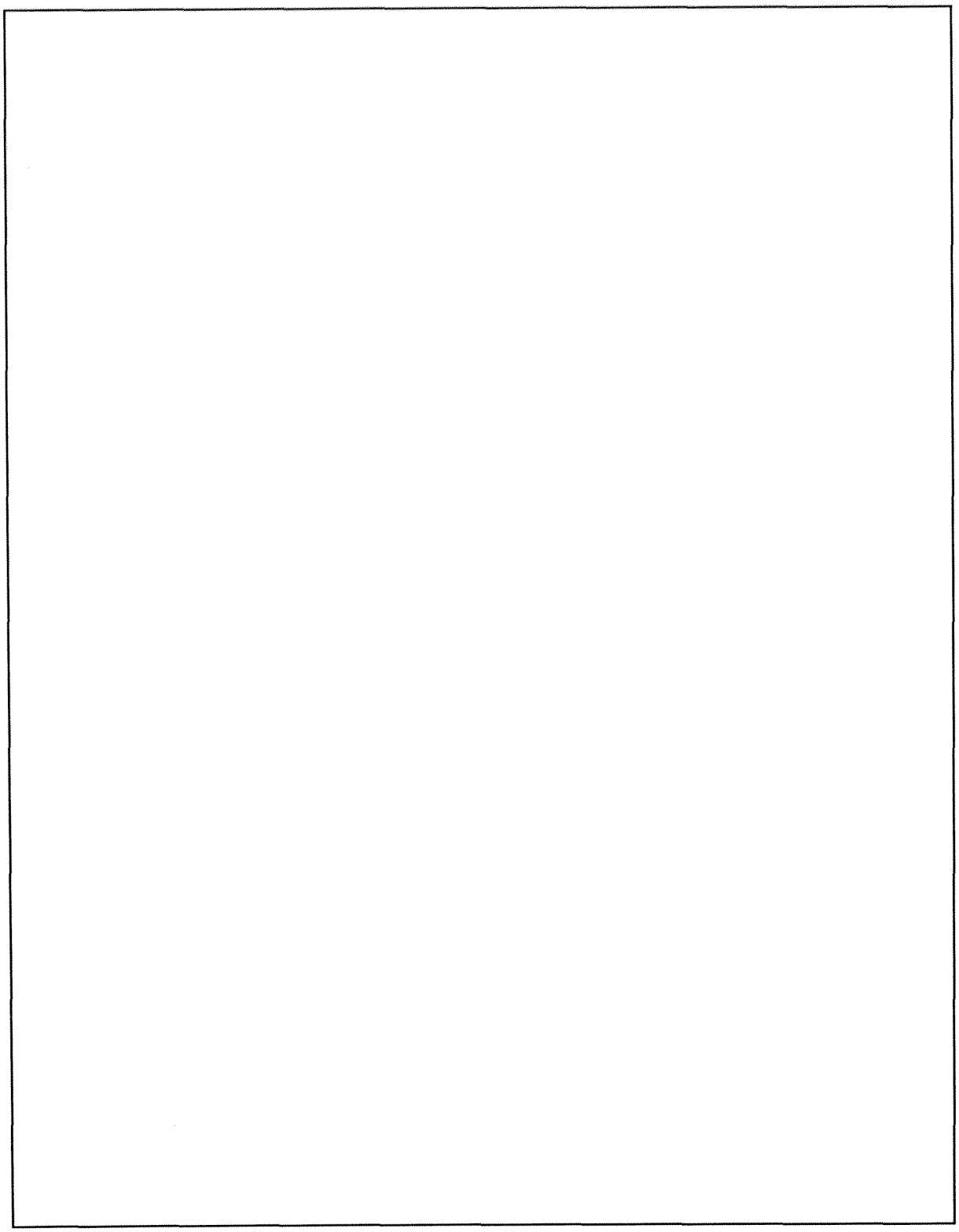

Figure 1. Approximate location of the AK Steel Middletown Works.

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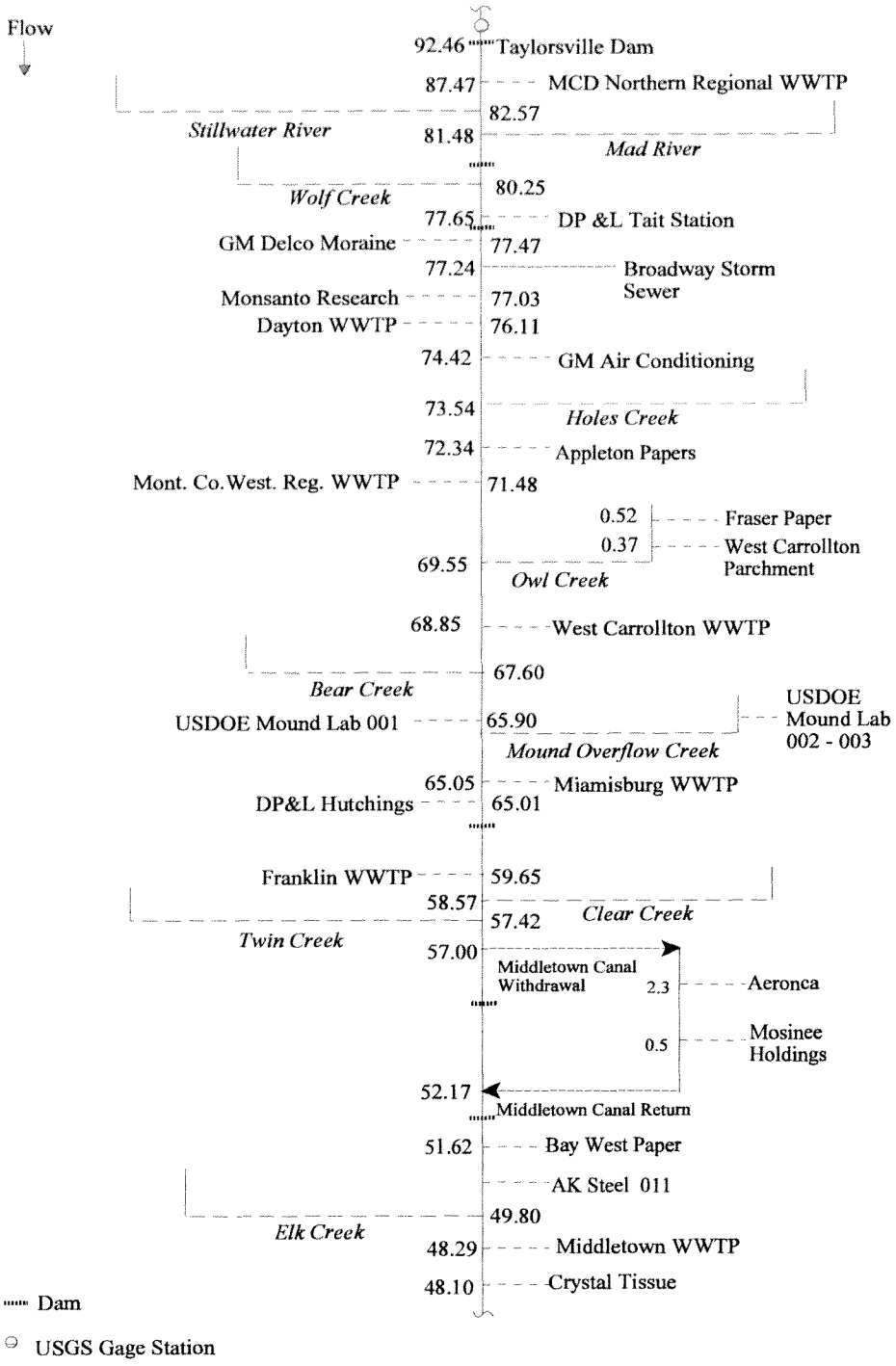

Figure 2. Middle Great Miami River Study Area.

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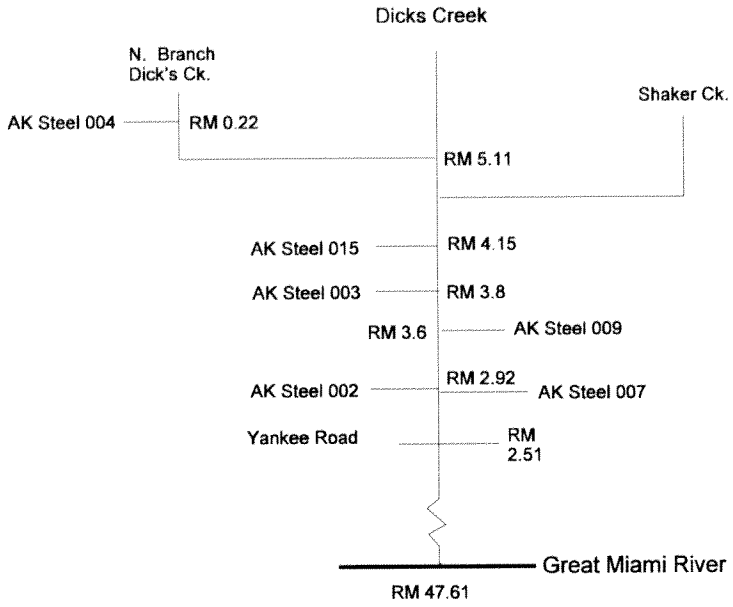

Figure 3. Dicks Creek Study Area.

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Table 1. Description of AK Steel - Middletown Works Outfalls and Treatment Systems

Outfall	Type of Waste	Treatment System	Discharge Point
011	Treated process water (in-plant stations 613 and 614), non-contact cooling water, storm water runoff, boiler water, zeolite rinse, Kinney Rinse	None at final outfall (see 001, 613 and 614)	Great Miami River
001	Calculated sum of stations 613 and 614	(See 613 and 614)	Outfall 011
613	Treated process water from blast furnace	Settling, activated sludge aeration, chemical precipitation, flocculation, settling, landfilling of sludge.	Outfall 011
614	Process water from cold temper mills, acid pickling, alkaline cleaning, fume scrubbers, hot coating lines, inorganic chemicals, oxygen and nitrogen production, non-contact cooling water from oxygen/nitrogen production.	*North Terminal WWTP:* Oil skimming, neutralization, chemical precipitation, chemical oxidation (aeration), flocculation, settling, vacuum filtration and landfilling of sludge.	Outfall 011
002	Non-contact cooling water from by-products area of coke plant, other non-contact cooling waters and storm water runoff	None	Dicks Creek
003	Treated process water from basic oxygen furnace clarification system (in-plant station 631), cooling tower blowdown, storm water runoff	None at final outfall (see outfall 631)	Dicks Creek
631	Treated process water from basic oxygen furnace (steelmaking)	Settling, flocculation, vacuum filtration and landfilling of sludge	Outfall 003
803	Storm water runon from City of Middletown.	None	Outfall 003

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Table 1. Continued.

Outfall	Type of Waste	Treatment System	Discharge Point
004	Blowdown from South Terminal Treament Plant (in-plant station 641), treated process water from station 642, non-contact cooling water from annealing, storm water runoff	None at final outfall (see 641/642)	North Branch Dicks Creek
641	Treated process water from cold temper mill, acid pickling, alkaline cleaning, fume scrubbers	*South Terminal WWTP:* Oil skimming, chemical precipitation, neutralization, chemical oxidation (aeration), flocculation, settling, vacuum filtration and landfilling of sludge.	Outfall 004
642	Treated process water from electrogalvanizing line	*#2 EGL WWTP*: Chemical precipitation, neutralization, chemical oxidation (aeration), flocculation, settling, rapid sand filtration, vacuum filtration and landfilling of sludge.	Outfall 004
015	Treated process water from hot strip mill, continuous caster and vacuum degassing (outfall 005) non-contact cooling water, storm runoff.	None at final outfall (see 005)	Dicks Creek
005	Treated process water from hot strip mill, continuous caster and vacuum degassing.	Settling, flocculation, settling, vacuum filtration and landfilling of sludge.	Outfall 015
008	Storm water runoff	None	Dicks Creek
009	Storm water runoff from AK landfill	Settling ponds	Dicks Creek
099	Calculated downstream Dicks Creek station used to determine compliance with water quality-based limit. (DRAFT PERMIT PROPOSES TO ELIMINATE THIS STATION.)		Does not physically exist.

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Table 2. Effluent Characterization and Decision Criteria

Summary of analytical results for AK Steel outfall 1ID00001002. All values are in µg/l unless otherwise indicated. 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed; NR = not reported; * = total cyanide value. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results.

PARAMETER		OEPA 07/10/2000	OEPA 10/10/2000	AK Steel Application Form 2C N	mean	maximum	DECISION CRITERIA PEQ_{avg}	PEQ_{max}
BOD_5	mg/l	2.8	<2.0	1	–	ND		
COD	mg/l	<10	<10	1	–	21		
TSS	mg/l	23	10	349	10.6	NR		
TDS	mg/l	750	708	NA	NA	NA		
Oil&grease	mg/l	<2.0	<2.0	349	0.08	NR		
Ammonia-N	mg/l	0.776	0.592	349	0.54	NR	0.56	1.10
NO3/NO2-N	mg/l	1.51	1.08	1	–	1.39	3.31	4.53
TKN	mg/l	0.95	0.73	NA	NA	NA		
Phosphorus	mg/l	<0.05	0.07	1	–	<0.10		
Fluoride	mg/l	NA	NA	1	–	0.31	0.878	1.469
Cyanide, free		<5	5.44	1	–	<20*	4.0	5.44
Hardness	mg/l	480	533	NA	NA	NA		
Arsenic		6	7	1	–	<5	15	21
Barium		181	149	NA	NA	NA	502	688
Iron		1570	2880	1	–	1700	6307	8640
Manganese		115	102	1	–	44	252	345
Potassium		5000	3000	NA	NA	NA	13870	19000
Strontium		1270	1100	NA	NA	NA	3523	4826
Zinc		<10	<10	349	6.9	NR	32	65
Chloroform		<0.5	1.82	1	–	<1.0	3.99	5.46
Phenolics, total		<10	38.8	1	–	<10	84.97	116.4

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Table 3. Effluent Characterization and Decision Criteria

Summary of analytical results for AK Steel outfall 1ID00001003. All values are in µg/l unless otherwise indicated. 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed; NR = not reported; * = total cyanide data. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results.

PARAMETER		OEPA 07/11/2000	OEPA 10/11/2000	AK Steel Application Form 2C N	mean	maximum	DECISION CRITERIA PEQ_{avg}	PEQ_{max}
BOD_5	mg/l	14	2.3	1	–	ND		
COD	mg/l	33	16	1	–	22		
TSS	mg/l	77	26	329	24.5	NR		
TDS	mg/l	498	520	NA	NA	NA	1443	1976
Oil&grease	mg/l	<2.0	<2.0	343	0.04	NR		
Ammonia-N	mg/l	0.292	0.29	340	0.128	NR	0.19	0.33
NO3/NO2-N	mg/l	3.21	3.05	1	–	2.34	7.03	9.63
TKN	mg/l	0.94	0.8	NA	NA	NA		
Phosphorus	mg/l	0.21	0.22	1	–	<0.10		
Fluoride	mg/l	NA	NA	1	–	0.53	2.358	3.23
Hardness	mg/l	318	352	NA	NA	NA		
Aluminum		1490	350	NA	NA	NA	4133	5662
Arsenic		7	6	1	–	<10	19	27
Barium		158	130	NA	NA	NA	438	600
Iron		3030	1310	26	1660	NA	2242	3513
Lead		7	<2	342	ND	NR	13	18
Manganese		120	41	1	–	28	183	312
Potassium		12000	12000	NA	NA	NA	33288	45600
Strontium		854	826	NA	NA	NA	2369	3245
Zinc		81	16	342	21	NR	75	146
Bromodichloromethane		<0.5	0.57	1	–	<1.0	1.58	2.17
Chloroform		<0.5	2.64	1	–	2.4	5.78	7.92
Hexachlorobenzene		0.0025	<0.0020	1	–	<5	0.0069	0.0095
Bis(2-ethylhexyl)phthalate		<10	<10	1	–	113	247	339
Phenolics, total		<10	<10	1	–	29	63.5	87.0

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Table 4. Effluent Characterization and Decision Criteria

Summary of analytical results for AK Steel outfall 1ID00001004. All values are in µg/l unless otherwise indicated. 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed; NR = not reported; * = total cyanide data. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results.

PARAMETER		OEPA 07/11/2000	OEPA 10/11/2000	OEPA 11/07/2001	AK Steel Application Form 2C N	mean	maximum	DECISION CRITERIA PEQ_{avg}	PEQ_{max}
BOD_5	mg/l	5.4	5.5	6.6	1	–	7.0		
COD	mg/l	30	22	30	1	–	54		
TSS	mg/l	12	11	6	1	–	33		
TDS	mg/l	1890	1900	1720	NA	NA	NA	4161	5700
Oil&grease	mg/l	<2.0	2.42	<2.0	349	0.07	NR		
Ammonia-N	mg/l	0.23	0.197	0.194	349	0.179	NR	0.39	0.53
NO3/NO2-N	mg/l	1.98	2.01	1.03	1	–	1.88	3.82	5.23
TKN	mg/l	1.03	0.83	1.75	NA	NA	NA		
Phosphorus	mg/l	0.11	0.07	0.073	1	–	<0.10		
Fluoride	mg/l	NA	NA	NA	1	–	0.52	2.35	3.22
Cyanide, free		<5.0	<5.0	5.0	1	–	<20*	11	15
Hardness	mg/l	861	843	1160	NA	NA	NA		
Aluminum		397	<200	218	NA	NA	NA	869	1191
Arsenic		4	3	4.2	1	–	<10	9.2	12.6
Barium		95	86	57	NA	NA	NA	208	285
Copper		12	<10	<10	349	0.135	NR	22	30
Iron		1240	792	894	1	–	4860	9224	12636
Manganese		70	69	99	1	–	124	235	322
Potassium		5000	6000	5000	NA	NA	NA	13140	18000
Strontium		712	674	553	NA	NA	NA	1559	2136
Zinc		691	75	104	349	115	NR	96	184
Chloroform		<0.5	0.72	1.35	1	–	<1.0	2.56	3.51
4-Chloro-3-methylphenol		<10	<10	14.6	NA	NA	NA	32	44
Phenol		<2.0	<2.0	2.2	1	–	<10	4.8	6.6
delta-BHC		<0.0020	<0.0021	0.031	NA	NA	NA	0.068	0.093

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Table 5. Effluent Characterization and Decision Criteria

Summary of analytical results for AK Steel outfalls 1ID00001008 and 1ID00001009. All values are in µg/l unless otherwise indicated. 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed; NR = not reported. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results.

