IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF INDIANA
HAMMOND DIVISION

UNITED STATES OF AMERICA, and the STATE OF INDIANA, Plaintiffs, THE SURFRIDER FOUNDATION, Plaintiff-Intervenor, THE CITY OF CHICAGO, Plaintiff-Intervenor, v. UNITED STATES STEEL CORPORATION, Defendant.	Civil Action No. 2:18-cv-00127

AFFIDAVIT OF DR. RANAJIT SAHU

Under penalties as provided by law pursuant to 28 U.S.C. § 1746, the undersigned, RANAJIT SAHU, certifies that the statements set forth in this instrument are true and correct, except as to matters herein stated to be on information and belief and as to such matters the undersigned certifies as aforesaid that he verily believes the same to be true.

Dr. Ranajit Sahu, on oath, deposes and states:

1. I am Dr. Ranajit Sahu and I am an engineer and consultant in environmental and energy issues.
2. Attached hereto, as Exhibit 1, is my curriculum vitae, which presents my educational and professional experience. I have been an environmental consultant since 1990. In the last

Exhibit A

twenty-nine years, I have been involved as an engineering, technical, and regulatory expert in numerous matters dealing with production, environmental, and pollution control processes at over thirty industrial facilities in the United States, including with respect to metal processing facilities' compliance with Clear Water Act (i.e., NPDES) permits. These matters have included wastewater treatment projects involving physical treatment (physical separation, settling, etc.); chemical treatment (pH-induced precipitation and separation) and biological treatment processes. In addition, I have dealt with wastewater treatment systems for many other types of industries, such as oil refineries, chemical distribution, and coal-fired power plants—many of which present similar wastewater treatment issues and options.

3. I have been retained by the federal government as an expert to assist with environmental enforcement cases. The U.S. Department of Justice ("DOJ") has retained me numerous times since roughly 2000 in enforcement suits brought on behalf of the U.S. Environmental Protection Agency ("USEPA"). Several of those matters have been resolved through entry of a consent decree and I have provided support to the DOJ in the development of consent decrees in previous and on-going matters.
4. I have been retained by the Abrams Environmental Law Clinic to assist as an expert in relation to the above-captioned matter. I am qualified by knowledge, skill, experience, and training to testify in this matter.
5. I have reviewed publicly-available technical documents related to the United States Steel Corporation ("U. S. Steel") Midwest Plant in Portage, Indiana (the "Facility") and the draft Consent Decree proposed for entry in the above-captioned matter, including:
    - the Complaint filed in this matter,

- the Facility's NPDES Permit, available through IDEM's Virtual File Cabinet system,
- the initial and final version of the Enhanced Wastewater Process Monitoring Design ("Monitoring Design"),
- the initial, intermediary (June 26, 2018), and final version of the Wastewater Treatment Operations & Maintenance Manual and Preventive Maintenance Program Plan (collectively the "O&M Plan"), and the partial disapproval letter for the O&M Plan issued by the U.S. Environmental Protection Agency ("USEPA") and Indiana Department of Environmental Management ("IDEM") on May 30, 2018,
- the Plaintiffs' Motion to Enter Revised Consent Decree,
- the Revised Consent Decree ("Proposed CD"),
- the document highlighting the changes from the original consent decree (Attachment B to the Plaintiffs' Motion),
- the Memorandum in Support of Plaintiffs' Motion to Enter Revised Consent Decree,[1] and
- other relevant documents made available to the public through IDEM's Virtual File Cabinet system. Of these documents, I reference and attach particular documents below as they relate to particular points in my testimony.

[1] Except for those documents for which an alternate source is noted, I have reviewed versions of these documents that were available at the USEPA website for this litigation, https://www.epa.gov/in/u-s-steel-corporation-consent-decree. Quotations and references to these documents herein refer to the versions of those documents available on that website.

Conditions at the Facility Before April 2017

6. In my expert opinion, many of the changes made by U. S. Steel pursuant to the technical provisions of the Proposed Consent Decree, including those within the O&M Plan and Monitoring Design, should have already been in place before the April 2017 release[2] or this litigation, assuming a typical and reasonable standard of care by U. S. Steel in relation to environmental matters, including releases and discharges of pollutants. The April 2017 release did not happen suddenly. Rather, high-chrome wastewaters in the poorly-maintained trench seeped through the bottom, over time, and corroded a wastewater pipe, leading to the treatment plant.

7. For example, the concrete containment trench that failed during the April 2017 spill was made of a material that was incompatible with and therefore could not contain the wastewater that traveled through it over time. That condition should never have existed. Even after the April 2017 spill, proper lining of that containment trench was not even initiated until eight months after the discharge and the condition of that trench should have never been allowed to deteriorate to the extent it had prior to the April 2017 spill.

8. A second example is the replacement of particular pipes and the switch to double-walled heat exchangers – though only a few heat exchangers directly affected by the April 2017 spill appear to have been changed to double-walled. As events continuing onto 2019 show, other equipment (heat exchangers, sumps, etc.) even at the Tin and Chrome plants continued to deteriorate and caused releases of contaminants.[3] The targeted facility

[2] Throughout this Affidavit, I will reference the release that was discovered on April 11, 2017 as the "April 2017 release" or "April 2017 spill" even though the actual releases of hexavalent chromium-containing wastewaters had been occurring for some considerable period of time (i.e., many hours) prior to their discovery on April 11, 2017. At an estimated flow of around 300,000 gallons/day, even a 6-hour release would be around 75,000 gallons.

[3] Letter from A. Piscitelli (U. S. Steel) to N. Ream (IDEM), Nov. 26, 2019 (attached hereto as Ex. 2).

design and maintenance improvements that were made as a result of the April 2017 spill should have been made on a preventive basis as a matter of sound and prudent industrial engineering and made before a catastrophic system failure, but did not take place until after the spill. Additional design and maintenance failures at the various processing facilities and the wastewater treatment plants continue, as evidenced by numerous 5-day letters[4] from U. S. Steel to the IDEM and various IDEM inspection reports[5] since the April 2017 chromium spill.

9. A third example is that—prior to the April 2017 spill—U. S. Steel appears to have had no preventative maintenance system in place *at all* and was not recording its maintenance activities. USEPA Compliance Evaluation Inspection Report, May 4, 2017 at 11[6] (attached hereto as Exhibit 16). This is *not* normal or acceptable for any industrial facility, let alone one that handles large volumes of toxic chemicals with a high-propensity for releases and discharges. This deficiency indicates that U. S. Steel's Midwest Plant lagged far behind the current industry standard for maintenance and environmental compliance programs.

[4] *See* Ex. 2; Letter from A. Piscitelli (U. S. Steel) to D. Greinke (IDEM), Dec. 3, 2018 (attached here to as Exhibit 3); Letter from A. Piscitelli (U. S. Steel) to N. Ream (IDEM), May 14, 2019 (attached here to as Exhibit 4); Letter from A. Piscitelli (U. S. Steel) to J. Lankowicz (IDEM), Sept. 11, 2019 (attached hereto as Exhibit 5); Letter from A. Piscitelli (U. S. Steel) to N. Ream (IDEM), Sept. 12, 2019 (attached hereto as Exhibit 6); and Letter from A. Piscitelli (U. S. Steel) to N. Ream (IDEM), Oct. 21, 2019 (attached hereto as Exhibit 7).

[5] *See* Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Oct. 2, 2018 (attached hereto as Exhibit 8); Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Dec. 12, 2018 (attached hereto as Exhibit 9); Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Jan. 3, 2019 (attached hereto as Exhibit 10); Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), June 14, 2019 (attached hereto as Exhibit 11); Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Sept. 6, 2019 (attached hereto as Exhibit 12); Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Sept. 30, 2019 (attached hereto as Exhibit 13); Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Dec. 3, 2019 (attached hereto as Exhibit 14); and Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Dec. 10, 2019 (attached hereto as Exhibit 15).

[6] All page numbers used herein refer to the page of the PDF file as reflected on the added exhibit stamp in the lower right-hand corner of each page, not any native page numbers that appear on the image of a particular page.

General Deficiencies of Proposed Consent Decree

10. In my expert opinion, though it requires U. S. Steel to take some reactive and very limited (i.e. targeted only towards the specific problems that caused the April 2017 release[7]) steps toward a barely-adequate environmental compliance regime, the Proposed CD is fundamentally inadequate to meet the government agencies' stated goal of "preventing future discharge violations and permit exceedances." Mem. in Support of Pls.' Mot. to Enter Revised Consent Decree, Dkt. # 47, at 6.

11. As described further below, U. S. Steel's regular and frequent discharge violations and permit exceedances during 2019—which have occurred *after* U. S. Steel has reported that it has implemented the technical requirements of the Proposed CD—is indisputable direct evidence that the technical requirements of the Proposed CD with regard to its stated "prevention" goal, are inadequate.

12. I believe the technical requirements of the Proposed CD, found in paragraphs 9 through 12, are inadequate for two fundamental reasons. First, those provisions do not address (or even acknowledge) the root causes of U. S. Steel's pollution problems. Second, those provisions focus too narrowly on preventing a recurrence of the particular conditions that led to the April 2017 spill, rather than evaluating more broadly the full universe of design and operational deficiencies that can, and have, led U. S. Steel to violate its Clean Water Act permit in the past, present and future.

