

## **Explanation for Withdrawal of U.S. Steel Permit Objections October 15, 2009**

The Indiana Department of Environmental Management (IDEM) issued a public notice on a draft NPDES permit for the U.S. Steel Corporation, Gary Works (U.S. Steel) on July 4, 2007. On October 1, 2007, EPA notified IDEM that it had objections to certain parts of the permit and that those objections must be resolved before the permit could be issued. After further review by EPA, a second letter was sent to IDEM on October 16, 2007, objecting to other aspects of the permit.

Due to the high level of public interest in this matter, EPA provided the public with an opportunity to provide written public comments on the objections between November 9, 2007, and December 28, 2007. EPA also held a public hearing on December 11, 2007, in Gary, Indiana.

Approximately 400 people attended the hearing, including local residents, representatives of environmental groups, business leaders, union workers and government officials. More than 300 comments were submitted to EPA. EPA has prepared responses to those comments. Copies of all of the comments that were submitted during the public comment period, and the response to comments document, are posted on EPA's website at <http://www.epa.gov/Region5/sites/ussteel/index.htm>.

On October 14, 2009, IDEM public noticed a revised draft permit for U.S. Steel that was intended to meet EPA's objections, along with a fact sheet explaining the basis for the provisions in the permit.

EPA reviewed all of the comments that were submitted on its objections, and IDEM's October 14, 2009, draft permit and fact sheet. For the reasons described below, EPA is withdrawing its objections in accordance with 40 CFR 123.44(g).

**I. For each specific EPA objection included in the October 2007 letters, IDEM either has provided new information which demonstrates that there was not a basis for the specific objection or has demonstrated that the October 14, 2009, draft permit meets the specific objections.**

The following is a summary of each of EPA's specific objections from its October 2007 letters, and an explanation for each specific objection as to why either (a) new information from IDEM demonstrates that there was not a basis for the specific objection or (b) the October 14, 2009, draft permit meets those objections.

### **A. EPA objections on water quality based effluent limitations**

#### **CBOD<sub>5</sub>**

EPA's October 2007 letters specifically objected because the 2007 U.S. Steel draft permit did not contain appropriate monthly average water quality based concentration limits for

carbonaceous oxygen demand (CBOD<sub>5</sub>) at outfall 034, in accordance with Table 10 found in Attachment IV to the fact sheet for the 2007 draft permit.

Table 10 in Attachment IV indicated that monthly average concentration limits are necessary for CBOD<sub>5</sub>. In the fact sheet for the October 14, 2009, draft permit, IDEM has provided information and explanation as to why CBOD<sub>5</sub> mass limitations are appropriate for this permit, and why concentration limits for CBOD<sub>5</sub> are not needed.

In the 2007 draft permit fact sheet, Attachment IV, Table 10, IDEM applied procedures for calculating concentration limits that are intended to apply only to individual toxic pollutants, and are not intended to be used for pollutants that impact instream dissolved oxygen, such as CBOD<sub>5</sub>. IDEM has clarified that the mass limitations for CBOD<sub>5</sub> are based on a wasteload allocation (WLA) for dissolved oxygen developed for the Grand Calumet River and Indiana Harbor Canal in 1992. This WLA determined the mass of deoxygenating waste that could be discharged and still meet water quality criteria for dissolved oxygen. This mass was divided among all sources of deoxygenating waste, including U.S. Steel, and mass limits were included in the U.S. Steel permit.

EPA is satisfied that inclusion of the mass limit based on the WLA will be protective of the dissolved oxygen water quality criteria, and so monthly average water quality based concentration limits for CBOD<sub>5</sub> are not necessary at outfall 034.

### **Whole Effluent Toxicity (WET)**

EPA's October 2007 letters objected to the absence of WET limitations at outfalls 010 and 028/030, and to the fact that the effluent limits for outfall 034 were different from the wasteload allocation included in Attachment IV, Table 15 of the 2007 draft permit fact sheet.

WET at outfall 010: In its letter of October 1, 2007, EPA objected to the absence of WET effluent limitations on discharges from outfall 010 after reviewing available data back to 1994. IDEM has since demonstrated that data prior to 1996 should not be used because of process or treatment changes that occurred subsequent to those sampling events, and therefore these data are no longer representative of the discharge. Eliminating the data prior to 1996 resulted in a finding of no reasonable potential and so water quality based effluent limitations were not considered needed. One additional sample was collected in March 2008. That sample did not show any toxicity under acute or chronic exposures for both species tested. EPA is satisfied that WET limits are not necessary for outfall 010. It is also important to note that, as IDEM described in the fact sheet accompanying the October 14, 2009, draft permit, U.S. Steel has indicated that discharge from outfall 010 will be re-routed to outfall 005, where existing effluent limits for WET will remain.