PARAMETER			Outfall 008 Form 2C		Outfall 009 AK Steel Form 2C N	mean	maximum
COD	mg/l		32		23	60	NR
TSS	mg/l		7		23	8.2	NR
Ammonia-N	mg/l		NA		23	0.57	NR
NO3/NO2-N	mg/l		0.39		1	–	0.11
Phosphorus	mg/l		0.05		1	–	<0.10
Fluoride	mg/l		1.49		1	–	1.30
Chlorine, T.R	mg/l		NA		NA	NA	NA
Cyanide, tot.		30		NA	NA	NA	
Iron			ND		1	–	390
Lead			ND		23	ND	ND
Manganese			ND		1	–	74
Nickel			ND		23	2.48	57
Selenium			ND		22	0.46	10
Zinc			ND		23	37.1	250

EXHIBIT 2

Table 6. Effluent Characterization and Decision Criteria

Summary of analytical results for AK Steel outfall 1ID00001011. All values are in µg/l unless otherwise indicated. 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed; NR = not reported; * = total cyanide data. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results.

PARAMETER		OEPA 07/11/2000	OEPA 10/11/2000	AK Steel Application Form 2C N	mean	maximum	DECISION CRITERIA PEQ_{avg}	PEQ_{max}
BOD_5	mg/l	7	2	1	–	15		
COD	mg/l	<10	12	1	–	30		
TSS	mg/l	14	10	470	21.7	NR		
TDS	mg/l	998	718	NA	NA	NA	2768	3792
Oil&grease	mg/l	NA	2.59	469	0.05	NR		
Ammonia-N	mg/l	2.49	3.05	470	2.38	NR	3.04	6.38
NO3/NO2-N	mg/l	2.27	2.31	1	–	5.16	11.3	15.5
TKN	mg/l	3.5	3.76	NA	NA	NA		
Phosphorus	mg/l	<0.05	0.13	1	–	<0.10		
Fluoride	mg/l	NA	NA	1	–	1.51	6.83	9.36
Cyanide, free		<5	10.4	1	–	<20*	9.5	13
Hardness	mg/l	519	526	NA	NA	NA		
Aluminum		<200	498	NA	NA	NA	1381	1892
Arsenic		2	4	1	–	<5	11	15
Barium		74	73	NA	NA	NA	205	281
Copper		<10	<10	470	0.09	NR		
Iron		2150	3680	1	–	4220	9242	12660
Lead		4	7	470	1.04	NR	29	40
Manganese		175	185	1	–	166	405	555
Potassium		7000	11000	NA	NA	NA	30514	41800
Selenium		<2.0	3	51	ND	ND		
Strontium		744	722	NA	NA	NA	2064	2827
Zinc		29	160	470	56.7	NR	47	93
Chloroform		<0.5	1.41	1	–	1.4	3.09	4.23
Hexachlorobenzene		0.0023	<0.0020	1	–	<5	0.0064	0.0087
delta-BHC		0.007	0.014	NA	NA	NA	0.039	0.053
Dieldrin		<0.0020	0.0063	NA	NA	NA	0.0175	0.0239
Heptachlor		0.0088	<0.0020	NA	NA	NA	0.0244	0.0334

EXHIBIT 2

Table 7. Effluent Characterization and Decision Criteria

Summary of analytical results for AK Steel outfall 1ID00001015. All values are in µg/l unless otherwise indicated. 2C = Data from application form 2C; OEPA = data from analyses by Ohio EPA; ND = below detection (detection limit); NA = not analyzed; NR = not reported; * = total cyanide data. Decision Criteria: PEQ_{avg} = monthly averages; PEQ_{max} = daily maximum analytical results.

PARAMETER		OEPA 07/11/2000	OEPA 10/11/2000	AK Steel Application Form 2C N	mean	maximum	DECISION CRITERIA PEQ_{avg}	PEQ_{max}
BOD_5	mg/l	4.3	4.9	1	–	ND		
COD	mg/l	36	37	1	–	44		
TSS	mg/l	45	28	347	9.49	NR		
TDS	mg/l	1080	1160	NA	NA	NA	3218	4408
Oil&grease	mg/l	2.9	4.27	347	0.43	NR		
Ammonia-N	mg/l	0.173	0.16	347	0.017	NR	0.17	0.33
NO3/NO2-N	mg/l	3.1	1.45	1	–	4.46	9.77	13.38
TKN	mg/l	1.16	1.07	NA	NA	NA		
Phosphorus	mg/l	0.14	0.2	1	–	0.13		
Fluoride	mg/l	NA	NA	1	–	22.4	101	139
Cyanide, free	mg/l	<5	5.63	1	–	<20*	16	21
Hardness	mg/l	481	499	NA	NA	NA		
Aluminum		643	421	NA	NA	NA	1784	2443
Arsenic		5	5	1	–	<5	11	15
Barium		99	100	NA	NA	NA	277	380
Copper		10	14	1	–	<40	39	53
Iron		3730	10100	1	–	610	22119	30300
Lead		4	5	347	ND	ND	21	29
Manganese		126	181	1	–	77	396	543
Potassium		13000	14000	NA	NA	NA	38836	53200
Strontium		1070	913	NA	NA	NA	2968	4066
Zinc		123	172	347	65.2	NR	78	157
Phenolics, total		<10	<10	1	–	15	33	45
Bis(2-ethylhexyl)phthalate		<10	<11	1	–	5	23	31
Aldrin		<0.0020	0.013	NA	NA	NA	0.036	0.049
alpha-BHC		<0.0020	0.0061	NA	NA	NA	0.017	0.023
gamma-BHC		<0.0020	0.008	NA	NA	NA	0.022	0.03
4,4'-DDD		<0.0061	0.014	NA	NA	NA	0.039	0.053
Endrin Aldehyde		<0.0061	0.014	NA	NA	NA	0.039	0.053
Heptachlor		0.0027	<0.0021	NA	NA	NA	0.008	0.01

EXHIBIT 2

Table 8. Effluent Characterization and Decision Criteria

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001001. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=001

			CURRENT PERMIT		PERIOD = JAN00 THRU DEC04			
PARAMETER	**SEASON**	**UNITS**	**30 DAY**	**DAILY**	**N**	**50 PCTL**	**95 PCTL**	**RANGE**
CONDUIT FLOW	ANNUAL	MGD	Monitor		1704	1.208	1.57	0.168-2.992
LEAD PB,TOT	ANNUAL	UG/L	--	--	242	0	43	0-109.17
		KG/DAY	6.33	10.9	242	0	0.20356	0-0.5942
OIL GRSE TOT	ANNUAL	MG/L	--	--	242	0	0	0-34
		KG/DAY	173	500	242	0	0	0-138.08
RESIDUE TOT NFLT	ANNUAL	MG/L	--	--	244	21	65	0-133
		KG/DAY	2706	6709	244	97.0512	323.088	0-715.37
ZINC TOTAL 0.01	ANNUAL	UG/L	--	--	109	98.5	632.66	0-1675
		KG/DAY	6.56	24.14	109	0.49005	3.06365	0-9.1801
ZINC ZN,TOT	ANNUAL	UG/L	--	--	135	0	113	0-220
		KG/DAY	6.56	24.14	135	0	0.5777	0-1.0074

EXHIBIT 2

Table 9. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID0001002. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=002

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
AMMONIA NH3-N	MAY-OCT	MG/L	2.6	11.8	339	0.4	0.9	0-4.32
		KG/DAY	9.7	44.2	339	0.93679	3.06585	0-14.814
	NOV-APR	MG/L	--	9.9	336	0.39	0.86	0-3.89
		KG/DAY	--	37.1	336	0.85995	3.58644	0-8.1004
CONDUIT FLOW	ANNUAL	MGD	Monitor		1558	0.668	1.401	0.045-2.069
CYANIDE FREE	ANNUAL	MG/L	Monitor		18	0	0	0-0
		MG/L	Monitor		313	0	0	0-0.021
		KG/DAY	--	--	313	0	0	0-0.0514
OIL GRSE TOT	ANNUAL	MG/L	--	10	675	0	0	0-9
		KG/DAY	--	--	675	0	0	0-28.319
PCBS WLSMPL	ANNUAL	UG/L	Monitor		55	0	0	0-0
PH	ANNUAL	S.U.	6.5 to 9.0		422	7.2*	7.9	7-8.2
PH MAX	ANNUAL	S.U.	--	9.0	580	7.1*	7.9	7-8.7
PH MIN	ANNUAL	S.U.	--	6.5	580	7*	7.6	6.6-8.6
RESIDUE TOT NFLT	ANNUAL	MG/L	Monitor		672	8	21	0-59
		KG/DAY	--	--	672	20.5336	61.2262	0-216.62
TOX-UNIT AC-CERI T	ANNUAL	TUA	Monitor		9	0	0	0-0
TOX-UNIT ACU-PIME	ANNUAL	TUA	Monitor		9	0	0	0-0
TOX-UNIT CHR-CERI	ANNUAL	TUC	Monitor		9	0	0	0-0
TOX-UNIT CHR-PIME	ANNUAL	TUC	Monitor		11	0	0	0-0
ZINC TOT REC	ANNUAL	UG/L	Monitor		675	0	0	0-412
		KG/DAY	--	--	675	0	0	0-1.3879

EXHIBIT 2

Table 10. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001003. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=003

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
AMMONIA NH3-N	MAY-OCT	MG/L	Monitor		326	0	0.38	0-0.68
		KG/DAY	--	--	326	0	4.50566	0-17.671
	NOV-APR	MG/L	Monitor		332	0	0.58	0-1.01
		KG/DAY	--	--	332	0	8.7086	0-1462.5
COLOR SEVERITY	ANNUAL	'	Monitor		661	0	0	0-0
CONDUIT FLOW	ANNUAL	MGD	Monitor		1501	3.14	5.97	0.21-970
IRON TOT REC	ANNUAL	UG/L	Monitor		56	1080	2810	204-6100
		KG/DAY	--	--	56	14.8446	65.4328	1.2973-984.1
LEAD TOT REC	ANNUAL	UG/L	Monitor		353	0	0	0-27
		KG/DAY	--	--	353	0	0	0-0.19
LEAD TREC 0.001	ANNUAL	UG/L	Monitor		306	0	0	0-0
OIL GRSE TOT	ANNUAL	MG/L	--	10	644	0	0	0-8
		KG/DAY	--	--	644	0	0	0-161.7
PCBS WLSMPL	ANNUAL	UG/L	Monitor		55	0	0	0-0
PH	ANNUAL	S.U.	6.5 to 9.0		414	7.7*	8.3	7.4-8.8
PH MAX	ANNUAL	S.U.	--	9.0	563	7.7*	8.3	7.2-8.7
PH MIN	ANNUAL	S.U.	--	6.5	563	7.4*	8.1	7-8.3
RESIDUE TOT NFLT	ANNUAL	MG/L	Monitor		657	10	53	0-303
		KG/DAY	--	--	657	126.381	1142.46	0-99470
ZINC TOT REC	ANNUAL	UG/L	417	457	659	0	101	0-297
		KG/DAY	--	9.8	659	0	1.23656	0-163.02
48HR ACU D.MAGNA	ANNUAL	% AFFECT	Monitor		56	0	0	0-0

EXHIBIT 2

Table 11. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001004. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=004

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
AMMONIA NH3-N	MAY-OCT	MG/L	Monitor		355	0	0.51	0-0.85
		KG/DAY	--	--	355	0	5.7934	0-10.63
	NOV-APR	MG/L	Monitor		356	0.32	0.54	0-0.81
		KG/DAY	--	--	356	3.33307	6.21928	0-8.986
CONDUIT FLOW	ANNUAL	MGD	Monitor		1630	2.828	3.691	1.46-5.201
COPPER TOT REC	ANNUAL	UG/L	Monitor		391	0	0	0-0
COPPER TREC 0.001	ANNUAL	UG/L	Monitor		320	0	0	0-0
LEAD TOT REC	ANNUAL	UG/L	Monitor		391	0	0	0-0
LEAD TREC 0.001	ANNUAL	UG/L	Monitor		320	0	0	0-0
OIL GRSE TOT	ANNUAL	MG/L	--	10	711	0	0	0-9
		KG/DAY	--	--	711	0	0	0-111.43
PH	ANNUAL	S.U.	6.5 to 9.0		456	7.2*	7.7	7-8.4
PH MAX	ANNUAL	S.U.	--	9.0	591	7.6*	8.3	7.4-9.2
PH MIN	ANNUAL	S.U.	--	6.5	591	7.1*	7.7	6.7-8
ZINC TOT REC	ANNUAL	UG/L	417	457	711	64	184	0-1160
		KG/DAY	--	6.04	711	0.66132	2.10635	0-12.645
21DAYDAP NIAMAGNA	ANNUAL	TUC	1.0	--	19	0	0	0-0
48HRDAPH NIAMAGNA	ANNUAL	TUA	--	1.0	19	0	0	0-0

EXHIBIT 2

Table 12. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001005 and calculated station 1ID00001099. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=005

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
CONDUIT FLOW	ANNUAL	MGD	Monitor		1701	0.358	0.861	0-2.69
LEAD PB,TOT	ANNUAL	UG/L	--	--	243	0	25	0-43
		KG/DAY	0.23	0.68	243	0	0.03456	0-0.1297
OIL GRSE TOT	ANNUAL	MG/L	--	--	244	5	12	0-27
		KG/DAY	227	227	244	5.70021	31.1354	0-73.111
PH	ANNUAL	S.U.	6.5 to 9.0		244	8*	8.6	7.2-9.4
RESIDUE TOT NFLT	ANNUAL	MG/L	--	--	243	15	61	0-92
		KG/DAY	227	682	243	18.2588	103.671	0-391.07
ZINC TOTAL 0.01	ANNUAL	UG/L	--	--	110	248	698	42-1250
		KG/DAY	1.45	3.18	110	0.34276	1.43964	0-4.8418
ZINC ZN,TOT	ANNUAL	UG/L	--	--	135	162	358	0-929
		KG/DAY	1.45	3.18	135	0.19711	0.70344	0-2.6559

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=099

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
CONDUIT FLOW	ANNUAL	MGD	Calculated		1391	7.248	10.019	3.811-86
LEAD PB,TOT	ANNUAL	UG/L	--	--	12	0	43	0-48
		KG/DAY	--	--	12	0	0.55812	0-0.6458
OIL GRSE TOT	ANNUAL	MG/L	--	--	12	0	0	0-34
ZINC TOT REC	ANNUAL	UG/L	--	--	621	0	96	0-171.59
		KG/DAY	8.91	--	621	0	2.76808	0-5.7269
ZINC ZN,TOT	ANNUAL	UG/L	--	--	12	0	58	0-168
		KG/DAY	8.91	--	12	0	0	0-1.4608

EXHIBIT 2

Table 13. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001009. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=009

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
AMMONIA NH3-N	MAY-OCT	MG/L		Monitor	25	0	1.02	0-1.27
		KG/DAY	--	--	25	0	2.36661	0-3.038
	NOV-APR	MG/L		Monitor	26	0.4	2.06	0-2.12
		KG/DAY	--	--	26	0.98175	3.57955	0-4.4833
ARSENIC TOT REC	ANNUAL	UG/L		Monitor	51	0	0	0-0
CADMIUM TOT REC	ANNUAL	UG/L		Monitor	29	0	0	0-0
CADMIUM TREC 0.001	ANNUAL	UG/L		Monitor	22	0	0	0-0
CHROMIUM HEX-DIS	ANNUAL	UG/L		Monitor	29	0	0	0-0
COD	ANNUAL	MG/L		Monitor	51	36	68	0-231
		KG/DAY	--	--	51	85.435	143.891	0-753.68
CONDUIT FLOW	ANNUAL	MGD		Monitor	1502	0	0.536	0-1.207
COPPER TOT REC	ANNUAL	UG/L		Monitor	29	0	0	0-0
COPPER TREC 0.001	ANNUAL	UG/L		Monitor	20	0	0	0-0
CYANIDE FREE	ANNUAL	MG/L		Monitor	29	0	0	0-0
CYANIDE FREE	ANNUAL	MG/L		Monitor	22	0	0	0-0
LEAD TOT REC	ANNUAL	UG/L		Monitor	29	0	0	0-0
LEAD TREC 0.001	ANNUAL	UG/L		Monitor	22	0	0	0-0
MERCURY TOT REC	ANNUAL	UG/L		Monitor	29	0	0	0-0
MERCURY TOT REC	ANNUAL	UG/L		Monitor	22	0	0	0-0
NICKEL TOT REC	ANNUAL	UG/L		Monitor	29	0	0	0-0
NICKEL TREC 0.01	ANNUAL	UG/L		Monitor	22	0	0	0-0
OIL GRSE TOT	ANNUAL	MG/L		Monitor	51	0	0	0-0
PH	ANNUAL	S.U.	6.5 to 9.0		97	7.4*	8.8	7.2-8.9
PLATINUM TOT	ANNUAL	UG/L	--	--	22	0	0	0-10
		KG/DAY	--	--	22	0	0	0-0.012
RESIDUE TOT NFLT	ANNUAL	MG/L		Monitor	51	8	24	0-39
		KG/DAY	--	--	51	19.1521	78.3949	0-93.293
SELENIUM TOT REC	ANNUAL	UG/L		Monitor	51	0	0	0-10
		KG/DAY	--	--	51	0	0	0-0.0163
SILVER TOT REC	ANNUAL	UG/L		Monitor	51	0	0	0-0
TOX-UNIT AC-CERI T	ANNUAL	TUA		Monitor	1	0	0	0-0
TOX-UNIT ACU-PIME	ANNUAL	TUA		Monitor	1	0	0	0-0
ZINC TOT REC	ANNUAL	UG/L		Monitor	51	0	77	0-250
		KG/DAY	--	--	51	0	0.19935	0-0.4599

EXHIBIT 2

Table 14. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001011. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=011

