NATURAL RESOURCES DEFENSE COUNCIL

October 1, 2007

Via electronic mail (srigney@idem.in.gov)
and UPS Red

Mr. Stan Rigney -- MC 65-42 IGCN Rm1255
Office of Water Quality / Industrial NPDES Permits Section
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, IN 46204-2251

RE: Comments on 2007 Draft Permit Renewal for US Steel – Gary, IN
Public Notice 2007-7B-RD/PM; NPDES Permit No. IN0000281

Dear Mr. Rigney:

Enclosed please find comments concerning the above-captioned permit submitted by the Natural Resources Defense Council and the Environmental Law and Policy Center. If you have any questions or concerns, I can be reached at 312-780-7427.

Very truly yours,

/signed/

Ann Alexander
Senior Attorney, Midwest Program

cc. David Soong, USEPA

NATURAL RESOURCES DEFENSE COUNCIL
ENVIRONMENTAL LAW AND POLICY CENTER

Comments on the IDEM 2007 Draft NPDES Permit for U.S. Steel - Gary, IN
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Table of Contents

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The comments below are provided to the Indiana Department of Environmental Management (IDEM) by the Natural Resources Defense Council (NRDC) and the Environmental Law and Policy Center (ELPC) (collectively, "Commenters") on behalf of their members in the Southern Lake Michigan basin and elsewhere, and members of the general public who use and benefit from these waters of the Great Lakes. These comments concern the draft permit for, and wastewater discharges from, the U.S. Steel - Gary Works ("U.S. Steel" or "Applicant") at Gary, Indiana ("Draft Permit").

These comments are based upon the information publicly available on IDEM's website, including the fact sheet, draft permit, and publicly available PCS information, as well as information provided to NRDC in response to its Open Records Act request. To the extent IDEM's response to that request is determined to have been incomplete, we reserve the right to expand on the issues in these comments or raise additional issues in the future that may come to our attention upon review of any additional documents we receive that should have been provided in response to our original request.

I. IDEM's Delay in Draft Permit Issuance Following Applicant's Permit Renewal Application Submittals, and Allowance of the Maximum Delay in Final Compliance in the Draft Permit, Frustrates the Purposes of the Clean Water Act

We have reviewed data from the United States Environmental Protection Agency (USEPA) permit compliance system (PCS) indicating that the pre-existing permit for this facility expired on August 31, 1999. The prior permit failed to set effluent limitations for a number of important pollutant parameters reflecting binding regulatory requirements of the Act on this facility. These requirements include, inter alia, the Great Lakes System water quality standards enacted by Indiana rule in January, 1997, and application of water quality based effluent limitations for benzo(a)pyrene, cyanide, chronic whole effluent toxicity copper, zinc and ammonia at various outfalls.

In addition to eight years of allowing the Applicant to operate on their environmentally deficient and outdated expired permit, IDEM's draft permit indicates IDEM's plans to grant the Applicant allowance for an addition 5 years of delayed compliance with final effluent limitations for mercury, benzo(a)pyrene and chronic whole effluent toxicity, among others, with minimal interim effluent limitation requirements.

The combined effect of IDEM delaying its draft permit issuance for 8 years with the allowance of up to an additional 5 years before the Applicant is subject to final effluent limitations to comply with Great Lakes System water quality based effluent limitations is an unacceptable, arbitrary and abusive administrative practice by IDEM in carrying out its Clean Water Act responsibilities.

The Applicant either knew or should have known that it would have to comply with more stringent water quality based effluent limitations with the enactment of the Great Lakes system water quality standards by Indiana at 327 IAC 2-1.5, et. seq. at of January, 1997. By delaying a decision to issue a draft permit on the renewal submittal, IDEM turned a blind eye toward the need for prompt compliance with the Great Lakes System Water Quality Based Effluent Limitations (GLS-WQBELs) by the Applicant. In enacting the federal rule requirements envisioning a potential 5 year period to gain final compliance with GLS-WQBELs, USEPA never intended or envisioned that States would or could deliberately undermine the effectiveness of the rule by delaying its permit renewal decisions in a manner to ultimately allow 13 year intervals after the promulgation of Great Lakes System water quality standards before final compliance with such water quality standards was achieved.

Neither the Fact Sheet, Public Notice nor Draft Permit contain any evidence that such delay was needed in order to finally comply with the rule. There is absolutely no finding that it will take up to five years to physically and practically achieve final compliance with GLS-WQBELs. Issuance of a permit to Applicant in the absence of clear practical need for such delays constitutes an unacceptable and arbitrary exercise of discretionary authority on IDEM's decision in its interpretation of what a "reasonable" period is for final compliance with GLS-WQBELs.

II. The Stormwater Provisions of the Draft Permit Violate the Clean Water Act

A. IDEM's Failure To Either Review The SWPPP Or Disclose Its Contents To The Public Violates The CWA Public Notice Requirements

1. The CWA Requires that Documents in the Nature of the SWPPP Be Made Available to the Public in the Notice and Comment Process

Under the Clean Water Act (CWA), industrial storm water discharges are required to meet all applicable point source discharge permitting requirements. 33 U.S.C. § 1342(3)(A). These requirements include the CWA provisions mandating use of either best available technology economically achievable (BAT) or best conventional pollutant control technology (BCT), according to the type of pollutant at issue. 33 U.S.C. § 1311(b)(2)(A). These BAT and BCT requirements can be met through application of best management practices (BMPs) developed based on best professional judgment (BPJ), as outlined in USEPA's general permit for industrial stormwater discharges (60 FR 50804 (September 29, 1995), or through imposition of numeric limits. These requirements are to be set forth in a Storm Water Pollution Prevention Plan (SWPPP). Id.; 327 Ind. Admin. Code 15-6-7.[1]

Since SWPPPs constitute the means of implementation of CWA BAT and BCT requirements, and are thus an integral component of NPDES permitting, the SWPPP is subject to all aspects of both public notice and agency review requirements. In Environmental Defense Center v. United States Environmental Protection Agency, 344 F.3d 832 (9th Cir. 2003), petitioners challenged provisions in USEPA's Phase II stormwater permitting program that allowed permittees to

[1] The Indiana Administrative Code provision abbreviates Storm Water Pollution Prevention Plan as "SWP3," but Commenters abbreviate this term herein as SWPPP, as in the federal general permit.

submit notices of intent (NOIs) containing the substance of a SWPPP without requiring either agency review of the NOI/SWPPPs or public access to that document.

With respect to the failure to require agency review, the court held that the permitting agency is "required to ensure that the individual [storm water] programs adopted are consistent with the law." 344 F.3d at 856. Based on petitioners' concern that the system of unreviewed SWPPPs devised by USEPA "creates an impermissible self-regulatory system," the court held, "stormwater management programs that are designed by regulated parties must, in every instance, be subject to meaningful review by an appropriate regulating entity to ensure that each such program reduces the discharge of pollutants to the maximum extent practicable." Id.

With respect to the failure to allow public access to the NOI/SWPPPs, the court held, "EPA's failure to make NOIs available to the public in the permitting process or subject to public hearings contravene the express requirements of the *Clean Water Act*." 344 F.3d at 858. Rejecting USEPA's contention that the availability of these documents through FOIA (which represents greater public access than is available here, because U.S. Steel's SWPPP is not available in IDEM's files), the court held that "the *Clean Water Act* . . . contemplates greater scope, greater certainty, and greater uniformity of public availablility" than the proposed rule provided. Id. At 857. Federal and state law governing NPDES permit issuance require that the complete permit – which, pursuant to Environmental Defense Center, includes the SWPPP – be made available to the public upon issuance of notice of issuance of the permit, so that it can be reviewed in connection with the public hearing and comment process. 40 C.F.R. § 124.10(d), 326 IAC 2-1.1-6(c).[2]

The Second Circuit adopted the holding of Environmental Defense Center in a closely related context. In Waterkeeper Alliance v. United States Environmental Protection Agency, 399 F.3d 486 (2nd Cir. 2005), the court rejected USEPA's general permit governing concentrated animal feeding operations (CAFOs), on the ground that it – like the Phase II storm water permit – required applicants to prepare a BMP plan (for nutrient management), but did not require that the plan be made part of the applicant's NPDES permit. Hence, as with the stormwater permit at issue in Environmental Defense Center, the BMP plan was neither reviewed by the permitting agency nor available to the public in the notice and comment process. With respect to agency review, the court held,

> "By not providing for permitting authority review of these application rates, the CAFO Rule fails to adequately prevent large CAFOs from "misunderstanding or misrepresenting" the application rates they must adopt in order to comply with state technical standards. The CAFO rule does not ensure that Large CAFOs will, in fact,

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[2] Texas Independent Producers and Royalty Owners Association v. United States Environmental Protection Agency, 410 F.3d 964 (7th Cir. 2005), addressed the issue of the availability of NOIs and SWPPPs to the public in the general permitting process, but is inapplicable here. The court in that case held (declining to follow Environmental Defense Center on this point) that the CWA public notice procedures need not be read to encompass NOIs and the accompanying SWPPPs submitted in the general permitting process within the definition of a "permit." Here, however, the SWPPP is not being submitted as part of a general permit process, but is expressly incorporated into U.S. Steel's individual permit as a set of requirements. Thus, there is no question, as there was in Texas Independent Producers, that the SWPPP is part of the "permit" for which public notice and comment needs to be provided pursuant to 33 U.S.C. §§ 1342(j) and 1342(1)(a) We note also that Texas Independent Producers does not address at all the issue of agency review of the SWPPP.

develop nutrient management plans – and waste application rates – that comply with all applicable effluent limitations and standards." 399 F.3d at 500.

Concerning the lack of public access to the BMP plans, the court held that the rule "deprives the public of the opportunity for the sort of regulatory participation that the Act guarantees because the Rule effectively shields the nutrient management plans from public scrutiny and comment." Id. at 503. It emphasized that the failure to provide public access to the BMP plans not only "prevents the public from calling for a hearing about – and then meaningfully commenting on – NPDES permits before they issue," but also "impermissibly compromises the public's ability to bring citizen suits, a 'proven enforcement tool' that 'Congress intended [to be used. . .] to both spur and supplement government enforcement actions.'" Id. (citations omitted).

2. IDEM Has Failed to Disclose the Contents of the SWPPP to the Public

Under Part I.F of the 1994 US Steel NPDES permit, the company was to commence a course of stormwater monitoring and to complete and implement a SWPPP within 30 months of permit approval that assured compliance with the Plan requirements. Thus, by April, 1997, the prior permit required Applicant's facility to be in total compliance with SWPPP requirements.

The Draft Permit Fact Sheet states,[3]

> "The last revision to this plan was April 4, 1997. US Steel's updated Storm Water Pollution Prevention [Plan] (SWPPP) was submitted to IDEM to become part of the permit renewal application."

The information provided to us to date indicates that this statement is false. Attachment #3 is a letter from the Applicant dated May 1, 1997 stating that the SWPPP as finalized under the 1994 permit was *not* submitted to IDEM. A diligent search by Commenters on September 6-7, 2007 of records claimed by IDEM to be fully responsive to Commenters' request for relevant records pursuant to the Indiana Access to Public Records Act did not show the presence of any comprehensive SWPPP from the Applicant.[4] The records with which we were provided indicate that (I) the April 4, 1997 US Steel SWPPP has never been in the custody of IDEM, and (ii) IDEM staff neither reviewed nor issued an approval letter for the April 4, 1997 updated version of the US Steel SWPPP. No inspection or staff activity reports were found in the file indicating that IDEM staff reviewed and verbally approved the SWPPP at Applicant's place of business.

Since the US Steel SWPPP was not disclosed to Commenters with the IDEM file materials on the US Steel facility, and has not otherwise been made available to the public, neither Commenters nor any other member of the public have had any opportunity at all to review the SWPPP to determine whether it is consistent with CWA requirements, including applicable BCT and BAT-BPJ standards. While the 1999 permit renewal application contains references to the April 4, 1997 version of the SWPPP, the actual SWPPP is not contained in the permit renewal application documents. This failure to make the SWPPP publicly available prejudices any

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[3] Section C.z at p. 8 of 49

[4] The only storm water control plan documents present in the IDEM file room were two coal/coke area storm water control documents, dated April 30, 2001 and April 28, 2006. These were not comprehensive SWPPPs.

attempt to determine whether the SWPPP as a required BCT/BAT-BPJ effluent limitation complies with requirements of the CWA. Although the 1999 permit application contains some limited information concerning storm water -- such as a few maps, a spill history, limited sourcing information and some storm water analytical results -- there is no information at all in that application on the current and expected structural and non-structural BMPs that are required to reflect the required BCT/BAT-BPJ effluent limitations under the CWA. There are no certifications of compliance by the Applicant, no timetables and schedules of compliance to bind the Applicant to such structural and non-structural measures.

The 1994 NPDES permit and the Draft Permit expressly incorporate by reference the requirements of the SWPPP, such that the SWPPP requirements are also requirements of the Applicant's individual NPDES permit. See Draft Permit Part I.K. The failure to make the SWPPP available to the public in the permitting process, essentially making it a secret document, and the failure to articulate the required BMPs in the publicly-available draft permit documents, means that the public has no assurance that the CWA has been complied with, and that storm water discharges have been adequately controlled. In fact, the existing storm water monitoring records shows serious storm water control problems casting doubt on the adequacy of Applicant's storm water control measures (see below). This failure to publicly disclose the contents of the SWPPP violates the public notice requirements of the CWA, as set forth above. As both the Environmental Defense Center and Waterkeeper Alliance courts held, storm water management plans are an essential part of the information that is subject to public notice and comment requirements under the CWA.

B. IDEM's Failure to Substantively Review the SWPPP Violates the CWA Prohibition Against Permittee Self-Regulation

As indicated above, there is no information indicating that the Plan has ever been submitted to IDEM; and Part I.K. of the Draft Permit, concerning storm water, effectively disclaims any awareness on the part of IDEM of the contents of the plan, stating, "the [SWPPP] that United States Steel currently has implemented *may* already contain these minimum requirements, and, if so, then this is for reference only." Draft Permit at 69. For the reasons explained in Environmental Defense Center and Waterkeeper Alliance, this failure to substantively review the SWPPP provisions violates the CWA requirement that substantive permit conditions contained in a BMPs plan be reviewed by the permitting authority. IDEM's failure to do so "creates an impermissible self-regulatory system." Environmental Defense Center, 344 F.3d at 854.

IDEM's failure to review the terms of the SWPPP was not an inadvertent omission, but occurred by design. The language of the draft permit indicates that it is IDEM's express intention to delegate unreviewed discretion concerning storm water management practices to the permittee. The Draft Permit provides as follows:

> "(4) Management of Runoff, including the following:
>
> > (A) The plan shall contain a narrative consideration of the appropriateness of storm water management practices (practices other than those which control the generation or sources of pollutants) used to divert, infiltrate, reuse, or otherwise management stormwater runoff in a manner that reduces pollutants in storm water discharges from the site.

> (B) The **plan shall provide for the implementation and maintenance of measures that the *permittee* determines to be reasonable and appropriate.** The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity shall be considered when determining reasonable and appropriate measures." Part I.K.2.c.4 (emphasis added)

Thus, sole discretion is provided to the Applicant to determine the measures and the SWPPP control stringency under a "reasonable and appropriate" standard determined by the permittee. There is no provision for review and approval by IDEM as the regulatory agency prior to adoption of the SWPPP. Moreover, the Applicant can revise a SWPPP at any time -- even, potentially, if the plan element involved were demanded by IDEM as a result of demonstrable defect IDEM previously identified -- since, under the language of the SWPPP permit provisions, the Applicant has the sole authority to determine what is "reasonable and appropriate."

This permit language is improper on both procedural and substantive grounds. It constitutes an improper delegation of agency authority to a regulated party; and the wholly discretionary standard it embodies does not explicitly embrace the BCT/BAT-BPJ technology-based control requirements of the CWA. It is the statutory requirements and definitions of BCT and BAT-BPJ that are the required standard of approval of the effluent limitations inherent in both the structural and non-structural BMPs for storm water pollution control, not the standard of "reasonable and appropriate" as determined by the Applicant. In particular, the draft permit does not reference the specific BMPs that USEPA developed specifically for control of storm water at steel manufacturing facilities in its general permit (60 FR at 50883), nor contain any express requirement that the Applicant's SWPPP implement these measures.

Nothing in the application submittal or in the requirements for the SWPPP plan indicate whether any evaluation has taken place, through water quality modeling or any other means, of the impact of storm water flow on compliance with both numerical and narrative Indiana Water Quality Standards (WQS). The Draft Permit allows the Applicant to completely evade the question of whether stringent storm water pollution controls are needed in order to comply with such standards, by failing to require that the SWPPP ensure that WQS are met from the combined contributions of point source industrial wastewater outfalls and the subject storm water discharge points.

The question of whether such Water Quality Based Effluent Limitations (WQBELS) are necessary is not an academic issue given the large amounts of total suspended solids (TSS), ammonia, zinc and lead which existing monitoring has shown are sometimes being emitted from storm water discharge points (see discussion of existing monitoring results below). As discussed in a subsequent section, the Grand Calumet River is not in compliance with WQS for several of these constituents. WQBELs on storm water effluents may take the form of both structural and non-structural BMPs that achieve greater control of pollution than mere reliance on the required technology-based effluent limitations required through BCT/BAT-BPJ implementation.

Additionally, nothing in the Fact Sheet indicates whether the need for, and the design basis of, and the ultimate numerical effluent limitations provided at non-storm water discharges considered the effect of the maximum pollutant concentrations and loadings that occur as a result of the storm water-related effluents. IDEM must state on the record whether the reasonable potential to exceed analysis ever considered the potential impact of storm water pollutants on such Water Quality Based Effluent reasonable potential to exceed determinations and the actual setting of WQBELs.

Where, as here, storm water discharges have the potential to cause or contribute to WQS violations, IDEM has a duty to conduct a reasonable potential determination for such discharges and to set WQBEL numerical effluent limitations along with more frequent monitoring requirements on storm water discharges. IDEM's failure to do so violates the basic principle of NPDES permitting that no permit may be issued that allows discharges that may cause or contribute to a violation of numeric or narrative water quality standards. 40 CFR 122.44(d)

Finally, IDEM should have required numeric effluent limits for storm water discharge components in addition to the BMP measures required under the existing permit and the Draft Permit. As described in detail below, it is clear from analysis of U.S. Steel's discharge that the BMPs alone have proven insufficient to minimize pollutant discharge.

C. Additional Provisions of the Year 2007 Draft Permit Impermissibly Undermine the BCT/BAT-BPJ Requirements of the Clean Water Act

1. The Part I.K. Preamble

The Draft Permit includes the following language:

> "United States Steel has an existing Storm Water Pollution Prevention Plan (SWP3), the plan requirements below reflect the minimum requirements in a current SWP3. The SWP3 that United States Steel currently has implemented may already contain these minimum requirements, and if so, then this is for reference only. If a component currently required by IDEM is not in the United States Steel SWP3 then United States Steel should revise their [sic] plan to conform to the minimum requirements below."[5]

The implications of this broad and somewhat self-contradictory language are significant, and many possible interpretations inure to the deregulatory benefit of the Applicant. It thus runs contrary to the need to clearly and unequivocally state applicable requirements binding on the Applicant and clear IDEM agency findings of fact and conclusions of law.

First, stating that "the SWP3 that United States Steel currently has implemented may already contain these minimum requirements, and if so, then this is for reference only...." has the potential effect of unacceptably undermining the enforceability of all of the subsequent SWPPP plan requirement provisions in Draft Permit - Part I.K. The fact that the SWPPP may contain the required minimum elements does not make it compliant with CWA substantive requirements, but the "reference only" language could be read to support a contrary interpretation. Moreover, IDEM should look at the SWP3 to see what it actually does require.

Second, the phrase in the last sentence, "....should revised their plan to conform to the minimum requirements below...." does not mandate that Applicant do so. "Should" is not the same as "shall."

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5 2007 Draft Permit, Part I.K, first paragraph, p. 69 of 117

Third, the statement, "If a component currently required by IDEM is not in the United States Steel SWP3 then United States Steel should revise their plan to conform to the minimum requirements below" raises the fundamental issue of backsliding on previous requirements. The reference to "a component currently required by IDEM" must necessarily be to the requirements of the 1994 permit of compliance by April 1997 with SWPPP plan requirements. If the Applicant has in fact failed to comply with these SWPPP requirements mandated by the 1994 permit, the last sentence could be interpreted to allow the Applicant to invoke the 12 month delayed compliance provision of the Part I.K.1 preamble language, essentially giving an additional 12 months of compliance time under the 1994 permit after final issuance of the Year 2007 permit. Since U.S. Steel was required to previously comply with effluent limitations – i.e., the 1994 permit requirements for the SWPPP -- by a date certain in the past, and a new permit creates the ability to delay compliance on effluent limitations required in the past, such a permit provisions allowing the delayed compliance constitutes backsliding on a past applicable requirement. Such backsliding is impermissible under the CWA. 33 U.S.C. § 1342(o); 327 Ind. Admin. Code 5-2-10.

2. Elimination of Sampling Protocols and Requirements

The 1994 permit contained the following provision:

> "Storm water monitoring shall be conducted in accordance with the storm water sampling and analytical protocols set out at 55FR48083 (November 16, 1990), Item VII-A, B and C, General Instructions, (A- Sampling; B - Reporting; C - Analysis)."

The 2007 Draft Permit eliminates all such provisions in the storm water section addressing sampling protocols, without replacing them with anything else. This means that the Applicant is now free to choose any sampling methods they would like, solely in Applicant's own discretion, with no legally enforceable requirements binding on the Applicant. This omission from the 2007 Draft Permit is unacceptable because it undermines the validity of the storm water monitoring requirements. It furthermore constitutes impermissible backsliding, as these protocols and methods are part and parcel of the effluent limitations they are put in place to monitor.

In addition, the prior 1994 permit required a program of semi-annual[6] storm water monitoring on the storm water discharge points. The present permit establishes only an annual monitoring requirement[7] for storm water. There is no basis laid out in either the Draft Permit or the Fact Sheet why IDEM is choosing to relax the monitoring provisions. Moreover, it is inconsistent with the requirements for primary metals facilities set forth in USEPA's storm water general permit, which include the requirement that "[a]t a minimum, storm water discharges from selected primary metals facilities must be monitored quarterly during the second year of permit coverage." 60 FR at 50886. Such a change made without a valid basis in the record or applicable law is unacceptable, improper and arbitrary.

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6 See Condition I.F, p. 37 of 66, 1994 US Steel-Gary NPDES Permit

7 See Condition I.J.1, p 68 of 177, Draft NPDES Permit - Year 2007

Storm water pollutant monitoring is the ultimate measure of the effectiveness of storm water control BMPs as it is a measure of the effluents reflecting the achievement of such control efforts. Setting the storm water pollutant monitoring provisions to require only annual monitoring cannot ensure that such monitoring results will be typical of conditions throughout the year. Moreover, infrequent annual monitoring cannot serve to indicate pollutant control achievement implicit with the implementation (or lack thereof) of BMPs on an ongoing basis.

If fact, the record of existing storm water monitoring contains a basis for requiring more frequent than semi-annual storm water monitoring (see evaluation of storm water monitoring data below). When the existing record indicates the facility has the potential to discharge pollutants in storm water at a higher concentration than what was considered and included in Applicant's 1999 permit renewal application, the decision to decrease the frequency of required storm water monitoring may trigger aspects of NPDES anti-backsliding and antidegradation regulations.

D. The Applicant's Storm Water Monitoring Data Indicate Significant Non-Compliance, Requiring Both a Schedule of Compliance and More Stringent Controls in the Draft Permit

During Commenters' September 5-6, 2007 review of the US Steel NPDES files at the IDEM Document Room, we diligently searched the files for all storm water monitoring data from 1998 to the present. Commenters have compiled this data from the storm water reports and these spreadsheet reviews are shown in Attachment #4. The only data not compiled were two storm water outfalls that were active in 1998, but not in any subsequent reports filed after 1998.

The compiled storm water monitoring data in the spreadsheets, plus other file review materials, have led Commenters to the concerns and conclusions set forth below.

1. Applicant Failed to Comply with Required Storm Water Monitoring Frequency Under the 1994 Permit

The existing 1994 permit requires semi-annual storm water monitoring frequency.[8] However, during our September 5-6, 2007 review of IDEM files provided to us, with assurance that such files contained the entire NPDES record, we could identify and duplicate only a single report for years 1998, 2000 and 2006, when two reports should have been in the file. For year 2007 there were no storm water monitoring reports, despite the semi-annual requirement which continued upon the 1994 permit expiration in 1999.