WET at outfall 028/030: These outfalls are combined and treated similarly because they are discharge points from the same lagoon pond and contain the same treated waste water. One of the grounds for EPA's objection was that the draft permit did not contain

WET limitations on discharges from outfall 028/030, despite the fact that the 2007 draft permit fact, Attachment IV, Table 15, indicated that a chronic toxicity limitation of 2.8 TU<sub>c</sub> is necessary to protect water quality.

In 2008, U.S. Steel performed additional WET testing on discharges from outfall 030, with none of the samples showing toxicity in the discharges. As a result of the fact that a far more robust data set is now available than was available prior to the 2007 draft permit for characterizing the toxicity of discharges from outfall 028/030, IDEM's statistical reasonable potential procedures (as promulgated at 40 CFR 132.6) specified use of a smaller multiplier to project a "worst case" effluent quality. Consequently, after taking into account all of U.S. Steel's WET monitoring data—including sampling data from prior to 1996 all the way up to the 2008 WET data—IDEM's reasonable potential procedures no longer project that there is reasonable potential for U.S. Steel's discharges from outfall 028/030 to cause or contribute to causing exceedances of Indiana's WET criteria; and so there is no need to impose WET effluent limits at this outfall.

WET at outfall 034: EPA objected to the 2007 draft permit because it did not include limits consistent with Attachment IV, Table 15 of the 2007 draft permit fact sheet, which indicated a chronic toxicity limitation of 3.1 TU<sub>c</sub> is necessary for discharges from outfall 034. The draft permit instead contained a chronic toxicity limitation of 3.3 TU<sub>c</sub>.

As explained in the fact sheet accompanying the October 14, 2009, draft permit, the reasonable potential analysis for WET in Table 15 had not been updated since a "State Fast Track" rulemaking was approved by EPA on October 3, 2005, (approving changes to water quality standards) and on March 2, 2006 (approving changes to the NPDES program). The Fast Track rulemaking changed the manner in which wasteload allocations for whole effluent toxicity are translated into permit limits. Instead of being statistically derived, the monthly average is now equal to the chronic wasteload allocation and the daily maximum is now equal to the acute wasteload allocation. Therefore, the prior statistically-derived limit of 3.1 TU<sub>c</sub> should have been replaced by the wasteload allocation value of 3.6 TU<sub>c</sub>. EPA is satisfied that the limit of 3.6 TU<sub>c</sub> is the appropriate WET limit to include in the permit, and so the October 14, 2009, draft permit meets this specific objection.

## **B. Technology based effluent limitations**

EPA's October 2007 letters specifically objected to the 2007 draft permit's lack of technology based effluent limits for zinc, copper, and lead at internal outfall 604 that were consistent with Attachment III of the 2007 draft permit fact sheet. IDEM reanalyzed the data related to these pollutants and has corrected the Discharge Limitations Table in the October 14, 2009, draft permit to accurately reflect that the limitations are not required.

## **C. Compliance Schedules**

EPA's October 2007 letters objected to the 2007 draft permit's inclusion of five-year compliance schedules for achievement of WQBELs for the following parameters at the following outfalls: benzo(a)pyrene (Outfalls 005 and 010); free cyanide (Outfall 005); chronic whole effluent toxicity (Outfalls 005 and 034); copper (Outfalls 018 and 040); zinc (Outfall 040); ammonia (Outfall 040); and mercury (Outfalls 005, 010, 015, 018, 019, 020, 028/030, and 034). The letters also specifically objected to inclusion of schedules for achieving compliance with continuous thermal monitoring requirements and thermal WQBELs.

The October 14, 2009, draft permit includes a number of changes to compliance schedules. These changes include shortening and removing schedules for some pollutants. In other cases, IDEM has provided justification for the original compliance schedules.

IDEM has adequately demonstrated in the fact sheet accompanying the October 14, 2009, draft permit that all of the compliance schedules in the October 14, 2009, draft permit are necessary and appropriate, require compliance as soon as possible, and contain appropriate interim requirements consistent with 40 CFR 122.47 and the requirements of 40 CFR Part 132, Appendix F, Procedure 9.

The following summarizes how each specific compliance schedule has been addressed.

#### Free Cyanide at outfall 005

The compliance schedule for Free Cyanide at outfall 005 was removed from the permit.