			CURRENT PERMIT		PERIOD = JAN00 THRU DEC04			
PARAMETER	**SEASON**	**UNITS**	**30 DAY**	**DAILY**	**N**	**50 PCTL**	**95 PCTL**	**RANGE**
AMMONIA NH3-N	MAY-OCT	MG/L	6.5	--	414	1.22	5.15	0-9.96
		KG/DAY	206	--	414	33.8067	139.686	0-286.13
	NOV-APR	MG/L	6.5	--	388	1.51	4.84	0-8.25
		KG/DAY	206	--	388	41.1124	133.68	0-270.35
CONDUIT FLOW	ANNUAL	MGD	Monitor		1660	7.268	9.286	4.421-14.37
COPPER TOT REC	ANNUAL	UG/L	Monitor		389	0	0	0-0
COPPER TREC 0.001	ANNUAL	UG/L	Monitor		413	0	0	0-41
		KG/DAY	--	--	413	0	0	0-0.8473
CYANIDE FREE	ANNUAL	MG/L	--	0.092	389	0	0	0-0.053
		KG/DAY	--	2.92	389	0	0	0-1.3169
		MG/L	--	0.092	410	0	0	0-0.054
		KG/DAY	--	2.92	410	0	0	0-1.5697
LEAD TOT REC	ANNUAL	UG/L	63	1173	389	0	0	0-44
		KG/DAY	2.0	37.2	389	0	0	0-0.9709
LEAD TREC 0.001	ANNUAL	UG/L	63	1173	410	0	0	0-202
		KG/DAY	2.0	37.2	410	0	0	0-6.8123
OIL GRSE TOT	ANNUAL	MG/L	--	10	802	0	0	0-15
		KG/DAY	--	--	802	0	0	0-316.12
PH	ANNUAL	S.U.	6.5 to 9.0		454	7.3*	8.1	7.1-8.7
PH MAX	ANNUAL	S.U.	--	9.0	608	7.2*	8.4	7.1-10
PH MIN	ANNUAL	S.U.	--	6.5	608	6.8*	7.4	5.8-8
RESIDUE TOT NFLT	ANNUAL	MG/L	Monitor		801	16	64	0-335
		KG/DAY	--	--	801	428.084	1725.23	0-11352
TOX-UNIT ACU-PIME	ANNUAL	TUA	Monitor		20	0	0	0-1.4
ZINC TOTAL 0.01	ANNUAL	UG/L	541	564	413	0	124	0-366
		KG/DAY	17.2	17.9	413	0	3.46297	0-8.4178
ZINC ZN,TOT	ANNUAL	UG/L	541	564	389	0	83	0-136
		KG/DAY	17.2	17.9	389	0	2.58349	0-4.7862

EXHIBIT 2

Table 15. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001015. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=015

			CURRENT PERMIT		PERIOD = JAN00 THRU DEC04			
PARAMETER	**SEASON**	**UNITS**	**30 DAY**	**DAILY**	**N**	**50 PCTL**	**95 PCTL**	**RANGE**
AMMONIA NH3-N	MAY-OCT	MG/L	Monitor		334	0	0	0-0.5
		KG/DAY	--	--	334	0	0	0-0.9879
	NOV-APR	MG/L	Monitor		332	0	0	0-0.55
		KG/DAY	--	--	332	0	0	0-2.1665
CONDUIT FLOW	ANNUAL	MGD	Monitor		1531	0.605	1.1065	0.126-2.52
LEAD TOT REC	ANNUAL	UG/L	Monitor		354	0	0	0-31
		KG/DAY	--	--	354	0	0	0-0.0516
LEAD TREC 0.001	ANNUAL	UG/L	Monitor		307	0	0	0-0
OIL GRSE TOT	ANNUAL	MG/L	--	10	666	0	0	0-14
		KG/DAY	--	--	666	0	0	0-61.919
PH	ANNUAL	S.U.	6.5 to 9.0		415	7.6*	8.3	7.3-8.6
PH MAX	ANNUAL	S.U.	--	9.0	578	7.8*	8.5	6.1-9.5
PH MIN	ANNUAL	S.U.	--	6.5	578	7.4*	8.1	6.6-8.4
RESIDUE TOT NFLT	ANNUAL	MG/L	Monitor		665	0	23	0-117
		KG/DAY	--	--	665	0	66.2375	0-482.7
ZINC TOT REC	ANNUAL	UG/L	417	457	354	0	141	0-300
		KG/DAY	--	2.2	354	0	0.37396	0-0.7824
ZINC TOTAL 0.01	ANNUAL	UG/L	417	457	312	67	221	0-470
		KG/DAY	--	2.2	312	0.14962	0.69723	0-1.5477

EXHIBIT 2

Table 16. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001613. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=613

			CURRENT PERMIT		PERIOD = JAN00 THRU DEC04			
PARAMETER	**SEASON**	**UNITS**	**30 DAY**	**DAILY**	**N**	**50 PCTL**	**95 PCTL**	**RANGE**
AMMONIA NH3-N	MAY-OCT	MG/L	--	--	123	14.3	55.2	0-62.8
		KG/DAY	205	410	123	47.744	187.274	0-216.92
	NOV-APR	MG/L	--	--	121	18.8	45.8	4-87.1
		KG/DAY	205	410	121	66.295	139.925	0.8917-298.02
CONDUIT FLOW	ANNUAL	MGD	Monitor		1703	0.875	1.199	0.001-2.303
CYANIDE TOT	ANNUAL	MG/L	--	--	135	0.022	0.126	0-16.5
		KG/DAY	10.0	19.8	135	0.0652	0.4214	0-2.7715
		MG/L	--	--	106	0	0.102	0-2.99
		KG/DAY	10.0	19.8	106	0	0.29341	0-2.8278
LEAD PB,TOT	ANNUAL	UG/L	Monitor		244	0	59	0-454
		KG/DAY	--	--	244	0	0.21302	0-1.4383
OIL GRSE TOT	ANNUAL	MG/L	Monitor		243	0	0	0-46
		KG/DAY	--	--	243	0	0	0-137.72
PH	ANNUAL	S.U.	6.0 to 11.5		244	8.2*	9.6	7.8-11
PHENOLIC 4AAP TOT	ANNUAL	UG/L	--	--	244	21	64	0-184
		KG/DAY	0.9	1.8	244	0.06952	0.20397	0-0.7779
RESIDUE TOT NFLT	ANNUAL	MG/L	Monitor		244	30	89	0-217
		KG/DAY	--	--	244	97.5811	324.026	0-716.77
ZINC TOTAL 0.01	ANNUAL	UG/L	Monitor		109	130	754	0-2160
		KG/DAY	--	--	109	0.43291	3.06508	0-9.1812
ZINC ZN,TOT	ANNUAL	UG/L	Monitor		135	0	145	0-283
		KG/DAY	--	--	135	0	0.55402	0-1.0062

EXHIBIT 2

Table 17. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001614. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=614

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
CONDUIT FLOW	ANNUAL	MGD		Monitor	1703	0.328	0.49	0-1.859
LEAD PB,TOT	ANNUAL	UG/L		Monitor	244	0	0	0-0
NAPTHALENE	ANNUAL	UG/L		Monitor***	5	0	0	0-0
NO2&NO3 N-TOT	ANNUAL	MG/L	--	--	4	0	0	0-0
OIL GRSE TOT	ANNUAL	MG/L		Monitor	244	0	0	0-6
		KG/DAY	--	--	244	0	0	0-8.7661
PH	ANNUAL	S.U.	6.5 to 9.0		244	7.9*	9.4	7.2-10
RESIDUE TOT NFLT	ANNUAL	MG/L		Monitor	240	0	6	0-11
		KG/DAY	--	--	240	0	7.75925	0-20.568
TETRACHLOROETHYL	ANNUAL	UG/L		Monitor****	5	0	0	0-0
ZINC TOTAL 0.01	ANNUAL	UG/L		Monitor	109	0	100	0-227
		KG/DAY	--	--	109	0	0.15391	0-0.4683
ZINC ZN,TOT	ANNUAL	UG/L		Monitor	135	0	66	0-146
		KG/DAY	--	--	135	0	0.04276	0-0.2912

*** - naphthalene maximum limit = 0.25 kg/day

**** - tetrachlorethylene maximum limit = 0.37 kg/day

EXHIBIT 2

Table 18. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfalls 1ID00001631 and 1ID00001641. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=631

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
CONDUIT FLOW	ANNUAL	MGD	Monitor		1703	0.108	0.146	0-5.8472
LEAD PB,TOT	ANNUAL	UG/L	--	--	241	20	73	0-471
		KG/DAY	1.00	3.75	241	0.00408	0.03346	0-0.5909
PH	ANNUAL	S.U.	6.0 to 11.5		241	7.6*	9	6-9.4
RESIDUE TOT NFLT	ANNUAL	MG/L	--	--	241	13	30	0-108
		KG/DAY	400	1264	241	5.01891	13.8455	0-543.19
ZINC TOTAL 0.01	ANNUAL	UG/L	--	--	108	795	2020	10-3600
		KG/DAY	1.80	4.39	108	0.27534	1.1919	0.0036-22.369
ZINC ZN,TOT	ANNUAL	UG/L	--	--	133	944	2230	182-4130
		KG/DAY	1.80	4.39	133	0.37555	0.9872	0.0038-1.5319

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=641

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
CONDUIT FLOW	ANNUAL	MGD	Monitor		1703	2.244	2.786	0.96-9.118
LEAD PB,TOT	ANNUAL	UG/L	***	***	244	0	0	0-0
NAPTHALENE	ANNUAL	UG/L	***	***	5	0	0	0-0
OIL GRSE TOT	ANNUAL	MG/L	--	--	244	0	0	0-6
		KG/DAY	308	867	244	0	0	0-53.096
PH	ANNUAL	S.U.	6.0 to 11.5		239	7.1*	8	6.9-8.7
RESIDUE TOT NFLT	ANNUAL	MG/L	--	--	244	7	15	0-32
		KG/DAY	553	1224	244	61.018	141.994	0-289.96
TETRACHLOROETHYL	ANNUAL	UG/L	***	***	5	0	0	0-0
ZINC TOTAL 0.01	ANNUAL	UG/L	--	--	109	0	58	0-100
		KG/DAY	1.32	1.65	109	0	0.50595	0-0.6409
ZINC ZN,TOT	ANNUAL	UG/L	--	--	135	0	0	0-232
		KG/DAY	1.32	1.65	135	0	0	0-1.6052

*** - Loading limits for these parameters: Lead [1.51 kg/day (30-day), 4.12 kg/day (daily)]
Naphthalene [1.27 kg/day (daily)]
Tetrachloroethylene [1.91 kg/day (daily)]

EXHIBIT 2

Table 19. Effluent Characterization

Summary of current permit limits and unaltered monthly operating report (MOR) data for AK Steel outfall 1ID00001642. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=642

			CURRENT PERMIT		PERIOD = JAN00 THRU DEC04			
PARAMETER	**SEASON**	**UNITS**	**30 DAY**	**DAILY**	**N**	**50 PCTL**	**95 PCTL**	**RANGE**
CHROMIUM TOT 0.01	ANNUAL	UG/L	1368	2216	104	0	0	0-0
CHROMIUM CR,TOT	ANNUAL	UG/L	1368	2216	134	0	0	0-0
CONDUIT FLOW	ANNUAL	MGD	Monitor		1671	0.271	0.318	0-0.338
COPPER CU,TOT	ANNUAL	UG/L	Monitor		238	0	0	0-100
		KG/DAY	--	--	238	0	0	0-0.1211
NICKEL NI,TOT	ANNUAL	UG/L	1904	3184	242	0	0	0-182
		KG/DAY	--	--	242	0	0	0-0.1674
OIL GRSE TOT	ANNUAL	MG/L	26	52	242	0	0	0-16
		KG/DAY	--	--	242	0	0	0-17.684
PH	ANNUAL	S.U.	6.0 to 11.5		242	8.8*	9.7	8.3-10.1
RESIDUE TOT NFLT	ANNUAL	MG/L	31	60	242	5	9	0-17
		KG/DAY	--	--	242	5.12867	9.9167	0-18.596
TTO	ANNUAL	UG/L	--	1704	16	0	12	0-36
		KG/DAY	--	--	16	0	0.0124	0-0.0413
ZINC ZN,TOT	ANNUAL	UG/L	1480	2610	242	64	410	0-1690
		KG/DAY	--	--	242	0	0.40424	0-1.4328

EXHIBIT 2

Table 20. Effluent Characterization

Summary of current permit requirements and unaltered monthly operating report (MOR) data for AK Steel upstream station 1ID00001803 and intake 1ID00001804. 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.

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=803

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
AMMONIA NH3-N	MAY-OCT	MG/L		Monitor	327	0	0	0-1.99
		KG/DAY	--	--	327	0	0	0-12.541
	NOV-APR	MG/L		Monitor	334	0	0	0-0.75
		KG/DAY	--	--	334	0	0	0-4.4133
COLOR SEVERITY	ANNUAL	UNITS		Monitor	663	0	0	0-0
CONDUIT FLOW	ANNUAL	MGD		Monitor	1510	0.071	1.678	0.001-7.413
IRON TOT REC	ANNUAL	UG/L		Monitor	67	490	2280	0-2920
		KG/DAY	--	--	67	0.15624	4.77137	0-16.596
LEAD TOT REC	ANNUAL	UG/L		Monitor	353	0	0	0-0
LEAD TREC 0.001	ANNUAL	UG/L		Monitor	308	0	0	0-0
OIL GRSE TOT	ANNUAL	MG/L		Monitor	661	0	0	0-8
		KG/DAY	--	--	661	0	0	0-46.26
PCBS WLSMPL	ANNUAL	UG/L		Monitor	56	0	0	0-0
PH	ANNUAL	S.U.		Monitor	661	7.3*	8.2	7-9
RESIDUE TOT NFLT	ANNUAL	MG/L		Monitor	660	8	46	0-222
		KG/DAY	--	--	660	0.60182	99.0383	0-924.73
ZINC TOT REC	ANNUAL	UG/L		Monitor	661	0	61	0-319
		KG/DAY	--	--	661	0	0.01	0-1.2048

AK STEEL MIDDLETOWN WORKS (1ID00001) OUTFALL=804

PARAMETER	SEASON	UNITS	CURRENT PERMIT 30 DAY	CURRENT PERMIT DAILY	PERIOD = JAN00 THRU DEC04 N	50 PCTL	95 PCTL	RANGE
21D CHR D.MAGNA	ANNUAL	% AFFECT		Monitor	19	0	0	0-0
48HR ACU D.MAGNA	ANNUAL	% AFFECT		Monitor	53	0	0	0-0
48H ACU C.DUBIA	ANNUAL	%AFFTUA		Monitor	18	0	0	0-0
7DAY CHRC.DUBIA	ANNUAL	%AFFTUC		Monitor	18	0	0	0-0
7DAY CHRPIMEPHAL	ANNUAL	%AFFTUC		Monitor	18	0	0	0-0
96H ACU PIMEPHAL	ANNUAL	%AFFTUA		Monitor	18	0	0	0-0

EXHIBIT 2

Table 21. Summary of ACUTE toxicity test results on the AK Steel effluent from outfall 1ID00001002.

TEST DATE(a)	*Ceriodaphnia dubit 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
06/98 (E)	0	0	>100	0	<1.0	NT	0	0	>100	0	<1.0	NT
08/98 (E)	0	0	>100	0	<1.0	NT	0	0	>100	0	<1.0	NT
12/98 (E)	0	0	>100	0	<1.0	NT	0	0	>100	0	<1.0	NT
06/99 (E)	0	0	>100	0	<1.0	NT	0	0	>100	0	<1.0	NT
12/99 E)	0	0	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
06/00 (E)	0	0	>100	0	<1.0	NT	0	0-2.5	>100	0	<1.0	NT
07/00 (O)	100	0	>100	5	<1.0	15	15	0	>100	0	<1.0	0
10/00 (O)	0	0	>100	0	<1.0	0	0	0	>100	0	<1.0	0
12/00 (E)	0	0	>100	0	<1.0	NT	0	0	>100	0	<1.0	NT
06/01 (E)	0	0	>100	0	<1.0	NT	0	0	>100	0	<1.0	NT
12/01 (E)	0	0	>100	0	<1.0	NT		0-2.5	>100	0-2.5	<1.0	NT
06/02 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
08/02 (E)	NT	NT	NT	NT	NT	NT	0	NR	>100	0	<1.0	NT
12/02 (E)	I	I	I	I	I	I	0	NR	>100	0	<1.0	NT
03/03 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
06/03 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
12/03 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
06/04 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
12/04 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
06/05 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
12/05 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
06/06 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT
12/06 (E)	0	NR	>100	0	<1.0	NT	0	NR	>100	0	<1.0	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested
NR = not reported in Ohio EPA database (not required on monthly form)
[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined
I = Invalid test

EXHIBIT 2

Table 22. Summary of ACUTE toxicity test results on the AK Steel effluent from outfall 1ID00001003.

TEST DATE(a)	*Daphnia magna 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
03/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
04/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
05/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/98 (E)	0	0	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
08/98 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
09/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/98 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
11/98 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
01/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
02/99 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
04/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
05/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
09/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
11/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
01/00 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
02/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/00 E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested
NR = not reported in Ohio EPA database (not required on monthly form)

[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined
* = *Ceriodaphnia dubia* test results.

EXHIBIT 2

Table 22. Summary of ACUTE toxicity test results on the AK Steel effluent from outfall 1ID00001003 - continued.

TEST DATE(a)	*Daphnia magna 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
04/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
05/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/00 (O)	10 0*	0-10*	>100*	0*	<1.0*	0*	0	0	>100	0	<1.0	0
08/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
09/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/00 (O)	0*	0-5*	>100*	0*	<1.0*	0*	0	0	>100	0	<1.0	0
11/00 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
01/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
02/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
04/01 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
05/01 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
09/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
11/01 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
01/02 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
02/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested
NR = not reported in Ohio EPA database (not required on monthly form)
[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined
* = *Ceriodaphnia dubia* test results.

EXHIBIT 2

Table 22. Summary of ACUTE toxicity test results on the AK Steel effluent from outfall 1ID00001003 - continued.

TEST DATE(a)	*Daphnia magna 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
03/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
04/02 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
05/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/02 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
09/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
11/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
01/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
02/03 (E)	NT	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
04/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
09/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
11/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
01/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
02/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
04/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
05/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested
NR = not reported in Ohio EPA database (not required on monthly form)

[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined
* = *Ceriodaphnia dubia* test results.

EXHIBIT 2

Table 22. Summary of ACUTE toxicity test results on the AK Steel effluent from outfall 1ID00001003 - continued.

TEST DATE(a)	*Daphnia magna 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
06/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
09/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
11/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
01/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
02/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
04/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
05/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
09/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
11/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested
NR = not reported in Ohio EPA database (not required on monthly form)

[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined
* = *Ceriodaphnia dubia* test results.

EXHIBIT 2

Table 23. Summary of ACUTE toxicity test results on the AK Steel effluent from outfall 1ID00001004.