If the Applicant did not file second reports for 1998, 2000 and 2006 and failed to file any reports so far in 2007, then the Applicant is in violation of current applicable requirements. No NPDES permit should issue without IDEM issuing a Notice of Violation, and without a compliance schedule and penalty for noncompliance to be assessed against the Applicant. For purposes of this NPDES proceeding, IDEM must make a finding on the record in response to this comment on whether any of the missing reports can be found and whether, in fact, the Applicant has failed to comply with pre-existing storm water monitoring requirements as alleged in this section.

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8 See Condition I.F, p. 37 of 66, 1994 US Steel-Gary NPDES Permit

2. Applicant Failed to File Storm Water Monitoring Reports on Storm Water Outfall 017 After May 29, 2003, in Violation of Permit Requirements

IDEM admits that the Applicant currently discharges site storm water from outfall 017 at section B.2.z of the Draft Permit Fact Sheet. However, a review of all of the storm water monitoring reports collected shows that the Applicant ceased providing storm water monitoring reports, in violation of current permit requirements, after the report submitted on May 29, 2003.

If the Applicant did not file the required reports on Outfall 017 starting at the second required report for 2003 to the present, then the Applicant is in violation of current applicable requirements. No NPDES permit should issue without IDEM issuing a Notice of Violation and without a compliance schedule and penalty for noncompliance to be assessed against the Applicant. For purposes of this NPDES proceeding, IDEM must make a finding on the record in response to this allegation of storm water sampling non-compliance.

3. No Information is in the Record Concerning Storm water Noncompliance at Twenty-one Unpermitted Storm Water Outfalls Discharging to Lake Michigan

A March 31, 2005 Notice of Violation to Applicant indicates a November 3, 2004 IDEM site inspection uncovering the existence of twenty-one unpermitted storm water outfall discharging to Lake Michigan. According to the Notice of Violation, such discharges occurred because of failure to operate all facilities and collection systems for wastewater in a proper manner. However, despite a diligent search of the IDEM NPDES permit and enforcement files, no information could be found indicating the disposition of the matter of these unpermitted storm water outfalls. The Draft Permit should not issue until and unless this matter is resolved and until the Applicant properly submits storm water monitoring data and SWPPP revisions addressing this problem, including provisions for a compliance schedule and assessment of a penalty for non-compliance.

4. USEPA Benchmark Exceedances at Individual Outfalls

Analysis of sampling results at the Applicant's individual outfalls show severe exceedances of the "parameter benchmark values" published by US EPA, provided as Attachment #5. These are stormwater monitoring values that, in EPA's words:

> "....EPA established "benchmark" concentrations for the pollutant parameters on which monitoring results had been received. The "benchmarks" are the pollutant concentrations [for storm water] above which EPA determined represent a level of concern. The level of concern is a concentration at which a storm water discharge could potentially impair, or contributed to impairing, water quality or affect human health from ingestion of water or fish. The benchmarks are also viewed by EPA as a level that, if below, a facility presents little potential for water quality concern. As such, the benchmarks also provide an appropriate level to determine whether a facility's storm water pollution prevention measures are successfully implemented. The benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are merely levels which EPA has used to determine if a storm water discharge from any given facility merits further monitoring to ensure that the facility has been successful in implementing a SWPPP. As such, these levels represent a target

concentration for a facility to achieve through implementation of pollution prevention measures at the facility."[9]

The Applicant's consistent severe exceedance of these benchmark values – often by several orders of magnitude -- demonstrates that current storm water control measures are plainly insufficient. Thus, IDEM must not only substantively review the Applicant's SWPPP measures, for the reasons described above, but must also require more stringent measures (including numeric limits where appropriate) to prevent continued exceedance of benchmark values.

Outfall SW-01 – Application Content and Monitoring Data Evaluation

Outfall SW-01 drains storm water from an area on the east side of the ship/barge slip.

TSS. For this outfall, total suspended solids (TSS) concentrations vary over 5 orders of magnitude with measured year 2002 and 2004 concentrations far exceeding 1999 application TSS effluent characterizations. On and after May, 2002 all TSS values exceed EPA's TSS benchmark of 100 mg/l. Such values and the deterioration with time raise questions about the adequacy of SWPPP measures or whether such measures are actually being carried out. Flow weighted values of 7300 to 30000 mg/l in Years 2002 and 2004 are discharge which would cause a violation of narrative WQS by introducing pollution that would otherwise cause otherwise clear water to have highly visible turbidity. Such values do not represent a proper level of storm water pollution control for total suspended solids.

COD. Three results for chemical oxygen demand show values from 280 to 1000 mg/l raising questions about what is causing such high concentrations of COD.

Pb. On and after May 13, 2002, flow weighted lead (Pb) measured concentrations exceeded EPA's benchmark of 0.0816 mg/l in 3 out of 7 tests, with the highest being 67 times the EPA lead benchmark value in Year 2004.

Zn. On and after May 29, 2001, flow weighted zinc (Zn) measured concentrations exceeded EPA's benchmark of 0.117 mg/l in 8 out of 9 tests, with the highest being 317 times the EPA zinc benchmark value in Year 2004.

Magnesium. Magnesium data in the original 1999 application indicate maximum flow weighted concentration of 16.6 mg/l or 203 times EPA's benchmark concentration. Despite the high magnesium in the application, no magnesium periodic storm water sampling has ever been required of the Applicant.

Outfall SW-02 – Application Content and Monitoring Data Evaluation

Outfall SW-02 drains storm water from an area on the west side of the ship/barge slip.

TSS. For this outfall, total suspended solids (TSS) concentrations vary over nearly 3 orders of magnitude with the measured year 2002 concentration far exceeding 1999 application TSS effluent characterizations for this outfall. From 1998 onward, all flow weighted TSS values

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9 See 65 Fed. Reg. 64766-7, October 30, 2000; renewal of the federal storm water general permit.

exceed EPA's TSS benchmark of 100 mg/l with the highest being 9400 mg/l. Such a value raises questions about the adequacy of SWPPP measures or whether such measures are actually being carried out during the time of sampling. Flow weighted values of 9400 in year 2002 constitute a discharge which would cause a violation of narrative WQS by introducing pollution that would otherwise cause otherwise clear water to have highly visible turbidity. Such a value does not represent a proper level of storm water pollution control for total suspended solids.

<u>COD</u>. In the period from May 1998 to May of 2003, 8 out of 9 flow weighted composite results for chemical oxygen demand show values exceeding EPA's benchmark of 120 mg/l, with the highest being 1900 mg/l for October, 2002.

<u>Pb</u>. From 1998 through 2002, flow weighted lead (Pb) measured concentrations exceeded EPA's benchmark of 0.0816 mg/l in 7 out of 8 tests, with the highest being 12 times the EPA lead benchmark value in Year 2002.

<u>Zn</u>. Of 13 test results from 1998 to 2006, all but one flow weighted zinc (Zn) result exceeded EPA's benchmark of 0.117 mg/l, with the highest being 125 times the EPA zinc benchmark value in Year 2002.

<u>Magnesium.</u> Magnesium data in the original 1999 application indicate maximum flow weighted concentration of 3.99 mg/l or 62 times EPA's benchmark concentration. Despite the high magnesium in the application, no magnesium periodic storm water sampling has ever been required of the Applicant.

Outfall SW-06 – Application Content and Monitoring Data Evaluation

Outfall SW-01 drains storm water from the "Railroad - 035 area."

<u>TSS</u>. For this outfall, flow weighted composite total suspended solids (TSS) concentrations vary over 3 orders of magnitude with measured October 2003 concentrations exceeding 1999 application TSS effluent characterizations. Of 13 TSS results from 1998 to 2006, 11 exceed EPA's TSS benchmark of 100 mg/l and 6 exceed 1000 mg/l. Highest flow weighted composite TSS measured occurred in year 2003 and 2006 indicating some deterioration of the TSS storm water control measures in what should otherwise be a well developed control program initiated in 1997. Such values and the deterioration with time raise questions about the adequacy of SWPPP measures or whether such measures are actually being carried out. Flow weighted values of 5900 and 4100 mg/l in Years 2003 and 2006 are discharge which would cause a violation of narrative WQS by introducing pollution that would otherwise cause otherwise clear water to have highly visible turbidity. Such values do not represent a proper level of storm water pollution control for total suspended solids.

<u>COD</u>. Out of 13 analytical results, all but 2 exceed EPA's benchmark for chemical oxygen demand. Two high values are 1900 in year 1999 and 4000 in year 2003.

<u>Pb/Zn</u>. Although the 1999 application shows lead and zinc over EPA's benchmark values for these pollutants, no periodic storm water monitoring for lead or zinc has ever been required by IDEM or done by the Applicant for this storm water outfall after the 1999 permit application was published.

Magnesium. Magnesium data in the original 1999 application indicate maximum flow weighted concentration of 6.3 mg/l or 77 times EPA's benchmark concentration. Total Iron data in the original 1999 application indicate maximum flow weighted concentration of 55.3 mg/l or 55 times EPA's benchmark concentration. Despite the high Magnesium and Iron in the application for this outfall, no periodic storm water sampling has ever been required of the Applicant for these pollutants..

Phosphorus. Total phosphorus for flow weighted composite samples in 4 out of 13 analytical results exceeded EPA's benchmark for total phosphorus at this outfall.

Outfall SW-08 – Application Content and Monitoring Data Evaluation

Outfall SW-08 is the Virginia Street Drain.

TSS. For this outfall, total suspended solids (TSS) concentrations vary over 2 orders of magnitude with measured year 2000, 2004 and 2006 concentrations exceeding 1000 mg/l for TSS effluent. A year 2000 grab sample was at 11000 mg/l. Out of 13 analytical results, 12 results exceeded EPA's 100 mg/l benchmark TSS concentration.

COD. Eight of thirteen chemical oxygen demand test results exceed EPA's benchmark concentration of 120 mg/l.

Pb. On and after April 20, 2000, all flow weighted lead (Pb) measured concentrations exceeded EPA's benchmark of 0.0816 mg/l, with the highest being 70 times the EPA lead benchmark value in Year 2000.

Zn. All 13 test results for flow weighted composite samples of zinc (Zn) measured concentrations exceeded EPA's benchmark of 0.117 mg/l. After the highest spike in year 2000, all values for zinc were especially deteriorated from October 2002 to year 2006. The four highest zinc concentrations were in 2000, June, 2004; November, 2004 and June 2006 at 1076, 194, 112 and 57 times the EPA zinc benchmark, respectively.

A May 2003 test result for Nitrate/Nitrite was 180 mg/l, or 264 times EPA's benchmark for this pollutant.

Outfall SW-08 – Application Content and Monitoring Data Evaluation

Outfall SW-08 is the "Tennessee Street Drain."

TSS. For this outfall, 11 of 13 test results exceed EPA's total suspended solids (TSS) benchmark concentration of 100 mg/l. The highest of 1300 mg/l for flow weighted composite sample was in 1998.

COD. Eight of 13 results for chemical oxygen demand exceed EPA's benchmark concentration for COD of 120 mg/l.

Pb. Four of 13 test results for flow weighted composite samples for lead measured concentrations exceeded EPA's benchmark of 0.0816 mg/l, with the highest being in 1998, November 2004 and in 2006.

Zn. Twelve out of 13 analytical results for flow weighted composite samples of zinc effluents exceeded EPA's benchmark of 0.117 mg/l. The highest concentrations occurred in 1998, June 2004 and June, 2006.

Outfalls SW-11, 134, 034/EJ&E and 017 – Monitoring Data Evaluation

Outfalls SW-11, 134, 034/EJ&E and 017 were largely unremarkable except for high ammonia and COD occurring at Outfall 134, with a spike in TSS for June 2004. However, the Applicant claims no discharge to surface waters from Outfall 134.

III. The Monitoring Requirements in the Draft Permit Are Fundamentally Insufficient to Ensure Compliance with Effluent Limitations

A. Monitoring Frequency and Methodology are Generally Inadequate

1. Mercury

In several outfall locations throughout the permit, IDEM has provided for mercury monitoring on a bi-monthly grab sample basis. This monitoring requirement frequency is not capable of determining a either 30 day monthly average or a reliable daily maximum on either daily loading or concentration final requirements. Bi-monthly grab monitoring is certainly not capable of distinguishing between a maximum daily maximum and a 30 day monthly average. Composite sampling on a more frequent basis should be required sufficient to determine a valid daily maximum and 30 day monthly on a statistical basis.

2. Temperature

The effluent temperature monitoring requirements of the draft permit feature, in general, 1X or 2X Weekly monitoring of 6 grabs in a 24 hour period. Only Outfall 35 has state of the art requirements for continuous monitoring for both temperature and heat discharge rate. All thermal effluents under the Draft Permit should have temperature and heat discharge monitoring requirements similar to or the same as those for Outfall 35. Continuous temperature and heat input monitoring are reliable, affordable and state of the art methods for this type of monitoring. The 1X/2X/6 grabs per 24 hour temperature monitoring requirements are artifacts of a long bygone era of primitive temperature monitoring.

3. Cyanide

Throughout the permit whenever a cyanide analytical requirement occurs, the "requirements sample" column says "see Part I.Q." However, nothing in that section clarifies the sample protocol vs. holding time problem and requirements. If these are separate determinations on multiple grab samples in a 24 hour period, then Part I.Q is going to have to be amended to explain the sampling timing and procedures in detail. In the absence of such specificity, the permit would essentially authorize the Applicant to use their sole discretion over this crucial sampling protocol issue.

B. Monitoring Frequency is Inexplicably and Unacceptably Reduced from Monitoring Levels Contained in the Current Permit

Outfall 005 is proposed in both pre-mix and a post mix scenarios, as the Applicant is contemplating at an unspecified future date that the discharge from Outfall 501 will be combined with the discharge from Outfall 010, such that the mixed effluent from both 501 and 010 will be discharged to Outfall 005 in the eventual post-mix scenario Outfall 501 is the output of the coke byproducts wastewater treatment plant and is discharged as an internal outfall without further treatment to Outfall 005.

The Draft Permit, particularly when coupled with IDEM's post-1994 decisions, shows a pattern of unacceptable reductions in the frequency of required effluent monitoring practices required for the Applicant at the subject outfalls for some pollutants. Reduced monitoring frequencies means fewer accountability measures for the enforcement of effluent limitations, and reduced information on the performance of treatment equipment and process operational variability affecting the amount of pollution effluents.[10]

These reductions in monitoring frequency are of particular concern in view of the increase in stringency of some of the effluent limitations. Nothing in the Draft Permit Fact Sheet lays out a basis for these reduced monitoring pollutant and frequency requirements. These weakened monitoring requirements, without explanation or sound justification, are arbitrary and capricious, and will significantly diminish IDEM's and the public's ability to ensure that the Applicant complies with its permit limits.

1. Internal Outfall 501

This is the coke byproduct plant treatment plant output to Outfall 005. The 1999 final permit amendments provided 10X Monthly monitoring frequency for loading and aqueous concentration for Oil & Grease, Selenium, Benzene, Benzo(a)pyrene, Naphthalene, Phenols, Ammonia as N, Total Cyanide and Free Cyanide; and 3X Monthly on Total Iron and Dissolved Iron.

The 2007 Draft Permit drops all Iron monitoring and reduces Benzene monitoring to 3X Monthly; for all other pollutants mentioned in the prior paragraph, monitoring requirements are reduced to 2X Weekly or little more frequently than eight times monthly. However, the 2007 Draft Permit contains more stringent effluent limitations under this reduced monitoring frequency for Oil & Grease, Benzene, Benzo(a)pyrene, Naphthalene, Ammonia and Phenol, and new effluent limitations (compared to previous "report only" requirements) for Selenium and

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[10] Commenters are concerned about the effect of past final decisions reducing monitoring frequencies between time of the issuance of the 1994 permit up to and including all four permit amendment proceedings in 1996 through 1999. Because the time for comment on those 1996 to 1999 amendments has passed, Commenters choose to focus on the reduced frequency of monitoring inherent in the issuance of the 2007 Draft Permit compared to the most recent final articulation of effluent limitations and monitoring requirements. For this group of outfalls, the 1999 permit amendments to the 1994 permit are the baseline for comparison as these are the most recent final decisions concerning this subject matter. Commenters do not know at this writing if the Applicant has been complying with the 1999 monitoring frequencies or not, but we urge IDEM to make a finding on the record whether or not the Applicant has been observant of the 1999 monitoring frequency requirements for this outfall group

Total Cyanide. Nothing in the Draft Permit Fact Sheet lays out a basis for these reduced monitoring pollutant and frequency requirements, notably in view of the increase in stringency of some of the effluent limitations. These weakened monitoring requirements, without explanation or sound justification, are arbitrary and capricious, and will significantly diminish IDEM's and the public's ability to ensure that the Applicant complies with its permit limits.

2. Outfalls 005 and 010 - Pre- & Post- 010 Mix Scenarios

The 1999 final permit amendments provided 10X Monthly monitoring frequency for loading and aqueous concentration for Oil & Grease, Selenium, Benzene, Benzo(a)pyrene, Phenols, Ammonia as N, Total Cyanide and Free Cyanide and Fluoride; the 1999 final permit amendments also provided 3X Monthly monitoring frequency on Nitrate, Nitrite, Choride, Sulfate, Arsenic, Iron, Magnesium and Manganese. These are for both Outfalls 005 and 010 or under the more stringent rubric of Outfall 200 which was a "bubble" of the two outfalls.

For both pre-mix and post mix scenario Outfall 005, the 2007 Draft Permit drops all Iron, Magnesium, Manganese, Arsenic, Nitrate and Nitrite monitoring, and reduces Benzene monitoring to 3X Monthly from 10X Monthly. For Oil and Grease, Benzo(a)pyrene (interim and final), Free Cyanide (season 1, season 2 interim and season 2 final) required monitoring frequency is dropped from 10X monthly to 2X Weekly (little more than 8X monthly). For Selenium and Ammonia (summer and winter), required monitoring frequency drops from 10X monthly to 1X Weekly. For Fluoride, monitoring frequency goes from 10X Monthly to 2X Monthly; Chloride and Sulfate required monitoring frequency drops from 3X Monthly to 2X Monthly.

For pre-mix scenario Outfall 010, the 2007 Draft Permit drops all Selenium, Iron, Magnesium, Manganese, Arsenic, Nitrate and Nitrite monitoring and reduces Benzene monitoring to 3X Monthly from 10X Monthly. For Oil and Grease and Benzo(a)pyrene (interim and final) required monitoring frequency is dropped from 10X monthly to 2X Weekly (little more than 8X monthly). For ammonia (summer and winter), monitoring frequency drops to 1X Monthly and such monitoring is not capable of reliable determine on daily maximum or monthly average ammonia effluent parameters. For Free Cyanide, Chloride and Sulfate, required monitoring frequency drops to 2X Monthly from 10X Monthly for Cyanide and 3X Monthly for Chloride and Sulfate.

3. Other instances

Upon review of outfalls other than 005/010/501, Commenters have identified several other cases of the pollutant monitoring frequency being reduced in an objectionable manner without any basis or findings by IDEM. All of these reductions are identified and summarized in the spreadsheet shown as Attachment #7. The permit should not issue with such extensive and unexplained reductions in the monitoring requirements in the 2007 Draft Permit.

IV. Worst Case Loading Conditions for Internal Outfalls Exceed Limits Applicable to the External Outfalls to Which These Outfalls Discharge

In several places, the permit inexplicably sets lower limits at external outfalls than the limits applicable to upstream internal outfalls that discharge effluent to those external outfalls with no treatment in between the internal and external outfalls to explain the difference. Thus, the permit essentially sets up the external outfalls for permit exceedances in the event of worst case scenario loading coming to them from the internal outfalls that discharge to them. This structure makes no sense, and must be revised.

A. Worst Case Ammonia Loading Conditions to Outfall 005

In the post-005/010 mix scenario, the following loading conditions can potentially occur as shown in the table below:

Ammonia - lbs/day	**Monthly Average Loading**	**Daily Maximum Loading**
010 - any season	113	338
501 - any season	126.4	429
Subtotal - worst case	239.4	767
Allowable - 005 Draft Permit		
005 - summer	217	432
005 - winter	437	962

As a result, loading from worst case simultaneous maximum ammonia loading from post-mix Outfall 501 (Outfalls 010 and 501 combined) would exceed the summer allowable effluents alone for Outfall 005 -- without even considering the additional ammonia effluent loading potential from sources in addition to Outfall 501 to Outfall 005 in worst case conditions. As noted above, there is no intervening wastewater treatment unit between the Internal Outfall discharge 501 point and the Outfall 005 discharge that would reduce ammonia loading between the two outfalls.

This discharge structure is illogical, arbitrary, and capricious. It simply makes no sense to effectively set up external Outfall 005 by allowing upstream (post-mix) internal Outfall 501 to discharge to it a loading of pollutants in excess of what Outfall 005 is allowed to emit downstream, with no treatment in between the two to explain the difference.

Moreover, the very limited and ineffectual monitoring of Outfall 005 ensures that to the extent worst case scenario loading from Outfall 501 does cause exceedances at Outfall 005, those exceedances will very likely never be detected or prevented. The unacceptably low monitoring frequency of 1X weekly on Outfall 005 sets up the Applicant to escape accountability for worst case ammonia loading conditions associated with simultaneous high ammonia effluents for Outfalls 005, 010 and 501 under the permit.

B. Worst Case Cyanide[11] Loading Conditions to Outfall 005

In both 005/010 mix scenarios (pre- and post-mix), the following worst case conditions can potentially occur as shown in the table below for the 2007 Draft Permit:

Free Cyanide - lbs/day	Monthly Average Loading	Daily Maximum Loading
501 - any season -worst case	27.4	50.4
005 - pre-mix - allowable (season 1) and (season 2 - interim)	3.9	9.2
005 - pre-mix - allowable (final effluent limit)	3.1	6.6
005 - post-mix - allowable (season 1) and (season 2 - interim)	4.0	9.4
005 - post-mix - allowable (final effluent limit)	3.1	6.8

As a result, loading from Internal Outfall 501 worst case conditions allowed under the permit can only mean that allowable effluent loading would be exceeded under all conditions for Outfall 005. As noted above, there is no intervening wastewater treatment unit between the Internal Outfall discharge 501 point and the Outfall 005 discharge that would reduce cyanide loading between the two outfalls.

Moreover, the very limited and ineffectual monitoring of Outfall 005 ensures that to the extent worst case scenario loading from Outfall 501 does cause exceedances at Outfall 005, those exceedances will very likely never be detected or prevented. The unacceptably low monitoring frequency of 1X weekly on Outfall 005 sets up the Applicant to escape accountability for worst case cyanide loading conditions associated with simultaneous high ammonia effluents for Outfalls 005, 010 and 501 under the permit.

V. The 2007 Draft Permit Allows Impermissible Backsliding from the Pre-existing 1999 Final Permit Limits, Without Justification or Appropriate Analysis

In numerous instances documented below, the Draft Permit renders current discharge limitations significantly less stringent. In some cases, it simply eliminates them altogether. No explanation is given for most of this backsliding on permit limits.

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[11] Note that the terms exist for Total Cyanide and Free Cyanide in the permit but that the foot notes say that all Cyanide is to be "measured and reported as Free Cyanide, Weak Acid Dissociable." As a result, the meaning of the term "Total Cyanide" appears to actually be the same as "Free Cyanide," notwithstanding the actual requirements and specifications of applicable test methods.

In cases where the contaminant at issue is one for which the Grand Calumet River is currently in violation of applicable WQS – which include ammonia, cyanide, and oil and grease – the increases are illegal under any circumstances under the CWA. For pollutants for which the Grand Calumet River is currently meeting WQS, those increased discharge limits require antidegradation analysis, which has not been done. Thus, the permit cannot be issued until the allowance for increased discharges is eliminated, or, where appropriate, the requisite antidegradation analysis has been completed.

A. Cyanide

The following tables sets forth the disposition of allowable cyanide effluent loading limits in previous final and the current draft provisions:

Cyanide Allowable Loading	**Monthly Average (lbs/day)**	**Daily Maximum (lbs/day**
1999 limits -- Bubble 200 (005/010)	3.5	8.2
2007 Draft - Post mix - 005 - season 1	4.0	9.4
Total additional impermissible Free Cyanide backsliding over pre-existing 1999 final effluent limits authorized under the 2007 Draft Permit until final effluent limitation reached (potentially in 60 months after permit issuance)	182.5 lbs of cyanide per year	

Thus, the permit allows an increase in cyanide loading from Outfall 005 during the period of applicability of the 2007 Permit.