[7] As such, the provisions in the Proposed CD are reactive and are geared to avoiding a recurrence of the specific release that occurred in April 2017–i.e. making sure that "yesterday's problem," defined in the narrowest manner–does not happen again.

As confirmed by additional and regular releases of pollutants into receiving waters such as copper (above numerical permit limits); foaming agents, sulfuric acid; iron, petroleum products (causing violations of narrative permit limits) since April 2017–none of which are effectively addressed in the Proposed CD–the Proposed CD's limitations become obvious.

13. To elaborate on the first fundamental deficiency: a full and independent root cause analysis (RCA) is the standard engineering response to a facility or process failure and is necessary to understand how and why a facility or process has failed as a part of preventing future facility or process failures. In fact, requirements to conduct thorough RCAs (and to report their findings) are integral parts of many USEPA Consent Decrees. A proper RCA requires a thorough evaluation of the cause(s) of any releases (and even near-misses) by a qualified team of internal and external experts. All factors including design of equipment, condition of equipment, preventive maintenance programs, instrumentation and feedback, staffing, training, operational errors, system robustness and redundancy, and others are evaluated in a proper RCA.[8]
14. To elaborate on the second fundamental deficiency: the April 2017 hexavalent chromium spill is not the only violation at issue in this lawsuit nor the only apparent problem with wastewater treatment and management at the Facility. In addition to other chromium violations, plaintiffs in this case have alleged other admitted or potential permit violations at the Facility as to effluent toxicity, oil and grease, temperature, narrative water quality, monitoring frequency, and reporting compliance. In my expert opinion, the causes of these violations should be investigated and documented to determine the appropriateness of further technical requirements or changes to the O&M Plan and Monitoring Design. The technical documents here, however, focus narrowly on the April 2017 spill. For

[8] Contrast this with U. S. Steel's investigations, for example, with regard to at least two discharges violating its copper permit limits, since 2017. In its September 12, 2019 5-day letter the company simply concluded that "[A]s of the date of this letter, U. S. Steel has not been able to identify a source that correlates with the timing of the elevated copper levels, based on a review of the operator logs and discussions with personnel." Ex. 6 at 2. I am not aware of any updated investigations.

example, U. S. Steel studied only the cause of the April 2017 spill, and did not comprehensively review its monitoring system. Monitoring Design Plan, Section 2.

15. In several instances, the Governments characterize U. S. Steel's violations as "discrete and isolated events." United States' Response to Comments, Dkt. # 47-1 at 22, 32. The Governments offer no factual or technical explanation for why it considers U. S. Steel's violations to be "discrete and isolated" as opposed to a clear and recurring pattern. It is my expert opinion, based on the documentation by U. S. Steel and IDEM, that U. S. Steel's violations of effluent limitations and narrative water quality standards in its permit are manifestations of a persistent failure by U. S. Steel to properly operate (i.e., with regard to the design limits and with adequate margin of safety) and properly maintain the Facility. The basis for my opinion is my review of publicly available reports related to U. S. Steel's alleged Clean Water Act permit violations, in particular the IDEM inspection reports referenced below demonstrating that the pattern of operations and maintenance violations has continued despite U. S. Steel's reported implementation of the technical provisions of the Proposed CD.

16. I note that a proper evaluation of U. S. Steel's operations and maintenance plans and practices at the Facility must be made in the context of the company's broader policies and practices. The DOJ states that company-wide issues are beyond the scope of the Proposed CD, Response to Comments at 24, however DOJ offers no factual or technical rationale for that position, which is simply unsound as a technical matter for several reasons. First, the letterhead used by U. S. Steel in its regulatory communications for the Facility indicates that the very same personnel are responsible for overseeing environmental compliance at the Facility and the nearby Gary Works facility, which,

itself has experienced dramatic environmental compliance and engineering failures as recently as last month.[9] Second, there is evidence to conclude that company-wide policies and decisions on staffing and inspection/compliance budgets are insufficient, including not only violations at the Facility and Gary Works, but also the multiple fires, explosions and associated Clean Air Act violations at U. S. Steel's coke-making Plant located in Clairton, Pennsylvania.[10]

17. It is common, in my experience, for EPA to inquire about and address compliance issues at multiple plants owned by the same company in a single enforcement action. This includes numerous cases involving air quality compliance violations at multiple coal-fired power plants that I have been directly involved in since 2000. It also includes cases involving petroleum refineries, carbon-black plants, and the like. In my expert opinion, EPA needs to perform a similarly broad inquiry here.

Deficiencies in the Monitoring Design

18. Even focusing on just the April 2017 release, it is apparent that inadequate instrumentation for condition monitoring as well as early-warning of releases was a key contributing factor which: (i) allowed the release to persist undetected for a significant time period prior to April 2017 and (ii) allowed the ultimate release to receiving waters. Of course had there been proper monitoring–i.e., the placement of active and proper hexavalent chromium monitors at key locations, starting at the Chrome and Tin process lines, at critical sumps, at the conveyance channel, prior to the Chrome (Waste Water)

[9] Joseph S. Pete, *Gary Works steel mill flooded after water pipe break, all blast furnaces shut down and discoloration spotted*, NORTHWEST INDIANA TIMES, Nov. 27, 2019, https://www.nwitimes.com/business/local/gary-works-steel-mill-flooded-after-water-pipe-break-all/article_48982e4d-d0b3-5511-bd88-5ea4b3033e8f.html.

[10] Reid Frazier, *US Steel's Clariton plant pollution controls knocked out again by another fire*, WHYY, June 17, 2019, https://whyy.org/articles/us-steels-clairton-plant-pollution-controls-knocked-out-again-by-another-fire/.

Treatment Plant, Prior to the Final (Waste Water) Treatment Plant, and at the final Outfall–the release would likely have been detected and contained without reaching receiving waters.

19. It is particularly distressing, therefore, to see that even after the April 2017 release, U. S. Steel does not have operating hexavalent chromium instruments. This is confirmed by its most recent (September 13, 2019) Semi-Annual Report (attached hereto as Exhibit 17), which states: "[T]he Chemscan in line hexavalent chromium monitoring trials at the Final Treatment Plant, Chrome Treatment Plant and heat exchangers determined that the units are not capable of the required detection limits or general accuracy to identify possible permit exceedances at these locations." U. S. Steel has not, to my knowledge, provided a public report documenting this conclusion, including the desired detection limits and accuracy levels that were not achieved. Importantly, U. S. Steel does not state how the current state of affairs–i.e., no monitoring for hexavalent chromium, even with instruments that are less than adequate–is better from a prevention standpoint. It is my opinion that U. S. Steel should provide a thorough accounting of this decision to effectively have no instrumentation monitoring for hexavalent chromium–which is a critical part of its obligations after the April 2017 release. The Proposed CD does not address this.

20. The Monitoring Design lacks key information and context, which makes it difficult to assess whether U. S. Steel has taken appropriate steps to improve its monitoring of the Chrome Treatment Plant and Final Treatment Plant and of the portions of its production process that feed into those treatment plants. Specifically, the Monitoring Design references information that U. S. Steel relied on to support its decisions, but the

Monitoring Design does not contain the actual information. Of course the Monitoring Design is fatally deficient by not having instrumented hexavalent chromium monitoring, as noted in the previous paragraph.

21. The Monitoring Design lacks important details regarding U. S. Steel's evaluation that are necessary to analyze its efficacy. Without the following information, it is difficult to assess meaningfully whether U. S. Steel is properly monitoring or capable of properly monitoring its wastewater process:

    a. The identity and qualifications of the individuals—whether U. S. Steel employees or third-party experts—who conducted the evaluation referenced in the Monitoring Design.

    b. When the evaluators conducted their investigation.

    c. Documentation of all observations and recommendations made by the evaluators. This should include both recommendations that U. S. Steel has implemented, and those it considered but declined to implement and the reasons for declining to implement.

    d. Data obtained by evaluators during studies and trials. This is particularly important because data should guide if and how recommendations are implemented, but from the document I cannot tell whether the remedies are reasonable responses to the information gathered.

    e. All final actions, including expected future actions and a timeline for including future actions in the Monitoring Design. The Monitoring Design commonly references actions the U. S. Steel will take, such as running trials for inline chrome monitoring (which it has now completed–concluding that this will not be

implemented–as discussed previously), but does not specify whether the results of those trials or any actions that follow will be provided to regulators or the public (also noted previously). Nor does the Monitoring Design commit U. S. Steel to take any action based on that information. This frustrates my ability to assess whether U. S. Steel's final actions are technically justified, proper, or adequate.

f. The contents of SOP NSCS-M-P-7093-02-47, referenced in Appendix 2, page 2, which appears to contain redacted ranges and/or limits for key parameters at the Final Treatment Plant. Evaluating those ranges would be important to assessing the adequacy of the Monitoring Design.