TEST DATE(a)	*Daphnia magna 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
03/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/98 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/99 (E)	0	0-10	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/99 (E)	0	0-20	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/99 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/00 (E)	0	0-10	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
07/00 (O)	5*	0-5*	38.2*	100*	2.6*	100*	0	0	>100	0	<1.0	100
08/00 (E)	0	0-10	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
10/00 (O)	85*	0*	>100*	0*	<1.0*	0*	0	0	>100	0	<1.0	0
12/00 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
11/01 (O)	0*	0*	>100*	0*	<1.0*	0*	0	0	>100	0	<1.0	0
12/01 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/02 (E)	0	0	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/02 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested
[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined
* = *Ceriodaphnia dubia* test results.
NR = not reported in Ohio EPA database (not required on monthly form)

EXHIBIT 2

Table 23. Summary of ACUTE toxicity test results on the AK Steel effluent from outfall 1ID00001004 - continued.

TEST DATE(a)	*Daphnia magna 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
06/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/03 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/04 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/05 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
03/06 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
06/06 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
08/06 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT
12/06 (E)	0	NR	>100	0	<1.0	NT	NT	NT	NT	NT	NT	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested
NR = not reported in Ohio EPA database (not required on monthly form)
[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined
* = *Ceriodaphnia dubia* test results.

EXHIBIT 2

Table 24. Summary of ACUTE toxicity test results on the AK Steel effluent from outfalls 1ID00001008, 1ID00001009 and 1ID00001015.

TEST DATE(a)	*Ceriodaphnia dubia 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
Outfall 008												
12/00 (E)	0	0	>100	0	<1.0	NT		0	>100	0	<1.0	NT
Outfall 009												
01/99 (E)	0	0	>100	0	<1.0	NT		0	>100	0	<1.0	NT
04/99 (E)	0	0	>100	0	<1.0	NT		0	>100	0	<1.0	NT
05/99 (E)	0	0	>100	0	<1.0	NT		0	>100	0	<1.0	NT
07/99 (E)	0	0	>100	0	<1.0	NT		0	>100	0	<1.0	NT
10/99 (E)	0	0	>100	0	<1.0	NT		0	>100	0	<1.0	NT
12/99 (E)	0	0	>100	0	<1.0	NT		0	>100	0	<1.0	NT
12/00 (E)	0	0	>100	0	<1.0	NT		0	>100	0	<1.0	NT
Outfall 015												
07/00 (O)	100	0-5	>100	5-10	<1.0	80	0	0-5	>100	0-5	<1.0	5
10/00 (O)	5	0	>100	0-10	<1.0	0	5	0	>100	0-5	<1.0	0
10/00 (E)	0	0	>100	0	<1.0	NT		0	>100	0	<1.0	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested

[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined

EXHIBIT 2

Table 25. Summary of ACUTE toxicity test results on the AK Steel effluent from outfall 1ID00001011.

TEST DATE(a)	*Ceriodaphnia dubia 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
03/98 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
06/98 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
08/98 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
12/98 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
03/99 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
06/99 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
08/99 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
12/99 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
03/00 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
06/00 (E)	NT	NT	NT	NT	NT	NT	0	0	70.7	100	1.4	NT
07/00 (O)	0	0-5	>100	0-15	<1.0	0	5	0-5	>100	0	<1.0	0
08/00 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
10/00 (O)	0	0	>100	0-15	<1.0	0	0	0	>100	0-15	<1.0	15
12/00 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
03/01 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
06/01 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
08/01 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
12/01 (E)	NT	NT	NT	NT	NT	NT	0	NT	>100	0	<1.0	NT
03/02 (E)	NT	NT	NT	NT	NT	NT	0	--	>100	0	<1.0	NT
06/02 (E)	NT	NT	NT	NT	NT	NT	0	--	>100	0	<1.0	NT
08/02 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
12/02 (E)	NT	NT	NT	NT	NT	NT	0	--	>100	0	<1.0	NT
03/03 (E)	NT	NT	NT	NT	NT	NT	0	--	>100	0	<1.0	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested

[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined

EXHIBIT 2

Table 25. Summary of ACUTE toxicity test results on the AK Steel effluent from outfall 1ID00001011 - continued.

TEST DATE(a)	*Ceriodaphnia dubia 48 hour*						*Fathead Minnows 96 hour*					
	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]	UP[b]	C[c]	LC_{50}[d]	%M[i]	TUa[g]	NF[h]
03/03 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
06/03 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
08/03 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
12/03 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
03/04 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
06/04 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
08/04 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
12/04 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
03/05 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
04/05 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
06/05 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
08/05 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
12/05 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
03/06 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
06/06 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
08/06 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT
12/06 (E)	NT	NT	NT	NT	NT	NT	0	0	>100	0	<1.0	NT

[a] O = EPA test; E = entity test
[b] UP = upstream control water
[c] C = laboratory water control
[d] LC_{50} = Median Lethal Concentration
[e] EC_{50} = Median effects concentration
NT = not tested

[f] %A = Percent Adversely Affected in 100% effluent
[g] TUa = Acute Toxicity Units
[h] NF = Near Field Sample In the Great Miami River
[i] %M = Percent Mortality in 100% effluent
ND = not determined

EXHIBIT 2

Table 26. Summary of CHRONIC toxicity test results on the AK Steel effluent from outfall 1ID00001002.

Test Date (a)	*Ceriodaphnia dubia 7-Day*											*Fathead Minnows 7-Day*						
	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival			Reproduction			FF[i]	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival	Growth	FF[i]
					LOEC[f]	NOEC[g]	TU_c[h]	LOEC[f]	NOEC[g]	TU_c[h]						STU_c[j]	GTU_c[k]	
06/98 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
08/98 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
12/98 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	10	ND	ND	<1.0	<1.0	NT
06/99 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	5	ND	ND	<1.0	<1.0	NT
12/99 E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
06/00 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
12/00 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
06/01 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	5	ND	ND	<1.0	<1.0	NT
12/01 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
06/02 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	NR	ND	ND	<1.0	<1.0	NT
12/02 (E)	I	I	I	I	I	I	I	I	I	I	NT	0	NR	ND	ND	<1.0	<1.0	NT
01/03 (E)	NT	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NR	ND	ND	<1.0	<1.0	NT

[a]O = EPA test; E = entity test
[b]UP = upstream control water
[c]C = laboratory water control
[d]IC_{25} = inhibition concentration twenty-five
[e]TU_c = chronic toxicity units based on IC_{25}
[f]LOEC = lowest observed effects concentration
[g]NOEC = no observed effects concentration
I = Invalid test

[h]TU_c = chronic toxicity units
[i]FF = far-field effect
[j]STU_c = TUc for survival
[k]GTU_c = TUc for growth
NT = not tested
ND = not determined
NR = not reported in OEPA database

EXHIBIT 2

Table 26. Summary of CHRONIC toxicity test results on the AK Steel effluent from outfall 1ID00001002 - continued.

Test Date (a)	*Ceriodaphnia dubia 7-Day*											*Fathead Minnows 7-Day*						
	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival			Reproduction			FF[i]	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival	Growth	FF[i]
					LOEC[f]	NOEC[g]	TU_c[h]	LOEC[f]	NOEC[g]	TU_c[h]						STU_c[j]	GTU_c[k]	
06/03 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
12/03 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
06/04 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	10	ND	ND	<1.0	<1.0	NT
12/04 E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
06/05 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
12/05 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
06/06 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	2.5	ND	ND	<1.0	<1.0	NT
12/06 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	0	NR	ND	ND	<1.0	<1.0	NT

[a]O = EPA test; E = entity test
[b]UP = upstream control water
[c]C = laboratory water control
[d]IC_{25} = inhibition concentration twenty-five
[e]TU_c = chronic toxicity units based on IC_{25}
[f]LOEC = lowest observed effects concentration
[g]NOEC = no observed effects concentration
I = Invalid test

[h]TU_c = chronic toxicity units
[i]FF = far-field effect
[j]STU_c = TUc for survival
[k]GTU_c = TUc for growth
NT = not tested
ND = not determined
NR = not reported in OEPA database

EXHIBIT 2

Table 27. Summary of CHRONIC toxicity test results on the AK Steel effluent from outfall 1ID00001004.

Test Date (a)	*Daphnia magna 21-Day*											*Fathead Minnows 7-Day*						
	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival			Reproduction			FF[i]	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival	Growth	FF[i]
					LOEC[f]	NOEC[g]	TU_c[h]	LOEC[f]	NOEC[g]	TU_c[h]						STU_c[j]	GTU_c[k]	
03/98 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
06/98 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
08/98 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
10/98 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
12/98 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
03/99 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
06/99 (E)	0	10	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
08/99 (E)	0	10	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
12/99 E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
03/00 (E)	0	10	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
06/00 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT

[a]O = EPA test; E = entity test
[b]UP = upstream control water
[c]C = laboratory water control
[d]IC_{25} = inhibition concentration twenty-five
[e]TU_c = chronic toxicity units based on IC_{25}
[f]LOEC = lowest observed effects concentration
[g]NOEC = no observed effects concentration
[h]TU_c = chronic toxicity units
[i]FF = far-field effect
[j]STU_c = TUc for survival
[k]GTU_c = TUc for growth
NT = not tested
ND = not determined
NR = not reported in OEPA database

EXHIBIT 2

Table 27. Summary of CHRONIC toxicity test results on the AK Steel effluent from outfall 1ID00001004 - continued.

Test Date (a)	*Daphnia magna 21-Day*											*Fathead Minnows 7-Day*						
	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival			Reproduction			FF[i]	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival	Growth	FF[i]
					LOEC[f]	NOEC[g]	TU_c[h]	LOEC[f]	NOEC[g]	TU_c[h]						STU_c[j]	GTU_c[k]	
08/00 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
12/00 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
03/01 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
06/01 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
08/01 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
12/01 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
03/02 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
06/02 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
08/02 (E)	0	0	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
12/02 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
03/03 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT

[a]O = EPA test; E = entity test
[b]UP = upstream control water
[c]C = laboratory water control
[d]IC_{25} = inhibition concentration twenty-five
[e]TU_c = chronic toxicity units based on IC_{25}
[f]LOEC = lowest observed effects concentration
[g]NOEC = no observed effects concentration
[h]TU_c = chronic toxicity units
[i]FF = far-field effect
[j]STU_c = TUc for survival
[k]GTU_c = TUc for growth
NT = not tested
ND = not determined
NR = not reported in OEPA database

EXHIBIT 2

Table 27. Summary of CHRONIC toxicity test results on the AK Steel effluent from outfall 1ID00001004 - continued.

Test Date (a)	*Daphnia magna 21-Day*											*Fathead Minnows 7-Day*						
	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival			Reproduction			FF[i]	UP[b]	C[c]	IC_{25}[d]	TU_c[e]	Survival	Growth	FF[i]
					LOEC[f]	NOEC[g]	TU_c[h]	LOEC[f]	NOEC[g]	TU_c[h]						STU_c[j]	GTU_c[k]	
06/03 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
08/03 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
12/03 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
03/04 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
06/04 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
08/04 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
12/04 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
03/05 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
06/05 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
08/05 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
12/05 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
03/06 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
06/06 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
08/06 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT
12/06 (E)	0	NR	ND	ND	>100	100	<1.0	>100	100	<1.0	NT	NT	NT	NT	NT	NT	NT	NT

[a]O = EPA test; E = entity test
[b]UP = upstream control water
[c]C = laboratory water control
[d]IC_{25} = inhibition concentration twenty-five
[e]TU_c = chronic toxicity units based on IC_{25}
[f]LOEC = lowest observed effects concentration
[g]NOEC = no observed effects concentration
[h]TU_c = chronic toxicity units
[i]FF = far-field effect
[j]STU_c = TUc for survival
[k]GTU_c = TUc for growth
NT = not tested
ND = not determined
NR = not reported in OEPA database

EXHIBIT 2

Table 28. Water releases reported by AK Steel in the Toxics Release Inventories for 2003 and 2004. All values are pounds/year.

Chemical	2003 Release	2004 Release	2005 Release[g]
Ammonia	5504[a]	4945[e]	8362
Cyanide	34[b]	100[b]	130
Dioxin and dioxin-like compounds	0.03[b]	0 (no release rep.)	0 (no release rep.)
Ethylene glycol	13,984[c]	14,921[c]	14,921
Lead compounds	36[d]	31[f]	33
Manganese compounds	150[c]	150[c]	150
Nitrate compounds	99,598[b]	124,237[b]	116,772
Phenol	84[b]	69[b]	58

a 139 pounds released to Dick's Creek; 5365 pounds released to the Great Miami River.
b to the Great Miami River.
c to Dick's Creek.
d 6 pounds released to Dick's Creek; 26 pounds released to the Great Miami River.
e 43 pounds released to Dick's Creek; 4902 pounds released to the Great Miami River.
f 20 pounds released to Dick's Creek; 11 pounds released to the Great Miami River.
g 2005 OEPA data summary does not indicate which stream pollutants were released to

Table 29. Summary of the aquatic life use attainment status for the Great Miami River and Dicks Creek based on data collected by the Ohio EPA from June to October, 1995.

RIVER MILE Fish/Macro.	IBI	Mod. Iwb	ICI	QHEI	Use Attain-Ment Status	Comments
Great Miami River (2000)						
			Eastern Corn Belt Plains WWH Use Designation (existing)			
51.5/51.5	50	10.4	42	76.0	FULL	Ust. AK 011
51.4/51.4	*40*	*7.5*	*4*	-	*NA*	*AK 011 mixing zone*
51.3/51.3	45	8.6	36	73.5	FULL	Dst. AK 011
50.9/50.9	50	9.5	48	76.0	FULL	Ust. Elk Creek
49.3/49.3	45	8.9	52	70.5	FULL	SR 73
Great Miami River (1995)						
			Eastern Corn Belt Plains - WWH Use Designation (Existing)			
58.4B/58.3	46	8.9	48	88.0	FULL	dst. Clear Creek
55.1B/55.0	44	9.8	46	83.0	FULL	SR 4
52.4B/ –	29*	7.1*	–	56.5	[**NON**]	SR 122, impounded
52.0B/51.5	39ns	9.5	44	78.	FULL	dst. new Middletown Dam
51.40B/51.40	*35*	*6.2*	*8*	*51.0*	*NA*	*AK Steel 001 mixing zone*
51.3B/51.3	33*	7.5*	38	52.5	PART.	dst. AK Steel
51.0B/50.9	28*	8.4ns	38	60.5	PART.	ust. Elk Creek
49.1B/49.3	35*	7.8*	40	75.5	PART.	SR 73
Dicks Creek (2000)						
			Eastern Corn Belt Plains WWH Use Designation (existing)			
-/7.9	-	-	MG^{ns}	-	(FULL)	Union Rd.
6.4/6.4	26*	NA	MG^{ns}	58.0	**NON**	Hendrickson Rd.
5.5/5.6	26*	NA	MG^{ns}	44.5	**NON**	Ust. Cincinnati-Dayton Rd.
			Eastern Corn Belt Plains MWH Use Designation (existing)			
5.0/4.9	40	NA	24	40.5	FULL	Dst. N. Br. / AK 004
4.2/4.1	35	6.6	30	39.0	FULL	Dst. Shaker Cr. / ust. AK 015
3.9/3.9	32	8.0	18*	39.5	PARTIAL	Dst. AK 015 / ust. AK 003
3.7/3.7	36	8.7	20*	39.0	PARTIAL	Dst. AK 003 / ust. AK 002
2.8/2.8	42	9.2	30	41.5	FULL	Dst. AK 002 / ust. Monroe Ditch
2.6/2.6	26	6.6	26	41.0	FULL	Dst. Monroe Ditch / ust. Yankee Rd.
			Eastern Corn Belt Plains WWH Use Designation (existing)			
1.7/1.7	33*	7.8^{ns}	34^{ns}	68.5	PARTIAL	Amanda Elementary School
0.9/0.9	46	10.1	38	44.5	FULL	Main St.
0.4/0.2	50	9.7	34^{ns}	79.5	FULL	Nr. mouth

EXHIBIT 2

Table 29. Continued.

Dicks Creek (1995)

			Eastern Corn Belt Plains - MWH Use Designation (Existing)			
-- /5.2	–	NA	VP*	–	[NON]	ust. North Branch
5.0H/4.7	43	NA	6*	44.0	**NON**	dst. N. Branch & AK 004
4.4W/4.1	41	9.7	P*	58.5	**NON**	dst. Shakers Cr., ust. AK 005
-- /3.9	–	–	8*	–	[NON]	dst. AK 005
3.0W/3.7	30/22*d	5.8/5.6*d	12*	40.0	**NON/NON**	ust. AK 002, dst. AK 003
-- /2.8	–	–	12*	40.0	[NON]	ust. AK 006, dst. AK 002
2.6W/2.6	34/14*d	7.7/4.1*d	8*	52.0	**NON/NON**	dst. AK 002 & AK 006
			Eastern Corn Belt Plains - WWH Use Designation (Existing)			
2.4W/1.7	28*/12*d	4.4*/2.1*d	16*	62.5	**NON**	dst. Union Oil
0.4W/0.2	30*/12*d	6.9*/1.5*d	20*	72.5	**NON**	ust. mouth

North Branch Dicks Creek (2000)

			Eastern Corn Belt Plains WWH Use Designation (existing)			
-/2.7		-	-	F*	-	(**NON**)Locust Lane
1.7/1.8	20*	NA	P*	52.5	**NON**	Roosevelt Ave.
			Eastern Corn Belt Plains MWH Use Designation (existing)			
1.0/1.0	42	NA	22	32.5	FULL	Ust. AK 004
0.1/0.1	47	NA	18*	53.0	PARTIAL	Dst. AK 004

North Branch Dicks Creek (1995)

			Eastern Corn Belt Plains - MWH Use Designation (Existing)			
1.0H/1.0	45	NA	8*	42.0	**NON**	dst. culvert, ust AK 004
0.1H/0.1	48	NA	VP*	52.5	**NON**	dst. AK Steel 004

Shaker Creek (2000)

			Eastern Corn Belt Plains WWH Use Designation (existing)			
1.0/1.0	26*	NA	F*	51.0	**NON**	Cincinnati-Dayton Rd.
0.1/0.1	36^{ns}	-	F*	52.5	PARTIAL	Nr. mouth

Millers Creek (2000)

			Eastern Corn Belt Plains WWH Use Designation (existing)			
0.1/0.3	28*	NA	F*	44.5	**NON**	Cincinnati-Dayton Rd.