Additionally, as discussed above, the Draft Permit contemplates that at some unspecified future date, Outfalls 010 and 501 will be combined such that both outfalls will discharge through Outfall 005 (the post-mix scenario). However, prior to that time (the pre-mix scenario), Outfall 010 discharges directly to surface water, and thus requires sufficient discharge limits independent of any limits placed on Outfall 005 (which will ultimately control discharge from Outfall 010 in the post-mix scenario). However, IDEM has inexplicably removed the independent limit for cyanide discharge at Outfall 010 in the pre-mix scenario. The removal of this standard constitutes backsliding from the 1999 permit limits for cyanide from Outfall 010. For pre-mix scenario Outfall 010, the final 1999 effluent limitations provided for a Free Cyanide 7.6 microgram per liter (ug/l) monthly average effluent concentration and a 18.0 ug/l effluent limitation for "bubble outfall" 200, which explicitly included Outfall 010. As a result of removal of these limits, nothing prevents the Applicant from discharging an unlimited amount of Free Cyanide from pre-mix Outfall 010. This concern is not merely academic. Applicant's 1999 permit renewal application submittal indicates that the maximum daily concentration of Cyanide is 26 ug/l for outfall 010, so this particular process equipment outfall is fully capable of discharging Cyanide at a rate greater than what was allowable under the 1999 final permit amendments and thus causing impermissible backsliding.

The increased discharge of cyanide from Outfall 010 in the pre-mix scenario – an indefinite and potentially lengthy period of time – constitutes impermissible backsliding on currently applicable permit limits. The Draft Permit should not be issued in final form until this problem is addressed.

B. Benzene

The 2007 Draft Permit explicitly removed all Benzene loading limit and concentration effluent limitations for Benzene that were previously present in the 1999 Final Permit amendments under the effluent limitation table for Outfall 200 which governed Outfall 005. As a result, nothing prevents the Applicant from discharging unlimited amounts of benzene from Outfall 005.

Applicant's year 2000 report indicates that the daily concentrations and loading limits for Benzene comply with the Final Effluent limitations of the 1999 permit, notwithstanding their qualifiers about accepting such limits (See Attachment #6). Further, Benzene reports were dropped from this series of reporting by the 2002-3 reports. From a process standpoint, the coke byproducts plant process wastewater must be considered an effluent source where failure to maintain controls will cause Benzene effluents to rise absent some countervailing effluent limitation.

Going from prior series of specific loading and concentration effluent limitations to potentially unlimited effluent discharge properly triggers the CWA antidegradation requirements and the requirement to maintain a Benzene BAT-BPJ technology-based effluent limitation. The Draft Permit should not be issued in form until this problem is addressed.

C. Fluoride

The 2007 Draft Permit explicitly removed all Fluoride loading limit and concentration effluent limitations that were previously present in the 1999 Final Permit amendments under the effluent limitation table for Outfall 200 which governed Outfall 005. At the very least, the 2700 microgram per liter daily maximum concentration limit should have gone into effect and survived for purposes of carrying forward to the new permit. Although claims may be made that there is no potential to exceed water quality based effluent limitations, removing the fluoride effluent limitation from the permit entirely is not an appropriate solution. Such a course of action essentially leaves the Applicant free to discharge an unlimited amount of fluoride – again, not an academic scenario given that the Applicant may either change its process to increase its discharge or allow its effluent controls to deteriorate and become ineffectual, but readily conceivable scenarios. A Fluoride limit should have been maintained in order to avoid backsliding and adhere, at minimum, to the requirement for a BAT-BPJ effluent limitation for Fluoride.

Going from prior series of specific loading and concentration effluent limitations to potentially unlimited effluent discharge properly triggers the CWA antidegradation requirements and the requirement to maintain a Benzene BAT-BPJ technology-based effluent limitation.
The Draft Permit should not be issued in final form until this problem is addressed.

D. Ammonia

The 2007 Draft Permit explicitly removed all ammonia loading limits effluent limitations that were previously present in the 1994 Final Permit under the effluent limitation table for Outfall

300 which governed a bubble of Outfalls 018 and 019. Although Outfall 300 was abolished, no ammonia loading limitations were carried over to individual Ammonia limits for Outfalls 018 and 019. Such a course of action leaves the Applicant free to discharge an unlimited amount of Ammonia from either outfall.

Ammonia limits should have been maintained in order to avoid backsliding and adhere, at minimum, to the requirement for a BAT-BPJ effluent limitation for Ammonia. The 1999 permit renewal application shows Ammonia for Outfall 018 with maximum loading of 1300 lbs/day and 370 lbs/day for Outfall 019.

Going from a prior series of specific loading effluent limitations to potentially unlimited effluent discharge constitutes impermissible backsliding. The Draft Permit should not be issued in final form until this problem is addressed.

E. Oil and Grease

The Fact Sheet for the 2007 Draft Permit states that Oil & Grease loading effluent limitations of 1500 lbs/day monthly average and 4000 lbs/day daily maximum based on best professional judgment were explicitly brought forward from the past permit.[12] However, review of the effluent limitation table for Outfall 034 in the 2007 Draft Permit shows a monthly average limit of 1850 lbs/day of Oil & Grease. Such a limit would allow 350 lbs/day of impermissible backsliding, for a total annual backsliding amount of 63.9 tons of Oil & Grease to the Grand Calumet River.

At the very least, the prior Oil & Grease limit of 1500 lbs/day monthly average should have been maintained. Additionally, for reasons described in a subsequent section herein, a WQBEL should also have been imposed for Oil & Grease.

Increasing the allowable Oil & Grease effluent loading limit in the effluent limit tables over the prior 1994 limit properly constitutes impermissible backsliding. The Draft Permit should not be issued in final form until this problem is addressed.

F. Total Recoverable Chromium

The 2007 Draft Permit explicitly removed the 1994 previous limits for Total Recoverable Chromium of 29.77 lbs/day monthly average and 50.31 lbs/day daily maximum from the effluent limitations table for Outfall 034. In the 2007 Draft Permit, IDEM has placed Total Recoverable Chromium effluent limitations under Internal Outfall 604 which flows through Outfall 034 with no intervening wastewater treatment units to further reduce Total Recoverable Chromium after discharge at Internal Outfall 604. The new effluent limits at Internal Outfall 604 are 48.5 lbs/day monthly average and 78.5 lbs/day daily maximum.

Thus, because all of the flow from Internal Outfall 604 flows through Outfall 034, effluents allowed under the 2007 draft permit would allow impermissible backsliding of 18.73 lbs/day for the monthly average and 28.19 lbs/day for the daily maximum. The annual additional Total Recoverable Chromium effluents would be 6838 lbs/year (3.4 tons).

[12] See Outfall 034 section, p. 37 of 49 of the 2007 Fact Sheet

Increasing the allowable Total Recoverable Chromium effluent loading limit in the effluent limit tables over the prior 1994 limit triggers the CWA antidegradation requirements. . The Draft Permit should not be issued in final form until this problem is addressed.

VI. Highly Contaminated Landfill Leachate Discharges Through Internal Outfall 607 Poses Unaddressed Compliance and Treatment Problems

Internal Outfall 607 receives highly contaminated landfill leachate discharged from the SWD-1 landfill. According to the permit application, this wastewater has a maximum concentration of biochemical oxygen demand of 810 mg/l making it over 3 times more contaminated with BOD-5 than typical untreated urban wastewater. It also has a high maximum chemical oxygen demand of 1400 mg/l. Although the flow rate is small at 0.202 million gallons per day (MGD) it is nevertheless a very contaminated waste. In addition, this wastewater discharge may feature transient wet weather flow characteristics associated with incident precipitation on the SWD-1 landfill which must be properly considered for possible need for of water quality based effluent limitations during such wet weather.

The disposition of this wastewater poses two different problems. First, it is not appropriate to handle this wastewater merely by mixing it with cooling water and discharging it uncontrolled to the Calumet River without any treatment. However, the 2007 Draft Permit authorizes discharge of this highly contaminated waste through Outfall 015 with no effluent limitations on either Internal Outfall 607 or Outfall 015 for BOD5, CBOD5 and COD.

Second, the Draft Permit states that this contaminated waste will be monitored once weekly, but because this is landfill leachate, such monitoring events may not properly characterize effluents that are more closely related to storm events.

VII. IDEM is Allowing the Applicant to Evade Clear Requirements for the Control of Non-Conventional and Toxic Pollutants at Several Outfalls by Failing to Set Effluent Limitations Reflecting BAT Standards and Other Technology-Based Standards

Under 40 C.F.R. §125.3, et seq., IDEM must impose technology-based effluent limitations on pollution effluents from Applicant's processes that reflect one or more of the required technology standards under the Act. Technology standards may be set either on the basis of express effluent restrictions, prohibitions, and effluent limitation guidance, or on the basis of case-by-case determinations using BPJ when a specific standard has not otherwise been set.

Under the federal rule, which is binding on IDEM and the Applicant, extensive BAT and BAT-BPJ effluent limitations were supposed to have been imposed in NPDES permits for the Applicant no later than March 31, 1989. In general, note that final compliance prior to that date would have been required within a 3 year compliance program under these rules.

Allowing the Applicant to emit unlimited and unrestricted chemical pollutant effluents cannot be construed as an effluent limitation or a determination using BAT- BPJ. However, both IDEM's past permit issued to the Applicant and the current draft permit allow exactly that result for copper and mercury effluents and other pollutants from the Applicant's facility. If the draft permit were issued in its current form, the Applicant would be under no effluent limitation requirements at all until up to 60 months after permit issuance at the future expiration date of the permit. There is no indication in the draft permit or the fact sheet that the Applicant applied for a Streamlined Mercury Variance (SMV), to the extent the SMV provisions may be applicable.

IDEM violated NPDES permitting requirements by issuing the last permit without copper or mercury effluent limitations, and the agency proposes once again to make the same unlawful decision. We note in addition that, before the issuance of the Great Lakes System Water Quality Standards in 1997, the Applicant should have been subjected to water quality based effluent limitations for general Indiana WQS for mercury that were in effect at the time. However, it appears the Applicant escaped these requirements as well because of IDEM's regulatory failures.

Mercury and copper are not the only pollutant for which IDEM has impermissibly failed to set technology-based effluent limitations at several outfalls in violation of the 33 U.S.C. §1311(b), 33 U.S.C. §1342 and 40 C.F.R. §125.3 requirements. Review of the Applicant's TRI reports list several chemical pollutants discharged to water in significant amounts that should have been subjected to an effluent limitation at a number of outfalls based on BAT-BPJ by the deadline of March 31, 1989. The draft permit allows uncontrolled release of these substances at some or all of the listed outfalls. These include: arsenic, hexavalent chromium, cyanide compounds, lead compounds, manganese compounds, polycyclic aromatic hydrocarbons and nitrate compounds.

Additionally, we have identified several processes at the facility that produce contaminants that require limits, but no such limits are in the draft permit. First, although steel industry pickling processes and coal pile storage may produce iron compounds, there is no evaluation or BAT-BPJ effluent limitations on discharge of iron. For example, there is no iron effluent limitation on internal outfall 606 which involves ferrous chloride recycling discharge. Second, there are virtually no effluent limitations in the permit for BOD5 and no effluent limitations at all for Chemical Oxygen Demand. Nor are there any requirements in the permit to maintain effluents at any minimum level of dissolved oxygen. Third, although boilerwater treatment additives are commonly known to contain phosphorus compounds, there are no phosphorus effluent limitations contained anywhere in the Draft Permit. And fourth, although cooling water slimicide compounds may use bromine instead of chlorine for slime control, the use of total residual chlorine effluent limitations will miss any such brominated compounds. (See also the subsequent section concerning failure to set standards for freeze protection industrial wasterwater.)

Additionally, IDEM failed to incorporate a required effluent limitation guideline for oil and grease of 3,722 lbs/day (max) and 1515 (average) for internal monitoring point 604.

Finally, IDEM produced an effluent limitation guidance report for outfall 028/030 addressing #1 and #2 continuous casting units and 160/210 Plate Mill of 687.1 lb/day (max) and 123.0 lbs/day (average) for oil and grease, but then set effluent limitations far exceeding these limits [2467 lb/day (max) and 952 lbs/day (average)] in the Draft Permit for outfall 028/030; nor did IDEM set any oil and grease effluent limitation at all for Internal Outfall 603 serving, in part, the 2 continuous caster lines.

VIII. Pollutant "Crosswalk" Review Between IDEM's "Reasonable Potential" Review and the Applicant's EPA Toxic Release Inventory Report Shows Significant Problems with Both Applicant's Reporting Obligations and IDEM's "Reasonable Potential " Analysis

Attachment #1 is a "crosswalk" spreadsheet review between annual mass of specific pollutants calculated from monthly average information contained in IDEM's "Reasonable Potential to Exceed" analysis and the Applicant's year 2000 TRI report for environmental releases through the water discharge pathway. Attachment #2 is a copy of the EPA TRI report on environmental releases showing US Steel for Year 2000.

For every pollutant indicated, all outfalls are listed except that only the consolidated 005/010 outfall was evaluated (and not the pre-merged outfalls).

The analysis indicates that IDEM's "reasonable potential" analysis accounted for only a small fraction of the annual aqueous effluents of mercury and cyanide that the Applicant has admitted it discharges to the environment through the water route in its year 2000 EPA Toxic Release Inventory report. The Applicant admitted discharging a total of 100 lbs of mercury per year in year 2000, but IDEM's "Reasonable Potential to Exceed" (RPE) analysis accounted for annual release of just 2.34 lbs per year of mercury. Similarly, the Applicant admitted discharging 14,000 pounds of cyanide compounds, but the IDEM RPE analysis only accounts for 1042 lbs per year of cyanide in aqueous effluents.[13]

In the case of mercury, the Applicant has admitted through its waste quantity TRI report that there must be a considerable process flux of mercury and mercury compounds at its facility as the waste quantity report for year 2005 indicates just under 1500 lbs of mercury in waste management and considered as being "recycled onsite" in reports filed with US EPA.

No final permit should issue for the subject facility without an explanation for the discrepancy between calculations based on its monthly average effluents of mercury and its reports to EPA on the toxic release inventory for both mercury and cyanide.

For the pollutants benzene, naphthalene, ammonia, manganese, lead, zinc and polycyclic aromatic hydrocarbons, the calculated effluent data to which the Applicant admitted for the various outfalls indicated in the IDEM RPE report show annual aqueous effluents of these pollutants that exceed, sometimes dramatically, what the Applicant has admitted as being pollutants discharged to the water route in its EPA Toxic Release Inventory report.

IX. The Applicant 1999 Permit Application Fails to Provide Any Information to Characterize the Matter of its Uncontrolled Discharges of "Freeze Protection" Industrial Wastewater

The Fact Sheet and Draft Permit indicate that the Applicant discharges "freeze protection" wastewater, and such discharges are apparently to occur with absolutely no treatment at all from

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[13] In the case of cyanide compounds, some differences may be attributable to TRI's emphasis on total cyanide compounds vs. the emphasis on free cyanide in IDEM's review.

the listed wastewater sources. If the Applicant uses ethylene glycol, di-ethylene glycol or propylene glycol for freeze protection,[14] such industrial wastewater discharges must be fully characterized in the renewal application. No uncontrolled discharge of this industrial waste should be allowed under the permit as the 2007 Draft Permit presently provides. Typical use of these substances for freeze protection involve preparation of solutions at 30-55% antifreeze content. IDEM should determine whether this waste should be considered as a RCRA Subtitle C Hazardous Waste. Alternatively, the best management practice for handling freeze protection waste would be to send such material out for recycling and recovery.

Freeze protection water is likely to cause elevated BOD5 and COD effluents. If it is discharged all at once at the end of the cold season, it would likely cause a very large spike in waste loading during the discharge process. In addition, some formulations of anti-freeze contain organo-metallic additives for corrosion control that pose significant additional toxicity over and above the fundamental freeze protection chemical constituent.

The Draft Permit should not issue with provisions and outfall descriptions allowing uncontrolled, untreated discharge of freeze protection industrial wastewater to Lake Michigan and Grand Calumet River. Like other chemical effluents from the facility, any discharge of freeze protection industrial wastewater must be subject to requirements for BAT determined by BPJ and potential WQBELs.

X. Neither IDEM's 2007 Draft Permit, Nor the Fact Sheet, Properly Address the Impaired Watershed Status of the Grand Calumet River

Attachment #10 is a listing of the current Clean Water Act Section 303(d) water quality impairments for the Grand Calumet River. Note in particular the impaired water quality for ammonia, cyanide, oil and grease, mercury and impaired biotic communities. IDEM has failed to properly address the consequences of these impaired water quality designations and its subsequent responsibilities concerning the applicable regulatory requirements and how these requirements affect the current permitting decision.

IDEM's failure to comply with 40 C.F.R. §122.44(d), governing Indiana Water Quality Standards,[15] in the currently proposed permit renewal action is extensive and multifaceted. Examples of these failures include, but are not limited to, the following:

> **WQBELs for Ammonia, Cyanide, Chlorides, Oil & Grease and Total Suspended Solids.** The 2007 Draft Permit fails to include required Water Quality Based Effluent Limitations (WQBELs) for these pollutants for which the Grand Calumet River violates WQS, for outfalls for which the 1999 application clearly indicates the presence of such pollutants. Some of these outfalls have no effluent limitation at all, and others have only a technology-based effluent limitation. Both failures are serious regulatory errors, and render the 2007 Draft Permit unapprovable under 42 U.S.C. §1312 and 40 C.F.R.

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[14] For example, elsewhere in the steel industry, AK Steel in Ohio discharges over 14,000 lbs of ethylene glycol per year. Ethylene Glycol is a TRI pollutant but Propylene Glycol is not.

[15] Relevant portions of the applicable rules are provided for reference as Attachment #11.

§122.43(a). Because of the existing impaired biota, discharge of total suspended solids must be subjected to increased stringency under a WQBEL to control degradation of such biota from excessive TSS discharges.

WQBEL for Ammonia at Outfalls 005 and 010. It is clear that there is a reasonable potential to violate the water quality standard given that there is ammonia in the process water at these outfalls. The Fact Sheet's claim[16] that the measured discharges have not violated the concentrations limits that would be set using the appropriate WQBEL is no reason not to establish proper limits given that there is obviously a potential to exceed if the necessary wastewater treatment is not performed.

Whole Effluent Toxicity (WET). Under 40 C.F.R. §122.44(d)(1)(iv) & (v), WET limits are required for several of Applicant's outfalls but IDEM has provided actual limits on only two such discharges.

Affects on a Downstream State. Under 40 C.F.R. §122.44(d)(4), IDEM has a duty to address the effects of Applicant's effluents on applicable water quality requirements and achievement of WQS in another state in Illinois. However, IDEM has failed to carry out this duty.

Failure to Consider All Outfalls. Review of Attachment #9 demonstrates that IDEM failed to account for Applicant's stormwater outfalls, the Passive Dewatering Facility outfall, former Outfall 036 and perhaps other area outfalls (for example from combined sewer overflows and other area stormwater discharges) in calculation of preliminary effluent limits as potential WQBELs.

Generally speaking, comparing the data in Attachment #9 concerning the calculation of Preliminary Effluent Limitations with the 2007 Draft Permit effluent limitations indicates that some of those draft effluent limitations allow greater pollution concentrations and loadings than what IDEM itself has calculated as being the necessary WQBEL to comply with Indiana Water Quality Standards. For example, as noted above, IDEM's draft permit contains allowable ammonia effluent limitations and loadings which exceed the calculated PEL effluents that are needed to comply with the ammonia summer and winter water quality standards.

IDEM's Fact Sheet indicates that these instances are not errors but rather a reflection of standard practice.[17] All such instances in the permit when authorized effluent limitations exceed the calculated effluent level necessary to meet WQS in receiving waters are inconsistent with the requirements of the CWA. IDEM's PEQ/PEL screening process for "reasonable potential to exceed" cannot be interpreted as allowing effluents that would otherwise violate WQS, as interpretation would violate the clear requirements of 40 C.F.R. §122.4. IDEM may not rely merely on only voluntary measures by the Applicant, or assumptions based on historic data, as a means of maintaining effluents at or below historic performance levels. Yet this is precisely what IDEM has done according to the Fact Sheet. If the Applicant emitted ammonia at or near its allowed ammonia effluent limitation for Outfall 005, for example, it would clearly cause

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[16] Fact page 21 of 49

[17] See "Ammonia" section on page 21-22 of the 2007 Fact Sheet.

violation of the Indiana Water Quality Standards. Yet in such instance, IDEM would be powerless to enforce any more stringent effluent limitation under the Draft Permit as presently written. Use of IDEM's PEQ/PEL process to abolish effluent limitations, to allow backsliding from prior more stringent effluent limitations, and to justify higher pollution effluent concentrations and loadings than what would otherwise be allowed to meet Indiana WQS constitutes an abuse of the "reasonable potential to exceed" decision-making process and is unlawful under the Federal Act and EPA NPDES regulations binding on the State of Indiana.

This unlawful practice by IDEM has great significance for the health of Indiana waters, in particular in this instance the Grand Calumet River. IDEM has designated the headwaters of the Grand Calumet River under CWA Section 303(d) for the pollutants noted previously in this section as violating Indiana WQS, and US Steel-Gary is clearly a predominant polluter in this location. Applicant's discharges constitute virtually all of the volume of water flow in this location. Under these circumstances, using the PEQ/PEL process to conclude there is no reasonable potential to exceed and that there is no contribution being made by the Applicant to ongoing WQS violations can only be considered an improper and abusive use of IDEM's PEQ/PEL process.

Finally, as noted in the previous section concerning backsliding on currently applicable permit limits, IDEM is in some cases proposing to allow increased discharge of certain constituents (ammonia and cyanide) for which the Grand Calumet River is not in compliance with applicable WQS. Such increase is unlawful under the CWA under any circumstances.

All of these problems must be remedied with revised permit provisions, and additional information from the Applicant where appropriate, before the Draft Permit is finalized. However, as IDEM carries out these changes, if such activity leads to significant delays before the permit should be finalized, IDEM should enter into an agreed order with the Applicant setting a timetable for compliance with Great Lakes Water Quality Standard compliance. There should be no further delay in fulfillment of the Applicant's responsibility to achieve these standards merely because of inadequacies in the Draft Permit.[18]

XI. <u>No Evaluation Has Been Conducted to Determine the Environmental Consequences of Total Solids Effluents from the Applicant's Facility on Aquatic Flora and Fauna Once Deposited on the River and Lakebed</u>

The final permit configuration effluent tables authorizes discharge of 3.6 tons of total suspended solids per day on a monthly average basis just from outfalls with effluent limitations for total suspended solids. This does not count aqueous solids discharged through other outfalls and through stormwater for sources for which there are no total suspended solids effluent limitations. The record provided by IDEM contains no analysis of the impact such a discharge will have on aquatic flora and fauna in both the Grand Calumet River and in Lake Michigan.

In an area where substantial remediation activities are being undertaken to address river sediment contaminations and the effects such contamination has on aquatic biological resources,

[18] Commenters take note of the failure of IDEM's Indiana Water Quality Standards to provide interim water quality standards applicable to the rest of Indiana in the time period before final compliance is achieved with the Great Lakes System Water Quality Standards for applicant Great Lakes waters and tributaries.

no permit should issue until such an analysis has been completed.

XII. The 2007 Draft Permit Provides for Impermissible Backsliding on Whole Effluent Toxicity Effluent Limitation, Monitoring Requirements and Compliance End-Dates

The 1994 US Steel NPDES permit provided extensive Whole Effluent Toxicity (WET) emission limitations, monitoring and compliance requirements (See Attachment #8). The 2007 Draft Permit either eliminated many of the requirements or relaxed final compliance dates for the WET parameters.

The 1994 permit WET effluent limitations are summarized in the table below:

Outfall	WET Effluent Limit	Monitoring Frequency	Toxic Unit (TU) Definition
005	TU_{acute} = 1.0	Quarterly	100/LC50[19]
010	TU_{acute} = 1.0	Quarterly	100/LC50
028/030	TU_{acute} = 1.0	Quarterly	100/LC50
034	TU_{acute} = 1.0	Quarterly	100/LC50
005	$TU_{chronic}$ = 1.0	Quarterly	100/NOEL[20]
010	$TU_{chronic}$ = 20.0	Quarterly	100/NOEL
028/030	$TU_{chronic}$ = 5.1	Quarterly	100/NOEL
034	$TU_{chronic}$ = 6.9	Quarterly	100/NOEL

The 1994 permit also contained a narrative statement effluent limitation under footnote [4]:

> "Acceptable toxicity levels are different for each outfall based on flow of the East Branch of the Grand Calumet River. Under no circumstances can there be more than (1) acute unit (1TUa) at any outfall. In addition, no outfall can have more chronic toxicity after mixing which will result in more than one (1) chronic unit (1TUc) in 50% of the stream flow." 1994 US Steel NPDES permit, Condition I.H.2.e - Footnote [4].