22. The Monitoring Design evaluation should have been carried out by a third party. This is standard practice in the environmental compliance field. It is standard practice because third-party review confers many benefits that are not realized by in-house analyses. Given U. S. Steel's record of violations and maintenance problems, external expert review is particularly important, and the findings of such third-party evaluations should be provided to regulators and the public to enable adequate technical review.

23. I am encouraged that "the Governments do not dispute that there could be benefits from using a third-party engineering audit to address aspects of the Facility's operations and wastewater treatment processes and assisting U. S. Steel in complying with the proposed Decree." Response to Comments at 21. And, I have been involved in other environmental enforcement actions where such a third-party engineering audit has been required in a consent decree. Professional and competent third-party audits provide the facility and the regulators an unbiased set of facts and opinions that can be used to assess compliance gaps and the robustness of compliance management systems–i.e., the likelihood of

preventing future releases–the stated goal of the Proposed CD. Recommendations from third-party audits are particularly helpful in strengthening compliance systems, when implemented. Given the recurring releases and violations of its permit terms (both numerical as well as narrative), even after the April 2017 release, it is particularly important, in my opinion, that a broad-based third-party audit of all potential release points—starting from the process areas right down to the final discharge point—would be very useful. This should encompass reviews of: the design of equipment (i.e., is the design basis still fit for its purpose and for how that equipment is being used currently–especially important for a very old facility such as the Midwest Plant); condition of equipment (i.e., the remaining margin left before releases can occur such as from heat exchangers, piping, sumps, tanks, conveyance channels, etc.); adequacy of instrumentation and monitoring; the technical abilities of operators to perform the functions assigned to them; training requirements; resource availability; and management support.

24. Beyond the overall need for third-party review, there are several particular problems with the Monitoring Design as it currently stands.

25. Non-contact cooling water from some of the double-walled heat exchangers of the chromium treatment line is not currently routed through the chrome treatment plant and instead flows to the final treatment plant, as noted in Section IV.E of the Monitoring Design. Though the heat exchangers are designed to be non-contact (to contain water that does not mix with chromium-laden process water or wastewater), there is a risk that chromium-laden process water or wastewater could enter the heat exchangers, even using double-walled heat exchangers. The final treatment plant is simply not equipped to treat

any hexavalent chromium, meaning any hexavalent chromium routed there will be discharged at external outfall 004 without any treatment. Given U. S. Steel's rejection of inline hexavalent chromium monitoring, the Monitoring Design is effectively meaningless in this key aspect. U. S. Steel has ruled out inline hexavalent chromium monitoring based on its reported conclusions from a technical trial; without the actual results of that trial, however, I cannot determine whether U. S. Steel's rejection of inline monitoring is proper.

26. Given the possibility of chromium contamination of cooling water, I am troubled that U. S. Steel has apparently not evaluated the overall feasibility of adding chromium treatment capacity at the Final Treatment Plant–given that any chromium in the high-volume lines will be discharged at outfall 004 without any treatment and, possibly, without detection.

27. U. S. Steel discusses daily grab sampling to test for hexavalent chromium in the non-contact cooling water systems, but does not provide details on the grab sample method, frustrating analysis of its accuracy and efficacy. For this reason, I cannot assess whether the grab sampling is adequate and likely to detect leaks. Since U. S. Steel has indicated that only manually-sampled confirmed leaks will begin the process of equipment replacement (such as a leaking heat exchanger), U. S. Steel does not assure how leaks that occur between sampling events will be detected and handled or whether the Chrome Treatment Plant and/or the Final Treatment plant have the capacity to treat leaks that might occur between the manual sampling events.

The Incomplete O&M Plan

28. I cannot assess fully U. S. Steel's O&M Plan because some of the most important content, to the extent it exists, appears to be contained in SOPs that are not publicly available or critical information in the SOPs is often redacted. At a minimum, unredacted versions of the following SOPs are particularly relevant to preventing illegal discharges:
    a. NSCS-M-P-7093-02-03 (Chrome Treatment – Interim)
    b. NSCS-M-P-7093-02-11 (Chrome Treatment Plant – Trench System)
    c. NSCS-M-P-7093-02-42 (Unknown High or Low Incoming pH, Strong Chrome, or Unusual Wastewaters)
    d. NSCS-M-P-7093-02-47 (Final Treatment Plant – Final Treatment Process Control Practices)
    e. SOPs pertaining to chrome treatment plant preventive maintenance for the newly-installed double-walled heat exchangers are not currently listed in Section II.C.5, but properly maintaining these systems is critical to preventing future chrome spills.
29. The O&M Plan does not include adequately detailed flow numbers for many of its systems. The schematics contained in Appendix II do not contain quantitative information about many processes relevant to NPDES compliance, frustrating effective review since it is impossible to arrive at qualitative conclusions regarding adequacy or effectiveness.
30. The O&M Plan does not include the current condition of U. S. Steel's equipment. As noted earlier, much of the equipment at the plant is old. Of course, releases since the April 2017 event confirm that the condition of equipment is poor. And IDEM repeatedly

notes in its recent (i.e., in 2019) letters that maintenance is also poor. Even with SOPs, then, it would be difficult to estimate the probability of future illegal discharges, other than noting that they are probable.

Inadequacies of U. S. Steel's Responses to the May 30, 2018 Partial Disapproval Letter

31. U. S. Steel has not provided a complete response to Comment 1 in the partial disapproval letter. It has not included an SOP for minimizing or avoiding the impacts of spills as they occur, nor has it added even general discussion of the topic. While SOPs for various components of the wastewater treatment infrastructure at the Facility have been appended to the O&M Plan, there is no evidence that U. S. Steel has created or implemented a specific, coherent, effective and focused SOP aimed at minimizing or avoiding the impacts of spills as they occur. To the contrary, as discussed below, IDEM inspectors continue to cite U. S. Steel for failures to take proper steps when responding to ongoing violations. From the publicly available documents, it is impossible to tell when or how alarms will be triggered, how effective such alarms are, how U. S. Steel will respond, or whether its response will protect public health and safety. As an example, consider SOP NSCS-M-P-7093-02-26 (Testing Conductivity), which states: "[T]he incoming wastewater lines probe measures the combined conductivity from the Tin and Chrome basement sumps and is monitored at the Chrome Treatment Plant. There is no automatic shutdown point for the Chrome Treatment Plant incoming wastewater; it is an alarm only…"

32. U. S. Steel has not provided an adequate response to Comment 2 in the partial disapproval letter. Since the overall Monitoring Plan itself is inadequate as previously noted, the accompanying SOPs for laboratory and field instruments related to NPDES

permit compliance monitoring, cannot, by definition, be complete. Also, even for the SOPs provided, U. S. Steel changed the section to reflect its reliance on a third-party laboratory, but as the Monitoring Design makes clear, U. S. Steel is still conducting its own grab samples and trials. As such, it should include SOPs for those processes.

33. U. S. Steel has not provided an adequate response to Comment 3 in the partial disapproval letter. It discusses electronic recordkeeping and management, but does not explain how its system will assign and prioritize maintenance tasks or otherwise ensure they are carried out properly and on-time.

34. U. S. Steel has not provided an adequate response to Comment 4 in the partial disapproval letter. It discusses in vague, generic terms that a third-party will observe the external outfalls, but says nothing of internal outfalls, which it will presumably monitor itself.

35. U. S. Steel has not provided an adequate response to Comment 5 in the partial disapproval letter. The Monitoring Design references installation of multiple pieces of new equipment, including new Chemscan inline chrome monitoring systems (this reference is now outdated based on U. S. Steel's rejection of inline monitoring in its September 2019 semi-annual report) and double-walled heat exchangers, but the O&M Plan has not been updated to reflect SOPs for those systems.

<u>The Technical Requirements of the Proposed CD Have Already Been Shown as Inadequate to Prevent Permit Violations, Including Violations With Causes Similar to Past Violations</u>

36. U. S. Steel has reported in its Semi-Annual Progress Reports that it is already complying with the technical requirements of the Proposed CD, including implementation of the O&M Plan as required in Proposed CD paragraph 9(d). Because U. S. Steel has represented to the government that it has complied with that requirement to implement

the O&M Plan upon agency approval, I understand that U. S. Steel has been implementing the O&M Plan since it was approved on December 28, 2018.

37. Publicly available documents show numerous violations of NPDES Permit No. IN0000337 by U. S. Steel since that implementation date. From my review of publicly available documents related to U. S. Steel's Clean Water Act permit violations in 2019, I note several important facts that demonstrate the failure of the technical provisions of the Proposed CD to correct conditions and practices that continue to cause violations and contributed to the violations alleged in the Complaint.

38. First, an industrial wastewater treatment plant cannot be properly operated without a complete, current, and therefore useful operations manual. Indeed, on-going revisions to the O&M Plan, as needed to keep it current, are the core of the technical provisions of the Proposed CD. It is therefore extremely troubling that in June 2019—6 months *after* USEPA and IDEM approved the O&M Plan—an onsite IDEM inspector concluded that "[t]he Operations Manual for Final Treatment needs to be revised or rewritten." Exhibit 12, at 6.