Monroe Ditch (2000)

			Easterm Corn Belt Plains WWH Use Designation (recommended)			
1.1/1.2	44	NA	MG^{ns}	56.5	FULL	Todhunter Rd.

* Significant departure from applicable biocriterion (>4 IBI or ICI units, >0.5 MIwb units);poor and very poor results are underlined.

EXHIBIT 2

Table 29. Continued.

ns Nonsignificant departure from biological criterion (<4 IBI, <4 ICI, <0.5 Miwb units). NS/EWH is based on nonsignificant departure from the recommended EWH criteria.
a Narrative evaluation used in lieu of ICI (E=Exceptional; VG= Very Good; G=Good; MG=Marginally good; F=Fair; P=Poor; VP=Very Poor).
b Qualitative Habitat Evaluation Index (QHEI) values based on Rankin (1989).
c Attainment status based on one organism group is parenthetically expressed.
d IBI and MIwb scores before and after the AK Steel 003 outfall spill during the 1995 field season in Dicks Creek.
e IBI score in Paddys Run during normal flows / and intermediate to dry conditions
B Fish sampled using the Boat Method.
H Headwater site (drainage area < 20 square miles) fish sampling was conducted using a wadeable method.
W Fish sampled using the Wading Method.
R Regional reference site.
M Modified reference site.

Ecoregional Biological Criteria: (From OAC 3745-1-07, Table 7-14)

	E. Corn Belt Plains (ECBP)				*Interior Plateau (IP)*		
INDEX - Site Type	WWH	EWH	MWHf	LRWg	WWH	EWH	MWHf
IBI - Headwaters	40	50	24/NA	18	40	50	24/NA
IBI - Wading	40	50	24/NA	18	40	50	24/NA
IBI - Boat	42	48	24/30	16	38	48	24/30
Mod. Iwb - Wading	8.3	9.4	6.2/NA	4.5	8.1	9.4	6.2/NA
Mod. Iwb - Boat	8.5	9.6	5.8/6.6	5.0	8.7	9.6	5.8/6.6
ICI	36	46	22/NA	14	30	46	22/NA

f MWH (Modified Warmwater Habitat) for channelized habitats/impounded habitats.
g Interim Criteria for Limited Resource Water.

EXHIBIT 2

Table 30. Concentrations of heavy metals in the sediments of Dicks Creek, from samples collected during 2000. Parameter concentrations were evaluated based on Ohio E{PA sediment reference sites (1995), and MacDonald (2000) Sediment Quality Guidelines.

Stream Name / River	Concentration (mg/kg dry weight) Al	As	Cd	Cr	Cu	Fe	Pb	Hg	Ni	Zn
Dick's Creek										
RM 5.01	5150^{A}	13.1^{B-}	0.241^{A}	<23.3	**42.0^{D-}**	5150^{A}	<31.1	<0.04	<31.1	**664^{E}**
RM 4.25	6660^{A}	9.04^{A+}	0.19^{A}	<22.8	22.8^{B+}	13200^{A}	<30.4	<0.05	<30.4	**425^{E}**
RM 3.90	5020^{A}	6.94^{A+}	0.216^{A}	37.0^{C+}	18.0^{A+}	17500^{A}	<20.6	<0.038	25.7^{A}	**277^{D}**
RM 2.82	6280^{A}	13.8^{C-}	0.59^{B}	27.7^{C+}	18.6^{A+}	19600^{A}	25.3^{A}	0.07^{+}	<24.1	**389^{D}**
RM 2.6	5640^{A}	9.41^{A+}	0.863^{C}	21.2^{B+}	12.7^{A+}	8980^{A}	<28.3	0.06^{+}	29.7^{B}	190^{C}
RM 1.75	7880^{A}	12.6^{B-}	0.34^{A}	21.0^{B+}	17.6^{A+}	16200^{A}	28.9^{A}	0.05^{+}	<25.2	220^{C}
RM 0.93	8430^{A}	17.0^{C-}	0.803^{C}	22.8^{B+}	23.6^{B+}	20100^{A}	38.3^{A}	0.05^{+}	<29.4	**462^{E}**
RM 0.20a	8300^{A}	8.34^{A+}	0.598^{B}	<22.2	14.8^{A+}	15400^{A}	<29.5	<0.04	26.5	**256^{D}**
RM 0.20b	7390^{A}	8.35^{A+}	0.795^{C}	<19.9	13.9^{A+}	14500^{A}	<26.5	<0.05	<29.5	**253^{D}**
North Branch Dick's Creek										
RM 1.7	10400^{A}	6.84^{A+}	0.465^{A+}	19.1^{A+}	13.7^{A+}	16600^{A}	32.3^{A}	0.03	<21.9	85.9^{A}

For descriptions of sampling site locations and metals analyzed, see next page.

Ohio EPA Guidelines:

A Non-elevated B Slightly elevated
C Elevated D Highly elevated
E Extremely elevated

MacDonald Sediment Quality Guidelines:

Three toxicity ranges -

<TEC = + Threshold effect concentration - below which adverse effects are unlikely to occur.

TEC-EEC = - Above which adverse effects frequently occur

>EEC = – Extreme effect concentration - above which adverse effects usually or always occur.

EXHIBIT 2

Table 30. continued (Locations and symbols).

River Mile	Location
5.01	downstream N. Branch
4.25	dst. Shaker Creek
3.90	Dst. outfall 015 Ust. outfall 003
2.82	Dst. outfall 002
2.6	Ust. Yankee Road Dst. Landfill tributary
1.75	At Amanda School
0.93	Main Street (Excello)
0.20	Ust. mouth
N Br. 1.7	

Symbol	Metal Parameter
Al	Aluminum
As	Arsenic
Cd	Cadmium
Cr	Chromium
Cu	Copper
Fe	Iron
Pb	Lead
Hg	Mercury
Ni	Nickel
Zn	Zinc

EXHIBIT 2

Table 31. Effluent Data for AK Steel

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Outfall 002 - LEAPS Data					
NH_3-N (summer)	mg/l	245	131	0.56	1.10
NH_3-N (winter) mg/l	187	135	0.67	1.17	
Cadmium	µg/l	48	0	–	–
Fluoride	µg/l	12	11	878.0	1469.0
PCBs[A]	µg/l	58	0	–	–
Selenium	µg/l	52	0	–	–
Silver	µg/l	48	0	–	–
Zinc	µg/l	686	48	32.	65.
Outfall 002 - LEAPS and OEPA Data					
Cyanide, free	µg/l	46	1	4.0	5.44
Outfall 002 - OEPA and 2c Data					
Arsenic	µg/l	3	2	15.33	21.0
Barium	µg/l	2	2	502.09	687.8
Chloroform[A]	µg/l	3	1	3.99	5.46
Iron	µg/l	3	3	6307.2	8640.0
Manganese	µg/l	3	3	251.85	345.0
NO2+NO3	mg/l	3	3	3.31	4.53
Phenolics, total µg/l	3 1	84.97	116.4		
Potassium	µg/l	2	2	13870.0	19000.0
Strontium	µg/l	2	2	3522.98	4826.0
TDS	mg/l	2	2	2080.5	2850.0
Outfall 003 - LEAPS Data					
NH_3-N (summer)	mg/l	235	10	0.19	0.33
NH_3-N (winter) mg/l	189	82	0.44	0.75	
Cadmium	µg/l	48	0	–	–
Copper	µg/l	48	0	–	–
Fluoride	µg/l	11	11	2358.0	3230.0
Iron	µg/l	57	57	2242.	3513.
Lead	µg/l	673	3	13	18
Manganese	µg/l	11	11	183.31	311.65
PAHs	µg/l	3	0	–	–
PCBs[A]	µg/l	58	0	–	–
Phenolic, 4AAP	µg/l	11	0	–	–
Selenium	µg/l	52	0	–	–
Silver	µg/l	48	0	–	–
Zinc	µg/l	673	230	75.	146.

Table 31. Effluent Data for AK Steel (cont.)

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Outfall 003 - OEPA and 2c Data					
Aluminum	µg/l	2	2	4133.26	5662.0
Arsenic	µg/l	3	2	19.42	26.6
Barium	µg/l	2	2	438.29	600.4
Bis (2-ethylhexyl) phthalate[A]	µg/l	3	1	247.47	339.0
Bromodichloromethane[A]	µg/l	3	1	1.58	2.17
Chloroform[A]	µg/l	3	2	5.78	7.92
Hexachlorobenzene[A]	µg/l	3	1	0.0069	0.0095
NO2+NO3	mg/l	3	3	7.03	9.63
Phenolics, total µg/l	3 1	63.51	87.0		
Potassium	µg/l	2	2	33288.0	45600.0
Strontium	µg/l	2	2	2369.0	3245.2
TDS	mg/l	2	2	1442.8	1976.0
Outfall 004 - LEAPS Data					
NH_3-N (summer)	mg/l	256	148	0.39	0.53
NH_3-N (winter) mg/l	198	137	0.44	0.62	
Cadmium	µg/l	48	0	–	–
Chromium	µg/l	48	0	–	–
Lead	µg/l	730	0	–	–
Selenium	µg/l	51	0	–	–
Silver	µg/l	48	0	–	–
Zinc	µg/l	729	371	96.	184.
Outfall 004 - LEAPS and OEPA Data					
Copper	µg/l	731	2	22.	30.
Outfall 004 - OEPA and 2c Data					
Aluminum	µg/l	3	2	869.43	1191.0
Arsenic	µg/l	4	3	9.2	12.6
Barium	µg/l	3	3	208.05	285.0
Chloroform[A]	µg/l	4	2	2.56	3.51
4-chloro-3-methylphenol	µg/l	3	1	31.97	43.8
Cyanide, free	µg/l	4	1	10.95	15.
Delta-BHC	µg/l	3	1	0.068	0.093
Fluoride	µg/l	1	1	2350.0	3220.0
Iron	µg/l	4	4	9224.28	12636.0
Manganese	µg/l	4	4	235.35	322.4
NO2+NO3	mg/l	4	4	3.82	5.23
Phenol	µg/l	4	1	4.82	6.6
Potassium	µg/l	3	3	13140.0	18000.0
Strontium	µg/l	3	3	1559.28	2136.0
TDS	mg/l	3	3	4161.0	5700.0

EXHIBIT 2

Table 31. Effluent Data for AK Steel (cont.)

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Outfall 008 - 2c Data					
Cyanide, total	µg/l	1	1	135.78	186.0
Fluoride	µg/l	1	1	6740.0	9240.0
NO2+NO3	mg/l	1	1	1.77	2.42
Outfall 009 - LEAPS Data					
NH_3-N (summer)	mg/l	12	5	1.48	2.03
NH_3-N (winter)	mg/l	12	7	2.41	3.30
Arsenic	µg/l	40	0	–	–
Cadmium	µg/l	40	0	–	–
Chormium, hexavalent	µg/l	39	2	43.	58.
Copper	µg/l	40	0	–	–
Cyanide, free	µg/l	40	0	–	–
Lead	µg/l	40	0	–	–
Mercury	µg/l	40	0	–	–
Nickel	µg/l	40	0	–	–
Platinum	µg/l	1	0	–	–
Selenium	µg/l	40	0	–	–
Silver	µg/l	40	0	–	–
Zinc	µg/l	40	2	95.	130.
Outfall 009 - 2c Data					
Iron	µg/l	1	1	1765.4	2418.0
Fluoride	µg/l	1	1	5880.0	8060.0
Manganese	µg/l	1	1	334.92	458.8
NO2+NO3	mg/l	1	1	0.50	0.68

EXHIBIT 2

Table 31. Effluent Data for AK Steel (cont.)

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Outfall 011 - LEAPS Data					
NH_3-N (summer)	mg/l	262	235	3.04	6.38
NH_3-N (winter)	mg/l	196	194	4.80	10.2
Acetone	µg/l	11	0	–	–
Cadmium	µg/l	48	0	–	–
Chromium +6	µg/l	27	0	–	–
Copper	µg/l	738	0	–	–
Cyanide, free	µg/l	738	22	9.5	13.
Lead	µg/l	738	14	29.	40.
Selenium	µg/l	52	0	–	–
Silver	µg/l	48	0	–	–
Zinc	µg/l	737	128	47.	93.
Outfall 011 - OEPA and 2c Data					
Aluminum	µg/l	2	1	1381.45	1892.4
Arsenic	µg/l	3	2	10.95	15.0
Barium	µg/l	2	2	205.28	281.2
Chloroform[A]	µg/l	3	2	3.09	4.23
Delta-BHC	µg/l	2	2	0.039	0.053
Dieldrin[A]	µg/l	2	1	0.0175	0.0239
Heptachlor[A]	µg/l	2	1	0.0244	0.0334
Hexachlorobenzene[A]	µg/l	3	1	0.0064	0.0087
Iron	µg/l	3	3	9241.8	12660.0
Manganese	µg/l	3	3	405.15	555.0
NO2+NO3	mg/l	3	3	11.3	15.48
Fluoride	µg/l	1	1	6830.0	9360.0
Potassium	µg/l	2	2	30514.0	41800.0
Strontium	µg/l	2	2	2063.86	2827.2
TDS	mg/l	2	2	2768.45	3792.4
Outfall 015 - LEAPS Data					
NH_3-N (summer)	mg/l	239	14	0.17	0.33
NH_3-N (winter)	mg/l	187	9	0.33	0.45
Cadmium	µg/l	48	0	–	–
Chromium	µg/l	48	0	–	–
Lead	µg/l	674	3	21.	29.
Silver	µg/l	48	0	–	–
Zinc	µg/l	674	228	78.	157.

EXHIBIT 2

Table 31. Effluent Data for AK Steel (cont.)

Parameter	Units	# of Samples	# > MDL	Average PEQ	Maximum PEQ
Outfall 015 - OEPA and 2c Data					
Aldrin[A]	µg/l	2	1	0.036	0.049
Alpha-BHC[A]	µg/l	2	1	0.017	0.023
Aluminum	µg/l	2	2	1783.68	2443.4
Antimony	µg/l	1	1	68.34	93.62
Arsenic	µg/l	3	2	10.95	15.0
Barium	µg/l	2	2	277.4	380.0
Bis (2-ethylhexyl) phthalate[A]	µg/l	3	1	22.63	31.0
Copper	µg/l	3	2	38.84	53.2
Cyanide, free	µg/l	3	1	15.62	21.39
4,4-DDD[A]	µg/l	2	1	0.039	0.053
Endrin aldehyde µg/l	2 1	0.039	0.053		
Fluoride	µg/l	1	1	101380.0	138880.0
Gamma-BHC[A]	µg/l	2	1	0.022	0.03
Heptachlor[A]	µg/l	2	1	0.008	0.01
Iron	µg/l	3	3	22119.0	30300.0
Manganese	µg/l	3	3	396.39	543.0
NO2+NO3	mg/l	3	3	9.77	13.38
Phenolics	µg/l	3	1	32.85	45.0
Potassium	µg/l	2	2	38836.0	53200.0
Strontium	µg/l	2	2	2968.18	4066.0
TDS	mg/l	2	2	3217.84	4408.0

[A] Carcinogen

Table 32. Water Quality Criteria for the Great Miami River

Parameter	Units	Outside Mixing Zone Criteria				Inside Mixing Zone Maximum
		Average			Maximum	
		Human Health	Agri-culture	Aquatic Life	Aquatic Life	
Aldrin	µg/l	0.0014	--	--	--	--
Antimony	µg/l	4300.	--	190.	900.	1800.
Arsenic	µg/l	--	100.	150.	340.	680.
Barium	µg/l	--	--	220.	2000.	4000.
Benzene	µg/l	710.	--	160.	700.	1400.
Beryllium	µg/l	280.	100.	71.	610.	1200.
Bis (2-chloroethyl) ether	µg/l	14.	--	--	--	--
Bis (2-ethylhexyl) phthalate	µg/l	59.	--	8.4	1100.	2100.
Boron	µg/l	--	--	950.	8500.	17000.
Bromoform	µg/l	3600.	--	230.	1100.	2200.
Bromomethane (Methyl Bromide)	µg/l	4000.	--	16.	38.	75.
Cadmium	µg/l	--	50.	6.1	17.	34.
Chlorine, total residual	µg/l	--	--	11.	19.	38.
Chlorodibromomethane	µg/l	340.	--	--	--	--
Chloroform	µg/l	4700.	--	140.	1300.	2600.
2-Chlorophenol	µg/l	400.	--	32.	290.	580.
Chromium $^{+6}$, dissolved	µg/l	--	--	11.	16.	31.
Chromium, total	µg/l	--	100.	220.	4700.	9300.
Cobalt	µg/l	--	--	24.	220.	440.
Copper	µg/l	1300.	500.	25.	42.	84.
Cyanide, free	µg/l	220000.	--	12.	46.	92.
4,4'-DDD	µg/l	0.0084	--	--	--	--
4,4'-DDE	µg/l	0.0059	--	--	--	--
4,4'-DDT	µg/l	0.0059	--	--	--	--
1,4- Dichlorobenzene	µg/l	2600.	--	9.4	57.	110.
Dichlorobromomethane	µg/l	460.	--	--	--	--
2,4-Dichlorophenol	µg/l	790.	--	11.	110.	210.
Dieldrin	µg/l	0.0014	--	0.056	0.24	0.47
Endosulfan	µg/l	240.	--	--	--	--
Endrin	µg/l	0.81	--	0.036	0.086	0.17
Endrin Aldehyde	µg/l	0.81	--	--	--	--
Fluoride	µg/l	--	2000.	--	--	--
Heptachlor	µg/l	0.0021	--	--	--	--
Heptachlor Epoxide	µg/l	0.0011	--	--	--	--
Hexachlorobenzene	µg/l	0.0077	--	--	--	--
alpha-BHC	µg/l	0.13	--	--	--	--

EXHIBIT 2

Table 32. Water Quality Criteria for the Great Miami River -continued.