1994 Permit Condition I.H.1.c required only monitoring, and not substantive compliance with the above limits, for 2 years, unless toxicity is demonstrated through the monitoring. If such toxicity is demonstrated, then the 1994 Permit required a toxicity reduction evaluation (TRE) and schedule of compliance with the above limits, as follows:

> "During the period beginning three years after approval of the TRE plan by the IDEM and U.S. EPA, the permittee shall comply with the discharge limitations and monitoring

[19] LC50 is the acute lethal concentration in percentage of effluent during whole effluent toxicity dilution protocol short term testing at which there is 50% mortality of the test species used.

[20] NOEL is the no observable effects level in percentage of effluent during whole effluent toxicity dilution protocol long term chronic testing at which there are no apparent toxic effects on the test species used.

requirements for whole effluent toxicity as specified below [effluent limitations for WET shown in the table above].

Records reviewed by commenters indicate that the monitoring results during the initial 2 years of the 1994 permit did, in fact, demonstrate toxicity, requiring development of a TRE. Thus, pursuant to the provision quoted above, US Steel was required 3 years following approval of the TRE it developed to be in compliance with all of the WET effluent limitations set forth above. Included in these requirements, as indicated in the table, was an ongoing WET quarterly testing requirement for both acute and chronic toxicity.

Notwithstanding this quarterly monitoring requirement, Commenters' review of the IDEM NPDES files show no evidence that this monitoring requirement was complied with at the conclusion of the 3-year period following approval of the TRE. Attachment #12 (Table 15 of the Fact Sheet) appears to confirm Commenters' conclusion that the Applicant never complied with ongoing WET quarterly monitoring requirements. Only a very few monitoring data points are identified for the 4 outfalls at issue, with the largest number being only 10. There should have been many more monitoring data points if the facility were complying with its ongoing WET quarterly testing requirements.

Based on the incomplete data obtained from insufficiently frequent monitoring reflected in Table 15, IDEM proceeded to render less stringent the Applicant's WET effluent limitations, monitoring and compliance requirements in the 2007 Draft Permit in the following manner:

IDEM eliminated all acute WET effluent limitations, and all monitoring and compliance deadline requirements associated with such limitations; there are no acute WET testing requirements contained in the 2007 Draft Permit at all that would provide ongoing assurance of acceptable acute WET effluents.

The 2007 Draft Permit was written without including an ongoing legally enforceable requirement to maintain all structural and non-structural elements of the TRE that was put in place pursuant to the 1994 permit.

IDEM eliminated the 1994 Permit chronic WET effluent limitations and final compliance deadlines for Outfalls 010 and 028/030 in the 2007 Draft Permit;

IDEM relaxed the final compliance deadline contained in the 1994 Permit —i.e., 3 years following approval of the TRE plan -- by allowing the Applicant to take up to 60 additional months following approval of the Final 2007 Permit to comply with the remaining two effluent limitations for chronic whole effluent toxicity at Outfalls 005 and 034.

These reductions in stringency are unjustified, particularly given the very incomplete set of monitoring data on which they were based. IDEM's use of the very limited database of WET testing that is the result of Applicant's non-compliance, and the use of IDEM's PEQ/PEL procedure (see previous section), provide insufficient basis for these changes.

In addition, not only should the Applicant's incomplete toxicity monitoring never have formed the basis for a relaxation of permit limits, but such noncompliance should have been the subject of an IDEM Notice of Violation and enforcement action. The 2007 Draft Permit should not issue without a schedule of compliance and penalty assessment for this failure to comply with WET testing requirements.

We note in addition that the relaxed final compliance date for compliance with the chronic WET effluent limitations remaining in the permit is particularly problematic given that this extension renders ineffective any future TRE plan processes that may be triggered during the 60 month life of the permit. Even if a TRE plan were triggered and implemented, subsequent failure to achieve a chronic WET limit would still be excused from being a violation of the permit by the 60 month final compliance provision.

XIII. <u>Cooling Water Intake Requirements</u>

The Applicant 1999 permit renewal application contains no information allowing evaluation of the environmental consequences of Applicant's cooling water intake operation on either aquatic biological resources, wastewater pollution, structural and nonstructural best management practices to control aquatic biological damage and any inherent pollution caused by water intake filtering practices. As such, Applicant's submittal is incomplete and non-approvable. IDEM should require the Applicant to submit sufficient structural and practice information to determine what level of aquatic biological damage mitigation is taking place through engineering and analysis of the best available control technology appropriate for existing facilities.

Applicant's cooling water intakes may have the potential to cause very large aquatic biological damage from entrainment losses of aquatic biological resources. A significant public trust and natural resources damage issue could be at stake in the continuing water intake practices of Applicant's once-through cooling water systems. No permit should issue without clear requirements that aquatic biological losses from cooling water intakes at Applicant's facility be identified through monitoring and reporting requirements. Data collection and reporting should include the tonnage of fisheries losses associated with these operations.

Additionally, the Applicant discharges large amounts of filter backwash, and such discharges are explicitly allowed by the permit. See for example, Condition Part I.A.28. Applicant's 1999 permit application submittal is incomplete because it fails to characterize the nature, amounts and inherent pollution associated with cooling water intake filter backwash discharges. Filter backwash discharges are a wastewater subject to regulation under the CWA. The Applicant is under a duty to characterize such effluents. Filter backwash can be expected to contain large amounts of biological detritus, including total solids, total suspended solids, putrescible materials, dead algae and other aquatic flora and fauna. This material may have substantial BOD5. Once the Applicant has collected this material on intake screens, it is not appropriate merely to sluice this material back off uncontrolled into Lake Michigan even if the material is of biological origin. Filter backwash discharges certainly have the potential to invoke many of the provisions and prohibitions under narrative Indiana WQS, notably against discharge of putrescible materials.

All such issues as are raised in this section should be elucidated in subsequent demands on the Applicant to reveal the nature of their operations and their impact on Lake Michigan's biological resources as a matter of protecting the public trust.

XIV. The Site-Specific Cyanide Criteria Established in the Draft Permit are Inadequate

The Draft Permit establishes separate cyanide discharge limits based on the purported seasonal presence or absence of adult salmonids. Varying the permit limit based on the presence of absence of salmonids may constitute an unlawful variance from WQBEL limits or otherwise be unlawful under the CWA. No use attainability analysis has been performed to show what species could be present in the receiving waters but for controllable pollution.

It has not been shown that weaker site-specific cyanide limits are justifiable. While it may be true that currently salmonids are only present in the receiving water for a portion of the year and that juvenile salmonids are never present, it has not been shown that such species would not be present in the receiving water bodies if the pollutants (discharged in substantial part by the Applicant) there were not present. Further, while salmonids may be the most sensitive species for which the necessary toxicity data exists, it is known that other Midwest species (e.g. bluegill) may be at least as sensitive as salmonids.

XV. Other Failures to Address Noncompliance With the Existing Permit

In addition to the unaddressed non-compliance by the Applicant referenced elsewhere in these Comments, a review of a current EPA ECHO system report shows the facility has chronic problems with existing effluent limitations for total cyanide at discharge point 400. However, no such discharge point appears to exist in the Draft Permit. No information is provided in the Fact Sheet on the disposition of discharge point #400. If this discharge has been incorporated elsewhere and such violations of effluent limitations are still a current problem, then any compliance schedule should incorporate stipulated penalties for continued effluent standard violations.

Furthermore, a review of the EPA PCS system reports appears to show a chronic problem of very late submittal of DMR reports. Similarly, stipulated penalties should be considered to address that enforcement problem. Chronic late submittal of DMRs is a practice that would have the effect of undermining the timely regulatory agency assessment of the compliance status of the facility, delaying enforcement and compliance efforts if they are needed. As a result, chronic late submission of DMRs must be regarded as a significant and serious affront to the compliance and enforcement process.

Conclusion

This concludes comments by NRDC and ELPC on the Draft Permit. Commenters reserve the right to submit additional comments identifying additional issues of Clean Water Act compliance in this NPDES permit proceeding based on additional information becoming available, comments submitted by all parties during the comment period and thereafter, and the required IDEM responsiveness summary in response to the public comment period. If you should have any questions concerning these comments, please don't hesitate to contact NRDC through Ann Alexander at 312-780-7427, and ELPC through Albert Ettinger, 312-795-3707. Thank you for your consideration of these comments.

Attachment #1

Review of specific pollutant effluents for monthly averages in "Reasonable Potential" report vs. TRI data

Outfall	Mercury - Monthly Average (ng/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Mercury Effluent (ng/year)	Annual Mercury Effluent (grams/year)	Annual Mercury Effluent (lbs/year)	TRI Report lbs in 2000
005/010	1.86	62.5	2.37E+08	1.61E+11	1.61E+02	0.35	
015	1.61	1.65	6.25E+06	3.67E+09	3.67E+00	0.01	
017	0.41	0.064	2.42E+05	3.63E+07	3.63E-02	0.00	
018	1.56	49.9	1.89E+08	1.08E+11	1.08E+02	0.24	
019	1.91	51.8	1.96E+08	1.37E+11	1.37E+02	0.30	
020	6.51	64.4	2.44E+08	5.79E+11	5.79E+02	1.28	
028	0.88	11.2	4.24E+07	1.36E+10	1.36E+01	0.03	
030	0.95	20.7	7.84E+07	2.72E+10	2.72E+01	0.06	
034	0.8	28.5	1.08E+08	3.15E+10	3.15E+01	0.07	
					Total	2.34	100

Outfall	Benzene - Monthly Average (ug/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Benzene Effluent (ug/year)	Annual Benzene Effluent (grams/year)	Annual Benzene Effluent (lbs/year)	TRI Report lbs in 2000
005/010	12	62.5	2.37E+08	1.04E+12	1.04E+06	2282	
					Total	2282	180

Outfall	Naphthalene - Monthly Average (ug/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Naphthalene Effluent (ug/year)	Annual Naphthalene Effluent (grams/year)	Annual Naphthalene Effluent (lbs/year)	
005/010	1.8	62.5	2.37E+08	1.55E+11	1.55E+05	342	
034	2	28.5	1.08E+08	7.88E+10	7.88E+04	173	
					Total	516	252

Outfall	Cyanide - Monthly Average (ng/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Cyanide Effluent (ug/year)	Annual Cyanide Effluent (grams/year)	Annual Cyanide Effluent (lbs/year)	TRI Report lbs in 2000
005/010	5.46	62.5	2.37E+08	4.71E+11	4.71E+05	1039	
015	0.7	1.65	6.25E+06	1.60E+09	1.60E+03	4	
017	0.9	0.064	2.42E+05	7.96E+07	7.96E+01	0	
					Total	1042	14000

Summer Values Ammonia Calculation

Outfall	Ammonia - Monthly Average (mg/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Ammonia Effluent (mg/year)	Annual Ammonia Effluent (grams/year)	Annual Ammonia Effluent (lbs/year)	TRI Report lbs in 2000
005/010	0.11	62.5	2.37E+08	9.50E+09	9.50E+06	20923	
015	0.26	1.65	6.25E+06	5.93E+08	5.93E+05	1306	
017	0.08	0.064	2.42E+05	7.07E+06	7.07E+03	16	
018	0.075	49.9	1.89E+08	5.17E+09	5.17E+06	11390	
019	0.055	51.8	1.96E+08	3.94E+09	3.94E+06	8670	
020	0.015	64.4	2.44E+08	1.33E+09	1.33E+06	2940	
028	0.18	11.2	4.24E+07	2.79E+09	2.79E+06	6135	
030	0.07	20.7	7.84E+07	2.00E+09	2.00E+06	4410	
034	0.026	28.5	1.08E+08	1.02E+09	1.02E+06	2255	
035	0.03	176.3	6.67E+08	7.31E+09	7.31E+06	16096	
040	0.16	0.2	7.57E+05	4.42E+07	4.42E+04	97	
					Total	74238	8123

Winter Values Ammonia Concentration

Outfall	Ammonia - Monthly Average (mg/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Ammonia Effluent (mg/year)	Annual Ammonia Effluent (grams/year)	Annual Ammonia Effluent (lbs/year)	TRI Report lbs in 2000
005/010	0.39	62.5	2.37E+08	3.37E+10	3.37E+07	74181	
015	0.42	1.65	6.25E+06	9.57E+08	9.57E+05	2109	
017	0.27	0.064	2.42E+05	2.39E+07	2.39E+04	53	
018	0.222	49.9	1.89E+08	1.53E+10	1.53E+07	33713	
019	0.178	51.8	1.96E+08	1.27E+10	1.27E+07	28061	
020	0.24	64.4	2.44E+08	2.14E+10	2.14E+07	47038	
028	0.11	11.2	4.24E+07	1.70E+09	1.70E+06	3749	
030	0.21	20.7	7.84E+07	6.01E+09	6.01E+06	13229	
034	0.051	28.5	1.08E+08	2.01E+09	2.01E+06	4423	
035	0.21	176.3	6.67E+08	5.12E+10	5.12E+07	112673	
040	0.16	0.2	7.57E+05	4.42E+07	4.42E+04	97	
					Total	319327	8123

Outfall	Manganese - Monthly Average (mg/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Manganese Effluent (mg/year)	Annual Manganese Effluent (grams/year)	Annual Manganese Effluent (lbs/year)	TRI Report lbs in 2000
005/010	0.16	62.5	2.37E+08	1.38E+10	1.38E+07	30433	
					Total	30433	11474

Outfall	Lead - Monthly Average (ug/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Lead Effluent (ug/year)	Annual Lead Effluent (grams/year)	Annual Lead Effluent (lbs/year)	TRI Report lbs in 2000
010	0.7	1.42	5.38E+06	1.37E+09	1.37E+03	3	
015	5	1.65	6.25E+06	1.14E+10	1.14E+04	25	
017	50	0.064	2.42E+05	4.42E+09	4.42E+03	10	
020	7	64.4	2.44E+08	6.23E+11	6.23E+05	1372	
028	7	11.2	4.24E+07	1.08E+11	1.08E+05	239	
030	6	20.7	7.84E+07	1.72E+11	1.72E+05	378	
034	5	28.5	1.08E+08	1.97E+11	1.97E+05	434	
040	2.25	0.2	7.57E+05	6.22E+08	6.22E+02	1	
					Total	2461	2299

Outfall	Zinc - Monthly Average (ug/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Zinc Effluent (ug/year)	Annual Zinc Effluent (grams/year)	Annual Zinc Effluent (lbs/year)	TRI Report lbs in 2000
005/010	15	62.5	2.37E+08	1.30E+12	1.30E+06	2853	
015	56	1.65	6.25E+06	1.28E+11	1.28E+05	281	
017	71	0.064	2.42E+05	6.28E+09	6.28E+03	14	
020	28	64.4	2.44E+08	2.49E+12	2.49E+06	5488	
028	54	11.2	4.24E+07	8.36E+11	8.36E+05	1841	
030	51	20.7	7.84E+07	1.46E+12	1.46E+06	3213	
034	66	28.5	1.08E+08	2.60E+12	2.60E+06	5725	
037	22	3	1.14E+07	9.12E+10	9.12E+04	201	
040	9330	0.2	7.57E+05	2.58E+12	2.58E+06	5679	
					Total	25294	17903

Three PAH Review - Benzo(a)anthracene; Benzo(a)pyrene, Naphthalene

Outfall	Three PAHs - Monthly Average (ug/l)	Listed Flow (mgd)	Calculated Flow (l/day)	Annual Three PAHs Effluent (ug/year)	Annual Three PAHs Effluent (grams/year)	Annual Three PAHs Effluent (lbs/year)	TRI Report lbs in 2000
005/010	2.213	62.5	2.37E+08	1.91E+11	1.91E+05	421	
034	2.24	28.5	1.08E+08	8.82E+10	8.82E+04	194	
					Total	615	81

Attachment #2

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Data source: Release Year 2005 PDR data set frozen on November 15, 2006 and released to the public March 22, 2007 See Note Go To New Report Instructions for printi

TRI On-site and Off-site Reported Disposed of or Otherwise Released (in pounds), for facilities in All Industries, for All Chemicals, zip code 46402 in Indiana, 2000

Row #	Facility	Fugitive Air	Stack Air	Total Air Emissions	Surface Water Discharges	Underground Injection Class I Wells	Underground Injection Class II-V Wells	Total Underground Injection	RCRA Subtitle C Landfills	Other Landfills	Land Treatment/Applicatin Farming	Total Surface Impoundments	Other Land Disposal	Total On-site Releases to Land
1	**CARMEUSE LIME INC., 1 N CARMEUSE DR, GARY**	**0**	**181**	**181**	**.**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
	MERCURY COMPOUNDS	0	181	181	.	0	0	0	0	0	0	0	0	
2	**PVS TECHS. INC., 1 N. BUCHANAN ST. RTE. 21, GARY**	**3**	**162**	**165**	**.**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
	CHLORINE	2	4	6	.	0	0	0	0	0	0	0	0	
	HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY)	1	158	159	.	0	0	0	0	0	0	0	0	
3	**REPUBLIC ENGINEERED PRODUCTS INC GARY CFB, 2800 E DUNES HWY, GARY**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**N.**
	CHROMIUM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	N.
	LEAD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	N.
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	N.
	NICKEL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	N.
4	**STANRAIL CORP., 1225 MARTIN LUTHER KING DR., GARY**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**N.**
	MANGANESE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	N.
5	**USS GARY WORKS, ONE N BROADWAY, GARY**	**305,704**	**573,823**	**879,527**	**3,274,926**	**0**	**0**	**0**	**0**	**10,076,174**	**0**	**0**	**0**	**10,076,17**

	2-METHYLPYRIDINE	0	0	0	0	0	0	0	0	0	0	0	0	
	ACETONITRILE	0	0	0	0	0	0	0	0	0	0	0	0	
	ALUMINUM (FUME OR DUST)	0	0	0	.	0	0	0	0	0	0	0	0	
	AMMONIA	92,000	87,000	179,000	8,123	0	0	0	0	0	0	0	0	
	ANTHRACENE	270	1,000	1,270	0	0	0	0	0	3	0	0	0	
	ANTIMONY COMPOUNDS	100	270	370	350	0	0	0	0	18,000	0	0	0	18,00
	ARSENIC COMPOUNDS	37	69	106	496	0	0	0	0	6,800	0	0	0	6,80
	BARIUM COMPOUNDS	81	190	271	5,600	0	0	0	0	11,000	0	0	0	11,00
	BENZENE	8,400	41,000	49,400	180	0	0	0	0	0	0	0	0	
	BENZO(G,H,I)PERYLENE	570	54	624	0	0	0	0	0	0	0	0	0	
	BIPHENYL	0	0	0	0	0	0	0	0	0	0	0	0	
	CADMIUM COMPOUNDS	79	230	309	25	0	0	0	0	12,000	0	0	0	12,00
	CALCIUM CYANAMIDE	0	0	0	0	0	0	0	0	0	0	0	0	
	CARBON DISULFIDE	2	0	2	0	0	0	0	0	0	0	0	0	
	CERTAIN GLYCOL ETHERS	0	0	0	0	0	0	0	0	0	0	0	0	
	CHROMIUM COMPOUNDS(EXCEPT CHROMITE ORE MINED IN THE TRANSVAAL REGION)	1,100	600	1,700	2,055	0	0	0	0	140,000	0	0	0	140,00
	COBALT COMPOUNDS	11	36	47	1,800	0	0	0	0	2,400	0	0	0	2,40
	COPPER COMPOUNDS	210	320	530	840	0	0	0	0	48,000	0	0	0	48,00
	CYANIDE COMPOUNDS	5,000	1,100	6,100	14,000	0	0	0	0	0	0	0	0	
	DIBENZOFURAN	0	380	380	0	0	0	0	0	0	0	0	0	
	DICYCLOPENTADIENE	0	0	0	0	0	0	0	0	0	0	0	0	
	DIOXIN AND DIOXIN-LIKE COMPOUNDS	0	**	**	.	0	0	0	0	0	0	0	0	
	ETHYLBENZENE	83	31	114	89	0	0	0	0	0	0	0	0	
	ETHYLENE	8,100	53,000	61,100	.	0	0	0	0	0	0	0	0	
	HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY)	89,000	230,000	319,000	.	0	0	0	0	0	0	0	0	
	HYDROGEN CYANIDE	0	1,300	1,300	.	0	0	0	0	0	0	0	0	
	LEAD COMPOUNDS	1,900	570	2,470	2,299	0	0	0	0	150,000	0	0	0	150,00
	MANGANESE COMPOUNDS	16,000	14,000	30,000	11,474	0	0	0	0	3,600,000	0	0	0	3,600,00
	MERCURY COMPOUNDS	0	7	7	100	0	0	0	0	30	0	0	0	3
	METHANOL	25,000	0	25,000	0	0	0	0	0	0	0	0	0	
	MOLYBDENUM TRIOXIDE	230	320	550	890	0	0	0	0	37,000	0	0	0	37,00
	N-HEXANE	0	38,000	38,000	.	0	0	0	0	0	0	0	0	

	NAPHTHALENE	3,700	51,000	54,700	252	0	0	0	0	14	0	0	0	1
	NICKEL COMPOUNDS	150	410	560	2,300	0	0	0	0	18,000	0	0	0	18,00
	NITRATE COMPOUNDS	0	0	0	3,200,084	0	0	0	0	0	0	0	0	
	O-CRESOL	260	370	630	0	0	0	0	0	0	0	0	0	
	PHENANTHRENE	0	3,800	3,800	57	0	0	0	0	19	0	0	0	1
	PHENOL	9,900	490	10,390	5,156	0	0	0	0	250	0	0	0	25
	POLYCYCLIC AROMATIC COMPOUNDS	240	0	240	81	0	0	0	0	8	0	0	0	
	PROPYLENE	1,300	5,000	6,300	.	0	0	0	0	0	0	0	0	
	PYRIDINE	24	0	24	0	0	0	0	0	0	0	0	0	
	SELENIUM COMPOUNDS	17	24	41	380	0	0	0	0	650	0	0	0	65
	SODIUM NITRITE	0	0	0	0	0	0	0	0	0	0	0	0	
	STYRENE	0	2	2	300	0	0	0	0	0	0	0	0	
	SULFURIC ACID (1994 AND AFTER "ACID AEROSOLS" ONLY)	0	3,500	3,500	.	0	0	0	0	0	0	0	0	
	THALLIUM COMPOUNDS	110	550	660	92	0	0	0	0	48,000	0	0	0	48,00
	TOLUENE	1,200	4,500	5,700	0	0	0	0	0	0	0	0	0	
	VANADIUM COMPOUNDS	300	500	800	0	0	0	0	0	84,000	0	0	0	84,00
	XYLENE (MIXED ISOMERS)	330	3,200	3,530	0	0	0	0	0	0	0	0	0	
	ZINC COMPOUNDS	40,000	31,000	71,000	17,903	0	0	0	0	5,900,000	0	0	0	5,900,00
	Total	**305,707**	**574,166**	**879,873**	**3,274,926**	**0**	**0**	**0**	**0**	**10,076,174**	**0**	**0**	**0**	**10,076,17**

(Note that if a facility name appears multiple times within each of the below tables, the facility is a multi-establishment and submitted multiple forms for Dioxin and I Note that in the table above, asterisks are shown to indicate that data for Dioxin and Dioxin-like compounds in grams (as required by EPA) was reported by the fac compounds in grams. Grams can be converted to pounds by multiplying by 0.002205.)

TRI On-site and Off-site Reported Disposed of or Otherwise Released of Dioxin and Dioxin-like Compounds (in grams), zip code 46402 in Indiana, 2000

Row #	Facility	Fugitive Air	Stack Air	Total Air Emissions	Surface Water Discharges	Underground Injection Class I Wells	Underground Injection Class II-V Wells	Total Underground Injection	RCRA Subtitle C Landfills	Other Landfills	Land Treatment/Applicatin Farming	Total Surface Impoundments	Other Land Disposal	Total On-site Releases to Land	Tot On- Dis or (Rel
1	USS GARY WORKS, ONE N BROADWAY, GARY	0.0000000	5.7000000	5.7000000	.	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000	5.7
	Total	**0.0000000**	**5.7000000**	**5.7000000**	**.**	**0.0000000**	**0.0000000**	**0.0000000**	**0.0000000**	**0.0000000**	**0.0000000**	**0.0000000**	**0.0000000**	**0.0000000**	**5.7**

Distribution of Each member of the Dioxin and Dioxin-like Compounds Category (as a percentage), zip code 46402 in Indiana, 2000

Row #	Facility	NA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	USS GARY WORKS, ONE N BROADWAY, GARY		6.20	1.40	7.70	6.80	1.80	4.90	0.00	0.00	0.90	1.10	1.00	1.70	0.00	19.80	1.10	44.10	1.50

Number	CAS No.	Chemical
NA		There is no speciation data available
1	67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran
2	55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran
3	70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran
4	57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran
5	72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran
6	60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran
7	39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin
8	57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin
9	19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin
10	35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin
11	39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran
12	3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin
13	57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran
14	57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran
15	40321-76-4	1,2,3,7,8-Pentachlorodibenzo-p-dioxin
16	51207-31-9	2,3,7,8-Tetrachlorodibenzofuran
17	1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin

Back to top

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Create comma-separated values, compatible with spreadsheet and databases.