39. Second, part of adequate environmental compliance at an industrial facility is quickly, thoroughly, and properly responding to understand and minimize the impact of permit violations as soon as they are detected.

    a. Before the proposed Consent Decree provisions were implemented, IDEM cited U. S. Steel for failing to take proper samples during a violation. Letter from R. Massoels (IDEM) to J. Hanning (U. S. Steel), December 11, 2017 at 2, 5 (attached hereto as Exhibit 18). U. S. Steel's failure to adequately sample during a violation means that the true extent of the violation will remain unknown.

b. After U. S. Steel implemented the technical terms of the proposed Consent Decree, IDEM again found U. S. Steel to be in violation for yet another failure to properly sample during a violation. In the words of the IDEM inspector: "Due to this, the true extent of the event could not be determined. US Steel should have started sampling for any likely pollutants at the time the incident was first observed. The delay of waiting for IDEM to request additional sampling allowed the incident to continue, primarily untested . . . ." Exhibit 11, at 5.

c. Importantly, the IDEM inspector explicitly described how this violation in May 2019 was the same sort of violation that U. S. Steel had committed in October 2017. In his words: "A failure to accelerate sampling to determine the extent of a non-compliance event was also cited in a November 16 and November 17 inspection report," referencing the dates on which IDEM inspected the Facility in relation to the October 2017 chromium violation. *Id.*

40. Third, proper training of Facility personnel is another vital component to assure compliance with environmental laws and permits. Yet, implementation of the technical provisions of the Proposed CD has also demonstrably failed to correct training deficiencies at the Facility. As noted by an IDEM inspector in June, 2019, "on-site staff did not know the capacity of either treatment train of Final Treatment." Exhibit 11, at 4, 10. In other words, the Facility staff responsible for ensuring that the wastewater treatment plant does not exceed its capacity did not even know its capacity. I find that shocking, irresponsible, and a clear indication that the proposed Consent Decree has not remedied U. S. Steel's fundamentally deficient training.

41. Fourth, prompt, meaningful and truthful public notifications are a key part of minimizing the potential harmful effects of an environmental permit violation at an industrial facility. The Proposed CD purports to correct past notification violations by U. S. Steel. Yet, even after implementation of the technical provisions of the Proposed CD, U. S. Steel refused to make complete and truthful public notifications at the request of an IDEM inspector who was onsite in the immediate aftermath of a violation in May 2019. When U. S. Steel ultimately did make some notification about this violation, an IDEM inspector found that "[t]he public statement was not timely, was not directed to potentially affected downstream users, and did not detail of the actual potential problems at the site . . . ." Ex. 11 at 6, 11.

42. Fifth, proper recordkeeping and sampling result interpretation are also indispensable to assure compliance with environmental laws and permits. The technical terms of the Proposed CD have also demonstrably failed to correct improper recordkeeping and sampling result interpretation practices by U. S. Steel. In the words of IDEM staff: "Midwest has been reporting the average hourly temperatures and not the maximum hourly temperature as required by the permit…" In addition, IDEM staff stated that it "could not be determined," from the inspection of onsite records "whether averages are being properly calculated for some parameters, including oil and grease." Ex. 12, at 2. Additionally, an important set of sampling results–the pH level of the chromium treatment line—were "recorded on temporary paper notes" and kept in a location where they could become wet. *Id.*

43. Sixth, and finally, I am extremely troubled by the fact that U. S. Steel actively misled IDEM inspectors during an inspection. IDEM inspectors described U. S. Steel personnel

identifying one part of the Facility as the source of the wastewater treatment problem despite the fact that U. S. Steel had already determined another part of the Facility was causing the issue. This sort of misleading behavior undermines the ability of regulatory agencies to rely on reports and representations made by U. S. Steel. I agree entirely with the IDEM inspector's conclusion that "**Withholding pertinent information over the course of an investigation is an unacceptable practice.**" Ex. 11, at 5, 10 (emphasis in original).

44. In my expert opinion, I find these reports of IDEM inspectors with recent first-hand knowledge of the Facility to be incredibly important to understand current and ongoing conditions and practices at the Facility and to evaluate the effect of the technical provisions of the Proposed CD that have supposedly already been implemented. Each of these violations or conditions noted by IDEM staff is a substantial compliance deficiency exhibited at the Facility both before and after implementation of the technical provisions of the Proposed CD. This is direct evidence that the technical provisions of the Proposed CD are inadequate to assure permit and Clean Water Act compliance by U. S. Steel.

The USEPA and IDEM Declarations Lack Technical Credibility

45. I have reviewed the declarations of Dean Maraldo, of USEPA, and Brad Gavin, of IDEM, which were attached to the Governments' Motion to Enter the Consent Decree. I find those declarations flawed for several reasons and, therefore, disagree with the conclusions presented therein.

46. Most fundamentally, neither of those declarations addresses the fact that U. S. Steel has continued to violate its permit despite supposed implementation of the technical requirements in the Proposed CD. Thus, each of these declarations cannot be considered

credible because they ignore the most relevant and most recent evidence about violations at the Facility and the efficacy of plans already being implemented, as I have discussed in this Affidavit.

47. The declarants appear to lack key knowledge and experience necessary to make credible assessments regarding the efficacy of the technical requirements of the Proposed CD. For example, Mr. Gavin's highest science or engineering degree is a bachelor's degree; it appears he has spent a large proportion of his career working as an attorney.

48. The failure of either declarant to have discussed the various recent IDEM inspection reports is particularly problematic for two important reasons. First, in numerous instances, USEPA and IDEM disclaim their technical judgments by noting their assumption that the plans discussed will be "implemented in accordance with the Decree" (or similar phrasing) by U. S. Steel. Response to Comments at 9, 10, 13, 19, 23, 43. It is impossible to confirm proper implementation or form a competent technical opinion as to the effect of that implementation without active and frequent on-site inspections or proper reviews of inspection reports.

49. Second, the observations and conclusions presented by the IDEM inspectors who have made more recent inspections of the Facility, as described in the many examples above, present a clear and troubling depiction of a facility that: continues to violate its Clean Water Act permit: continues to be evasive; and persists in its refusal to take necessary steps to prevent or mitigate such violations.

50. The Response to Comments also explains that, as to a number of important technical issues, USEPA and IDEM are deferring to the technical judgment of U. S. Steel or relying on representations made by U. S. Steel. Response to Comments at 10, 10–11. In

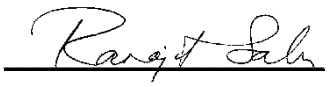
my opinion and consistent with my experience as an expert, including when retained by the US DOJ, it is inappropriate to rely so heavily on the judgment or representations of a defendant in an enforcement action; instead, it is crucial to verify such representations and to develop an independent technical judgment. Developing first-hand technical knowledge and a sound, independent technical judgment is particularly important in this case, where IDEM staff onsite have found that U. S. Steel operational staff lacked basic knowledge of the wastewater treatment system and that U. S. Steel has "misrepresented" material facts about violations.

Conclusion

51. Based on the above, I could not, as an independent, qualified technical expert, approve the Monitoring Design and O&M Plan as sufficient to ensure NPDES permit compliance and protect public health and safety at U. S. Steel's Midwest Plant. In my expert opinion, at a minimum, that far more detail as to U. S. Steel's basis for its decisions in the Monitoring Design, and the content of its SOPs in the O&M Plan, is needed to ensure that future spills, releases, or violations are avoided.

52. If called on to testify as a witness, I can testify competently to the matters and facts set forth herein except when those matters and facts are stated on information and belief and, as to those allegations, I can testify to the extent permitted by the Rules of Evidence.

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that these statements are true and correct to the best of my knowledge and belief.



Dr. Ranajit Sahu

December 17, 2019

INDEX OF EXHIBITS

1. Curriculum Vitae of Dr. Ranajit Sahu
2. Letter from A. Piscitelli (U. S. Steel) to N. Ream (IDEM), Nov. 26, 2019
3. Letter from A. Piscitelli (U. S. Steel) to D. Greinke (IDEM), Dec. 3, 2018
4. Letter from A. Piscitelli (U. S. Steel) to N. Ream (IDEM), May 14, 2019
5. Letter from A. Piscitelli (U. S. Steel) to J. Lankowicz (IDEM), Sept. 11, 2019
6. Letter from A. Piscitelli (U. S. Steel) to N. Ream (IDEM), Sept. 12, 2019
7. Letter from A. Piscitelli (U. S. Steel) to N. Ream (IDEM), Oct. 21, 2019
8. Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Oct. 2, 2018
9. Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Dec. 12, 2018
10. Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Jan. 3, 2019
11. Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), June 14, 2019
12. Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Sept. 6, 2019
13. Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Sept. 30, 2019
14. Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Dec. 3, 2019
15. Letter from R. Massoels (IDEM) to T. Sullivan (U. S. Steel), Dec. 10, 2019
16. USEPA Compliance Evaluation Inspection Report, May 4, 2017
17. U.S. Steel, Semi-Annual Report, September 13, 2019
18. Letter from R. Massoels (IDEM) to J. Hanning (U. S. Steel), December 11, 2017.