Parameter	Units	Outside Mixing Zone Criteria: Average: Human Health	Average: Agri-culture	Average: Aquatic Life	Maximum Aquatic Life	Inside Mixing Zone Maximum
beta-BHC	µg/l	0.46	--	--	--	--
gamma-BHC (Lindane)	µg/l	0.63	--	0.057	0.95	1.9
Iron	µg/l	--	5000.	--	--	--
Lead	µg/l	--	100.	28.	540.	1100.
MBAs	µg/l	--	--	--	500.	--
Mercury	µg/l	0.012	10.	0.91	1.7	3.4
Methylene Chloride	µg/l	16000.	--	1900.	11000.	22000.
Molybdenum	µg/l	--	--	110.	2400.	4700.
Nickel	µg/l	4600.	200.	140.	1300.	2500.
Nitrate+Nitrite	mg/l	--	100	--	--	--
PCBs	µg/l	0.0017	--	--	--	--
Phenol	µg/l	4600000.	--	400.	4700.	9400.
Selenium	µg/l	11000.	50.	5.0	--	--
Silver	µg/l	--	--	1.3	12.	24.
Strontium	µg/l	--	--	5300.	48000.	95000.
Tetrachloroethylene	µg/l	89.	--	53.	430.	850.
Thallium	µg/l	6.3	--	17.	79.	160.
Toluene	µg/l	200000.	--	62.	560.	1100.
Total Dissolved Solids	µg/l	--	--	1500000.	--	--
1,1,1-Trichloroethane	µg/l	1030000.	--	76.	690.	1400.
2,4,6-Trichlorophenol	µg/l	65.	--	4.9	39.	79.
Zinc	µg/l	69000.	25000.	320.	320.	640.

Table 33. Water Quality Criteria for Dicks Creek

Parameter	Units	Outside Mixing Zone Criteria: Average: Human Health	Average: Agri-culture	Average: Aquatic Life	Maximum Aquatic Life	Inside Mixing Zone Maximum
Copper	µg/l	1300.	500.	30.	52.	100.
Lead	µg/l	--	100.	37.	710.	1400.
Nickel	µg/l	4600.	200.	170.	1500.	3000.
Zinc	µg/l	69000.	25000.	390.	390.	780.

EXHIBIT 2

Table 34. Instream Conditions and Discharger Flow for Great Miami River

Parameter	Units		Value	Basis
Upstream Flow GMR at Taylorsville				
7Q10	cfs	summer	52.	USGS gage #03263000, 1921-97 data
		winter	83.	USGS gage #03263000, 1921-97 data
		annual	50.	USGS gage #03263000, 1921-97 data
1Q10	cfs	annual	43.	USGS gage #03263000, 1921-97 data
30Q10	cfs	summer	60.	USGS gage #03263000, 1921-97 data
		winter	116.	USGS gage #03263000, 1921-97 data
Harmonic Mean Flow	cfs	annual	241.	USGS gage #03263000, 1921-97 data
Mixing Assumption	%	average	100	Stream-to-discharge ratio
(GMR & Tribs.)	%	maximum	100	Stream-to-discharge ratio
Stillwater River at Mouth				
7Q10	cfs	summer	16.6	USGS gage #03266000, 1925-97 data
		winter	41.6	USGS gage #03266000, 1925-97 data
		annual	16.6	USGS gage #03266000, 1925-97 data
1Q10	cfs	annual	11.4	USGS gage #03266000, 1925-97 data
30Q10	cfs	summer	22.9	USGS gage #03266000, 1925-97 data
		winter	57.2	USGS gage #03266000, 1925-97 data
Harmonic Mean Flow	cfs	annual	111.3	USGS gage #03266000, 1925-97 data
Mad River at Mouth				
7Q10	cfs	summer	143.8	USGS gage #03270000, 1914-21, 24-97
		winter	182.1	USGS gage #03270000, 1914-21, 24-97
		annual	141.8	USGS gage #03270000, 1914-21, 24-97
1Q10	cfs	annual	134.5	USGS gage #03270000, 1914-21, 24-97
30Q10	cfs	summer	158.3	USGS gage #03270000, 1914-21, 24-97
		winter	212.1	USGS gage #03270000, 1914-21, 24-97
Harmonic Mean Flow	cfs	annual	391.1	USGS gage #03270000, 1914-21, 24-97
Wolf Creek at Mouth				
7Q10	cfs	summer	1.74	USGS gage #03271000, 1938-50, 86-97
		winter	3.38	USGS gage #03271000, 1938-50, 86-97
		annual	1.64	USGS gage #03271000, 1938-50, 86-97
1Q10	cfs	annual	1.33	USGS gage #03271000, 1938-50, 86-97
30Q10	cfs	summer	2.46	USGS gage #03271000, 1938-50, 86-97
		winter	6.35	USGS gage #03271000, 1938-50, 86-97
Harmonic Mean Flow	cfs	annual	12.4	USGS gage #03271000, 1938-50, 86-97

Table 34. Instream Conditions and Discharger Flow for Great Miami River - continued.

EXHIBIT 2

Parameter	Units		Value	Basis
Twin Creek at Mouth				
7Q10	cfs	summer	5.4	USGS gage #03272000, 1914-23, 27-97
		winter	16.1	USGS gage #03272000, 1914-23, 27-97
		annual	5.4	USGS gage #03272000, 1914-23, 27-97
1Q10	cfs	annual	4.71	USGS gage #03272000, 1914-23, 27-97
30Q10	cfs	summer	7.24	USGS gage #03272000, 1914-23, 27-97
		winter	24.1	USGS gage #03272000, 1914-23, 27-97
Harmonic Mean Flow	cfs	annual	40.5	USGS gage #03272000, 1914-23, 27-97
Four Mile Creek at Mouth				
7Q10	cfs	summer	6.84	USGS gage #03272700, 1970-97 data
		winter	15.5	USGS gage #03272700, 1970-97 data
		annual	6.84	USGS gage #03272700, 1970-97 data
1Q10	cfs	annual	5.92	USGS gage #03272700, 1970-97 data
30Q10	cfs	summer	9.58	USGS gage #03272700, 1970-97 data
		winter	31.9	USGS gage #03272700, 1970-97 data
Harmonic Mean Flow	cfs	annual	50.7	USGS gage #03272700, 1970-97 data
Holes Creek at Mouth				
7Q10	cfs	summer	1.11	USGS gage #03271300, 1959-72 data
		winter	2.55	USGS gage #03271300, 1959-72 data
		annual	1.11	USGS gage #03271300, 1959-72 data
1Q10	cfs	annual	1.11	USGS gage #03271300, 1959-72 data
30Q10	cfs	summer	1.43	USGS gage #03271300, 1959-72 data
		winter	3.5	USGS gage #03271300, 1959-72 data
Harmonic Mean Flow	cfs	annual	8.31	USGS gage #03272000, 1914-23, 27-97
Indian Creek at Mouth				
7Q10	cfs	summer	0.2	USGS gage #03274200, 1961-69 data
		winter	0.5	USGS gage #03274200, 1961-69 data
		annual	0.2	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.2	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.3	USGS gage #03274200, 1961-69 data
		winter	0.8	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	1.17	USGS gage #03272800, 1960-72 data

Table 34. Instream Conditions and Discharger Flow for Great Miami River - continued.

Parameter	Units	Value	Basis

EXHIBIT 2

Clear Creek at Mouth				
7Q10	cfs	summer	0.4	USGS gage #03271700, 1959-69 data
		winter	1.5	USGS gage #03271700, 1959-69 data
		annual	0.4	USGS gage #03271700, 1959-69 data
1Q10	cfs	annual	0.4	USGS gage #03271700, 1959-69 data
30Q10	cfs	summer	0.6	USGS gage #03271700, 1959-69 data
		winter	2.5	USGS gage #03271700, 1959-69 data
Harmonic Mean Flow	cfs	annual	3.0	USGS gage #03272000, 1914-23, 27-97
Elk Creek at Mouth				
7Q10	cfs	summer	0.4	USGS gage #03272200, 1960-67 data
		winter	1.3	USGS gage #03272200, 1960-67 data
		annual	0.4	USGS gage #03272200, 1960-67 data
1Q10	cfs	annual	0.4	USGS gage #03272200, 1960-67 data
30Q10	cfs	summer	0.6	USGS gage #03272200, 1960-67 data
		winter	2.1	USGS gage #03272200, 1960-67 data
Harmonic Mean Flow	cfs	annual	3.0	USGS gage #03272000, 1914-23, 27-97
Bear Creek at Mouth				
7Q10	cfs	summer	2.21	USGS gage #03272000, 1914-23, 27-97
		winter	4.02	USGS gage #03272000, 1914-23, 27-97
		annual	2.21	USGS gage #03272000, 1914-23, 27-97
1Q10	cfs	annual	2.1	USGS gage #03272000, 1914-23, 27-97
30Q10	cfs	summer	2.52	USGS gage #03272000, 1914-23, 27-97
		winter	5.38	USGS gage #03272000, 1914-23, 27-97
Harmonic Mean Flow	cfs	annual	8.14	USGS gage #03272000, 1914-23, 27-97
Gregory Creek at Mouth				
7Q10	cfs	summer	0.26	USGS gage #03272200, 1960-67 data
		winter	0.84	USGS gage #03272200, 1960-67 data
		annual	0.26	USGS gage #03272200, 1960-67 data
1Q10	cfs	annual	0.26	USGS gage #03272200, 1960-67 data
30Q10	cfs	summer	0.39	USGS gage #03272200, 1960-67 data
		winter	1.35	USGS gage #03272200, 1960-67 data
Harmonic Mean Flow	cfs	annual	1.93	USGS gage #03272000, 1914-23, 27-97
Pleasant Run at Mouth				
7Q10	cfs	summer	0.04	USGS gage #03274200, 1961-69 data
		winter	0.10	USGS gage #03274200, 1961-69 data
		annual	0.04	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.04	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.06	USGS gage #03274200, 1961-69 data
		winter	0.16	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.23	USGS gage #03272800, 1960-72 data

Table 34. Instream Conditions and Discharger Flow for Great Miami River - continued.

Parameter	Units		Value	Basis
Banklick Creek				

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at Mouth				
7Q10	cfs	summer	0.01	USGS gage #03274200, 1961-69 data
		winter	0.03	USGS gage #03274200, 1961-69 data
		annual	0.01	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.01	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.02	USGS gage #03274200, 1961-69 data
		winter	0.05	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.07	USGS gage #03272800, 1960-72 data
Twomile Creek				
at Mouth				
7Q10	cfs	summer	0.02	USGS gage #03274200, 1961-69 data
		winter	0.04	USGS gage #03274200, 1961-69 data
		annual	0.02	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.02	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.02	USGS gage #03274200, 1961-69 data
		winter	0.06	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.10	USGS gage #03272800, 1960-72 data
Paddy's Run				
at Mouth				
7Q10	cfs	summer	0.03	USGS gage #03274200, 1961-69 data
		winter	0.08	USGS gage #03274200, 1961-69 data
		annual	0.03	USGS gage #03274200, 1961-69 data
1Q10	cfs	annual	0.03	USGS gage #03274200, 1961-69 data
30Q10	cfs	summer	0.05	USGS gage #03274200, 1961-69 data
		winter	0.13	USGS gage #03274200, 1961-69 data
Harmonic Mean Flow	cfs	annual	0.19	USGS gage #03272800, 1960-72 data
Instream Hardness	mg/l	annual	320.	STORET/LEAPS; 974 values, 1995-2001

Table 34. Instream Conditions and Discharger Flow for Great Miami River - continued.

Parameter	Units		Value	Basis
Background Water Quality				
Aldrin	µg/l	annual	0.	No representative data available.
Alpha-BHC	µg/l	annual	0.	No representative data available.

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Antimony	µg/l	annual	0.	No representative data available.
Arsenic	µg/l	annual	1.9	STORET; 8 values,4<MDL, 1990-95
Barium	µg/l	annual	0.	No representative data available.
Beryllium	µg/l	annual	0.	No representative data available.
Bis (2-ethylhexyl) phthalate	µg/l	annual	0.	No representative data available.
Bis (2-chloroethyl) ether	µg/l	annual	0.	No representative data available.
Boron	µg/l	annual	0.	No representative data available.
Bromomethane	µg/l	annual	0.	No representative data available.
Cadmium	µg/l	annual	0.1	STORET; 22 values,19<MDL, 1989-95
Chlorine, total res	µg/l	annual	0.	No representative data available.
Chloroform	µg/l	annual	0.	No representative data available.
Chromium^{+6}, diss	µg/l	annual	0.	No representative data available.
Chromium, total	µg/l	annual	0.	STORET; 17 values,17<MDL, 1989-94
Cobalt	µg/l	annual	0.	No representative data available.
Copper	µg/l	annual	5.	STORET; 22 values,20<MDL, 1989-95
Cyanide, free	µg/l	annual	0.	No representative data available.
4,4'-DDE	µg/l	annual	0.	No representative data available.
4,4'-DDT	µg/l	annual	0.	No representative data available.
1,4-Dichlorobenzene	µg/l	annual	0.	No representative data available.
2,4-Dichlorophenol	µg/l	annual	0.	No representative data available.
Dieldrin	µg/l	annual	0.	No representative data available.
Endrin	µg/l	annual	0.	No representative data available.
Fluoride	µg/l	annual	0.	No representative data available.
Gamma-BHC	µg/l	annual	0.	No representative data available.
Heptachlor	µg/l	annual	0.	No representative data available.
Heptachlor epoxide	µg/l	annual	0.	No representative data available.
Hexachlorobenzene	µg/l	annual	0.	No representative data available.
Iron	µg/l	annual	1375.	STORET; 12 values,0<MDL, 1989-94
Lead	µg/l	annual	1.	STORET; 22 values,16<MDL, 1989-95
Mercury	µg/l	annual	0.	No representative data available.
Molybdenum	µg/l	annual	0.	No representative data available.
Nickel	µg/l	annual	0.	STORET; 22 values,22<MDL, 1989-95
Nitrate+Nitrite	mg/l	annual	2.91	STORET; 34 values,0<MDL, 1989-95
Selenium	µg/l	annual	1.25	STORET; 8 values,7<MDL, 1990-95
Silver	µg/l	annual	0.	No representative data available.
Strontium	µg/l	annual	0.	No representative data available.
TDS	mg/l	annual	408.	STORET; 11 values,0<MDL, 1990-95
2,4,6-Trichlorophenol	µg/l	annual	0.	No representative data available.
Zinc	µg/l	annual	10.	STORET; 22 values,10<MDL, 1989-95
AK Steel 011 flow	cfs	average	14.17	SWIMS - 95th percentile of mean values, 1/96 - 4/02.

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Table 35. Instream Conditions and Discharger Flow for Dicks Creek

Parameter	Units		Value	Basis
Dicks Creek above North Branch				
7Q10	cfs	annual	0.	USGS gage #03272300, 1960-69 data
1Q10	cfs	annual	0.	USGS gage #03272300, 1960-69 data
Harmonic Mean Flow	cfs	annual	0.50	USGS gage #03272300, 1960-69 data
North Branch Dicks Creek upstream AK Steel				
7Q10	cfs	annual	0.	USGS gage #03272300, 1960-69 data
1Q10	cfs	annual	0.	USGS gage #03272300, 1960-69 data
Harmonic Mean Flow	cfs	annual	0.43	USGS gage #03272300, 1960-69 data
Shaker Creek at mouth				
7Q10	cfs	annual	0.15	USGS gage #03272300, 1960-69 data
1Q10	cfs	annual	0.15	USGS gage #03272300, 1960-69 data
Harmonic Mean Flow	cfs	annual	2.25	USGS gage #03272300, 1960-69 data
Mixing Assumption	%	average	100	Stream-to-discharge ratio
	%	maximum	100	Stream-to-discharge ratio
Instream Hardness	mg/l	annual	400.	AK Steel
Background Water Quality for Dicks Creek above North Branch				
Aldrin	µg/l	annual	0.	No representative data available.
Antimony	µg/l	annual	0.	No representative data available.
Barium	µg/l	annual	44.	STORET, 8 values, 0<MDL, 2000
Bis (2-EHP)	µg/l	annual	0.	No representative data available.
Boron	µg/l	annual	0.	No representative data available.
Copper	µg/l	annual	7.8	STORET; 8 values, 5<MDL, 2000
Cyanide, free	µg/l	annual	0.	No representative data available.
4,4 DDD	µg/l	annual	0.	No representative data available.
Fluoride	µg/l	annual	0.	No representative data available.
Gamma-BHC	µg/l	annual	0.	No representative data available.
Heptachlor	µg/l	annual	0.	No representative data available.
Hexachlorobenzene	µg/l	annual	0.	No representative data available.
Iron	µg/l	annual	630.	STORET, 8 values, 0<MDL, 2000
Lead	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2000
Molybdenum	µg/l	annual	0.	No representative data available.
Nickel	µg/l	annual	0.	STORET; 8 values, 8<MDL, 2000
PCBs	µg/l	annual	0.	No representative data available.
Selenium	µg/l	annual	1.1	STORET; 8 values, 7<MDL, 2000
Strontium	µg/l	annual	313.	STORET; 8 values, 0<MDL, 2000
TDS	mg/l	annual	1192.	STORET, 8 values, 0<MDL, 2000
Zinc	µg/l	annual	39.	STORET; 8 values, 0<MDL, 2000

Table 35. Instream Conditions and Discharger Flow for Dicks Creek (cont)

Parameter	Units		Value	Basis
Background Water Quality for North Branch above AK Steel				
Aldrin	µg/l	annual	0.	No representative data available.
Antimony	µg/l	annual	0.	No representative data available.
Barium	µg/l	annual	55.	STORET, 10 values, 0<MDL, 2000
Bis (2-EHP)	µg/l	annual	0.	No representative data available.
Boron	µg/l	annual	0.	No representative data available.
Copper	µg/l	annual	5.	STORET; 10 values, 7<MDL, 2000
Cyanide, free	µg/l	annual	0.	No representative data available.
4,4 DDD	µg/l	annual	0.	No representative data available.
Fluoride	µg/l	annual	0.	No representative data available.
Gamma-BHC	µg/l	annual	0.	No representative data available.
Heptachlor	µg/l	annual	0.	No representative data available.
Hexachlorobenzene	µg/l	annual	0.	No representative data available.
Iron	µg/l	annual	519.	STORET, 10 values, 0<MDL, 2000
Lead	µg/l	annual	0.	STORET; 10 values, 10<MDL, 2000
Molybdenum	µg/l	annual	0.	No representative data available.
Nickel	µg/l	annual	0.	STORET; 10 values, 10<MDL, 2000
PCBs	µg/l	annual	0.	No representative data available.
Selenium	µg/l	annual	0.	STORET; 10 values, 10<MDL, 2000
Strontium	µg/l	annual	237.	STORET; 10 values, 0<MDL, 2000
TDS	mg/l	annual	388.	STORET, 10 values, 0<MDL, 2000
Zinc	µg/l	annual	21.	STORET; 10 values, 1<MDL, 2000
Background Water Quality for Shakers Creek at mouth				
Aldrin	µg/l	annual	0.	No representative data available.
Antimony	µg/l	annual	0.	No representative data available.
Barium	µg/l	annual	74.	STORET, 10 values, 0<MDL, 2000
Bis (2-EHP)	µg/l	annual	0.	No representative data available.
Boron	µg/l	annual	0.	No representative data available.
Copper	µg/l	annual	5.	STORET; 10 values, 8<MDL, 2000
Cyanide, free	µg/l	annual	0.	No representative data available.
4,4 DDD	µg/l	annual	0.	No representative data available.
Fluoride	µg/l	annual	0.	No representative data available.
Gamma-BHC	µg/l	annual	0.	No representative data available.
Heptachlor	µg/l	annual	0.	No representative data available.
Hexachlorobenzene	µg/l	annual	0.	No representative data available.
Iron	µg/l	annual	1320.	STORET, 10 values, 0<MDL, 2000
Lead	µg/l	annual	1.	STORET; 10 values, 8<MDL, 2000
Molybdenum	µg/l	annual	0.	No representative data available.
Nickel	µg/l	annual	0.	STORET; 10 values, 10<MDL, 2000
PCBs	µg/l	annual	0.	No representative data available.
Selenium	µg/l	annual	0.	STORET; 10 values, 10<MDL, 2000
Strontium	µg/l	annual	315.	STORET; 10 values, 0<MDL, 2000
TDS	mg/l	annual	380.	STORET, 10 values, 0<MDL, 2000
Zinc	µg/l	annual	16.	STORET; 10 values, 0<MDL, 2000