#### For Benzo(a)pyrene (BaP) at outfalls 005 and 010

The schedule for meeting limitations at outfall 005 has been shortened from 5 years to 34 months. Non-contact cooling water currently discharged via outfall 010 will be re-routed into the non-contact cooling waters that are discharged via outfall 005. Outfall 010 will be eliminated within 24 months.

#### Copper at outfall 018

IDEM has demonstrated that there is no reasonable potential to cause or contribute to exceedances of WQS for copper at outfall 018, so there is no longer a need for a water quality based effluent limitation or compliance schedule for copper for that outfall.

#### Copper, Ammonia and Zinc at outfall 040

U.S. Steel will be closing outfall 040 before the effective date of the permit, and so is no longer seeking permit authorization to discharge through that outfall. Consequently, the October 14, 2009, draft permit does not propose to authorize discharges through that outfall, eliminating the need for effluent limits and compliance schedules for outfall 040.

#### Mercury at outfalls 005, 010, 015, 018, 019, 020, 028/030, and 034

Monitoring data indicate that, at times, U.S. Steel's discharges contain mercury at levels in excess of the mercury water quality based effluent limitations, and that end-of-pipe treatment will be required to reduce mercury to levels below the limitations. Given the current state of

knowledge about the applicability and utility of end-of-pipe treatment at a facility such as this one to reduce mercury, it will be necessary for U.S. Steel to undertake the lengthy process set forth in Part I.E of the October 14, 2009, draft permit to select and construct end-of-pipe treatment technologies necessary for U.S. Steel to reduce mercury to levels below the mercury effluent limitations. U.S. Steel has demonstrated that the identification, evaluation, engineering design, procurement, construction, modification of permits to allow construction and start-up of new end-of-pipe treatment facilities necessary to bring these outfalls into compliance with the final discharge limits will take five (5) years. Based on this information, EPA believes that the 5-year compliance schedule for mercury in the October 14, 2009, draft permit is appropriate and consistent with 40 CFR 122.47.

#### Whole Effluent Toxicity (WET)

Outfall 034 - IDEM has removed the compliance schedule for WET limitations at outfall 034 in the October 14, 2009, draft permit.

Outfall 005 - U.S. Steel conducted a treatability study of a technology (sand filtration) to reduce Benzo(a)pyrene (BaP) in outfall 501 in order to achieve compliance with BaP limitations at outfall 005. Based on this treatability study, it appears that polyaromatic hydrocarbons found in treated coke plant wastewater, of which BaP is an indicator chemical, are the cause of the toxicity in the effluent discharged from outfall 005. To reduce BaP (and therefore polyaromatic hydrocarbons) in discharges from outfall 005 in sufficient amounts to ensure that U.S. Steel can comply with its WET limitations at outfall 005, U.S. Steel needs to install sand filtration. This should take 34 months to complete, and so IDEM has appropriately included a 34-month compliance schedule for meeting the WET limits at outfall 005, which parallels the 34-month compliance schedule for meeting BaP limitations at outfall 005.

#### Temperature Limitations and Monitoring Requirements

IDEM has provided within the fact sheet accompanying the October 14, 2009, draft permit a more rigorous explanation of the need for the compliance schedule. EPA is satisfied that the compliance schedules are necessary, appropriate, and that the draft permit requires that compliance be achieved as soon as possible.

#### **D. Antidegradation**

EPA's October 2007 letters included objections based on antidegradation. EPA's objections were based upon the fact that the 2007 draft permit contained new limitations for copper, silver, nickel, cadmium, hexavalent chromium, total cyanide, zinc, and lead at internal outfall 604. The 2007 draft permit also contained effluent limitations that would allow discharges of zinc through internal outfall 603 to increase beyond the levels set forth in the previous permit for this facility. EPA stated that it was not clear whether the state's antidegradation requirements had been met.

With regard to the inclusion of new limits at internal outfall 604, IDEM has clarified that these limits are technology-based effluent limits (TBELs) which were added to rectify a deficiency in the previously-issued permit. That permit lacked TBELs required by

effluent limitation guidelines (ELGs) at 40 CFR Part 433. EPA supports IDEM's decision to add appropriate TBELs at internal outfall 604. (In the October 14, 2009, draft permit, IDEM has re-calculated the TBELs based upon the new production data and these are more stringent than the 2007 draft permit.) The new limits do not represent an increase in pollutant loadings at the facility. EPA is satisfied that this is consistent with state's antidegradation procedures.