RANAJIT (RON) SAHU, Ph.D, QEP, CEM (Nevada)

CONSULTANT, ENVIRONMENTAL AND ENERGY ISSUES

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EXPERIENCE SUMMARY

Dr. Sahu has over twenty nine years of experience in the fields of environmental, mechanical, and chemical engineering including: program and project management services; design and specification of pollution control equipment for a wide range of emissions sources including stationary and mobile sources; soils and groundwater remediation including landfills as remedy; combustion engineering evaluations; energy studies; multimedia environmental regulatory compliance (involving statutes and regulations such as the Federal CAA and its Amendments, Clean Water Act, TSCA, RCRA, CERCLA, SARA, OSHA, NEPA as well as various related state statutes); transportation air quality impact analysis; multimedia compliance audits; multimedia permitting (including air quality NSR/PSD permitting, Title V permitting, NPDES permitting for industrial and storm water discharges, RCRA permitting, etc.), multimedia/multi-pathway human health risk assessments for toxics; air dispersion modeling; and regulatory strategy development and support including negotiation of consent agreements and orders.

He has over twenty six years of project management experience and has successfully managed and executed numerous projects in this time period. This includes basic and applied research projects, design projects, regulatory compliance projects, permitting projects, energy studies, risk assessment projects, and projects involving the communication of environmental data and information to the public.

He has provided consulting services to numerous private sector, public sector and public interest group clients. His major clients over the past twenty five years include various trade associations as well as individual companies such as steel mills, petroleum refineries, cement manufacturers, aerospace companies, power generation facilities, lawn and garden equipment manufacturers, spa manufacturers, chemical distribution facilities, and various entities in the public sector including EPA, the US Dept. of Justice, several states, various agencies such as the California DTSC, various municipalities, etc.). Dr. Sahu has performed projects in all 50 states, numerous local jurisdictions and internationally.

In addition to consulting, Dr. Sahu has taught numerous courses in several Southern California universities including UCLA (air pollution), UC Riverside (air pollution, process hazard analysis), and Loyola Marymount University (air pollution, risk assessment, hazardous waste management) for the past seventeen years. In this time period he has also taught at Caltech, his alma mater (various engineering courses), at the University of Southern California (air pollution controls) and at California State University, Fullerton (transportation and air quality).

Dr. Sahu has and continues to provide expert witness services in a number of environmental areas discussed above in both state and Federal courts as well as before administrative bodies (please see Annex A).

EXPERIENCE RECORD

2000-present **Independent Consultant.** Providing a variety of private sector (industrial companies, land development companies, law firms, etc.) public sector (such as the US Department of Justice) and public interest group clients with project management, air quality

consulting, waste remediation and management consulting, as well as regulatory and engineering support consulting services.

1995-2000 Parsons ES, **Associate, Senior Project Manager and Department Manager for** Air Quality/Geosciences/Hazardous Waste Groups, Pasadena. Responsible for the management of a group of approximately 24 air quality and environmental professionals, 15 geoscience, and 10 hazardous waste professionals providing full-service consulting, project management, regulatory compliance and A/E design assistance in all areas.

Parsons ES, **Manager for Air Source Testing Services**. Responsible for the management of 8 individuals in the area of air source testing and air regulatory permitting projects located in Bakersfield, California.

1992-1995 Engineering-Science, Inc. **Principal Engineer and Senior Project Manager** in the air quality department. Responsibilities included multimedia regulatory compliance and permitting (including hazardous and nuclear materials), air pollution engineering (emissions from stationary and mobile sources, control of criteria and air toxics, dispersion modeling, risk assessment, visibility analysis, odor analysis), supervisory functions and project management.

1990-1992 Engineering-Science, Inc. **Principal Engineer and Project Manager** in the air quality department. Responsibilities included permitting, tracking regulatory issues, technical analysis, and supervisory functions on numerous air, water, and hazardous waste projects. Responsibilities also include client and agency interfacing, project cost and schedule control, and reporting to internal and external upper management regarding project status.

1989-1990 Kinetics Technology International, Corp. **Development Engineer.** Involved in thermal engineering R&D and project work related to low-NOx ceramic radiant burners, fired heater NOx reduction, SCR design, and fired heater retrofitting.

1988-1989 Heat Transfer Research, Inc. **Research Engineer**. Involved in the design of fired heaters, heat exchangers, air coolers, and other non-fired equipment. Also did research in the area of heat exchanger tube vibrations.

EDUCATION

1984-1988 Ph.D., Mechanical Engineering, California Institute of Technology (Caltech), Pasadena, CA.

1984 M. S., Mechanical Engineering, Caltech, Pasadena, CA.

1978-1983 B. Tech (Honors), Mechanical Engineering, Indian Institute of Technology (IIT) Kharagpur, India

TEACHING EXPERIENCE

Caltech

"Thermodynamics," Teaching Assistant, California Institute of Technology, 1983, 1987.

"Air Pollution Control," Teaching Assistant, California Institute of Technology, 1985.

"Caltech Secondary and High School Saturday Program," - taught various mathematics (algebra through calculus) and science (physics and chemistry) courses to high school students, 1983-1989.

"Heat Transfer," - taught this course in the Fall and Winter terms of 1994-1995 in the Division of Engineering and Applied Science.

“Thermodynamics and Heat Transfer,” Fall and Winter Terms of 1996-1997.

U.C. Riverside, Extension

"Toxic and Hazardous Air Contaminants," University of California Extension Program, Riverside, California. Various years since 1992.

"Prevention and Management of Accidental Air Emissions," University of California Extension Program, Riverside, California. Various years since 1992.

"Air Pollution Control Systems and Strategies," University of California Extension Program, Riverside, California, Summer 1992-93, Summer 1993-1994.

"Air Pollution Calculations," University of California Extension Program, Riverside, California, Fall 1993-94, Winter 1993-94, Fall 1994-95.

"Process Safety Management," University of California Extension Program, Riverside, California. Various years since 1992-2010.

"Process Safety Management," University of California Extension Program, Riverside, California, at SCAQMD, Spring 1993-94.

"Advanced Hazard Analysis - A Special Course for LEPCs," University of California Extension Program, Riverside, California, taught at San Diego, California, Spring 1993-1994.

"Advanced Hazardous Waste Management" University of California Extension Program, Riverside, California. 2005.

Loyola Marymount University

"Fundamentals of Air Pollution - Regulations, Controls and Engineering," Loyola Marymount University, Dept. of Civil Engineering. Various years since 1993.

"Air Pollution Control," Loyola Marymount University, Dept. of Civil Engineering, Fall 1994.

"Environmental Risk Assessment," Loyola Marymount University, Dept. of Civil Engineering. Various years since 1998.

"Hazardous Waste Remediation" Loyola Marymount University, Dept. of Civil Engineering. Various years since 2006.

University of Southern California

"Air Pollution Controls," University of Southern California, Dept. of Civil Engineering, Fall 1993, Fall 1994.

"Air Pollution Fundamentals," University of Southern California, Dept. of Civil Engineering, Winter 1994.

University of California, Los Angeles

"Air Pollution Fundamentals," University of California, Los Angeles, Dept. of Civil and Environmental Engineering, Spring 1994, Spring 1999, Spring 2000, Spring 2003, Spring 2006, Spring 2007, Spring 2008, Spring 2009.

International Programs

"Environmental Planning and Management," 5 week program for visiting Chinese delegation, 1994.

"Environmental Planning and Management," 1 day program for visiting Russian delegation, 1995.

"Air Pollution Planning and Management," IEP, UCR, Spring 1996.

"Environmental Issues and Air Pollution," IEP, UCR, October 1996.

PROFESSIONAL AFFILIATIONS AND HONORS

President of India Gold Medal, IIT Kharagpur, India, 1983.

Member of the Alternatives Assessment Committee of the Grand Canyon Visibility Transport Commission, established by the Clean Air Act Amendments of 1990, 1992-present.

American Society of Mechanical Engineers: Los Angeles Section Executive Committee, Heat Transfer Division, and Fuels and Combustion Technology Division, 1987-present.

Air and Waste Management Association, West Coast Section, 1989-present.

PROFESSIONAL CERTIFICATIONS

EIT, California (#XE088305), 1993.

REA I, California (#07438), 2000.

Certified Permitting Professional, South Coast AQMD (#C8320), since 1993.

QEP, Institute of Professional Environmental Practice, since 2000.

CEM, State of Nevada (#EM-1699). Expiration 10/07/2019.

PUBLICATIONS (PARTIAL LIST)

"Physical Properties and Oxidation Rates of Chars from Bituminous Coals," with Y.A. Levendis, R.C. Flagan and G.R. Gavalas, *Fuel*, **67**, 275-283 (1988).

"Char Combustion: Measurement and Analysis of Particle Temperature Histories," with R.C. Flagan, G.R. Gavalas and P.S. Northrop, *Comb. Sci. Tech.* **60**, 215-230 (1988).

"On the Combustion of Bituminous Coal Chars," PhD Thesis, California Institute of Technology (1988).

"Optical Pyrometry: A Powerful Tool for Coal Combustion Diagnostics," *J. Coal Quality*, **8**, 17-22 (1989).