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Table 35. Instream Conditions and Discharger Flow for Dicks Creek (cont)

Parameter	Units		Value	Basis
AK Steel 002 flow	cfs	average	1.37	50th percentile value, 2/96 - 4/02
		maximum	2.48	95th percentile value 2/96 - 4/02
AK Steel 003 flow	cfs	average	2.75	50th percentile value, 1/96 - 4/02
		maximum	8.74	95th percentile value 1/96 - 4/02
AK Steel 004 flow	cfs	average	4.08	50th percentile value, 1/96 - 4/02
		maximum	5.46	95th percentile value 1/96 - 4/02
AK Steel 009 flow	cfs	average	0.05	AK Steel application
		maximum	1.59	AK Steel application
AK Steel 015 flow	cfs	average	1.01	50th percentile value, 1/96 - 4/02
		maximum	1.96	95th percentile value 1/96 - 4/02

Table 36. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria for AK Steel 002

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Parameter	Units	Average Human Health	Average Agri Supply	Average Aquatic Life	Maximum Aquatic Life	Inside Mixing Zone Maximum
Barium	µg/l	--	--	223.	2181.	4000.
Cyanide, free	µg/l	426700.[A]	--	18.	95.[A]	92.
Fluoride	µg/l	--	2680.	--	--	--
Iron	µg/l	--	6381.	--	--	--
PCBs[B]	µg/l	0.015	--	--	--	--
Strontium	µg/l	--	--	5396.	52500.	95000.
TDS	mg/l	--	--	1523.	--	--

[A] Allocation must not exceed the Inside Mixing Zone Maximum.
[B] Parameter would not require WLA based on reasonable potential. Requested by Permit staff.

Table 37. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria for AK Steel 003

Parameter	Units	Average Human Health	Average Agri Supply	Average Aquatic Life	Maximum Aquatic Life	Inside Mixing Zone Maximum
Barium	µg/l	--	--	223.	2181.	4000.
Bis (2-EHP)	µg/l	197.	--	21.	2104.[A]	2100.
Fluoride	µg/l	--	2680.	--	--	--
Hexachlorobenzene	µg/l	0.035	--	--	--	--
Iron	µg/l	--	6381.	--	--	--
Strontium	µg/l	--	--	5396.	52500.	95000.
TDS	mg/l	--	--	1523.	--	--
Zinc	µg/l	109600.[A]	39687.[A]	462.	440.	780.

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

Table 38. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria for AK Steel 004

Parameter	Units	Average Human Health	Average Agri Supply	Average Aquatic Life	Aquatic Life	Inside Maximum Zone Maximum
Barium	µg/l	--	--	223.	2181.	4000.
Copper	µg/l	3195.[A]	1225.[A]	54.	141.[A]	100.
Cyanide, free	µg/l	426700.[A]	--	18.	95.[A]	92.
Fluoride	µg/l	--	2680.	--	--	--
Iron	µg/l	--	6381.	--	--	--
Lead	µg/l	--	240.	67.	1932.[A]	1400.
Strontium	µg/l	--	--	5396.	52500.	95000.
TDS	mg/l	--	--	1523.	--	--
Zinc	µg/l	109600.[A]	39687.[A]	462.	440.	780.

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

Table 39. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria for AK Steel 009

Parameter	Units	Average Human Health	Average Agri Supply	Average Aquatic Life	Maximum Aquatic Life	Inside Mixing Zone Maximum
Chromium, hexavalent	µg/l	--	--	--	--	31.
Fluoride	µg/l	--	2680.	--	--	--
Iron	µg/l	--	6381.	--	--	--
Nickel	µg/l	411700.[A]	17900.[A]	11536.[A]	18277.[A]	3000.
Selenium	µg/l	2.76E6	12495.	926.	--	--
Zinc	µg/l	109600.[A]	39687.[A]	462.	440.	780.

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

Table 40. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria for AK Steel 011

Parameter	Units	Average			Maximum Aquatic Life	Inside Mixing Zone Maximum
		Human Health	Agri Supply	Aquatic Life		
Barium	µg/l	--	--	489.	4272.[A]	4000.
Copper	µg/l	4628.[A]	1777.[A]	45.	72.	84.
Cyanide, free	µg/l	868000.[A]	--	23.	83.	92.
Dieldrin	µg/l	0.011	--	0.3	1.2 [A]	0.47
Fluoride	µg/l	--	43660.	--	--	--
Heptachlor	µg/l	0.063	--	--	--	--
Hexachlorobenzene	µg/l	0.2	--	--	--	--
Iron	µg/l	--	105500.	--	--	--
Lead	µg/l	--	415.	56.	1035.	1100.
Strontium	µg/l	--	--	12307.	104487.[A]	95000.
TDS	mg/l	--	--	2954.	--	--
Zinc	µg/l	254300.[A]	92140.[A]	584.	553.	640.

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

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Table 41. Summary of Effluent Limits to Maintain Applicable Water Quality Criteria for AK Steel 015

Parameter	Units	Average			Maximum Aquatic Life	Inside Mixing Zone Maximum
		Human Health	Agri Supply	Aquatic Life		
Aldrin	µg/l	0.011	--	--	--	--
Antimony	µg/l	53350.[A]	--	1787.	9399.[A]	1800.
Barium	µg/l	--	--	223.	2181.	4000.
Bis (2-EHP)	µg/l	197.	--	21.	2104.[A]	2100.
Copper	µg/l	3195.[A]	1225.[A]	54.	141.[A]	100.
Cyanide, free	µg/l	426700.[A]	--	18.	95.[A]	92.
4,4 DDD	µg/l	0.069	--	--	--	--
Fluoride	µg/l	--	2680.	--	--	--
Gamma BHC	µg/l	5.2 [A]	--	0.30	3.7 [A]	1.9
Heptachlor	µg/l	0.017	--	--	--	--
Iron	µg/l	--	6381.	--	--	--
Lead	µg/l	--	240.	67.	1932.[A]	1400.
Strontium	µg/l	--	--	5396.	52500.	95000.
TDS	mg/l	--	--	1523.	--	--
Zinc	µg/l	109600.[A]	39867.[A]	462.	440.	780.

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

EXHIBIT 2

Table 42. Parameter Assessment for AK Steel 002

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

Manganese	Phenolics	Potassium

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

Arsenic	Cadmium	Chloroform
NO2+NO3	PCBs	Selenium
Silver	Zinc	

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

Cyanide, free	Fluoride

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

Iron (>75%) Strontium

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

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Barium	µg/l	annual	223.	2181.
TDS	mg/l	annual	1523.	--

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Table 43. Parameter Assessment for AK Steel 003

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

Aluminum	Bromodichloromethane	Manganese
PAHs	Phenolics, 4AAP	Phenolics, total
Potassium		

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

Arsenic	Cadmium	Chloroform
Copper	NO2+NO3	PCBs
Selenium	Silver	

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

Hexachlorobenzene	Iron	Lead
Strontium	Zinc	

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

Fluoride (>75%)	TDS (>75%)

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

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Barium	µg/l	annual	223.	2181.
Bis (2-EHP) µg/l	annual	21.	2100.	

[A] Additivity of carcinogens. Following are the human health limits for the carcinogens:

Substance	Parameter	Limits for Human Health (µg/l)
A	Hexachlorobenzene	0.035
B	Bis (2-EHP)	197.

The following equation will be used to calculate the additivity factor:

$$\frac{MAC_A}{.035\ \mu g/l} + \frac{MAC_B}{197.\ \mu g/l} \leq 1.0$$

where MAC = average concentration of all samples collected within the month.

Table 44. Parameter Assessment for AK Steel 004

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

Aluminum	4 chloro 3 methylphenol	Delta-BHC
Manganese	Potassium	

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

Arsenic	Cadmium	Chloroform
Chromium		Lead
NO2+NO3	Phenol	Selenium
Silver		

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

Copper	Strontium	Zinc

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

Barium (>75%)	Cyanide, free	Fluoride (>75%)

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

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Iron	µg/l	annual	6381.	--
TDS	mg/l	annual	1523.	--

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Table 45. Parameter Assessment for AK Steel 009

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

Manganese Platinum

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

Arsenic	Cadmium	Copper
Cyanide, free	Lead	Mercury
NO2+NO3	Nickel	Selenium
Silver		

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

Iron Zinc

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

No parameters fit the criteria of this group

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

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Chromium, hex.	µg/l	annual	--	31.
Fluoride	µg/l	annual	2680.	--

EXHIBIT 2

Table 46. Parameter Assessment for AK Steel 011

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

Acetone	Aluminum	Delta-BHC
Manganese	Potassium	

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

Arsenic	Cadmium	Chloroform
Chromium +6	Copper NO2+NO3	
Selenium	Silver	

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

Barium	Cyanide, free	Heptachlor
Hexachlorobenzene	Iron	Strontium
Zinc		

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

Lead

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

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period	Recommended Effluent Limits Average	Maximum
Dieldrin	µg/l	annual	0.011	0.47
Fluoride	mg/l	annual	6830.	--
TDS	mg/l	annual	2954.	--

A Additivity of carcinogens. Following are the human health limits for the carcinogens:

Substance	Parameter	Limits for Human Health (µg/l)
A	Heptachlor	0.063
B	Hexachlorobenzene	0.2
C	Dieldrin	0.011

The following equation will be used to calculate the additivity factor:

$$\frac{MAC_A}{.063\ \mu g/l} + \frac{MAC_B}{0.2\ \mu g/l} + \frac{MAC_C}{0.011 \mu g/l} \leq 1.0$$

where MAC = average concentration of all samples collected within the month.

Table 47. Parameter Assessment for AK Steel 015

EXHIBIT 2

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

Aluminum	Manganese	Phenolics
Potassium		

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

Alpha-BHC	Arsenic	Cadmium
Chromium	Endrin aldhyde	Lead
NO2+NO3	Silver	

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

Antimony	Gamma-BHC	Heptachlor
Zinc		

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

Copper	Cyanide, free (>75%)	4,4 DDD
Strontium		

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

Limits to Protect Numeric Water Quality Criteria

Parameter	Units	Applicable Period		Recommended Effluent Limits Average	Maximum
Aldrin	µg/l	annual		0.011	--
Barium	µg/l	annual		223.	2181.
Bis (2-EHP) µg/l	annual		21.	2100.	
Fluoride	µg/l	annual		2680.	--
Iron	µg/l	annual		6381.	--
TDS	mg/l	annual		1523.	--

Table 47. Parameter Assessment for AK Steel 015 (cont.)

EXHIBIT 2

A Additivity of carcinogens. Following are the human health limits for the carcinogens:

Substance	Parameter	Limits for Human Health (µg/l)
A	Aldrin	0.011
B	Bis (2-EHP)	197.
C	4,4'-DDD	0.069
D	Gamma-BHC	5.2
E	Heptachlor	0.017

The following equation will be used to calculate the additivity factor:

$$\frac{MAC_A}{.011\ \mu g/l} + \frac{MAC_B}{197.\ \mu g/l} + \frac{MAC_C}{0.069 \mu g/l} + \frac{MAC_D}{5.2\ \mu g/l} + \frac{MAC_E}{0.017\ \mu g/l} \leq 1.0$$

where MAC = average concentration of all samples collected within the month.

EXHIBIT 2

Table 48. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001001 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]
Suspended Solids	mg/l	--	--	2363	7278	BPT/Bubble
Oil and Grease	mg/l	--	--	126	362	BPT
Lead, T.	µg/l	--	--	3.77	11.7	BAT/Bubble
Zinc, T.	µg/l	--	--	3.12	18.7	BAT/Bubble

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); BAT = Best Available Control Technology Currently Available, 40 CFR Part 420, Iron and Steel Manufacturing; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 420, Iron and Steel Manufacturing; Bubble = Reassigning load limits between outfalls 001, 005, 631 and 641 under the BPT/BAT regulations for the Iron and Steel Manufacturing industry (40 CFR 420.03); M = Monitoring.

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

EXHIBIT 2

Table 49. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001002 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]
Dissolved Solids	mg/l	---------- Monitor ----------				M/RP[c]
Suspended Solids	mg/l	---------- Monitor ----------				M[c]
Ammonia-N	mg/l					
Summer		---------- Monitor ----------				M[c]
Winter		---------- Monitor ----------				M[c]
Oil and Grease	mg/l	--	10	--	--	WQS
pH	S.U.	---------- 6.5 to 9.0 ----------				WQS
Barium, T. R.	µg/l	---------- Monitor ----------				M/RP[c]
Iron, T. R.	µg/l	---------- Monitor ----------				M/RP[c]
Strontium, T. R.	µg/l	---------- Monitor ----------				M/RP[c]
Zinc, T.R.	µg/l	---------- Monitor ----------				M[c]

[a] Effluent loadings based on average design discharge flow of N/A MGD.

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

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

EXHIBIT 2

Table 50. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001003 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]
Dissolved Solids	mg/l	---------- Monitor ----------				M/RP[c]
Suspended Solids	mg/l	---------- Monitor ----------				M[c]
Ammonia-N	mg/l					
Summer		---------- Monitor ----------				M[c]
Winter		---------- Monitor ----------				M[c]
Oil and Grease	mg/l	--	10	--	--	WQS
pH	S.U.	---------- 6.5 to 9.0 ----------				WQS
Fluoride, T.	mg/l	---------- Monitor ----------				M/RP[c]
Barium, T. R.	µg/l	---------- Monitor ----------				M/RP[c]
Mercury, T.	ng/l	---------- Monitor ----------				M[c]
Zinc, T.R.	µg/l	---------- Monitor ----------				M[c]
Bis(2-ethylhexyl)-phthalate	µg/l	---------- Monitor ----------				M/RP[c]

[a] Effluent loadings based on average design discharge flow of N/A MGD.

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

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

EXHIBIT 2

Table 51. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001004 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]
Dissolved Solids	mg/l	1523	--	15,218	--	WLA
Oil and Grease	mg/l	--	10	--	--	WQS
pH	S.U.	---------- 6.5 to 9.0 ----------				WQS
Fluoride	mg/l	---------- Monitor ----------				M/RP[c]
Cyanide, free	mg/l	---------- Monitor ----------				M/RP[c]
Barium, T. R.	µg/l	---------- Monitor ----------				M/RP[c]
Iron, T. R.	µg/l	---------- Monitor ----------				M/RP[c]
Zinc, T.R.	µg/l	---------- Monitor ----------				M[c]
Whole Effluent Toxicity						
Acute	TUa	-------- Monitor (w/o trigger) ---------				M[c]
Chronic	TUc	-------- Monitor (w/o trigger) ---------				M[c]

[a] Effluent loadings based on average design discharge flow of 2.64 MGD (average) and 3.53MGD (max.).

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); 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.

EXHIBIT 2

Table 52. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001005 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]
Suspended Solids	mg/l	--	--	950	1900	BPT/Bubble
Oil and Grease	mg/l	--	--	227	227	ABS/EP
pH	S.U.	---------- 6.0 to 11.0 ----------				BPJ/EP
Lead, T.	µg/l	--	--	2.39	5.00	BAT/Bubble
Zinc, T.	µg/l	--	--	3.6	6.29	BAT/Bubble

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); BAT = Best Available Control Technology Currently Available, 40 CFR Part 420, Iron and Steel Manufacturing; BPJ = Best Professional Judgment; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 420, Iron and Steel Manufacturing; Bubble = Reassigning load limits between outfalls 001, 005, 631 and 641 under the BPT/BAT regulations for the Iron and Steel Manufacturing industry (40 CFR 420.03); EP = Existing Permit; M = Monitoring; PD = Plant Design Criteria.

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

Table 53. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001009 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]
Ammonia-N	mg/l	----------	Monitor	----------		M[c]
COD	mg/l	----------	Monitor	----------		M[c]
Suspended Solids	mg/l	----------	Monitor	----------		M[c]
Oil and Grease	mg/l	----------	Monitor	----------		M[c]
pH	S.U.	----------	6.5 to 9.0	----------		WQS
Fluoride, T.	mg/l	----------	Monitor	----------		M/RP[c]
Chromium, hex, diss.	µg/l	--	31	--	0.12	WLA/IMZM
Zinc, T.	µg/l	----------	Monitor	----------		M[c]

[a] Effluent loadings based on average design discharge flow of 0.032 MGD (average) and 1.03 MGD (max.).

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); 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)); 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 54. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001011 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]
Dissolved Solids	mg/l	---------- Monitor ----------				M/RP[c]
Suspended Solids	mg/l	---------- Monitor ----------				M[c]
Ammonia-N	mg/l	---------- Monitor ----------				M[c]
Oil and Grease	mg/l	--	10	--	--	WQS
pH	S.U.	---------- 6.5 to 9.0 ----------				WQS
Cyanide, Free	mg/l	---------- Monitor ----------				M/RP[c]
Dieldrin	µg/l	---------- Monitor ----------				M/RP[c]
Fluoride	mg/l	---------- Monitor ----------				M/RP[c]
Lead, T.R.	µg/l	---------- Monitor ----------				M/RP[c]
Mercury, T.	ng/l	---------- Monitor ----------				M[c]
Zinc, T.R.	µg/l	---------- Monitor ----------				M[c]
Whole Effluent Toxicity						
Acute	TUa	-------- Monitor (w/o trigger) ----------				WET

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); 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.