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View other report type:

- Transfers Off-site for Further Waste Management; or
- Quantities of TRI Chemicals in Waste (waste management)

Note: Reporting year (RY) 2005 is the most recent TRI data available. Facilities reporting to TRI were required to submit RY 2005 data to EPA by July 1, 2006. TRI Explorer is using a *"frozen"* data set based on submissions as of November 15, 2006 and released to the public on March 22, 2007 for the years 1988 to 2005 (i.e., revisions submitted to EPA after this time are not reflected in TRI Explorer reports). Please access EPA Envirofacts to view TRI data with the most recent revisions.

Off-site disposal or other releases include transfers sent to other TRI Facilities that reported the amount as on-site disposal or other release because not all states and/or not all industry sectors are included in this report.

On-site Disposal or Other Releases include Underground Injection to Class I Wells (Section 5.4.1), RCRA Subtitle C Landfills (5.5.1A), Other Landfills (5.5.1B), Fugitive or Non-point Air Emissions (5.1), Stack or Point Air Emissions (5.2), Surface Water Discharges (5.3), Underground Injection to Class II-V Wells (5.4.2), Land Treatment/Application Farming (5.5.2), Surface Impoundments (5.5.3) and Other Land Disposal (5.5.4). Off-site Disposal or Other Releases include from Section 6.1 Underground Injection (M71), RCRA Subtitle C Landfills (M65), Other Landfills (M64, M72), Storage Only (M10), Solidification/Stabilization - Metals and Metal Compounds only (M41 or M40), Wastewater Treatment (excluding POTWs) - Metals and Metal Compounds only (M62 or M61), Surface Impoundments (M63), Land Treatment (M73), Other Land Disposal (M79), Other Off-site Management (M90), Transfers to Waste Broker - Disposal (M94, M91), and Unknown (M99) and, from Section 6.1 Transfers to POTWs (metals and metal compounds only).

For purposes of analysis, data reported as Range Code A is calculated using a value of 5 pounds, Range Code B is calculated using a value of 250 pounds and Range Code C is calculated using a value of 750 pounds.

The facility may have reported multiple SIC codes to TRI in the current reporting year. See the facility profile report by clicking on the facility name to see a list of all SIC codes submitted to TRI for the current reporting year.

A decimal point, or "." denotes that

1. the facility left that particular cell blank in its Form R submission (a zero in a cell denotes either that the facility reported "0" or "NA" in its Form R submission).
2. "NA" in a cell denotes that the facility has submitted only Form A and thus the data for release, waste transfers or quantities of TRI chemicals in waste are not applicable. By submitting a Form A the facility has certified that its total annual reportable amount is less than 500 pounds, and that the facility does not manufacture, process, or otherwise use more than 1 million pounds of the toxic chemical.

Users of TRI information should be aware that TRI data reflect releases and other waste management activities of chemicals, not whether (or to what degree) the public has been exposed to those chemicals. Release estimates alone are not sufficient to determine exposure or to calculate potential adverse effects on human health and the environment. TRI data, in conjunction with other information, can be used as a starting point in evaluating exposures that may result from releases and other waste management activities which involve toxic chemicals. The determination of potential risk depends upon many factors, including the toxicity of the chemical, the fate of the chemical, and the amount and duration of human or other exposure to the chemical after it is released.

Release:
Facility Report

August 4, 2007

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Comments?

This request took 1.95 seconds of real time (v9.1 build 1461).

Attachment #3

U. S. Steel
Gary Works
One North Broadway
Gary, IN 46402-3199

May 1, 1997

Ms. Laura Bieberich
Stormwater Coordinator
Indiana Department of Environmental Management
Office of Water Management
Permits Section, Storm Water Desk
P.O. Box 6015
Indianapolis, IN 46202-6015

Dear Ms. Bieberich:

In accordance with U.S. Steel - Gary Works' NPDES Permit No. IN 0000281, Part 4, a Storm Water Pollution Prevention Plan has been completed. A schedule is included with the plan which allows for compliance with the terms of the plan. This plan is retained on-site and is available for review by a representative of the commissioner upon request.

In accordance with Part 6.d., this is the final Quarterly Storm Water Pollution Prevention Plan Report. If you have any questions, feel free to call me at (219) 888-3369.

Very truly yours,

Anne M. Fritz
Environmental Manager
Water Compliance

cc: MKuss - IDEM
TSmith - USEPA

Attachment #4

Stormwater Monitoring - Outfall SW-01 -- "East Slip"													
Report Date	05/19/98	05/18/99	10/07/99	04/20/00	05/29/01	10/31/01	05/13/02	10/21/02	05/29/03	10/23/03	06/01/04	11/20/04	06/05/06
GRAB Samples													
TSS	81	5.2	5.6	4.8	220	23	300	12000	700	140	310	21000	200
Oil and Grease	4	<2.0	5.5	2.4	2.4	<2.0	6.6	25	3.8	3.7	2.1	47	<2.1
Ammonia as N	0.2	0.11	<0.01	0.12	0.72	0.26	0.28	0.67	0.3	0.27	0.17	0.1	0.31
TKN	<0.50	0.7	0.6	0.63	<0.50	1	1.7	1.8	<0.50	0.68	0.64	1.6	2.2
Nitrate & Nitrite as N	0.99	0.43	0.35	0.44	1.49	1.08	2.44	2.2	170	0.84	1.7	2.2	0.42
Phosphorus, total	0.17	<0.10	0.14	<0.10	0.49	0.14	2.1	2.6	0.16	0.28	<0.10	5.5	0.77
BOD5	4.6	3.8	<4.0	<2.0	7.2	3.2	8	47	3.9	7	<2.0	14	3.3
COD	70	50	<20	<20	100	40	300	2100	50	90	<20	50	310
Lead (Pb)	<0.05	<0.005	<0.005	<0.005	0.059	0.009	0.128	0.91	0.005	0.026	0.009	0.862	0.421
Zinc (ZN)	0.32	0.052	0.073	0.023	0.436	0.043	1.28	7.13	0.142	0.198	0.055	6.143	9.8
pH	9.1	7.6	7.6	7.8	8.2	8.3	8.6	9.2	9.2	9.2	8.9	11.6	9.8
Flow Weighted Composite Samples													
TSS	190	2.8	9.6	4	260	11	880	7300	690	160	250	30000	560
Oil and Grease													
Ammonia as N	0.5	0.16	0.03	0.1	0.67	0.25	0.25	0.6	0.45	0.26	0.2	0.1	0.28
TKN	0.77	0.9	0.65	0.68	1.5	0.69	1.3	1.8	<0.50	0.77	1.1	1.8	1.8
Nitrate & Nitrite as N	0.69	4.78	0.4	2.05	1.7	0.88	1.23	3.3	180	1.8	1.7	2	0.5
Phosphorus, total	0.23	<0.10	0.14	<0.10	0.48	<0.10	13	2.6	0.66	0.28	0.2	12	0.71
BOD5	7.6	5,5	2.2	<2.0	7.2	3.4	9.5	52	3.7	5.5	<2.0	16	3.2
COD	80	40	<20	<20	90	30	360	1000	280	100	40	60	290
Lead (Pb)	0.06	<0.005	<0.005	<0.005	0.054	0.008	0.152	0.46	0.023	0.029	0.023	5.522	0.077
Zinc (ZN)	0.46	<0.010	<0.010	0.071	0.429	0.038	1.55	3.33	0.337	0.219	0.156	37.19	0.522

Stormwater Monitoring - Outfall SW-02 -- "West Slip"

Report Date	05/19/98	05/18/99	10/07/99	04/20/00	05/29/01	10/31/01	05/13/02	10/21/02	05/29/03	10/23/03	06/01/04	11/20/04	06/05/06
GRAB Samples													
TSS	800	2500	350	940	370	640	520	12000	480	620	110	120	170
Oil and Grease	2.5	5.8	11	22	2.6	2.8	4.5	43	6.4	3.9	2.2	6.7	8.2
Ammonia as N	0.52	0.54	0.12	0.53	0.7	0.52	0.16	0.62	0.64	0.23	0.2	0.11	0.24
TKN	4	2.5	2	3.7	1.8	1.7	1.1	1.8	5.5	<0.50	0.96	1.2	1.1
Nitrate & Nitrite as N	0.55	1.9	1.35	0.73	1.03	1.1	1.08	1.6	97	0.73	0.42	0.65	0.43
Phosphorus, total	<0.10	1.2	0.56	1.1	0.71	1.2	1.7	3.9	0.85	0.42	0.3	0.36	0.33
BOD5	14	34	9.7	16	4.9	2.2	5.5	5.5	4.9	2.2	2.3	9.9	3.1
COD	1100	430	30	500	190	350	210	2600	400	140	70	40	120
Lead (Pb)	0.2	0.73	0.149	0.65	0.082	0.217	0.086	0.72	0.094	0.041	0.032	0.054	0.038
Zinc (ZN)	2.98	15.2	3.7	8.62	1.21	2.73	1.16	10.1	2.29	0.566	0.395	0.802	0.584
pH	10.2	8.8	8.5	9.5	7.2	8.9	9.5	9.9	8.6	9.3	9.4	8.8	9
Flow Weighted Composite Samples													
TSS	1100	770	310	960	280	300	680	9400	330	200	110	130	150
Oil and Grease													
Ammonia as N	0.53	0.38	1.2	0.46	0.63	0.49	0.18	1.13	0.3	0.21	0.19	0.11	0.23
TKN	2	2.4	2	3.4	1.6	1.3	1.6	2	0.9	0.75	0.89	1.1	1.1
Nitrate & Nitrite as N	0.52	1.35	1.4	0.73	1.16	0.96	1.18	1.6	120	0.84	0.44	0.66	0.48
Phosphorus, total	0.91	1.1	0.56	1.2	0.72	0.55	1.5	3.3	0.72	0.43	0.28	0.34	0.25
BOD5	15	36	9.7	18	5.6	3	7.2	21	3.7	2.4	2.4	9.7	2.2
COD	430	410	30	600	170	190	370	1900	230	130	60	40	80
Lead (Pb)	0.19	0.354	0.194	0.49	0.069	0.182	0.106	1.01	0.069	0.044	0.03	0.053	0.024
Zinc (ZN)	2.65	<0.010	4.65	10	1.04	2.45	1.42	14.7	1.67	0.6	0.38	0.785	0.375

Stormwater Monitoring - Outfall SW-06 -- "Railroad - 035 Area"

Report Date	05/19/98	05/18/99	10/07/99	04/20/00	05/29/01	10/31/01	05/13/02	10/21/02	05/29/03	10/23/03	06/01/04	11/20/04	06/05/06
GRAB Samples													
TSS	1000	310	12000	2400	110	180	230	500	52	8700	180	630	13000
Oil and Grease	<2.0	6	20	17	<2.0	3.9	4.6	7.6	4	2.9	<2.0	18	72
Ammonia as N	0.26	0.16	0.11	0.42	0.69	0.31	0.26	0.2	0.31	0.3	0.07	0.12	0.48
TKN	1.2	1.6	3.2	2.3	1.1	1.2	2.7	0.97	<0.50	0.75	0.96	1.9	3.4
Nitrate & Nitrite as N	0.74	1.38	0.61	0.81	0.93	1.11	1.16	0.92	130	0.61	0.3	0.41	0.46
Phosphorus, total	<0.10	0.65	2.4	1.9	0.2	<0.10	0.74	0.52	0.28	0.35	0.55	1.3	2.4
BOD5	22	24	41	22	29	3.2	19	33	22	4.4	2.8	14	12
COD	410	190	440	500	70	130	1100	220	120	5100	110	40	3200
Lead (Pb)													
Zinc (ZN)													
pH	11.2	8.8	10.2	11.1	7.4	10.1	10.2	9.7	7.6	11.5	10.4	9.6	10.4
Flow Weighted Composite Samples													
TSS	1100	270	1600	1400	120	190	400	470	64	5900	180	1400	4100
Oil and Grease													
Ammonia as N	0.38	0.15	0.23	0.42	0.88	0.35	0.09	0.08	0.2	0.55	0.06	0.64	0.69
TKN	0.72	1.4	3.9	1.5	1.5	1.7	0.87	1.4	1.3	1.4	1.1	3.7	3.7
Nitrate & Nitrite as N	0.61	1.19	0.52	0.78	1.04	1.28	1.13	1	1.7	0.63	0.31	0.77	0.44
Phosphorus, total	0.46	0.45	3.2	2.1	0.27	1	0.8	0.44	0.15	7.9	0.42	1.8	3.7
BOD5	13	24	47	18	13	13	18	23	19	6.8	3.6	24	4
COD	580	140	1900	600	160	280	200	220	70	4000	120	40	250
Lead (Pb)													
Zinc (ZN)													

Stormwater Monitoring - Outfall SW-08 -- "Virginia Street Drain"

Report Date	05/19/98	05/18/99	10/07/99	04/20/00	05/29/01	10/31/01	05/13/02	10/21/02	05/29/03	10/23/03	06/01/04	11/20/04	06/05/06
GRAB Samples													
TSS	96	100	190	11000	530	480	360	260	480	320	920	160	1600
Oil and Grease	5.6	4	11	26	3.4	3.7	7.6	3.9	7.7	10	<2.1	7.2	16
Ammonia as N	0.23	0.32	0.09	0.44	0.7	0.36	0.12	0.28	0.52	0.29	0.24	0.05	1.33
TKN	<0.50	1.3	1.8	3.8	2.1	2.1	1.3	1.3	<0.50	0.71	1.6	1.2	4
Nitrate & Nitrite as N	0.55	0.93	0.66	0.65	1.16	1.64	1.76	1.3	150	0.58	0.39	1.2	0.21
Phosphorus, total	0.25	0.32	0.44	4.6	0.8	0.62	0.76	0.61	0.97	0.57	0.68	0.36	1.1
BOD5	7	22	9.6	15	9	11	23	11	8	9	4.4	7.2	18
COD	70	120	40	500	240	200	250	<200	230	200	130	50	90
Lead (Pb)	0.07	0.057	0.097	21.3	0.193	0.165	0.111	0.163	0.228	0.215	0.91	0.363	0.354
Zinc (ZN)	0.52	0.52	2.61	507	3.05	4.09	1.47	5.02	4.8	3.286	23.23	9.716	6.95
pH	9	7.2	6.5	9.5	7.4	8.7	9.3	8.7	8.8	9	9.3	9.2	9.8
Flow Weighted Composite Samples													
TSS	280	240	100	2600	340	530	510	850	300	380	1100	300	1300
Oil and Grease													
Ammonia as N	0.28	0.35	0.11	0.31	0.64	0.33	0.15	0.43	0.42	0.31	0.24	0.05	1.32
TKN	0.61	1.5	2.6	2.1	1.7	2	1.5	2.7	<0.50	0.58	2	1.7	3.5
Nitrate & Nitrite as N	0.46	0.94	1.67	0.58	1.23	0.96	1.34	1.4	180	0.51	0.41	0.95	0.2
Phosphorus, total	0.33	0.43	0.53	1.4	0.62	0.66	1.2	3.8	0.75	0.63	0.97	0.39	1.1
BOD5	7.5	24	10	12	13	15	18	<3	8.3	7.5	4.2	6.3	22
COD	110	140	10	100	190	260	300	740	180	270	250	40	120
Lead (Pb)	<0.05	0.076	0.08	5.78	0.139	0.174	0.144	0.363	0.182	0.266	1.262	0.45	0.366
Zinc (ZN)	1.02	0.895	1.45	126	2.33	4.26	1.85	11.5	3.97	3.935	22.81	13.22	6.77

Stormwater Monitoring - Outfall SW-10 -- "Tennessee Street Drain"													
Report Date	05/19/98	05/18/99	10/07/99	04/20/00	05/29/01	10/31/01	05/13/02	10/21/02	05/29/03	10/23/03	06/01/04	11/20/04	06/05/06
GRAB Samples													
TSS	610	210	140	800	190	77	250	280	190	210	870	120	870
Oil and Grease	<2.0	<2.0	9.2	11	2	3.8	4.6	3.3	4.5	8	<2.0	9.6	62
Ammonia as N	8.3	23	9.6	0.91	4.7	0.1	0.99	0.23	0.46	0.31	0.14	1.52	0.83
TKN	10	26	12	3.5	5.2	13	2.1	1.8	2.8	0.9	1.1	<0.50	4.3
Nitrate & Nitrite as N	0.43	0.15	1.48	0.52	1.19	1.18	1.19	1.5	0.72	0.83	0.4	0.66	0.59
Phosphorus, total	<0.10	0.37	0.38	1.1	0.79	0.18	<0.10	0.43	0.52	0.33	0.41	0.4	1.3
BOD5	8	51	20	15	7.2	13	11	6.2	8.4	5.4	2.9	59	26
COD	710	140	70	500	300	90	240	250	180	200	120	60	60
Lead (Pb)	0.09	0.011	0.058	1.12	0.087	0.013	0.057	0.08	0.09	0.077	0.087	0.074	0.218
Zinc (ZN)	0.98	0.119	0.593	4.53	1.11	0.095	1.02	0.764	0.87	1.18	1.239	1.296	2.43
pH	8.6	7.6	8.1	9.2	8	7.9	8.2	8.2	8.3	8.2	9	8.4	8.4
Flow Weighted Composite Samples													
TSS	1300	94	120	400	180	96	180	230	150	220	920	120	840
Oil and Grease													
Ammonia as N	1.9	29	14	1	10	13	0.9	0.69	0.39	0.32	0.15	1.57	0.78
TKN	5	32	17	2.6	8.3	15	2	3.1	2.7	0.87	3.3	3.6	4
Nitrate & Nitrite as N	0.72	0.15	1.17	0.49	0.98	0.98	1.14	1.6	0.77	0.84	0.41	0.67	0.61
Phosphorus, total	1.1	0.18	0.2	1.2	0.42	0.36	0.48	0.35	0.55	0.36	1.3	0.45	1.3
BOD5	11	55	8.9	15	7.1	18	9.5	12	8.4	6.9	4.1	15	16
COD	880	80	40	300	150	110	230	100	180	200	560	50	160
Lead (Pb)	0.73	0.011	0.033	0.29	0.042	0.028	0.057	0.043	0.085	0.07	0.286	0.076	0.214
Zinc (ZN)	4.83	0.092	0.346	3	0.618	0.148	1.01	0.519	0.828	1.104	3.466	1.27	2.39

Stormwater Monitoring - Outfall SW-11 -- "Broadway Street Drain"													
Report Date	05/19/98	05/18/99	10/07/99	04/20/00	05/29/01	10/31/01	05/13/02	10/21/02	05/29/03	10/23/03	06/01/04	11/20/04	06/05/06
GRAB Samples													
TSS	280	190	15	500	48	100	150	18	34	76	7.2	24	19
Oil and Grease	<2.0	6	5.4	16	2.8	3.5	11	<2.0	4.4	3.8	<2.1	3.3	<2.1
Ammonia as N	0.3	0.28	0.43	0.49	0.77	4	0.23	1	0.66	0.28	0.4	4.7	1.06
TKN	0.98	1.5	1.1	2.2	1.2	<0.50	1.1	1.6	1.9	1	0.87	5.6	1.3
Nitrate & Nitrite as N	0.32	0.98	0.37	0.5	0.61	0.96	1.16	1.4	0.62	0.48	0.41	0.24	1.01
Phosphorus, total	0.62	0.52	0.25	1.1	0.27	0.36	0.64	0.21	0.21	0.13	<0.10	0.58	0.17
BOD5	6.2	17	3.6	11	4	6	15	8.3	3.1	2.6	<2.0	7.6	<2.0
COD	220	130	30	220	200	80	170	30	40	30	<20	50	40
Lead (Pb)	0.21	<0.005	<0.005	0.21	0.011	0.039	0.083	0.006	0.016	0.035	0.011	0.01	<0.005
Zinc (ZN)	1.02	<0.010	0.02	1.48	0.055	0.231	0.554	0.068	0.129	0.237	0.019	0.093	0.027
pH	9.7	8.2	6.8	9.3	6	8.5	8.8	7.3	7.6	7.7	7.3	7.3	8.3
Flow Weighted Composite Samples													
TSS	170	70	71	230	44	72	220	25	5.6	39	2.6	33	23
Oil and Grease													
Ammonia as N	0.43	0.58	0.19	0.48	0.65	0.67	0.39	1.16	0.81	0.29	0.84	3.3	0.84
TKN	0.81	1.3	1.1	1.8	0.9	1.6	1.4	<0.50	1.8	0.95	1.5	3.9	1.2
Nitrate & Nitrite as N	0.51	0.48	0.47	0.51	0.54	0.96	1.08	0.67	0.49	0.49	0.32	0.4	1.06
Phosphorus, total	0.36	0.22	0.22	0.83	0.17	0.32	0.65	0.24	0.19	0.13	0.14	0.43	0.18
BOD5	6.4	16	7.6	12	2.8	5	18	6.2	<2.0	2	3.7	7.2	<2.0
COD	80	40	20	180	100	70	200	60	20	20	20	60	50
Lead (Pb)	0.08	0.006	0.026	0.2	0.006	0.025	0.075	0.021	<0.005	0.02	0.006	0.016	0.01
Zinc (ZN)	0.41	<0.010	0.393	1.46	0.045	0.141	0.579	0.176	0.024	0.157	0.015	0.149	0.065

Stormwater Monitoring - Outfall 134 -- "Mason Basin"												
Report Date	05/18/99	10/07/99	04/20/00	05/29/01	10/31/01	05/13/02	10/21/02	05/29/03	10/23/03	06/01/04	11/20/04	06/05/06
GRAB Samples												
TSS	10	300	16	230	29	12	8	260	360	10000	38	160
Oil and Grease	<2.0	<2.0	2.4	<2.0	2	3.9	7.3	6.4	2.1	<2.1	3.6	6.4
Ammonia as N	23	19	1.2	27	80	76	60	14.1	62.7	28	18.9	2.1
TKN	26	23	1.8	24	33	40	50	19	49	33	20	4.3
Nitrate & Nitrite as N	8.7	8	4.71	5.8	8.2	<0.5	9.4	3.8	4.3	0.68	10	4
Phosphorus, total	0.12	0.42	0.38	0.18	0.1	0.1	<0.10	0.42	0.2	2.7	0.22	0.12
BOD5	9.9	48	4.2	14	61	25	3.5	27	13	6.6	6.3	8.5
COD	<20	670	20	480	90	40	120	530	970	<20	<20	20
Lead (Pb)	<0.005		<0.005	0.005	<0.005	<0.005	<0.005	0.013	0.074	0.096	0.01	0.007
Zinc (ZN)	0.023		0.039	0.061	0.019	0.016	0.012	0.099	0.786	0.632	0.033	0.065
pH	7.3	7.4	7.1	7.3		7.4	7.4	6.8	7.8	8.7	7.5	7.5
Flow Weighted Composite Samples												
TSS	9.2	72	25	310	65	7	67	150	750	6100	120	170
Oil and Grease												
Ammonia as N	21	19	1.7	28	100	81	52	15.1	51.1	26	19.9	2.1
TKN	25	22	2.6	29	41	61	50	20	40	31	20	4.1
Nitrate & Nitrite as N	8.6	8.4	4.07	4.91	10.4	17.4	9.4	6.4	3.8	0.8	10	4.4
Phosphorus, total	0.22	0.49	0.24	0.23	0.11	4.1	0.11	0.31	0.28	1.4	<0.10	0.12
BOD5	11	34	9.1	9	32	35	16	24	19	6.1	5.7	8.8
COD	40	700	60	590	80	40	190	410	670	<20	<20	70
Lead (Pb)	<0.005		<0.005	0.009	<0.005	<0.005	<0.005	0.01	0.015	0.09	0.01	0.007
Zinc (ZN)	0.022		0.042	0.082	0.015	<0.010	0.022	0.072	0.142	0.589	0.035	0.071