As a further note, in a few cases the new TBELs were determined to be insufficient to protect water quality, should pollutants be discharged at TBEL concentrations. In these cases, even though the facility has not demonstrated the reasonable potential to cause an exceedance of water quality standards, IDEM has included more stringent water quality-based limits (WQBELs) for copper, lead, silver, and cadmium at the corresponding external outfall 034. In the case of nickel, hexavalent chromium, zinc, and total cyanide, IDEM determined that the new TBELs for these pollutants at the internal outfalls are sufficient to protect water quality, and additional limits are not needed at external outfall 034.

In the 2007 draft permit, IDEM proposed to remove limits for chromium (total) at outfall 034, and add new TBELs for chromium (total) at internal outfall 604. EPA objected to this because the permit appeared to allow for an increase in loading of total chromium, which was not supported by an antidegradation analysis.

In the October 14, 2009, draft permit, IDEM has re-calculated more restrictive TBELs for chromium (total) at internal outfall 604, based upon the new production data. The proposal does not allow an increase in chromium compared to the previously issued permit. IDEM determined that discharges at the maximum allowable level at internal outfall 604 do not have the reasonable potential to cause or contribute exceedances of the water quality standard for chromium (total) at external outfall 034. For this reason it is appropriate not to include a WQBEL for chromium (total) at external outfall 034. EPA is satisfied that IDEM has followed its antidegradation procedures with respect to chromium (total) at this outfall.

In the 2007 draft permit, IDEM proposed to increase the mass limits for zinc at internal outfall 603. However, in the October 14, 2009, draft permit, IDEM has proposed to retain the zinc mass limits found in the previously issued permit. EPA is satisfied that this revision addresses any concern regarding antidegradation regarding zinc at internal outfall 603.

#### **E. Cooling water intake structure controls**

EPA objected to the draft permit, in part, because the permit did not include requirements implementing a best technology available (BTA) determination for cooling water intake structures (CWIS) as required by Section 316(b) of the Clean Water Act and federal regulations at 40 CFR 122.44(b)(3) and 125.90(b). EPA's objection was based upon the absence of both the requirements implementing a BTA determination in the permit and any rationale regarding BTA in the fact sheet.

The October 14, 2009, draft permit requires the U.S. Steel Gary Works facility to operate the intakes in the manner consistent with the operational description provided for the BTA determination, including ensuring that the velocity through the intake screens does not exceed 0.5 ft/s. Impingement and entrainment monitoring at the Lakeside, #2 Pump Station and #1 Pump Station intakes is required for the life of the permit. The permit also requires an evaluation of the fish return systems at applicable intakes to assess whether they minimize impingement mortality. EPA believes that these provisions in the October 14, 2009, draft permit are sufficient best professional judgment (BPJ) based provisions as required by 40 CFR 125.90(b), that are adequately documented in the fact sheet accompanying that draft permit.

**II. The public has a 45-day opportunity to comment on the October 14, 2009, draft permit, and EPA will have an opportunity to consider those comments in formally reviewing the permit before the permit it is finalized and becomes effective.**

IDEM is providing the public with a 45-day public comment period on the October 14, 2009, draft permit. Following the close of the public comment period on the October 14, 2009, draft permit, IDEM will prepare and transmit to EPA for formal review any proposed permit that IDEM intends to finalize for issuance in accordance with 40 CFR 123.44(b) and 123.44(j), as well as copies of all public comments that were submitted to IDEM during the public comment period on the draft permit. At that time, EPA will have ninety days from receipt of the proposed permit to make general comments upon, objections to, or recommendations with respect to the proposed permit. Consequently, to the extent that the public identifies aspects of the October 14, 2009, draft permit that are not consistent with federal requirements - including aspects of the October 14, 2009, draft permit that the public believes did not adequately meet EPA's 2007 objections - EPA will have an opportunity during the formal permit review to take those comments into account to ensure that any permit that IDEM ultimately issues is consistent with all applicable federal requirements.

**Conclusion**

As described above, for each specific objection included in EPA's October 2007 letters, IDEM has demonstrated either that there was not a basis for the specific objection or that the October 14, 2009, draft permit meets those objections. As was also described above, the public will have the opportunity during the 45-day state public comment period to provide its views on whether IDEM's October 14, 2009, draft permit is consistent with federal requirements and meets the objections that were included in EPA's October 2007 letter. Finally, EPA will have an opportunity during the formal permit review process to take all public comments into account to ensure that any permit that IDEM ultimately issues is consistent with all applicable federal requirements. For these reasons, EPA is withdrawing its October 2007 objections to IDEM's draft permit for U.S. Steel.