EXHIBIT 2

Table 55. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001015 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 015						
Flow	MGD	----------	Monitor	----------		M[c]
Dissolved Solids	mg/l	----------	Monitor	----------		M/RP[c]
Suspended Solids	mg/l	----------	Monitor	----------		M[c]
Oil and Grease	mg/l	--	10	--	--	WQS
pH	S.U.	----------	6.5 to 9.0	----------		WQS
Barium, T.R.	µg/l	----------	Monitor	----------		M/RP[c]
Copper, T.R.	µg/l	----------	Monitor	----------		M/RP[c]
Cyanide, Free	mg/l	----------	Monitor	----------		M/RP[c]
Fluoride	mg/l	----------	Monitor	----------		M/RP[c]
Iron, T.R.	µg/l	----------	Monitor	----------		M/RP[c]
Strontium, T.R.	µg/l	----------	Monitor	----------		M/RP[c]
Zinc, T.R.	µg/l	----------	Monitor	----------		M[c]
Aldrin	µg/l	----------	Monitor	----------		M/RP[c]
4,4'-DDD	µg/l	----------	Monitor	----------		M/RP[c]
gamma-BHC	µg/l	----------	Monitor	----------		M[c]
Heptachlor	µg/l	----------	Monitor	----------		M[c]
Bis(2-ethylhexyl)-phthalate	µg/l	----------	Monitor	----------		M/RP[c]
Carcinogen Additivity		----------	Monitor	----------		M[c]

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); 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 56. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001613 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]
Suspended Solids	mg/l	---------- Monitor ----------				M[c]
Ammonia-N	mg/l	--	--	205	410	EP/301(g) variance
Oil and Grease	mg/l	---------- Monitor ----------				M[c]
pH	S.U.	---------- 6.0 to 11.5 ----------				BPJ/EP
Cyanide, Free	mg/l	--	--	5.71	11.4	BAT
Lead, T.	µg/l	---------- Monitor ----------				M[c]
Mercury, T.	ng/l	---------- Monitor ----------				M[c]
Zinc, T.	µg/l	---------- Monitor ----------				M[c]
Phenolics, T.	µg/l	--	--	0.19	0.38	BAT

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: 301(g) variance = Variance from BAT limits under Section 301(g) of the federal Clean Water Act; BAT = Best Available Control Technology Currently Available, 40 CFR Part 420, Iron and Steel Manufacturing; BPJ = Best Professional Judgment; 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 57. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001614 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]
Suspended Solids	mg/l	---------- Monitor ----------				M[c]
Oil and Grease	mg/l	---------- Monitor ----------				M[c]
pH	S.U.	---------- 6.0 to 9.0 ----------				BPT
Lead, T.	µg/l	---------- Monitor ----------				M[c]
Zinc, T.	µg/l	---------- Monitor ----------				M[c]
Tetrachloroethylene	µg/l	--	--	--	0.50	BAT
Naphthalene	µg/l	--	--	--	0.33	BAT

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); BAT = Best Available Control Technology Currently Available, 40 CFR Part 420, Iron and Steel Manufacturing; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 420, Iron and Steel Manufacturing; 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 58. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001631 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]
Suspended Solids	mg/l	--	--	700	1559	BPT/Bubble
pH	S.U.	---------- 6.0 to 9.0 ----------				BPT
Lead, T.	µg/l	--	--	1.85	7.5	BAT/Bubble
Mercury, T.	ng/l	---------- Monitor ----------				M[c]
Zinc, T.	µg/l	--	--	3.54	7.75	BAT/Bubble

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: BAT = Best Available Control Technology Currently Available, 40 CFR Part 420, Iron and Steel Manufacturing; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 420, Iron and Steel Manufacturing; Bubble = Reassigning load limits between outfalls 001, 005, 631 and 641 under the BPT/BAT regulations for the Iron and Steel Manufacturing industry (40 CFR 420.03); M = Monitoring.

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

EXHIBIT 2

Table 59. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001641 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]
Suspended Solids	mg/l	--	--	700	1400	BPT/Bubble
Oil and Grease	mg/l	--	--	323	904	BPT
pH	S.U.	---------- 6.0 to 9.0 ----------				BPT
Lead, T.	µg/l	--	--	1.75	5.00	BAT/Bubble
Zinc, T.	µg/l	--	--	1.75	3.36	BAT/Bubble
Tetrachloroethylene	µg/l	--	--	--	1.91	BAT
Naphthalene	µg/l	--	--	--	1.27	BAT

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: BAT = Best Available Control Technology Currently Available, 40 CFR Part 420, Iron and Steel Manufacturing; BPT = Best Practicable Waste Treatment Technology, 40 CFR Part 420, Iron and Steel Manufacturing; Bubble = Reassigning load limits between outfalls 001, 005, 631 and 641 under the BPT/BAT regulations for the Iron and Steel Manufacturing industry (40 CFR 420.03); 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 60. Final effluent limits and monitoring requirements for AK Steel outfall 1ID00001642 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	--	0.36	--	--	NSPS
Suspended Solids	mg/l	31	60	--	--	NSPS
Oil and Grease	mg/l	26	52	--	--	NSPS
pH	S.U.	---------- 6.0 to 9.0 ----------				NSPS
Chromium, T.	µg/l	1368	2216	--	--	ABS/AD/EP
Nickel, T.	µg/l	1904	3184	--	--	ABS/AD/EP
Zinc, T.	µg/l	1480	2610	--	--	NSPS
Total Toxic Organics	µg/l	--	1704	--	--	ABS/AD/EP

In addition to the parameters listed above, the NSPS regulations for the Metal Finishing Industry include limitations for cadmium, copper, lead, silver and total cyanide. While these limits apply to the discharge from outfall 642, they are not used by AK Steel in metal finishing processes, and are not expected to be present in the discharge. These parameters are not included in the current NPDES permit for AK Steel. Based on this information and available monitoring data, Ohio EPA is proposing to grant a monitoring waiver for cadmium, copper, lead, silver and total cyanide under 40 CFR 122.44(a)(2). The applicable metal finishing limitations are:

		30-Day	Daily
Cadmium, T.	µg/l	70	110
Copper, T.	µg/l	2070	3380
Lead, T.	µg/l	430	690
Silver, T.	µg/l	240	430
Cyanide, T.	mg/l	0.65	1.20

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: ABS = Antibacksliding Rule (OAC 3745-33-05(E) and 40 CFR Part 122.44(l)); AD = Antidegradation (OAC 3745-1-05); EP = Existing Permit; M = Monitoring; NSPS = New Source Performance Standards, 40 CFR Part 433, Metal Finishing Industry.

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

EXHIBIT 2

Table 61. Final monitoring requirements for AK Steel upstream station 1ID00001803 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]
Dissolved Solids	mg/l	---------- Monitor ----------				M[c]
Suspended Solids	mg/l	---------- Monitor ----------				M[c]
Oil and Grease	mg/l	---------- Monitor ----------				M[c]
Zinc, T.	µg/l	---------- Monitor ----------				M[c]

[a] Effluent loadings based on average design discharge flow of N/A MGD.

[b] Definitions: M = Monitoring.

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

EXHIBIT 2

Appendix - Effluent Guideline Calculations for AK Steel - Middletown Works

EXHIBIT 2

Effluent Guideline Calculations for Outfalls 613 (to Final Outfall 011)

	Blast Furnace Guidelines 420.32a-420.33a kg/kkg		Blast Furnace Production tons/day:	Blast Furnace Loading		BPJ Allowance for boiler blowdown and water plant processes kg/day		Outfall 613 Allowance kg/day	
			7176	kg/day		kg/day			
	30-day	Daily		30-day	Daily	30-day	Daily	**30-day**	**Daily**
TSS	0.026	0.0782		169.411	509.536	20.439	61.317	**189.850**	**570.853**
Ammonia-N	0.00292	0.00876		19.026	57.078	0	0	**19.026**	**57.078**
Cyanide, T.	0.000876	0.00175		5.708	11.403	0	0	**5.708**	**11.403**
Phenolics, T	0.0000292	0.0000584		0.190	0.381	0	0	**0.190**	**0.381**
Lead, T.	0.0000876	0.000263		0.571	1.714	0.05	0.069	**0.621**	**1.783**
Zinc, T.	0.000131	0.000394		0.854	2.567	0.07	0.102	**0.924**	**2.669**
			BPTs:						
Ammonia-N	0.0537	0.161		349.899	1049.045				
Phenolics, T	0.0021	0.00626		13.683	40.789				

EXHIBIT 2

Effluent Guideline Calculations for Outfalls 614 (to Outfall 011)

	Sulfuric Acid Pickling Guidelines 420.92a3-420.93a3 kg/kkg		H2SO4 Pickling Production tons/day: 1861	Sulfuric Acid Pickling Loading kg/day		Hot Coating / Galvanizing Guidelines 420.123a1-420.127a1 kg/kkg		Hot Coating / Galvanizing* Tons/day: 3525	Hot Coating / Galvanizing Loading kg/day	
	30-day	Daily		30-day	Daily	30-day	Daily		30-day	Daily
TSS	0.0225	0.0526		38.020	88.883	0.0751	0.175		240.373	560.123
Oil&grease	0.00751	0.0225		12.690	38.020	0.025	0.0751		80.018	240.373
Lead, T.	0.000113	0.000338		0.191	0.571	0.000376	0.00113		1.203	3.617
Zinc, T.	0.00015	0.000451		0.253	0.762	0.0005	0.0015		1.600	4.801

	Cold Forming Guidelines 420.102a4-420.103a4 kg/kkg		Cold Forming Production** tons/day: 9789	Cold Forming Loading kg/day		**Outfall 614 Allowance kg/day**	
	30-day	Daily		30-day	Daily	**30-day**	**Daily**
TSS	0.0113	0.0225		100.439	199.989	**378.832**	**848.995**
Oil&grease	0.00376	0.00939		33.420	83.462	**126.128**	**361.855**
Lead, T.	0.0000563	0.000169		0.500	1.502	**1.895**	**5.690**
Zinc, T.	0.0000376	0.000113		0.334	1.004	**2.188**	**6.568**
Naphthalene	0	0.0000376		0.000	0.334	**0.000**	**0.334**
Tetrachloroethylene	0	0.0000563		0.000	0.500	**0.000**	**0.500**

* #4 Aluminize - 1664 + Zinc Grip 1861 = 3525 tons per day.

** #5 Temper Mill - 3572 + #6 Temper Mill - 6217 = 9789 tons per day

EXHIBIT 2

Effluent Guideline Calculations for Outfalls 631 (to outfall 003) and 005 (to outfall 015)

	Basic Oxygen Furnace 420.42b-420.43b kg/kkg		BOF Production tons/day: 9708	**Basic Oxygen Furnace Loading (outfall 631) kg/day**		Hot Forming Strip Mill 420.72c1-420.73c1 kg/kkg		Hot Stip Mill Production tons/day: 19557	Hot Forming Strip Mill Loading kg/day	
	30-day	Daily		**30-day**	**Daily**	30-day	Daily		30-day	Daily
TSS	0.0104	0.0312		**91.675**	**275.024**	0.16	0.427		2841.241	7582.562
Oil&Grease	0	0		**0.000**	**0.000**	0.0357	0.107		633.952	1900.080
Lead	0.0000626	0.000188		**0.552**	**1.657**	0.000108	0.000325		1.918	5.771
Zinc	0.0000939	0.000282		**0.828**	**2.486**	0.000163	0.000488		2.895	8.666

	Continuous Casting 420.62-420.63 kg/kkg		Cont. Casting Production tons/day: 8688	Continuous Casting Loading kg/day		Vacuum Degassing 420.52-420.53 kg/kkg		Existing Source Production tons/day: 7892	Vacuum Degassing Loadings kg/day	
	30-day	Daily		30-day	Daily	30-day	Daily		30-day	Daily
TSS	0.026	0.078		205.106	615.319	0.00521	0.0156		37.335	111.789
Oil&Grease	0.0078	0.0234		61.532	184.596	0	0		0.000	0.000
Lead	0.0000313	0.0000939		0.247	0.741	0.0000313	0.0000939		0.224	0.673
Zinc	0.0000469	0.000141		0.370	1.112	0.0000469	0.000141		0.336	1.010

	Outfall 005 Allowance kg/day	
	30-day	**Daily**
TSS	**3083.682**	**8309.669**
Oil&Grease	**695.484**	**2084.676**
Lead	**2.389**	**7.185**
Zinc	**3.601**	**10.788**

BPJ monthly average oil&grease effluent limitation for the Hot Strip Mill set at 1/3 of the daily maximum limitation.
BPJ for metals from hot strip mill are based on USEPA 1982 Development Document for the Iron & Steel Point Source Category, Volume IV, page 345.

EXHIBIT 2

Effluent Guideline Calculations for Oufalls 641 and 642 (to Outfall 004)

	Cold Forming Guidelines 420.102a3-420.103a3 kg/kkg		#3 Cold Forming Production tons/day: 10379	Cold Forming Loading kg/day		Cold Forming Guidelines 420.102a4-420.103a4 kg/kkg		#7 Cold Forming Production tons/day: 2660	Cold Forming Loading kg/day	
	30-day	Daily		30-day	Daily	30-day	Daily		30-day	Daily
TSS	0.0376	0.0751		354.347	707.752	0.0113	0.0225		27.293	54.344
Oil&grease	0.0125	0.0313		117.802	294.975	0.00376	0.00939		9.081	22.679
Lead, T.	0.000188	0.000563		1.772	5.306	0.0000563	0.000169		0.136	0.408
Zinc, T.	0.000125	0.000376		1.178	3.543	0.0000376	0.000113		0.091	0.273
Naphthalene	0	0.000125		0.000	1.178	0	0.0000376		0.000	0.091
Tetrachloroethylene	0	0.000188		0.000	1.772	0	0.0000563		0.000	0.136

	Sulfuric Acid Pickling Guidelines 420.92a3-420.93a3 kg/kkg		H2SO4 Pickling Production tons/day: 2690	Sulfuric Acid Pickling Loading kg/day		Hydrochloric Acid Pickling 420.92b2-420.93b2 kg/kkg		Hydrochloric Acid Pickling Tons/day: 13186	Hydrochloric Acid Pickling Loading kg/day	
	30-day	Daily		30-day	Daily	30-day	Daily		30-day	Daily
TSS	0.0225	0.0526		54.957	128.477	0.035	0.0819		419.051	980.580
Oil&grease	0.00751	0.0225		18.343	54.957	0.0117	0.035		140.083	419.051
Lead, T.	0.000113	0.000338		0.276	0.826	0.000175	0.000526		2.095	6.298
Zinc, T.	0.00015	0.000451		0.366	1.102	0.000234	0.000701		2.802	8.393

EXHIBIT 2

:ffluent Guideline Calculations for Oufalls 641 and 642 - continued

	Acid Pickling Fume Scrubber Guidelines 420.92/93 b4 kg/day		# of scubbers: 2	Acid Pickling Fume Scrubber Loadings kg/day		Alkaline Cleaning Guidelines 420.112b2 kg/kkg		Alkaline Cleaning Tons/day: 2690	Alkaline Cleaning Loading kg/day	
	30-day	Daily		30-day	Daily	30-day	Daily		30-day	Daily
SS	2.45	5.72		4.900	11.440	0.0438	0.102		106.982	249.137
)il&grease	0.819	2.45		1.638	4.900	0.0146	0.0438		35.661	106.982
ead, T.	0.0123	0.0368		0.025	0.074	0	0		0.000	0.000
inc, T.	0.0164	0.0491		0.033	0.098	0	0		0.000	0.000

	Outfall 641 Allowance kg/day		Metal Finishing 433.16a mg/l		Metal Finishing Flow: 0.36 0.36	**Metal Finishing Allowance (Outfall 642) kg/day**	
	30-day	**Daily**	30-day	Daily		**30-day**	**Daily**
SS	**967.530**	**2131.729**	31	60		**42.241**	**81.756**
)il&grease	**322.608**	**903.545**	26	52		**35.428**	**70.855**
ead	**4.304**	**12.911**	0.43	0.69		**0.586**	**0.940**
inc	**4.470**	**13.409**	1.48	2.61		**2.017**	**3.556**
Chromium	NA	NA	1.71	2.77		**2.330**	**3.774**
Copper	NA	NA	2.07	3.38		**2.821**	**4.606**
Nickel	NA	NA	2.38	3.98		**3.243**	**5.423**
TTO	NA	NA	0	2.13		**0.000**	**2.902**
Naphthalene	0	1.269	NA	NA		NA	NA
Tetrachloroethylene	0	1.908	NA	NA		NA	NA

EXHIBIT 2

Best Professional Judgment Limits for Miscellaneous Process Waters at Outfall 613

	BPJ Concentrations for boiler blowdown and water plant processes mg/l		BPJ flow (MGD): 0.216		BPJ Allowance for boiler blowdown and water plant processes kg/day	
	30-day	Daily			30-day	Daily
TSS	25	75			20.439	61.317
Lead, T.	0.061	0.084			0.050	0.069
Zinc, T.	0.086	0.125			0.070	0.102

BPJ concentrations for TSS based on information submitted by AK Steel.
BPJ concentrations for lead based on PEQ values calculated from boiler blowdown and water remineralizer regenerant water data from Development Document for Steam Electric Power Generating Point Source Category, Table V-48 (see data below).
BPJ concentrations for zinc based on PEQ values for Cleveland Electric Illuminating Eastlake Plant outfall 003 (water plant/boiler blowdown - settling/high rate filtration treatment) 1/92-8/97 (250 data points, all >MDL).

Waste Type	Plant #	Lead
Boiler Blowdown	1003	ND
Boiler Blowdown	4203	40
Boiler Blowdown	2603 Unit 1	36
Boiler Blowdown	2603 Unit 2	ND
Demineralizer Reg.	4203	24
Demineralizer Reg.	2603	ND
PEQavg		61
PEQmax		84

301(g) variance review for AK Steel - Outfall 613

all values are kg/day

Outfall 613	BAT	BPT	WLA (summer)	WLA (winter)	PEQ 2002-06	Current Permit 301(g) conditions	Draft Permit w/ new 301(g) conditions
Ammonia-N							
30-day	19	350	206	206	141	205	205
Daily	57.1	1049	NA	NA	205	410	410
Phenolics							
30-day	0.19	13.7	NA	NA	0.144	0.9	0.19
Daily	0.381	40.8	NA	NA	0.203	1.8	0.381

EXHIBIT 2