Stormwater Monitoring - Outfall 034/EJ&E

Report Date	05/19/98	05/18/99	10/07/99	04/20/00	05/29/01	10/31/01	05/13/02	10/21/02	05/29/03	10/23/03	06/01/04	11/20/04	06/05/06
GRAB Samples													
TSS	3.4	2.8	7.6	9.8	9	9.6	<5.0	39	1.4	4.4	1.4	3.6	8.3
Oil and Grease	<2.0	<2.0	2.8	<2.0	<2.0	<2.0	2.5	3.4	3.9	<2.0	<2.0	2.8	<2.0
Ammonia as N	0.41	0.39	0.08	0.56	0.17	0.26	0.16	0.11	0.83	0.09	0.28	0.46	0.21
TKN	0.69	0.94	0.97	1.3	0.94	1.4	<0.50	1.1	2	0.62	0.97	1.3	0.79
Nitrate & Nitrite as N	0.55	0.55	0.2	0.29	0.66	0.9	0.54	1.2	0.86	0.8	0.81	0.26	0.16
Phosphorus, total	<0.10	0.19	<0.10	0.14	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
BOD5	2.8	20	2.8	3.4	2.4	<4.0	<2.0	3.1	<2.0	<2.0	<2.0	<2.0	<2.0
CBOD5					2.4	<4.0	<2.0	3.1	<2.0	<2.0	<2.0	<2.0	<2.0
COD	<20	<20	60	<20	30	40	30	<20	<20	<20	<20	<20	<20
Chromium	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead (Pb)	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc (ZN)	<0.01	<0.010	0.026	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
pH	7.5	7.1	6.4	7.2	6.3	7.9	7.6	7.5	7.2	7.3	7.2	7.4	7.2
Flow Weighted Composite Samples													
TSS	2.6	4.4	4.8	11	13	2.8	6.7	22	1.4	17	2.4	13	9.2
Oil and Grease													
Ammonia as N	0.52	0.31	0.03	0.56	0.19	0.47	0.16	0.31	0.37	0.06	0.28	0.49	0.25
TKN	<0.50	1	0.81	1.2	1	1.3	0.5	0.92	1.5	1.4	0.94	1.5	0.78
Nitrate & Nitrite as N	0.62	0.53	0.21	0.29	0.72	1.79	0.92	0.98	0.86	0.81	2	0.29	0.34
Phosphorus, total	<0.10	<0.10	0.43	0.34	<0.10	0.2	0.28	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
BOD5	<2.0	6	2.8	5.2	3.2	3	5	2.7	3.2	<2.0	<2.0	5.3	<2.0
CBOD5					2.4	3.4	4.6	3.5	3.2	<2.0	<2.0	2.9	<2.0
COD	<20	<20	20	20	40	30	30	<20	20	<20	<20	<20	<20
Chromium	<0.01	<0.010	<0.010	0.011	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Lead (Pb)	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc (ZN)	0.02	0.014	0.03	0.026	0.015	0.013	0.012	0.012	<0.010	0.051	<0.010	0.019	<0.010

Stormwater Monitoring - Outfall 017

Report Date	05/19/98	05/18/99	10/07/99	04/20/00	05/29/01	10/31/01	05/13/02	10/21/02	05/29/03
GRAB Samples									
TSS	16	2.8	8.8	7.8	29	3.4	3	24	<1.0
Oil and Grease	2	<2.0	4.7	2.4	<2.0	2.4	<2.0	4.1	4.1
Ammonia as N	0.16	0.09	0.01	0.13	0.31	<0.01	<0.01	0.06	<0.01
TKN	<0.50	0.54	0.55	<0.50	1	0.64	<0.50	<0.50	0.68
Nitrate & Nitrite as N	0.58	0.58	0.6	0.49	1.02	0.55	0.47	1.1	0.63
Phosphorus, total	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	<0.010
BOD5	3	11	3.8	2.2	4.8	<4.0	<2.0	<3	<2.0
COD	<20	20	<20	70	20	20	<20	50	<20
Lead (Pb)									
Zinc (ZN)									
pH	8.5	7.7	7	7.4	7.8	8.1	7.6	7.8	7.4
Flow Weighted Composite Samples									
TSS	3.2	1.6	<2.0	2.4	1.8	<1.0	8.4	17	<1.0
Oil and Grease									
Ammonia as N	0.15	0.09	<0.01	0.14	0.42	0.07	<0.01	0.05	<0.01
TKN	<0.50	0.88	<0.50	0.51	<0.50	<4.0	<0.50	<0.50	0.89
Nitrate & Nitrite as N	0.57	0.68	0.53	0.49	0.81	<0.50	0.47	0.82	0.56
Phosphorus, total	<0.10	<0.10	<0.10	<01.0	<0.10	0.5	0.44	<0.10	<0.10
BOD5	3.2	14	2.2	<2.0	<4.0	<4.0	9.4	<3	<2.0
COD	70	30	<20	<20	<20	<20	<20	<20	<20
Lead (Pb)									
Zinc (ZN)									

Attachment #5

provide an appropriate level to determine whether a facility's storm water pollution prevention measures are successfully implemented. The benchmark concentrations are not effluent limitations and should not be interpreted or adopted as such. These values are merely levels which EPA has used to determine if a storm water discharge from any given facility merits further monitoring to ensure that the facility has been successful in implementing a SWPPP. As such, these levels represent a target concentration for a facility to achieve through implementation of pollution prevention measures at the facility. Table 3 lists the parameter benchmark values and the sources used for the benchmarks. Two changes from the 1995 MSGP are the addition of benchmark values for total Cyanide and Total Magnesium. Benchmark values for the two parameters were included in the Fact Sheet of the 1995 MSGP at Table K–3, but were inadvertently not included in the general listing of parameter benchmark values (Table 5 of the Fact Sheet for the 1995 MSGP). Additional information explaining the derivation of the benchmarks can be found in the fact sheet for the 1995 MSGP (60 FR 50825).

TABLE 3.—PARAMETER BENCHMARK VALUES

Parameter name	Benchmark level	Source
Biochemical Oxygen Demand (5 day)	30 mg/L	4
Chemical Oxygen Demand	120 mg/L	5
Total Suspended Solids	100 mg/L	7
Oil and Grease	15 mg/L	8
Nitrate + Nitrite Nitrogen	0.68 mg/L	7
Total Phosphorus	2.0 mg/L	6
pH	6.0–9.0 s.u.	4
Acrylonitrile (c)	7.55 mg/L	2
Aluminum, Total (pH 6.5–9)	0.75 mg/L	1
Ammonia	19 mg/L	1
Antimony, Total	0.636 mg/L	9
Arsenic, Total (c)	0.16854 mg/L	9
Benzene	0.01 mg/L	10
Beryllium, Total (c)	0.13 mg/L	2
Butylbenzyl Phthalate	3 mg/L	3
Cadmium, Total (H)	0.0159 mg/L	9
Chloride	860 mg/L	1
Copper, Total (H)	0.0636 mg/L	9
Cyanide, Total	0.0636 mg/l	9
Dimethyl Phthalate	1.0 mg/L	11
Ethylbenzene	3.1 mg/L	3
Fluoranthene	0.042 mg/L	3
Fluoride	1.8 mg/L	6
Iron, Total	1.0 mg/L	12
Lead, Total (H)	0.0816 mg/L	1
Magnesium, Total	0.0636 mg/l	9
Manganese	1.0 mg/L	13
Mercury, Total	0.0024 mg/L	1
Nickel, Total (H)	1.417 mg/L	1
PCB–1016 (c)	0.000127 mg/L	9
PCB–1221 (c)	0.10 mg/L	10
PCB–1232 (c)	0.000318 mg/L	9
PCB–1242 (c)	0.00020 mg/L	10
PCB–1248 (c)	0.002544 mg/L	9
PCB–1254 (c)	0.10 mg/L	10
PCB–1260 (c)	0.000477 mg/L	9
Phenols, Total	1.0 mg/L	11
Pyrene (PAH,c)	0.01 mg/L	10
Selenium, Total (*)	0.2385 mg/L	9
Silver, Total (H)	0.0318 mg/L	9
Toluene	10.0 mg/L	3
Trichloroethylene (c)	0.0027 mg/L	3
Zinc, Total (H)	0.117 mg/L	1

Sources:
1. ''EPA Recommended Ambient Water Quality Criteria.'' Acute Aquatic Life Freshwater.
2. ''EPA Recommended Ambient Water Quality Criteria.'' LOEL Acute Freshwater.
3. ''EPA Recommended Ambient Water Quality Criteria.'' Human Health Criteria for Consumption of Water and Organisms.
4. Secondary Treatment Regulations (40 CFR 133).
5. Factor of 4 times BOD5 concentration—North Carolina benchmark.
6. North Carolina storm water benchmark derived from NC Water Quality Standards.
7. National Urban Runoff Program (NURP) median concentration.
8. Median concentration of Storm Water Effluent Limitation Guideline (40 CFR Part 419).
9. Minimum Level (ML) based upon highest Method Detection Limit (MDL) times a factor of 3.18.
10. Laboratory derived Minimum Level (ML).
11. Discharge limitations and compliance data.
12. ''EPA Recommended Ambient Water Quality Criteria.'' Chronic Aquatic Life Freshwater.
13. Colorado—Chronic Aquatic Life Freshwater—Water Quality Criteria.

Notes:
(*) Limit established for oil and gas exploration and production facilities only.
(c) carcinogen.

(H) hardness dependent.
(PAH) Polynuclear Aromatic Hydrocarbon.
Assumptions:
Receiving water temperature −20 C.
Receiving water pH −7.8.
Receiving water hardness $CaCO_3$ 100 mg/L.
Receiving water salinity 20 g/kg
Acute to Chronic Ratio (ACR) −10.

EPA prepared a statistical analysis of the sampling data for each pollutant parameter reported within each sector or subsector. (Only where EPA did not subdivide an industry sector into subsectors was an analysis of the entire sector's data performed.) The statistical analysis was performed assuming a delta log normal distribution of the sampling data within each sector/subsector. The analyses calculated median, mean, maximum, minimum, 95th, and 99th percentile concentrations for each parameter. The results of the analyses can be found in the appropriate section of Section VIII of the fact sheet accompanying the 1995 MSGP. From this analysis, EPA was able to identify pollutants for further evaluation within each sector or subsector.

EPA next compared the median concentration of each pollutant for each sector or subsector to the benchmark concentrations listed in Table 3. EPA also compared the other statistical results to the benchmarks to better ascertain the magnitude and range of the discharge concentrations to help identify the pollutants of concern. EPA did not conduct this analysis if a sector had data for a pollutant from less than three individual facilities. Under these circumstances, the sector or subsector would not have this pollutant identified as a pollutant of concern. This was done to ensure that a reasonable number of facilities represented the industry sector or subsector as a whole and that the analysis did not rely on data from only one facility.

For each industry sector or subsector, parameters with a median concentration higher than the benchmark level were considered pollutants of concern for the industry and identified as potential pollutants for analytical monitoring under today's permit. EPA then analyzed the list of potential pollutants to be monitored against the lists of significant materials exposed and industrial activities which occur within each industry sector or subsector as described in the Part I application information. Where EPA could identify a source of a potential pollutant which is directly related to industrial activities of the industry sector or subsector, the permit identifies that parameter for analytical monitoring. If EPA could not identify a source of a potential pollutant which was associated with the sector/subsector's industrial activity, the permit does not require monitoring for the pollutant in that sector/subsector. Industries with no pollutants for which the median concentrations are higher than the benchmark levels are not required to perform analytical monitoring under this permit, with the exceptions explained below.

In addition to the sectors and subsectors identified for analytical monitoring using the methods described above, EPA determined, based upon a review of the degree of exposure, types of materials exposed, special studies and in some cases inadequate sampling data in the group applications, that the following industries also warrant analytical monitoring notwithstanding the absence of data on the presence or absence of certain pollutants in the group applications: Sector K (hazardous waste treatment storage and disposal facilities), and Sector S (airports which use more than 100,000 gallons per year of glycol-based fluids or 100 tons of urea for deicing). Today's final MSGP retains the monitoring requirements of the 1995 MSGP due to the high potential for contamination of storm water discharge which EPA believes was not adequately characterized by group applicants in the information they provided in the group application process. Like the 1995 MSGP, exemptions for today's MSGP would be on a pollutant-by-pollutant and outfall-by-outfall basis.

As part of the reissuance process for today's MSGP, EPA evaluated Discharge Monitoring Reports (DMRs) submitted by facilities for analytical monitoring conducted during the second and fourth year of the 1995 MSGP. The purpose of the evaluation was to evaluate any trends in the monitoring results. One factor common to almost all industrial sectors, however, was that the number of DMRs submitted for the year-four monitoring period far exceeded the number of DMRs submitted for the year-two monitoring period. For the second-year monitoring period, EPA received 380 DMRs, whereas 1377 DMRs were received for the fourth-year monitoring period. For example, the number of Sector M (Auto Salvage Yards) facilities that submitted monitoring results for total suspended solids from the second year monitoring period was roughly 26; the number of DMRs submitted for the fourth year monitoring for the same industrial sector and parameter was 240. As a result, EPA could not conduct the trends analysis it intended to perform.

While the exact reason for the significant increase in the number of DMRs received in year 4 of the permit (as compared to year 2) is unknown, EPA suspects it is related to the administrative extension of EPA's 1992 baseline general permit. Although the 1992 general permit expired in September 1997, the permit was administratively extended. It was not until December 28, 1998 that facilities previously covered under EPA's baseline industrial permit were required to obtain coverage under the MSGP. As a result, facilities previously covered under the baseline industrial permit were not required to conduct analytical monitoring (as required in the second year of the 1995 MSGP). In essence, the fourth-year monitoring data set EPA received represents the baseline of pollutant discharge information under the sector-specific industrial general storm water permit.

Based on the information received during the public comment period and the DMRs received, EPA believes it is premature to make any final conclusions regarding the value of the Agency's acquisition of the monitoring data or to consider dropping the monitoring. EPA is retaining quarterly analytic monitoring requirements for storm water discharges as per the 1995 MSGP for all sectors previously identified. Comparison of pollutant levels against benchmark levels is still regarded as one of the important tools operators must use to evaluate their facilities' storm water pollution prevention plans (SWPPPs) and best management practices (BMPs). Facilities' discharge monitoring reports (DMRs) are also vital to the Agency for use in characterizing an industrial sector's discharges. EPA has not, and does not, intend for pollutant levels above the benchmark values to mean a facility is out of compliance with the MSGP–2000.

While today's permit retains the analytical monitoring requirements of the 1995 MSGP, the Agency continues to support the position that any analytical monitoring program required

Attachment #6

U. S. Steel
Gary Works
One North Broadway
Gary, IN 46402-3199

March 30, 2000

Mr. Don Daily
Indiana Department of Environmental Management
Compliance Evaluation Section, OWM
100 North Senate Ave.
Room 1255
Indianapolis, IN 46206

RE: Progress Reports for Compliance with Final Effluent Limitations for Benzo(a)Pyrene, Fluoride, Selenium and Benzene
NPDES Permit No. IN0000281
U.S. Steel – Gary Works

Dear Mr. Daily:

In accordance with the U.S. Steel Gary Works NPDES Permit No. IN0000281, Parts I.A.3a.AA.1.g and I.A.3a.BB.1.d, U.S. Steel – Gary Works (USS) is submitting the enclosed annual reports on the progress to achieve compliance with the final effluent limits for Benzo(a)Pyrene, Fluoride, Selenium and Benzene. A separate progress report has been included for each constituent.

If you have any questions or comments regarding this submittal or any of the materials contained within, please contact me at (219) 888-3369.

Sincerely,

LeeAnn Pisarek
Manager, Water Compliance
U.S. Steel – Gary Works

Enclosures (4)

cc: Len Ashack / IDEM
Stan Rigney / IDEM
Steve Roush / IDEM

SCHEDULE OF COMPLIANCE
BENZENE
PROGRESS REPORT

As per NPDES Permit IN0000281 Condition Part I.A.3a.BB.1.d, USS Gary Works is submitting this report on the progress to achieve compliance with the final Outfall 200 effluent limits for benzene.

The current interim Outfall 200 effluent limit for benzene is 160.0 µg/L daily maximum. The final effluent limits of 65.0 µg/L monthly average and 150.0 µg/L daily maximum (concentration) and 30.0 lb/d monthly average and 68.0 lb/d daily maximum (mass) will be effective April 1, 2001.

One of the sources of benzene to Outfall 200 (combination of Outfall 005 and Outfall 010) is the treated coke plant process wastewater discharged via Outfall 501 to Outfall 005. The Coke Plant WWTP was fully operational in June 1999 and has been performing as designed. The daily maximum Outfall 200 concentration of benzene discharged from June 1, 1999 to January 31, 2000 was 37.2 µg/L with a corresponding daily maximum mass of 21.4 lb/d.

Another source of benzene to Outfall 200 (via Outfall 501) will be the treated Coke Plant area groundwater. USS has begun a preliminary testing program to determine the concentration of benzene in the Coke Plant area groundwater and treatment effectiveness of the Coke Plant WWTP. This testing program will generate data to increase confidence in the apparent consistent compliance of Outfall 200 with the final benzene effluent limits. Until this program is complete, USS cannot commit to compliance with the final benzene limits prior to April 1, 2001. However, USS does not anticipate, at this time, a need to construct additional wastewater treatment facilities to achieve compliance with the final benzene effluent limits. Hence, USS is not submitting a construction permit as per Permit Condition I.A.3a.BB.1.c.

Attachment #7

Unacceptable Reductions in Pre-Existing Monitoring Frequency in 2007 Draft Permit				
Outfall	Pollutant	Permit Basis for Pre-existing Monitoring Frequency	Pre-existing Monitoring Frequency	2007 Draft Permit Reduced Monitoring Frequency
015	TSS	1996 Permit Amend.	3X Weekly	1X Weekly
015	Ammonia	1996 Permit Amend.	7X Weekly	1X Weekly
015	Free Cyanide	1996 Permit Amend.	3X Weekly	1X Weekly
015	Phenols	1996 Permit Amend.	3X Weekly	1X Weekly
015	Lead	1996 Permit Amend.	3X Weekly	1X Weekly
015	Zinc	1996 Permit Amend.	3X Weekly	1X Weekly
018	Ammonia	1998 Permit Amend.	7X Weekly	1X Monthly
018	Phenols	1998 Permit Amend.	3X Weekly	1X Monthly
019	Ammonia	1994 Permit	7X Weekly	1X Monthly
019	Phenols	1994 Permit	3X Weekly	1X Monthly
020	Lead	1994 Permit	1X Weekly	2X Monthly
020	Zinc	1994 Permit	1X Weekly	2X Monthly
028/030	Lead	1994 Permit	5X Weekly	1X Weekly
028/030	Zinc	1994 Permit	5X Weekly	1X Weekly
603	Lead	1994 Permit	5X Weekly	2X Weekly
603	Zinc	1994 Permit	5X Weekly	2X Weekly
034	Lead	1994 Permit	2X Weekly	1X Weekly
034	Zinc	1994 Permit	2X Weekly	1X Weekly
034	Dissolved Oxygen	1994 Permit	1X Monthly	Eliminated
606	O&G	1994 Permit	5X Weekly	1X Monthly
606	Total Chromium	1994 Permit	2X Weekly	1X Weekly
606	Total Zinc	1994 Permit	2X Weekly	1X Monthly
606	Total Lead	1994 Permit	2X Weekly	1X Monthly
606	Phenols	1994 Permit	1X Weekly	1X Monthly
035	Ammonia	1997 Permit Amend.	7X Weekly	Eliminated
037	Total Zinc	1994 Permit	1X Weekly	1X Monthly
037	Phenols	1994 Permit	1X Weekly	1X Monthly

Attachment #8

b. Conduct the Plan

Within 30 days after approval of the TRE plan by the IDEM and U.S. EPA, the permittee must initiate an effluent TRE consistent with the TRE plan. While the TRE plan is being reviewed by the IDEM and U.S. EPA, whole effluent toxicity testing must continue at the affected outfall on a monthly basis. Progress reports shall be submitted every 90 days to the IDEM and U.S. EPA beginning 90 days after initiation of the study.

c. Reporting

Within 90 days of study completion, the permittee shall submit to the Permits Section of the Office of Water Management of IDEM, and the U.S. EPA, the final study results and a schedule for reducing the toxicity to acceptable levels through control of the toxicant source or treatment of effluent toxicity.

d. Compliance Date

The permittee shall complete items a, b and c and reduce the toxicity to acceptable levels as soon as possible but no later than three years after the date of determination of toxicity and approval of the TRE plan by the IDEM and U.S. EPA.

e. Whole Effluent Toxicity Limitations

During the period beginning three years after approval of the TRE plan by the IDEM and U.S. EPA, the permittee shall comply with the discharge limitations and monitoring requirements for whole effluent toxicity as specified below:

	Quality or Concentration			Monitoring Requirements	
Parameter	Outfall	Daily Maximum	Units	Measurement Frequency	Sample Type
Whole Effluent Toxicity [1]					
Acute	005	1.0	TU_a[2]	Quarterly	[2]
	010	1.0	TU_a[2]	Quarterly	[2]
	030	1.0	TU_a[2]	Quarterly	[2]
	034	1.0	TU_a[2]	Quarterly	[2]
Chronic	005	1.0	TU_c[3]	Quarterly	[3]
	010	20.0	TU_c[3]	Quarterly	[3]
	030	5.1	TU_c[3]	Quarterly	[3]
	034	6.9	TU_c[3]	Quarterly	[3]

[1] See Part I.H.1.

[2] TU_a is defined as $100/LC_{50}$.

[3] TU_c is defined as 100/NOEL.