"Post-Ignition Transients in the Combustion of Single Char Particles," with Y.A. Levendis, R.C. Flagan and G.R. Gavalas, *Fuel*, **68**, 849-855 (1989).

"A Model for Single Particle Combustion of Bituminous Coal Char." Proc. ASME National Heat Transfer Conference, Philadelphia, **HTD-Vol. 106**, 505-513 (1989).

"Discrete Simulation of Cenospheric Coal-Char Combustion," with R.C. Flagan and G.R. Gavalas, *Combust. Flame*, **77**, 337-346 (1989).

"Particle Measurements in Coal Combustion," with R.C. Flagan, in "**Combustion Measurements**" (ed. N. Chigier), Hemisphere Publishing Corp. (1991).

"Cross Linking in Pore Structures and Its Effect on Reactivity," with G.R. Gavalas in preparation.

"Natural Frequencies and Mode Shapes of Straight Tubes," Proprietary Report for Heat Transfer Research Institute, Alhambra, CA (1990).

"Optimal Tube Layouts for Kamui SL-Series Exchangers," with K. Ishihara, Proprietary Report for Kamui Company Limited, Tokyo, Japan (1990).

"HTRI Process Heater Conceptual Design," Proprietary Report for Heat Transfer Research Institute, Alhambra, CA (1990).

"Asymptotic Theory of Transonic Wind Tunnel Wall Interference," with N.D. Malmuth and others, Arnold Engineering Development Center, Air Force Systems Command, USAF (1990).

"Gas Radiation in a Fired Heater Convection Section," Proprietary Report for Heat Transfer Research Institute, College Station, TX (1990).

"Heat Transfer and Pressure Drop in NTIW Heat Exchangers," Proprietary Report for Heat Transfer Research Institute, College Station, TX (1991).

"NOx Control and Thermal Design," Thermal Engineering Tech Briefs, (1994).

"From Purchase of Landmark Environmental Insurance to Remediation: Case Study in Henderson, Nevada," with Robin E. Bain and Jill Quillin, presented at the AQMA Annual Meeting, Florida, 2001.

"The Jones Act Contribution to Global Warming, Acid Rain and Toxic Air Contaminants," with Charles W. Botsford, presented at the AQMA Annual Meeting, Florida, 2001.

PRESENTATIONS (PARTIAL LIST)

"Pore Structure and Combustion Kinetics - Interpretation of Single Particle Temperature-Time Histories," with P.S. Northrop, R.C. Flagan and G.R. Gavalas, presented at the AIChE Annual Meeting, New York (1987).

"Measurement of Temperature-Time Histories of Burning Single Coal Char Particles," with R.C. Flagan, presented at the American Flame Research Committee Fall International Symposium, Pittsburgh, (1988).

"Physical Characterization of a Cenospheric Coal Char Burned at High Temperatures," with R.C. Flagan and G.R. Gavalas, presented at the Fall Meeting of the Western States Section of the Combustion Institute, Laguna Beach, California (1988).

"Control of Nitrogen Oxide Emissions in Gas Fired Heaters - The Retrofit Experience," with G. P. Croce and R. Patel, presented at the International Conference on Environmental Control of Combustion Processes (Jointly sponsored by the American Flame Research Committee and the Japan Flame Research Committee), Honolulu, Hawaii (1991).

"Air Toxics - Past, Present and the Future," presented at the Joint AIChE/AAEE Breakfast Meeting at the AIChE 1991 Annual Meeting, Los Angeles, California, November 17-22 (1991).

"Air Toxics Emissions and Risk Impacts from Automobiles Using Reformulated Gasolines," presented at the Third Annual Current Issues in Air Toxics Conference, Sacramento, California, November 9-10 (1992).

"Air Toxics from Mobile Sources," presented at the Environmental Health Sciences (ESE) Seminar Series, UCLA, Los Angeles, California, November 12, (1992).

"Kilns, Ovens, and Dryers - Present and Future," presented at the Gas Company Air Quality Permit Assistance Seminar, Industry Hills Sheraton, California, November 20, (1992).

"The Design and Implementation of Vehicle Scrapping Programs," presented at the 86th Annual Meeting of the Air and Waste Management Association, Denver, Colorado, June 12, 1993.

"Air Quality Planning and Control in Beijing, China," presented at the 87th Annual Meeting of the Air and Waste Management Association, Cincinnati, Ohio, June 19-24, 1994.

Annex A

Expert Litigation Support

A. Occasions where Dr. Sahu has provided Written or Oral testimony before Congress:

1. In July 2012, provided expert written and oral testimony to the House Subcommittee on Energy and the Environment, Committee on Science, Space, and Technology at a Hearing entitled "Hitting the Ethanol Blend Wall – Examining the Science on E15."

B. Matters for which Dr. Sahu has provided affidavits and expert reports include:

2. Affidavit for Rocky Mountain Steel Mills, Inc. located in Pueblo Colorado – dealing with the technical uncertainties associated with night-time opacity measurements in general and at this steel mini-mill.
3. Expert reports and depositions (2/28/2002 and 3/1/2002; 12/2/2003 and 12/3/2003; 5/24/2004) on behalf of the United States in connection with the Ohio Edison NSR Cases. *United States, et al. v. Ohio Edison Co., et al.*, C2-99-1181 (Southern District of Ohio).
4. Expert reports and depositions (5/23/2002 and 5/24/2002) on behalf of the United States in connection with the Illinois Power NSR Case. *United States v. Illinois Power Co., et al.*, 99-833-MJR (Southern District of Illinois).
5. Expert reports and depositions (11/25/2002 and 11/26/2002) on behalf of the United States in connection with the Duke Power NSR Case. *United States, et al. v. Duke Energy Corp.*, 1:00-CV-1262 (Middle District of North Carolina).
6. Expert reports and depositions (10/6/2004 and 10/7/2004; 7/10/2006) on behalf of the United States in connection with the American Electric Power NSR Cases. *United States, et al. v. American Electric Power Service Corp., et al.*, C2-99-1182, C2-99-1250 (Southern District of Ohio).
7. Affidavit (March 2005) on behalf of the Minnesota Center for Environmental Advocacy and others in the matter of the Application of Heron Lake BioEnergy LLC to construct and operate an ethanol production facility – submitted to the Minnesota Pollution Control Agency.
8. Expert Report and Deposition (10/31/2005 and 11/1/2005) on behalf of the United States in connection with the East Kentucky Power Cooperative NSR Case. *United States v. East Kentucky Power Cooperative, Inc.*, 5:04-cv-00034-KSF (Eastern District of Kentucky).
9. Affidavits and deposition on behalf of Basic Management Inc. (BMI) Companies in connection with the BMI vs. USA remediation cost recovery Case.
10. Expert Report on behalf of Penn Future and others in the Cambria Coke plant permit challenge in Pennsylvania.

11. Expert Report on behalf of the Appalachian Center for the Economy and the Environment and others in the Western Greenbrier permit challenge in West Virginia.

12. Expert Report, deposition (via telephone on January 26, 2007) on behalf of various Montana petitioners (Citizens Awareness Network (CAN), Women's Voices for the Earth (WVE) and the Clark Fork Coalition (CFC)) in the Thompson River Cogeneration LLC Permit No. 3175-04 challenge.

13. Expert Report and deposition (2/2/07) on behalf of the Texas Clean Air Cities Coalition at the Texas State Office of Administrative Hearings (SOAH) in the matter of the permit challenges to TXU Project Apollo's eight new proposed PRB-fired PC boilers located at seven TX sites.

14. Expert Testimony (July 2007) on behalf of the Izaak Walton League of America and others in connection with the acquisition of power by Xcel Energy from the proposed Gascoyne Power Plant – at the State of Minnesota, Office of Administrative Hearings for the Minnesota PUC (MPUC No. E002/CN-06-1518; OAH No. 12-2500-17857-2).

15. Affidavit (July 2007) Comments on the Big Cajun I Draft Permit on behalf of the Sierra Club – submitted to the Louisiana DEQ.

16. Expert Report and Deposition (12/13/2007) on behalf of Commonwealth of Pennsylvania – Dept. of Environmental Protection, State of Connecticut, State of New York, and State of New Jersey (Plaintiffs) in connection with the Allegheny Energy NSR Case. *Plaintiffs v. Allegheny Energy Inc., et al.,* 2:05cv0885 (Western District of Pennsylvania).

17. Expert Reports and Pre-filed Testimony before the Utah Air Quality Board on behalf of Sierra Club in the Sevier Power Plant permit challenge.

18. Expert Report and Deposition (October 2007) on behalf of MTD Products Inc., in connection with *General Power Products, LLC v MTD Products Inc*., 1:06 CVA 0143 (Southern District of Ohio, Western Division) .

19. Expert Report and Deposition (June 2008) on behalf of Sierra Club and others in the matter of permit challenges (Title V: 28.0801-29 and PSD: 28.0803-PSD) for the Big Stone II unit, proposed to be located near Milbank, South Dakota.

20. Expert Reports, Affidavit, and Deposition (August 15, 2008) on behalf of Earthjustice in the matter of air permit challenge (CT-4631) for the Basin Electric Dry Fork station, under construction near Gillette, Wyoming before the Environmental Quality Council of the State of Wyoming.

21. Affidavits (May 2010/June 2010 in the Office of Administrative Hearings))/Declaration and Expert Report (November 2009 in the Office of Administrative Hearings) on behalf of NRDC and the Southern Environmental Law Center in the matter of the air permit challenge for Duke Cliffside Unit 6. Office of Administrative Hearing Matters 08 EHR 0771, 0835 and 0836 and 09 HER 3102, 3174, and 3176 (consolidated).

22. Declaration (August 2008), Expert Report (January 2009), and Declaration (May 2009) on behalf of Southern Alliance for Clean Energy in the matter of the air permit challenge for Duke Cliffside Unit 6. *Southern Alliance for Clean Energy et al., v. Duke Energy Carolinas, LLC*, Case No. 1:08-cv-00318-LHT-DLH (Western District of North Carolina, Asheville Division).

23. Declaration (August 2008) on behalf of the Sierra Club in the matter of Dominion Wise County plant MACT.us

24. Expert Report (June 2008) on behalf of Sierra Club for the Green Energy Resource Recovery Project, MACT Analysis.

25. Expert Report (February 2009) on behalf of Sierra Club and the Environmental Integrity Project in the matter of the air permit challenge for NRG Limestone's proposed Unit 3 in Texas.

26. Expert Report (June 2009) on behalf of MTD Products, Inc., in the matter of *Alice Holmes and Vernon Holmes v. Home Depot USA, Inc., et al.*

27. Expert Report (August 2009) on behalf of Sierra Club and the Southern Environmental Law Center in the matter of the air permit challenge for Santee Cooper's proposed Pee Dee plant in South Carolina).

28. Statements (May 2008 and September 2009) on behalf of the Minnesota Center for Environmental Advocacy to the Minnesota Pollution Control Agency in the matter of the Minnesota Haze State Implementation Plans.

29. Expert Report (August 2009) on behalf of Environmental Defense, in the matter of permit challenges to the proposed Las Brisas coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

30. Expert Report and Rebuttal Report (September 2009) on behalf of the Sierra Club, in the matter of challenges to the proposed Medicine Bow Fuel and Power IGL plant in Cheyenne, Wyoming.

31. Expert Report (December 2009) and Rebuttal reports (May 2010 and June 2010) on behalf of the United States in connection with the Alabama Power Company NSR Case. *United States v. Alabama Power Company*, CV-01-HS-152-S (Northern District of Alabama, Southern Division).

32. Pre-filed Testimony (October 2009) on behalf of Environmental Defense and others, in the matter of challenges to the proposed White Stallion Energy Center coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

33. Pre-filed Testimony (July 2010) and Written Rebuttal Testimony (August 2010) on behalf of the State of New Mexico Environment Department in the matter of Proposed Regulation 20.2.350 NMAC – *Greenhouse Gas Cap and Trade Provisions*, No. EIB 10-04 (R), to the State of New Mexico, Environmental Improvement Board.

34. Expert Report (August 2010) and Rebuttal Expert Report (October 2010) on behalf of the United States in connection with the Louisiana Generating NSR

Case. *United States v. Louisiana Generating, LLC*, 09-CV100-RET-CN (Middle District of Louisiana) – Liability Phase.

35. Declaration (August 2010), Reply Declaration (November 2010), Expert Report (April 2011), Supplemental and Rebuttal Expert Report (July 2011) on behalf of the United States in the matter of DTE Energy Company and Detroit Edison Company (Monroe Unit 2). *United States of America v. DTE Energy Company and Detroit Edison Company*, Civil Action No. 2:10-cv-13101-BAF-RSW (Eastern District of Michigan).

36. Expert Report and Deposition (August 2010) as well as Affidavit (September 2010) on behalf of Kentucky Waterways Alliance, Sierra Club, and Valley Watch in the matter of challenges to the NPDES permit issued for the Trimble County power plant by the Kentucky Energy and Environment Cabinet to Louisville Gas and Electric, File No. DOW-41106-047.

37. Expert Report (August 2010), Rebuttal Expert Report (September 2010), Supplemental Expert Report (September 2011), and Declaration (November 2011) on behalf of Wild Earth Guardians in the matter of opacity exceedances and monitor downtime at the Public Service Company of Colorado (Xcel)'s Cherokee power plant. No. 09-cv-1862 (District of Colorado).

38. Written Direct Expert Testimony (August 2010) and Affidavit (February 2012) on behalf of Fall-Line Alliance for a Clean Environment and others in the matter of the PSD Air Permit for Plant Washington issued by Georgia DNR at the Office of State Administrative Hearing, State of Georgia (OSAH-BNR-AQ-1031707-98-WALKER).

39. Deposition (August 2010) on behalf of Environmental Defense, in the matter of the remanded permit challenge to the proposed Las Brisas coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

40. Expert Report, Supplemental/Rebuttal Expert Report, and Declarations (October 2010, November 2010, September 2012) on behalf of New Mexico Environment Department (Plaintiff-Intervenor), Grand Canyon Trust and Sierra Club (Plaintiffs) in the matter of *Plaintiffs v. Public Service Company of New Mexico* (PNM), Civil No. 1:02-CV-0552 BB/ATC (ACE) (District of New Mexico).

41. Expert Report (October 2010) and Rebuttal Expert Report (November 2010) (BART Determinations for PSCo Hayden and CSU Martin Drake units) to the Colorado Air Quality Commission on behalf of Coalition of Environmental Organizations.

42. Expert Report (November 2010) (BART Determinations for TriState Craig Units, CSU Nixon Unit, and PRPA Rawhide Unit) to the Colorado Air Quality Commission on behalf of Coalition of Environmental Organizations.

43. Declaration (November 2010) on behalf of the Sierra Club in connection with the Martin Lake Station Units 1, 2, and 3. *Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC*, Case No. 5:10-cv-00156-DF-CMC (Eastern District of Texas, Texarkana Division).

44. Pre-Filed Testimony (January 2011) and Declaration (February 2011) to the Georgia Office of State Administrative Hearings (OSAH) in the matter of Minor Source HAPs status for the proposed Longleaf Energy Associates power plant (OSAH-BNR-AQ-1115157-60-HOWELLS) on behalf of the Friends of the Chattahoochee and the Sierra Club).

45. Declaration (February 2011) in the matter of the Draft Title V Permit for RRI Energy MidAtlantic Power Holdings LLC Shawville Generating Station (Pennsylvania), ID No. 17-00001 on behalf of the Sierra Club.

46. Expert Report (March 2011), Rebuttal Expert Report (June 2011) on behalf of the United States in *United States of America v. Cemex, Inc.*, Civil Action No. 09-cv-00019-MSK-MEH (District of Colorado).

47. Declaration (April 2011) and Expert Report (July 16, 2012) in the matter of the Lower Colorado River Authority (LCRA)'s Fayette (Sam Seymour) Power Plant on behalf of the Texas Campaign for the Environment. *Texas Campaign for the Environment v. Lower Colorado River Authority*, Civil Action No. 4:11-cv-00791 (Southern District of Texas, Houston Division).

48. Declaration (June 2011) on behalf of the Plaintiffs MYTAPN in the matter of Microsoft-Yes, Toxic Air Pollution-No (MYTAPN) v. State of Washington, Department of Ecology and Microsoft Corporation Columbia Data Center to the Pollution Control Hearings Board, State of Washington, Matter No. PCHB No. 10-162.

49. Expert Report (June 2011) on behalf of the New Hampshire Sierra Club at the State of New Hampshire Public Utilities Commission, Docket No. 10-261 – the 2010 Least Cost Integrated Resource Plan (LCIRP) submitted by the Public Service Company of New Hampshire (re. Merrimack Station Units 1 and 2).

50. Declaration (August 2011) in the matter of the Sandy Creek Energy Associates L.P. Sandy Creek Power Plant on behalf of Sierra Club and Public Citizen. *Sierra Club, Inc. and Public Citizen, Inc. v. Sandy Creek Energy Associates, L.P.*, Civil Action No. A-08-CA-648-LY (Western District of Texas, Austin Division).

51. Expert Report (October 2011) on behalf of the Defendants in the matter of *John Quiles and Jeanette Quiles et al. v. Bradford-White Corporation, MTD Products, Inc., Kohler Co., et al.,* Case No. 3:10-cv-747 (TJM/DEP) (Northern District of New York).

52. Declaration (October 2011) on behalf of the Plaintiffs in the matter of *American Nurses Association et. al. (Plaintiffs), v. US EPA (Defendant),* Case No. 1:08-cv-02198-RMC (US District Court for the District of Columbia).

53. Declaration (February 2012) and Second Declaration (February 2012) in the matter of *Washington Environmental Council and Sierra Club Washington State Chapter v. Washington State Department of Ecology and Western States Petroleum Association,* Case No. 11-417-MJP (Western District of Washington).