Attachment #9

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:21 AM

Discharger Name:	U.S. Steel Outfall 005
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	61.0668 mgd	
Q1,10 receiving stream (Outfall)	=	0 mgd	
Q7,10 receiving stream (Outfall)	=	0 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	0 mgd	25%
Harmonic Mean Flow (Outfall)	=	0 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	0 mgd	25%
Q90,10 receiving stream	=	0 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	147 mg/l	
Stream pH (50th percentile)	=	8.19 s.u.	
Summer Stream Temperature (75th percentile)	=	27.85 C	
Summer Stream pH (75th percentile)	=	8.33 s.u.	
Winter Stream Temperature (75th percentile)	=	18.47 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.928	0.893
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.735	0.735
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Source of Criteria [1]														Indiana Water Quality Criteria for the Great Lakes System (ug/l)							Preliminary Effluent Limitations					
														A	B	C	D	E	F	G						
														Aquatic Life Criteria		Human Health Noncancer Criteria		Human Health Cancer Criteria		Wildlife Criteria	Concentration (ug/l)[3]		Mass (lbs/day)			
A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]	Acute (CMC)	Chronic (CCC)	Drinking (HNC-D)	Nondrinking (HNC-N)	Drinking (HCC-D)	Nondrinking (HCC-N)	(WC)	Average	Maximum	Average	Maximum	Criteria Type	Basis
1	1	3	3							10	0.6	7440508	Copper	19.32	12.45	280	56000				8.7	20	4.4	10	Tier I	CMC
3	3									10	0.6	7439921	Lead[4]	146.90	7.70						7.4	17	3.8	8.7	Tier I	CCC
4	4	5	5							10	0.6	7439965	Manganese	1597	742	3900	320000				520	1200	265	612	Tier II	CCC
1	1	1	1			1		Y		10	0.6	7439976	Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.00066	0.0016	Tier I	WC
	1	3	3							4	0.6	7782492	Selenium		4.61	140	3400				4.1	8.2	2.1	4.2	Tier I	CCC
1	1	3	3							10	0.6	7440666	Zinc	162.41	163.74	9000	250000				71	170	36	87	Tier I	CMC
4	4	1	1	1	1				Y	8	0.6	71432	Benzene[4]	880	98	19	510	12	310		15	40	8	20	Tier I	HCC-N
4	4	5	5							2	0.6	56553	Benzo(a)anthracene[4]	0.23	0.025	24	24				0.024	0.041	0.0122	0.021	Tier II	CCC
				3	3				Y	8	0.6	50328	Benzo(a)pyrene[4]					0.032	0.096		0.091	0.22	0.046	0.112	Tier I	HCC-N
4	4	3	3							4	0.6	91203	Naphthalene	200	26	490	1900				21	43	10.7	22	Tier II	CCC
												7664417	Total Ammonia (as N)													
1	1									10	0.6		Summer	2833.46	645.80						460	1100	234	561	Tier I	CCC
1	1									10	0.6		Winter	2897.46	660.39						470	1100	240	561	Tier I	CCC
1	1	1								10	0.6	1688706	Chloride	860000	230000	250000					162000	378000	82560	192639	Tier I	CCC
1	1									10	0.6	7782505	Chlorine (total residual)	19	11						8	18	4	9.2	Tier I	CCC
1	1									8	0.6	57125	Cyanide, Free (adult salmonids present)	35	8.2						6	13	3.1	6.6	Tier I	CCC
1	1									10	0.6	57125	Cyanide, Free (salmonids absent)	45.8	10.7						7.6	18	3.9	9.2	Tier I	CCC
4	4									10	0.6	16984488	Fluoride	12000	3400						2400	5600	1223	2854	Tier II	CCC
													Whole Effluent Toxicity (WET)													
1													Acute (TUa) without Mixing Zone	1.0								1.0				
	1												Chronic (TUc)		1.0						1					

2 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5), 327 IAC 2-1.5-8(f); and 327 IAC 2-1.5-16(g), Table 16-1.
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

Last revised: 18 December 2006

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:19 AM

Discharger Name:	U.S. Steel Outfall 010
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	1.4208 mgd	
Q1,10 receiving stream (Outfall)	=	61.0668 mgd	
Q7,10 receiving stream (Outfall)	=	61.0668 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	61.0668 mgd	25%
Harmonic Mean Flow (Outfall)	=	61.0668 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	61.0668 mgd	25%
Q90,10 receiving stream	=	61.0668 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	147 mg/l	
Stream pH (50th percentile)	=	8.19 s.u.	
Summer Stream Temperature (75th percentile)	=	27.85 C	
Summer Stream pH (75th percentile)	=	8.33 s.u.	
Winter Stream Temperature (75th percentile)	=	18.47 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.928	0.893
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.735	0.735
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Parameter Selection (Enter "Y")	Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
Y	1	1	3	3				1.77			10	0.6	7440508	Copper
Y	3	3						0.71			10	0.6	7439921	Lead[4]
Y	4	4	5	5				742			10	0.6	7439965	Manganese
Y	1	1	1	1			1	0.0013	Y		10	0.6	7439976	Mercury[6]
Y		1	3	3				5			10	0.6	7782492	Selenium
Y	1	1	3	3				116.26			10	0.6	7440666	Zinc
Y	4	4	1	1	1	1		98		Y	8	0.6	71432	Benzene[4]
Y	4	4	5	5				0.025			10	0.6	56553	Benzo(a)anthracene[4]
Y					3	3		0.096		Y	8	0.6	50328	Benzo(a)pyrene[4]
Y	4	4	3	3				26			10	0.6	91203	Naphthalene
Y														
Y													7664417	Total Ammonia (as N)
Y	1	1						600			10	0.6		Summer
Y	1	1						660			10	0.6		Winter
Y	1	1	1					147000			10	0.6	1688706	Chloride
Y	1	1						11			10	0.6	7782505	Chlorine (total residual)
Y	1	1						8.2			10	0.6	57125	Cyanide, Free (adult salmonids present)
Y	1	1						10.7			10	0.6	57125	Cyanide, Free (salmonids absent)
Y	4	4						2000			10	0.6	16984488	Fluoride
Y														Whole Effluent Toxicity (WET)
Y	1													Acute (TUa) without Mixing Zone
Y		1						0						Chronic (TUc)

Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l) A: Aquatic Life Criteria Acute (CMC)	B: Chronic (CCC)	C: Human Health Noncancer Criteria Drinking (HNC-D)	D: Nondrinking (HNC-N)	E: Human Health Cancer Criteria Drinking (HCC-D)	F: Nondrinking (HCC-N)	G: Wildlife Criteria (WC)	Preliminary Effluent Limitations: Concentration (ug/l)[3] Average	Maximum	Mass (lbs/day) Average	Maximum	Criteria Type	Basis
Copper	19.32	12.45	280	56000				17	38	0.2	0.45	Tier I	CMC
Lead[4]	146.90	7.70						82	190	0.97	2.3	Tier I	CCC
Manganese	1597	742	3900	320000				530	1200	6.3	14	Tier II	CCC
Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.000015	0.000038	Tier I	WC
Selenium		4.61	140	3400				3.5	8.2	0.042	0.1	Tier I	CCC
Zinc	162.41	163.74	9000	250000				93	220	1.1	2.6	Tier I	CMC
Benzene[4]	880	98	19	510	12	310		19	50	0.23	0.6	Tier I	HCC-N
Benzo(a)anthracene[4]	0.23	0.025	24	24				0.018	0.041	0.00021	0.00049	Tier II	CCC
Benzo(a)pyrene[4]					0.032	0.096		0.095	0.23	0.00113	0.0027	Tier I	HCC-N
Naphthalene	200	26	490	1900				18	43	0.21	0.51	Tier II	CCC
Total Ammonia (as N)													
Summer	2833.46	645.80						800	1900	9.5	23	Tier I	CCC
Winter	2897.46	660.39						470	1100	5.6	13	Tier I	CCC
Chloride	860000	230000	250000					676000	1573000	8015	18651	Tier I	CMC
Chlorine (total residual)	19	11						8	18	0.092	0.21	Tier I	CCC
Cyanide, Free (adult salmonids present)	35	8.2						5.8	13	0.069	0.15	Tier I	CCC
Cyanide, Free (salmonids absent)	45.8	10.7						7.6	18	0.09	0.21	Tier I	CCC
Fluoride	12000	3400						9500	22000	113	261	Tier II	CMC
Whole Effluent Toxicity (WET)													
Acute (TUa) without Mixing Zone	1.0								1.0				
Chronic (TUc)		1.0						12					

2 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion; 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); 327 IAC 2-1.5-8(f); and 327 IAC 2-1.5-16(g), Table 16-1.
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.
[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).
[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.
[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.
[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.
[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:21 AM

Discharger Name:	U.S. Steel Outfall 005 and 010
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	62.4876 mgd	
Q1.10 receiving stream (Outfall)	=	0 mgd	
Q7.10 receiving stream (Outfall)	=	0 mgd	25%
Q7.10 receiving stream (Industrial Water Supply)	=	0 mgd	25%
Harmonic Mean Flow (Outfall)	=	0 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	0 mgd	25%
Q90.10 receiving stream	=	0 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	147 mg/l	
Stream pH (50th percentile)	=	8.19 s.u.	
Summer Stream Temperature (75th percentile)	=	27.85 C	
Summer Stream pH (75th percentile)	=	8.33 s.u.	
Winter Stream Temperature (75th percentile)	=	18.47 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.928	0.893
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.735	0.735
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Parameter Selection (Enter "Y")	Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l) A: Aquatic Life Criteria Acute (CMC)	B: Aquatic Life Criteria Chronic (CCC)	C: Human Health Noncancer Criteria Drinking (HNC-D)	D: Human Health Noncancer Criteria Nondrinking (HNC-N)	E: Human Health Cancer Criteria Drinking (HCC-D)	F: Human Health Cancer Criteria Nondrinking (HCC-N)	G: Wildlife Criteria (WC)	Preliminary Effluent Limitations Concentration (ug/l)[3] Average	Concentration (ug/l)[3] Maximum	Mass (lbs/day) Average	Mass (lbs/day) Maximum	Criteria Type	Basis
Y	1	1	3	3							10	0.6	7440508	Copper	19.32	12.45	280	56000				8.7	20	4.5	10	Tier I	CMC
Y	3	3									10	0.6	7439921	Lead[4]	146.90	7.70						7.4	17	3.9	8.9	Tier I	CCC
Y	4	4	5	5							10	0.6	7439965	Manganese	1597	742	3900	320000				520	1200	271	626	Tier II	CCC
Y	1	1	1	1			1		Y		10	0.6	7439976	Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.00068	0.0017	Tier I	WC
Y		1	3	3							4	0.6	7782492	Selenium		4.61	140	3400				4.1	8.2	2.1	4.3	Tier I	CCC
Y	1	1	3	3							10	0.6	7440666	Zinc	162.41	163.74	9000	250000				71	170	37	89	Tier I	CMC
Y	4	4	1	1	1	1				Y	8	0.6	71432	Benzene[4]	880	98	19	510	12	310		15	40	8	21	Tier I	HCC-N
Y	4	4	5	5							2	0.6	56553	Benzo(a)anthracene[4]	0.23	0.025	24	24				0.024	0.041	0.0125	0.021	Tier II	CCC
Y					3	3				Y	8	0.6	50328	Benzo(a)pyrene[4]					0.032	0.096		0.091	0.22	0.047	0.115	Tier I	HCC-N
Y	4	4	3	3							4	0.6	91203	Naphthalene	200	26	490	1900				21	43	11	22	Tier II	CCC
Y																											
Y													7664417	Total Ammonia (as N)													
Y	1	1									10	0.6		Summer	2833.46	645.80						460	1100	240	574	Tier I	CCC
Y	1	1									10	0.6		Winter	2897.46	660.39						470	1100	245	574	Tier I	CCC
Y	1	1	1								10	0.6	1688706	Chloride	860000	230000	250000					162000	378000	84480	197121	Tier I	CCC
Y	1	1									10	0.6	7782505	Chlorine (total residual)	19	11						8	18	4.1	9.4	Tier I	CCC
Y	1	1									8	0.6	57125	Cyanide, Free (adult salmonids present)	35	8.2						6	13	3.1	6.8	Tier I	CCC
Y	1	1									10	0.6	57125	Cyanide, Free (salmonids absent)	45.8	10.7						7.6	18	4	9.4	Tier I	CCC
Y	4	4									10	0.6	16984488	Fluoride	12000	3400						2400	5600	1252	2920	Tier II	CCC
Y														Whole Effluent Toxicity (WET)													
Y	1													Acute (TUa) without Mixing Zone	1.0								1.0				
Y		1												Chronic (TUc)		1.0						1					

2 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); 327 IAC 2-1.5-8(f); and 327 IAC 2-1.5-16(g), Table 16-1.
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:21 AM

Discharger Name:	U.S. Steel Outfall 015
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	1.6542 mgd	
Q1,10 receiving stream (Outfall)	=	62.4876 mgd	
Q7,10 receiving stream (Outfall)	=	62.4876 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	62.4876 mgd	25%
Harmonic Mean Flow (Outfall)	=	62.4876 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	62.4876 mgd	25%
Q90,10 receiving stream	=	62.4876 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	147 mg/l	
Stream pH (50th percentile)	=	8.19 s.u.	
Summer Stream Temperature (75th percentile)	=	27.85 C	
Summer Stream pH (75th percentile)	=	8.33 s.u.	
Winter Stream Temperature (75th percentile)	=	18.47 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.928	0.893
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.735	0.735
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
1	1	3	3				2.26			10	0.6	7440508	Copper
3	3						3.32			10	0.6	7439921	Lead[4]
1	1	1	1			1	0.0013	Y		10	0.6	7439976	Mercury[6]
	1	3	3				5			10	0.6	7782492	Selenium
1	1	3	3				118.52			10	0.6	7440666	Zinc
												7664417	Total Ammonia (as N)
1	1						600			10	0.6		Summer
1	1						660			10	0.6		Winter
1	1	1					147000			10	0.6	1688706	Chloride
1	1						11			10	0.6	7782505	Chlorine (total residual)
1	1						5.2			10	0.6	57125	Cyanide, Free
4	4						1960			10	0.6	16984488	Fluoride
													Whole Effluent Toxicity (WET)
1													Acute (TUa) without Mixing Zone
	1						0						Chronic (TUc)

Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l) A: Aquatic Life Criteria Acute (CMC)	B: Chronic (CCC)	C: Human Health Noncancer Criteria Drinking (HNC-D)	D: Nondrinking (HNC-N)	E: Human Health Cancer Criteria Drinking (HCC-D)	F: Nondrinking (HCC-N)	G: Wildlife Criteria (WC)	Preliminary Effluent Limitations Concentration (ug/l)[3] Average	Concentration Maximum	Mass (lbs/day) Average	Mass Maximum	Criteria Type	Basis
Copper	19.32	12.45	280	56000				16	38	0.22	0.52	Tier I	CMC
Lead[4]	146.90	7.70						55	130	0.76	1.8	Tier I	CCC
Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.000018	0.000044	Tier I	WC
Selenium		4.61	140	3400				3.5	8.2	0.048	0.11	Tier I	CCC
Zinc	162.41	163.74	9000	250000				92	210	1.3	2.9	Tier I	CMC
Total Ammonia (as N)													
Summer	2833.46	645.80						760	1800	10	25	Tier I	CCC
Winter	2897.46	660.39						470	1100	6.5	15	Tier I	CCC
Chloride	860000	230000	250000					676000	1573000	9332	21715	Tier I	CMC
Chlorine (total residual)	19	11						8	18	0.11	0.25	Tier I	CCC
Cyanide, Free	22	5.2						3.7	8.5	0.051	0.12	Tier I	CCC
Fluoride	12000	3400						9500	22000	131	304	Tier II	CMC
Whole Effluent Toxicity (WET)													
Acute (TUa) without Mixing Zone	1.0								1.0				
Chronic (TUc)		1.0						10					

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

ATTACHMENT
Calculation of Preliminary Effluent Limitations

Discharger Name:	U.S. Steel Outfall 017
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	0.0637 mgd	
Q1,10 receiving stream (Outfall)	=	64.1418 mgd	
Q7,10 receiving stream (Outfall)	=	64.1418 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	64.1418 mgd	25%
Harmonic Mean Flow (Outfall)	=	64.1418 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	64.1418 mgd	25%
Q90,10 receiving stream	=	64.1418 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	147 mg/l	
Stream pH (50th percentile)	=	8.19 s.u.	
Summer Stream Temperature (75th percentile)	=	27.85 C	
Summer Stream pH (75th percentile)	=	8.33 s.u.	
Winter Stream Temperature (75th percentile)	=	18.47 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.928	0.893
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.735	0.735
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Parameter Selection (Enter "Y")	Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
Y	1	1	3	3				2.27			10	0.6	7440508	Copper
Y	3	3						3.43			10	0.6	7439921	Lead[4]
Y	1	1	1	1			1	0.0013	Y		10	0.6	7439976	Mercury[6]
Y		1	3	3				5			10	0.6	7782492	Selenium
Y	1	1	3	3				120.08			10	0.6	7440666	Zinc
Y														
Y													7664417	Total Ammonia (as N)
Y	1	1						610			10	0.6		Summer
Y	1	1						660			10	0.6		Winter
Y	1	1	1					149000			10	0.6	1688706	Chloride
Y	1	1						11			10	0.6	7782505	Chlorine (total residual)
Y	1	1						5.2			10	0.6	57125	Cyanide, Free
Y	4	4						1920			10	0.6	16984488	Fluoride
Y														Whole Effluent Toxicity (WET)
Y	1													Acute (TUa) without Mixing Zone
Y		1						0						Chronic (TUc)

Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l) A: Aquatic Life Criteria Acute (CMC)	B: Aquatic Life Criteria Chronic (CCC)	C: Human Health Noncancer Criteria Drinking (HNC-D)	D: Human Health Noncancer Criteria Nondrinking (HNC-N)	E: Human Health Cancer Criteria Drinking (HCC-D)	F: Human Health Cancer Criteria Nondrinking (HCC-N)	G: Wildlife Criteria (WC)	Preliminary Effluent Limitations Concentration (ug/l)[3] Average	Concentration (ug/l)[3] Maximum	Mass (lbs/day) Average	Mass (lbs/day) Maximum	Criteria Type	Basis
Copper	19.32	12.45	280	56000				16	38	0.0085	0.02	Tier I	CMC
Lead[4]	146.90	7.70						170	400	0.09	0.21	Tier I	CMC
Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	6.9E-07	0.0000017	Tier I	WC
Selenium		4.61	140	3400				3.5	8.2	0.0019	0.0044	Tier I	CCC
Zinc	162.41	163.74	9000	250000				91	210	0.048	0.11	Tier I	CMC
Total Ammonia (as N)													
Summer	2833.46	645.80						2200	5100	1.2	2.7	Tier I	CMC
Winter	2897.46	660.39						540	1200	0.29	0.64	Tier I	CCC
Chloride	860000	230000	250000					675000	1571000	359	835	Tier I	CMC
Chlorine (total residual)	19	11						8	18	0.0041	0.0096	Tier I	CCC
Cyanide, Free	22	5.2						3.7	8.5	0.002	0.0045	Tier I	CCC
Fluoride	12000	3400						9500	22000	5.1	12	Tier II	CMC
Whole Effluent Toxicity (WET)													
Acute (TUa) without Mixing Zone	1.0								1.0				
Chronic (TUc)		1.0						253					

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:21 AM

Discharger Name:	U.S. Steel Outfall 018
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	49.85 mgd	
Q1,10 receiving stream (Outfall)	=	64.2055 mgd	
Q7,10 receiving stream (Outfall)	=	64.2055 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	64.2055 mgd	25%
Harmonic Mean Flow (Outfall)	=	64.2055 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	64.2055 mgd	25%
Q90,10 receiving stream	=	64.2055 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	147 mg/l	
Stream pH (50th percentile)	=	8.19 s.u.	
Summer Stream Temperature (75th percentile)	=	27.85 C	
Summer Stream pH (75th percentile)	=	8.33 s.u.	
Winter Stream Temperature (75th percentile)	=	18.47 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.928	0.893
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.735	0.735
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Parameter Selection (Enter "Y")	Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
Y	1	1	3	3				2.27			4	0.6	7440508	Copper
Y	3	3						3.5			10	0.6	7439921	Lead[4]
Y	1	1	1	1			1	0.0013	Y		10	0.6	7439976	Mercury[6]
Y	1	1	3	3				120.18			10	0.6	7440666	Zinc
Y														
Y													7664417	Total Ammonia (as N)
Y	1	1						610			10	0.6		Summer
Y	1	1						660			10	0.6		Winter
Y	1	1	1					149000			10	0.6	1688706	Chloride
Y	1	1						11			10	0.6	7782505	Chlorine (total residual)
Y	1	1						5.2			10	0.6	57125	Cyanide, Free
Y	4	4						1920			10	0.6	16984488	Fluoride
Y														Whole Effluent Toxicity (WET)
Y	1													Acute (TUa) without Mixing Zone
Y		1						0	.					Chronic (TUc)

Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l): A – Aquatic Life Criteria: Acute (CMC)	B – Chronic (CCC)	C – Human Health Noncancer Criteria: Drinking (HNC-D)	D – Nondrinking (HNC-N)	E – Human Health Cancer Criteria: Drinking (HCC-D)	F – Nondrinking (HCC-N)	G – Wildlife Criteria (WC)	Preliminary Effluent Limitations: Concentration (ug/l)[3] Average	Concentration Maximum	Mass (lbs/day) Average	Mass Maximum	Criteria Type	Basis
Copper	19.32	12.45	280	56000				13	27	5.4	11	Tier I	CCC
Lead[4]	146.90	7.70						9	21	3.7	8.7	Tier I	CCC
Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.00054	0.0013	Tier I	WC
Zinc	162.41	163.74	9000	250000				91	210	38	87	Tier I	CMC
Total Ammonia (as N)													
Summer	2833.46	645.80						460	1100	191	458	Tier I	CCC
Winter	2897.46	660.39						470	1100	196	458	Tier I	CCC
Chloride	860000	230000	250000					181000	421000	75299	175144	Tier I	CCC
Chlorine (total residual)	19	11						8	18	3.2	7.5	Tier I	CCC
Cyanide, Free	22	5.2						3.7	8.5	1.5	3.5	Tier I	CCC
Fluoride	12000	3400						2700	6400	1123	2663	Tier II	CCC
Whole Effluent Toxicity (WET)													
Acute (TUa) without Mixing Zone	1.0								1.0				
Chronic (TUc)		1.0						1.3					

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:21 AM

Discharger Name:	U.S. Steel Outfall 019
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	51.75 mgd	
Q1,10 receiving stream (Outfall)	=	114.0555 mgd	
Q7,10 receiving stream (Outfall)	=	114.0555 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	114.0555 mgd	25%
Harmonic Mean Flow (Outfall)	=	114.0555 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	114.0555 mgd	25%
Q90,10 receiving stream	=	114.0555 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	147 mg/l	
Stream pH (50th percentile)	=	8.19 s.u.	
Summer Stream Temperature (75th percentile)	=	27.85 C	
Summer Stream pH (75th percentile)	=	8.33 s.u.	
Winter Stream Temperature (75th percentile)	=	18.47 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.928	0.893
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.735	0.735
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
1	1	3	3				8.45			10	0.6	7440508	Copper
3	3						2.3			10	0.6	7439921	Lead[4]
1	1	1	1			1	0.0013	Y		10	0.6	7439976	Mercury[6]
1	1	3	3				74.35			10	0.6	7440666	Zinc
												7664417	Total Ammonia (as N)
1	1						430			10	0.6		Summer
1	1						520			10	0.6		Winter
1	1	1					93000			10	0.6	1688706	Chloride
1	1						11			10	0.6	7782505	Chlorine (total residual)
1	1						3.01			10	0.6	57125	Cyanide, Free
4	4						1150			10	0.6	16984488	Fluoride
													Whole Effluent Toxicity (WET)
1													Acute (TUa) without Mixing Zone
	1						0						Chronic (TUc)

Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l): A – Aquatic Life Criteria Acute (CMC)	B – Chronic (CCC)	C – Human Health Noncancer Criteria Drinking (HNC-D)	D – Nondrinking (HNC-N)	E – Human Health Cancer Criteria Drinking (HCC-D)	F – Nondrinking (HCC-N)	G – Wildlife Criteria (WC)	Preliminary Effluent Limitations: Concentration (ug/l)[3] Average	Maximum	Mass (lbs/day) Average	Maximum	Criteria Type	Basis
Copper	19.32	12.45	280	56000				11	25	4.8	11	Tier I	CCC
Lead[4]	146.90	7.70						11	25	4.8	11	Tier I	CCC
Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.00056	0.0014	Tier I	WC
Zinc	162.41	163.74	9000	250000				110	260	48	112	Tier I	CMC
Total Ammonia (as N)													
Summer	2833.46	645.80						540	1300	233	561	Tier I	CCC
Winter	2897.46	660.39						520	1200	225	518	Tier I	CCC
Chloride	860000	230000	250000					216000	502000	93285	216801	Tier I	CCC
Chlorine (total residual)	19	11						8	18	3.4	7.8	Tier I	CCC
Cyanide, Free	22	5.2						4.5	11	1.9	4.8	Tier I	CCC
Fluoride	12000	3400						3300	7600	1425	3282	Tier II	CCC
Whole Effluent Toxicity (WET)													
Acute (TUa) without Mixing Zone	1.0								1.0				
Chronic (TUc)		1.0						1.6					

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.
[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).
[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.
[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.
[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.
[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:21 AM

Discharger Name:	U.S. Steel Outfall 020
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	64.3833 mgd	
Q1,10 receiving stream (Outfall)	=	165.8055 mgd	
Q7,10 receiving stream (Outfall)	=	165.8055 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	165.8055 mgd	25%
Harmonic Mean Flow (Outfall)	=	165.8055 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	165.8055 mgd	25%
Q90,10 receiving stream	=	165.8055 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	147 mg/l	
Stream pH (50th percentile)	=	8.19 s.u.	
Summer Stream Temperature (75th percentile)	=	27.85 C	
Summer Stream pH (75th percentile)	=	8.33 s.u.	
Winter Stream Temperature (75th percentile)	=	18.47 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.928	0.893
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.735	0.735
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Parameter Selection (Enter "Y")	Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
Y	1	1	3	3				10.64			10	0.6	7440508	Copper
Y	3	3						1.8			4	0.6	7439921	Lead[4]
Y	1	1	1	1			1	0.0013	Y		10	0.6	7439976	Mercury[6]
Y	1	1	3	3				55.61			10	0.6	7440666	Zinc
Y														
Y													7664417	Total Ammonia (as N)
Y	1	1						360			10	0.6		Summer
Y	1	1						470			10	0.6		Winter
Y	1	1	1					70000			10	0.6	1688706	Chloride
Y	1	1						11			10	0.6	7782505	Chlorine (total residual)
Y	1	1						2.14			10	0.6	57125	Cyanide, Free
Y	4	4						840			10	0.6	16984488	Fluoride
Y														Whole Effluent Toxicity (WET)
Y	1													Acute (TUa) without Mixing Zone
Y		1						0						Chronic (TUc)

Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l) A: Aquatic Life Criteria Acute (CMC)	B: Aquatic Life Criteria Chronic (CCC)	C: Human Health Noncancer Criteria Drinking (HNC-D)	D: Human Health Noncancer Criteria Nondrinking (HNC-N)	E: Human Health Cancer Criteria Drinking (HCC-D)	F: Human Health Cancer Criteria Nondrinking (HCC-N)	G: Wildlife Criteria (WC)	Preliminary Effluent Limitations Concentration (ug/l)[3] Average	Concentration (ug/l)[3] Maximum	Mass (lbs/day) Average	Mass (lbs/day) Maximum	Criteria Type	Basis
Copper	19.32	12.45	280	56000				10	24	5.4	13	Tier I	CCC
Lead[4]	146.90	7.70						13	26	7	14	Tier I	CCC
Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.0007	0.0017	Tier I	WC
Zinc	162.41	163.74	9000	250000				120	280	64	150	Tier I	CMC
Total Ammonia (as N)													
Summer	2833.46	645.80						590	1400	317	752	Tier I	CCC
Winter	2897.46	660.39						550	1300	296	698	Tier I	CCC
Chloride	860000	230000	250000					235000	547000	126267	293906	Tier I	CCC
Chlorine (total residual)	19	11						8	18	4.2	9.7	Tier I	CCC
Cyanide, Free	22	5.2						5.1	12	2.7	6.4	Tier I	CCC
Fluoride	12000	3400						3600	8300	1934	4460	Tier II	CCC
Whole Effluent Toxicity (WET)													
Acute (TUa) without Mixing Zone	1.0								1.0				
Chronic (TUc)		1.0						1.6					

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).
[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.
[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).
[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.
[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.
[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.
[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:21 AM

Discharger Name:	U.S. Steel Outfalls 028 and 030 (Bubble 600)
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	31.8709 mgd	
Q1,10 receiving stream (Outfall)	=	230.8888 mgd	
Q7,10 receiving stream (Outfall)	=	230.8888 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	230.8888 mgd	25%
Harmonic Mean Flow (Outfall)	=	230.8888 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	230.8888 mgd	25%
Q90,10 receiving stream	=	230.8888 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	147 mg/l	
Stream pH (50th percentile)	=	8.19 s.u.	
Summer Stream Temperature (75th percentile)	=	27.85 C	
Summer Stream pH (75th percentile)	=	8.33 s.u.	
Winter Stream Temperature (75th percentile)	=	18.47 C	
Winter Stream pH (75th percentile)	=	8.3 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.928	0.893
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.735	0.735
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Parameter Selection (Enter "Y")	Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
Y	1	1	3	3				11.69			10	0.6	7440508	Copper
Y	3	3						5.77			10	0.6	7439921	Lead[4]
Y	1	1	1	1			1	0.0013	Y		10	0.6	7439976	Mercury[6]
Y	1	1	3	3				74.2			10	0.6	7440666	Zinc
Y														
Y													7664417	Total Ammonia (as N)
Y	1	1						430			10	0.6		Summer
Y	1	1						460			10	0.6		Winter
Y	1	1	1					56000			10	0.6	1688706	Chloride
Y	1	1						11			10	0.6	7782505	Chlorine (total residual)
Y	1	1						1.59			10	0.6	57125	Cyanide, Free
Y	4	4						650			4	0.6	16984488	Fluoride
Y														Whole Effluent Toxicity (WET)
Y	1													Acute (TUa) without Mixing Zone
Y		1						0						Chronic (TUc)

Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l) A: Aquatic Life Criteria Acute (CMC)	B: Chronic (CCC)	C: Human Health Noncancer Criteria Drinking (HNC-D)	D: Nondrinking (HNC-N)	E: Human Health Cancer Criteria Drinking (HCC-D)	F: Nondrinking (HCC-N)	G: Wildlife Criteria (WC)	Preliminary Effluent Limitations: Concentration (ug/l)[3] Average	Concentration Maximum	Mass (lbs/day) Average	Mass Maximum	Criteria Type	Basis
Copper	19.32	12.45	280	56000				11	25	2.9	6.6	Tier I	CCC
Lead[4]	146.90	7.70						13	31	3.5	8.2	Tier I	CCC
Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.00035	0.00085	Tier I	WC
Zinc	162.41	163.74	9000	250000				110	260	29	69	Tier I	CMC
Total Ammonia (as N)													
Summer	2833.46	645.80						730	1700	194	452	Tier I	CCC
Winter	2897.46	660.39						720	1700	192	452	Tier I	CCC
Chloride	860000	230000	250000					385000	895000	102401	238048	Tier I	CCC
Chlorine (total residual)	19	11						8	18	2.1	4.8	Tier I	CCC
Cyanide, Free	22	5.2						8.3	19	2.2	5.1	Tier I	CCC
Fluoride	12000	3400						6900	14000	1835	3724	Tier II	CCC
Whole Effluent Toxicity (WET)													
Acute (TUa) without Mixing Zone	1.0								1.0				
Chronic (TUc)		1.0						2.8					

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.

[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).

[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.

[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.

[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.

[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

Last revised: 12 December 2002

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:21 AM

Discharger Name:	U.S. Steel Outfall 034
Receiving Stream:	East Branch Grand Calumet River

			Mixing Zone
Discharge Flow	=	28.4583 mgd	
Q1,10 receiving stream (Outfall)	=	263.2597 mgd	
Q7,10 receiving stream (Outfall)	=	263.2597 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	263.2597 mgd	25%
Harmonic Mean Flow (Outfall)	=	263.2597 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	263.2597 mgd	25%
Q90,10 receiving stream	=	263.2597 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	161 mg/l	
Stream pH (50th percentile)	=	7.91 s.u.	
Summer Stream Temperature (75th percentile)	=	27.53 C	
Summer Stream pH (75th percentile)	=	8.1 s.u.	
Winter Stream Temperature (75th percentile)	=	17.8 C	
Winter Stream pH (75th percentile)	=	8.12 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.924	0.889
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.722	0.722
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Parameter Selection (Enter "Y")	Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/ Month	CV	CAS Number	Parameters[2]
Y	1	1	3	3				10			10	0.6	16065831	Chromium (III)
Y	1	1	3	3				12.1			10	0.6	7440508	Copper
Y	3	3						7.49			10	0.6	7439921	Lead[4]
Y	1	1	1	1			1	0.0013	Y		10	0.6	7439976	Mercury[6]
Y	1	1	3	3				87.37			10	0.6	7440666	Zinc
Y	4	4	5	5				0.005			2	0.6	56553	Benzo(a)anthracene[4]
Y					3	3		0.018		Y	10	0.6	50328	Benzo(a)pyrene[4]
Y	4	4	3	3				1			10	0.6	91203	Naphthalene
Y														
Y													7664417	Total Ammonia (as N)
Y	1	1						470			10	0.6		Summer
Y	1	1						510			10	0.6		Winter
Y	1	1	1					75000			10	0.6	1688706	Chloride
Y	1	1						11			10	0.6	7782505	Chlorine (total residual)
Y	1	1						1.42			10	0.6	57125	Cyanide, Free
Y	4	4						1580			10	0.6	16984488	Fluoride
Y														Whole Effluent Toxicity (WET)
Y	1													Acute (TUa) without Mixing Zone
Y		1						0						Chronic (TUc)

Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l) A: Aquatic Life Criteria Acute (CMC)	B: Aquatic Life Criteria Chronic (CCC)	C: Human Health Noncancer Criteria Drinking (HNC-D)	D: Human Health Noncancer Criteria Nondrinking (HNC-N)	E: Human Health Cancer Criteria Drinking (HCC-D)	F: Human Health Cancer Criteria Nondrinking (HCC-N)	G: Wildlife Criteria (WC)	Preliminary Effluent Limitations: Concentration (ug/l)[3] Average	Concentration (ug/l)[3] Maximum	Mass (lbs/day) Average	Mass (lbs/day) Maximum	Criteria Type	Basis
Chromium (III)	842	109	410000	43000000				280	650	66	154	Tier I	CCC
Copper	21.05	13.45	280	56000				13	30	3.1	7.1	Tier I	CCC
Lead[4]	161.96	8.49						15	36	3.6	8.5	Tier I	CCC
Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.00031	0.00076	Tier I	WC
Zinc	175.43	176.86	9000	250000				120	270	28	64	Tier I	CMC
Benzo(a)anthracene[4]	0.23	0.025	24	24				0.068	0.12	0.016	0.028	Tier II	CCC
Benzo(a)pyrene[4]					0.032	0.096		0.28	0.67	0.066	0.16	Tier I	HCC-N
Naphthalene	200	26	490	1900				59	140	14	33	Tier II	CCC
Total Ammonia (as N)													
Summer	4547.68	1036.51						1700	3900	404	926	Tier I	CCC
Winter	4291.73	978.17						1500	3400	356	807	Tier I	CCC
Chloride	860000	230000	250000					415000	967000	98561	229659	Tier I	CCC
Chlorine (total residual)	19	11						8	18	1.9	4.3	Tier I	CCC
Cyanide, Free	22	5.2						9.8	23	2.3	5.5	Tier I	CCC
Fluoride	12000	3400						5400	12000	1282	2850	Tier II	CCC
Whole Effluent Toxicity (WET)													
Acute (TUa) without Mixing Zone	1.0								1.0				
Chronic (TUc)		1.0						3.3					

1 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.
[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).
[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.
[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.
[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.
[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

Last revised: 12 December 2002

ATTACHMENT
Calculation of Preliminary Effluent Limitations

9/24/2007
6:21 AM

Discharger Name:	U.S. Steel Outfall 040
Receiving Stream:	Stockton Pond

			Mixing Zone
Discharge Flow	=	0.2 mgd	
Q1,10 receiving stream (Outfall)	=	0 mgd	
Q7,10 receiving stream (Outfall)	=	0 mgd	25%
Q7,10 receiving stream (Industrial Water Supply)	=	0 mgd	25%
Harmonic Mean Flow (Outfall)	=	0 mgd	25%
Harmonic Mean Flow (Drinking Water Intake)	=	0 mgd	25%
Q90,10 receiving stream	=	0 mgd	25%
Discharge-Induced Mixing Dilution Ratio (S)	=		
Hardness (50th percentile)	=	150 mg/l	
Stream pH (50th percentile)	=	8.6 s.u.	
Summer Stream Temperature (75th percentile)	=	31.8 C	
Summer Stream pH (75th percentile)	=	8.5 s.u.	
Winter Stream Temperature (75th percentile)	=	24 C	
Winter Stream pH (75th percentile)	=	8.9 s.u.	

Discharge-Induced Mixing (DIM)	No
Drinking Water Intake Downstream	No
Industrial Water Supply Downstream	No

Metals Translators
(dissolved to total recoverable)

	Acute	Chronic
Aluminum	1.000	1.000
Antimony	1.000	1.000
Arsenic	1.000	1.000
Barium	1.000	1.000
Beryllium	1.000	1.000
Cadmium	0.927	0.892
Chromium III	0.316	0.860
Chromium VI	0.982	0.962
Cobalt	1.000	1.000
Copper	0.960	0.960
Iron	1.000	1.000
Lead	0.732	0.732
Manganese	1.000	1.000
Mercury	0.850	0.850
Molybdenum	1.000	1.000
Nickel	0.998	0.997
Selenium	0.922	0.922
Silver	0.850	1.000
Strontium	1.000	1.000
Thallium	1.000	1.000
Tin	1.000	1.000
Titanium	1.000	1.000
Vanadium	1.000	1.000
Zinc	0.978	0.986

Parameter Selection (Enter "Y")	Source of Criteria [1] A	B	C	D	E	F	G	Background (ug/l)	BCC	Add.	Samples/Month	CV	CAS Number	Parameters[2]	Indiana Water Quality Criteria for the Great Lakes System (ug/l): A Aquatic Life Criteria Acute (CMC)	B Aquatic Life Criteria Chronic (CCC)	C Human Health Noncancer Criteria Drinking (HNC-D)	D Human Health Noncancer Criteria Nondrinking (HNC-N)	E Human Health Cancer Criteria Drinking (HCC-D)	F Human Health Cancer Criteria Nondrinking (HCC-N)	G Wildlife Criteria (WC)	Preliminary Effluent Limitations: Concentration (ug/l)[3] Average	Concentration (ug/l)[3] Maximum	Mass (lbs/day) Average	Mass (lbs/day) Maximum	Criteria Type	Basis
Y	1	1	3	3							2	0.6	16065831	Chromium (III)	794	103	410000	43000000				114	200	0.19	0.33	Tier I	CCC
Y	1	1	3	3							1	0.6	7440508	Copper	19.69	12.66	280	56000				13.2	21	0.022	0.035	Tier I	CCC
Y	3	3									2	0.6	7439921	Lead[4]	150.12	7.87						10.2	18	0.017	0.03	Tier I	CCC
Y	1	1	1	1			1		Y		10	0.6	7439976	Mercury[6]	1.440	0.772	0.0018	0.0018			0.0013	0.0013	0.0032	0.0000022	0.0000053	Tier I	WC
Y	1	1	3	3							2	0.6	7440020	Nickel	659.84	73.29	460	42000				70	120	0.117	0.2	Tier I	CCC
Y	1	1	3	3							4	0.6	7440666	Zinc	165.22	166.57	9000	250000				84	170	0.14	0.28	Tier I	CMC
Y																											
Y													7664417	Total Ammonia (as N)													
Y	1	1									1	0.6		Summer	2154.11	490.97						490	810	0.82	1.4	Tier I	CCC
Y	1	1									1	0.6		Winter	948.45	216.17						220	360	0.37	0.6	Tier I	CCC
Y	1	1	1								2	0.6	1688706	Chloride	860000	230000	250000					218000	378000	364	631	Tier I	CCC
Y	1	1									10	0.6	7782505	Chlorine (total residual)	19	11						8	18	0.013	0.03	Tier I	CCC
Y	1	1									10	0.6	57125	Cyanide, Free	22	5.2						3.7	8.5	0.0062	0.014	Tier I	CCC
Y	4	4									10	0.6	16984488	Fluoride	12000	3400						2400	5600	4	9.3	Tier II	CCC
Y														Whole Effluent Toxicity (WET)													
Y	1													Acute (TUa) without Mixing Zone	1.0								1.0				
Y		1												Chronic (TUc)		1.0						1					

0 Number of Carcinogenic pollutants present in the effluent

[1] Source of Criteria
1) Indiana numeric water quality criterion: 327 IAC 2-1.5-8(b)(3), Table 8-1; 327 IAC 2-1.5-8(b)(5), Table 8-3; 327 IAC 2-1.5-8(b)(6), Table 8-4; 327 IAC 2-1.5-8(c)(5); and 327 IAC 2-1.5-8(f).
2) Additional Criteria for Lake Michigan, 327 IAC 2-1.5-8(j), Table 8-9. These criteria are not aquatic life criteria, however, since they are treated as 4-day average criteria, they are included in the chronic aquatic criteria column.
3) Tier I criterion calculated using the methodology in 327 IAC 2-1.5-11, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
4) Tier II value calculated using the methodology in 327 IAC 2-1.5-12, 327 IAC 2-1.5-14, and 327 IAC 2-1.5-15.
5) Estimated ambient screening value (EASV) calculated in accordance with 327 IAC 5-2-11.5(b)(3)(A)(i).

[2] The aquatic criteria for the metals are dissolved criteria. The human health criteria for the metals are total recoverable. The aquatic criteria for cyanide are free cyanide. The human health criteria for cyanide are total cyanide.
[3] The WQBELs for the metals are total recoverable (with the exception of Chromium (VI) which is dissolved).
[4] The above-noted substances are probable or known human carcinogens. If an effluent contains more than one of these substances, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(A) shall be applied. This spreadsheet automatically applies these additivity provisions by reducing each human health wasteload allocation for a carcinogen by an equal amount. This allocation between carcinogens can be altered on a case-specific basis.
[5] The above-noted substance is a chlorinated dibenzo-p-dioxin. If an effluent contains more than one chlorinated dibenzo-p-dioxin or chlorinated dibenzofuran, the additivity provisions contained in 327 IAC 5-2-11.4(a)(4)(C) shall be applied.
[6] The above-noted substances are bioaccumulative chemicals of concern (BCCs). Dilution is not allowed for new discharges of BCCs to streams and for any discharges of BCCs to the open waters of Lake Michigan. Dilution is not allowed for existing discharges of BCCs to streams after January 1, 2004 unless the discharge meets an exception. To not allow for dilution for BCCs, place a "Y" in the "BCC" column.
[7] Limits based on estimated ambient screening values (as indicated by EASV) ARE NOT to be used as water quality-based effluent limitations. These are solely to be used as preliminary effluent limitations.

Last revised: 12 December 2002

Attachment #10

GREAT LAKES	4040001020 020	LAKE CO	INC0122_00	GRAND CALUMET RIVER - HEADWATE RS	AMMONIA
GREAT LAKES	4040001020 020	LAKE CO	INC0122_00	GRAND CALUMET RIVER - HEADWATE RS	CYANIDE
GREAT LAKES	4040001020 020	LAKE CO	INC0122_00	Grand Calumet River - headwaters	FCA for MERCURY
GREAT LAKES	4040001020 020	LAKE CO	INC0122_00	Grand Calumet River - headwaters	FCA for PCBs
GREAT LAKES	0404000102 0020	LAKE CO	INC0122_00	Grand Calumet River - headwaters	IMPAIRED BIOTIC COMMUNITI ES
GREAT LAKES	4040001020 020	LAKE CO	INC0122_00	GRAND CALUMET RIVER - HEADWATE RS	OIL AND GREASE
GREAT LAKES	4040001020 020	LAKE CO	INC0122_T1 097	GRAND CALUMET RIVER - GARY TO INDIANA HARBOR CANAL	CYANIDE
GREAT LAKES	4040001020 020	LAKE CO	INC0122_T1 097	GRAND CALUMET RIVER - GARY TO INDIANA HARBOR CANAL	E. COLI
GREAT LAKES	4040001020 020	LAKE CO	INC0122_T1 097	Grand Calumet River - Gary to Indiana Harbor Canal	FCA for MERCURY
GREAT LAKES	4040001020 020	LAKE CO	INC0122_T1 097	Grand Calumet River - Gary to Indiana Harbor Canal	FCA for PCBs
GREAT LAKES	4040001020 020	LAKE CO	INC0122_T1 097	GRAND CALUMET RIVER - GARY TO INDIANA HARBOR CANAL	IMPAIRED BIOTIC COMMUNITI ES

GREAT LAKES	4040001020020	LAKE CO	INC0122_T1097	GRAND CALUMET RIVER - GARY TO INDIANA HARBOR CANAL	OIL AND GREASE
UPPER ILLINOIS	7120003050010	LAKE CO	INK0351_T1001	GRAND CALUMET RIVER - ILLINOIS TO INDIANA HARBOR CANAL	AMMONIA
UPPER ILLINOIS	7120003050010	LAKE CO	INK0351_T1001	GRAND CALUMET RIVER - ILLINOIS TO INDIANA HARBOR CANAL	CHLORIDES
UPPER ILLINOIS	7120003050010	LAKE CO	INK0351_T1001	GRAND CALUMET RIVER - ILLINOIS TO INDIANA HARBOR CANAL	CYANIDE
UPPER ILLINOIS	7120003050010	LAKE CO	INK0351_T1001	GRAND CALUMET RIVER - ILLINOIS TO INDIANA HARBOR CANAL	E. COLI
UPPER ILLINOIS	7120003050010	LAKE CO	INK0351_T1001	Grand Calumet River - Illinois to Indiana Harbor Canal	FCA for MERCURY
UPPER ILLINOIS	7120003050010	LAKE CO	INK0351_T1001	Grand Calumet River - Illinois to Indiana Harbor Canal	FCA for PCBs
UPPER ILLINOIS	7120003050010	LAKE CO	INK0351_T1001	GRAND CALUMET RIVER - ILLINOIS TO INDIANA HARBOR CANAL	IMPAIRED BIOTIC COMMUNITIES

Attachment #11

§ 122.44 Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs, see §123.25).

In addition to the conditions established under §122.43(a), each NPDES permit shall include conditions meeting the following requirements when applicable......

(d) Water quality standards and State requirements: any requirements in addition to or more stringent than promulgated effluent limitations guidelines or standards under sections 301, 304, 306, 307, 318 and 405 of CWA necessary to:

(1) Achieve water quality standards established under section 303 of the CWA, including State narrative criteria for water quality.

(i) Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.

(ii) When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.

(iii) When the permitting authority determines, using the procedures in paragraph (d)(1)(ii) of this section, that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a State numeric criteria within a State water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant.

(iv) When the permitting authority determines, using the procedures in paragraph (d)(1)(ii) of this section, that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the numeric criterion for whole effluent toxicity, the permit must contain effluent limits for whole effluent toxicity.

(v) Except as provided in this subparagraph, when the permitting authority determines, using the procedures in paragraph (d)(1)(ii) of this section, toxicity testing data, or other information, that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative criterion within an applicable State water quality standard, the permit must contain effluent limits for whole effluent toxicity. Limits on whole effluent toxicity are not necessary where the permitting authority demonstrates in the fact sheet or statement of basis of the NPDES permit, using the procedures in paragraph (d)(1)(ii) of this section, that chemical-specific limits for the effluent are sufficient to attain and maintain applicable numeric and narrative State water quality standards.

(vi) Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits using one or more of the following options:

(A) Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. Such a criterion may be derived using a proposed State criterion, or an explicit State policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information which may include: EPA's Water Quality Standards Handbook, October 1983, risk assessment data, exposure data, information about the pollutant from the Food and Drug Administration, and current EPA criteria documents; or

(B) Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under section 304(a) of the CWA, supplemented where necessary by other relevant information; or

(C) Establish effluent limitations on an indicator parameter for the pollutant of concern, provided:

(1) The permit identifies which pollutants are intended to be controlled by the use of the effluent limitation;

(2) The fact sheet required by §124.56 sets forth the basis for the limit, including a finding that compliance with the effluent limit on the indicator parameter will result in controls on the pollutant of concern which are sufficient to attain and maintain applicable water quality standards;

(3) The permit requires all effluent and ambient monitoring necessary to show that during the term of the permit the limit on the indicator parameter continues to attain and maintain applicable water quality standards; and

(4) The permit contains a reopener clause allowing the permitting authority to modify or revoke and reissue the permit if the limits on the indicator parameter no longer attain and maintain applicable water quality standards.

(vii) When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that:

(A) The level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards; and

(B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7.

(2) Attain or maintain a specified water quality through water quality related effluent limits established under section 302 of CWA;

....

(4) Conform to applicable water quality requirements under section 401(a)(2) of CWA when the discharge affects a State other than the certifying State;

Attachment #12

TABLE 15 REASONABLE POTENTIAL TO EXCEED FOR WHOLE EFFLUENT TOXICITY

USS Outfall 005

Parameter	Maximum Effluent Value @	Count	C.V.	M.F.	PEQ	WLA	PEQ>WLA	WQBEL	
								Monthly* Average	Daily Maximum
Acute WET (TUa)	0.0	10	0	1.0	0.0	1.0	NO	Not Required	
Chronic WET (TUc)	8.0	10	0.99	2.3	18.4	1.0	YES	1.0	------

USS Outfall 010

Parameter	Maximum Effluent Value #	Count	C.V.	M.F.	PEQ	WLA	PEQ>WLA	WQBEL	
								Monthly Average	Daily Maximum
Acute WET (TUa)	0.0	9	0.6	1.8	0.0	1.0	NO	Not Required	
Chronic WET (TUc)	4.0	9	0.6	1.8	7.2	11.8	NO	Not Required	

USS Outfall 028/030

Parameter	Maximum Effluent Value +	Count	C.V.	M.F.	PEQ	WLA	PEQ>WLA	WQBEL	
								Monthly Average	Daily Maximum
Acute WET (TUa)	0.0	8	0.6	1.9	0.0	1.0	NO	Not Required	
Chronic WET (TUc)	2.0	8	0.6	1.9	3.8	2.8	[1]	2.8	------

USS Outfall 034

Parameter	Maximum Effluent Value #	Count	C.V.	M.F.	PEQ	WLA	PEQ>WLA	WQBEL	
								Monthly Average	Daily Maximum
Acute WET (TUa)	0.0	5	0.6	2.3	0.0	1.0	NO	Not Required	
Chronic WET (TUc)	7.7	5	0.6	2.3	17.7	3.3	YES	3.1	-------

@ September 1999 to December 2000 WET data provided by the Advent Group in April 2002.

Effluent data are obtained from Form 2Cs in the 1999 NPDES Permit Application.

+ Effluent data (Nov. 1994 thru August 1996) are obtained from Form 2Cs and IDEM's PCS data.

* Calculation is based on 2 tests in a month.

[1] Additional monitoring for chronic toxicity required.

03/07/07