54. Expert Report (March 2012) and Supplemental Expert Report (November 2013) in the matter of *Environment Texas Citizen Lobby, Inc and Sierra Club v.*

ExxonMobil Corporation et al., Civil Action No. 4:10-cv-4969 (Southern District of Texas, Houston Division).

55. Declaration (March 2012) in the matter of *Center for Biological Diversity, et al. v. United States Environmental Protection Agency*, Case No. 11-1101 (consolidated with 11-1285, 11-1328 and 11-1336) (US Court of Appeals for the District of Columbia Circuit).

56. Declaration (March 2012) in the matter of *Sierra Club v. The Kansas Department of Health and Environment*, Case No. 11-105,493-AS (Holcomb power plant) (Supreme Court of the State of Kansas).

57. Declaration (March 2012) in the matter of the Las Brisas Energy Center *Environmental Defense Fund et al., v. Texas Commission on Environmental Quality*, Cause No. D-1-GN-11-001364 (District Court of Travis County, Texas, 261st Judicial District).

58. Expert Report (April 2012), Supplemental and Rebuttal Expert Report (July 2012), and Supplemental Rebuttal Expert Report (August 2012) on behalf of the states of New Jersey and Connecticut in the matter of the Portland Power plant *State of New Jersey and State of Connecticut (Intervenor-Plaintiff) v. RRI Energy Mid-Atlantic Power Holdings et al.*, Civil Action No. 07-CV-5298 (JKG) (Eastern District of Pennsylvania).

59. Declaration (April 2012) in the matter of the EPA's EGU MATS Rule, on behalf of the Environmental Integrity Project.

60. Expert Report (August 2012) on behalf of the United States in connection with the Louisiana Generating NSR Case. *United States v. Louisiana Generating, LLC*, 09-CV100-RET-CN (Middle District of Louisiana) – Harm Phase.

61. Declaration (September 2012) in the Matter of the Application of *Energy Answers Incinerator, Inc.* for a Certificate of Public Convenience and Necessity to Construct a 120 MW Generating Facility in Baltimore City, Maryland, before the Public Service Commission of Maryland, Case No. 9199.

62. Expert Report (October 2012) on behalf of the Appellants (Robert Concilus and Leah Humes) in the matter of Robert Concilus and Leah Humes v. Commonwealth of Pennsylvania Department of Environmental Protection and Crawford Renewable Energy, before the Commonwealth of Pennsylvania Environmental Hearing Board, Docket No. 2011-167-R.

63. Expert Report (October 2012), Supplemental Expert Report (January 2013), and Affidavit (June 2013) in the matter of various Environmental Petitioners v. North Carolina DENR/DAQ and Carolinas Cement Company, before the Office of Administrative Hearings, State of North Carolina.

64. Pre-filed Testimony (October 2012) on behalf of No-Sag in the matter of the North Springfield Sustainable Energy Project before the State of Vermont, Public Service Board.

65. Pre-filed Testimony (November 2012) on behalf of Clean Wisconsin in the matter of Application of Wisconsin Public Service Corporation for Authority to

Construct and Place in Operation a New Multi-Pollutant Control Technology System (ReACT) for Unit 3 of the Weston Generating Station, before the Public Service Commission of Wisconsin, Docket No. 6690-CE-197.

66. Expert Report (February 2013) on behalf of Petitioners in the matter of Credence Crematory, Cause No. 12-A-J-4538 before the Indiana Office of Environmental Adjudication.

67. Expert Report (April 2013), Rebuttal report (July 2013), and Declarations (October 2013, November 2013) on behalf of the Sierra Club in connection with the Luminant Big Brown Case. *Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC*, Civil Action No. 6:12-cv-00108-WSS (Western District of Texas, Waco Division).

68. Declaration (April 2013) on behalf of Petitioners in the matter of *Sierra Club, et al., (Petitioners) v Environmental Protection Agency et al. (Resppondents)*, Case No., 13-1112, (Court of Appeals, District of Columbia Circuit).

69. Expert Report (May 2013) and Rebuttal Expert Report (July 2013) on behalf of the Sierra Club in connection with the Luminant Martin Lake Case. *Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC*, Civil Action No. 5:10-cv-0156-MHS-CMC (Eastern District of Texas, Texarkana Division).

70. Declaration (August 2013) on behalf of A. J. Acosta Company, Inc., in the matter of *A. J. Acosta Company, Inc., v. County of San Bernardino*, Case No. CIVSS803651.

71. Comments (October 2013) on behalf of the Washington Environmental Council and the Sierra Club in the matter of the Washington State Oil Refinery RACT (for Greenhouse Gases), submitted to the Washington State Department of Ecology, the Northwest Clean Air Agency, and the Puget Sound Clean Air Agency.

72. Statement (November 2013) on behalf of various Environmental Organizations in the matter of the Boswell Energy Center (BEC) Unit 4 Environmental Retrofit Project, to the Minnesota Public Utilities Commission, Docket No. E-015/M-12-920.

73. Expert Report (December 2013) on behalf of the United States in *United States of America v. Ameren Missouri*, Civil Action No. 4:11-cv-00077-RWS (Eastern District of Missouri, Eastern Division).

74. Expert Testimony (December 2013) on behalf of the Sierra Club in the matter of Public Service Company of New Hampshire Merrimack Station Scrubber Project and Cost Recovery, Docket No. DE 11-250, to the State of New Hampshire Public Utilities Commission.

75. Expert Report (January 2014) on behalf of Baja, Inc., in *Baja, Inc., v. Automotive Testing and Development Services, Inc. et. al*, Civil Action No. 8:13-CV-02057-GRA (District of South Carolina, Anderson/Greenwood Division).

76. Declaration (March 2014) on behalf of the Center for International Environmental Law, Chesapeake Climate Action Network, Friends of the Earth, Pacific

Environment, and the Sierra Club (Plaintiffs) in the matter of *Plaintiffs v. the Export-Import Bank (Ex-Im Bank) of the United States*, Civil Action No. 13-1820 RC (District Court for the District of Columbia).

77. Declaration (April 2014) on behalf of Respondent-Intervenors in the matter of *Mexichem Specialty Resins Inc., et al., (Petitioners) v Environmental Protection Agency et al.*, Case No., 12-1260 (and Consolidated Case Nos. 12-1263, 12-1265, 12-1266, and 12-1267), (Court of Appeals, District of Columbia Circuit).

78. Direct Prefiled Testimony (June 2014) on behalf of the Michigan Environmental Council and the Sierra Club in the matter of the Application of DTE Electric Company for Authority to Implement a Power Supply Cost Recovery (PSCR) Plan in its Rate Schedules for 2014 Metered Jurisdictional Sales of Electricity, Case No. U-17319 (Michigan Public Service Commission).

79. Expert Report (June 2014) on behalf of ECM Biofilms in the matter of the US Federal Trade Commission (FTC) v. ECM Biofilms (FTC Docket #9358).

80. Direct Prefiled Testimony (August 2014) on behalf of the Michigan Environmental Council and the Sierra Club in the matter of the Application of Consumers Energy Company for Authority to Implement a Power Supply Cost Recovery (PSCR) Plan in its Rate Schedules for 2014 Metered Jurisdictional Sales of Electricity, Case No. U-17317 (Michigan Public Service Commission).

81. Declaration (July 2014) on behalf of Public Health Intervenors in the matter of *EME Homer City Generation v. US EPA* (Case No. 11-1302 and consolidated cases) relating to the lifting of the stay entered by the Court on December 30, 2011 (US Court of Appeals for the District of Columbia).

82. Expert Report (September 2014), Rebuttal Expert Report (December 2014) and Supplemental Expert Report (March 2015) on behalf of Plaintiffs in the matter of *Sierra Club and Montana Environmental Information Center (Plaintiffs) v. PPL Montana LLC, Avista Corporation, Puget Sound Energy, Portland General Electric Company, Northwestern Corporation, and Pacificorp (Defendants)*, Civil Action No. CV 13-32-BLG-DLC-JCL (US District Court for the District of Montana, Billings Division).

83. Expert Report (November 2014) on behalf of Niagara County, the Town of Lewiston, and the Villages of Lewiston and Youngstown in the matter of CWM Chemical Services, LLC New York State Department of Environmental Conservation (NYSDEC) Permit Application Nos.: 9-2934-00022/00225, 9-2934-00022/00231, 9-2934-00022/00232, and 9-2934-00022/00249 (pending).

84. *Declaration (January 2015) relating to Startup/Shutdown in the MATS Rule (EPA Docket ID No. EPA-HQ-OAR-2009-0234) on behalf of the Environmental Integrity Project.*

85. Pre-filed Direct Testimony (March 2015), Supplemental Testimony (May 2015), and Surrebuttal Testimony (December 2015) on behalf of Friends of the Columbia Gorge in the matter of the Application for a Site Certificate for the Troutdale Energy Center before the Oregon Energy Facility Siting Council.

86. Brief of Amici Curiae Experts in Air Pollution Control and Air Quality Regulation in Support of the Respondents, On Writs of Certiorari to the US Court of Appeals for the District of Columbia, No. 14-46, 47, 48. *Michigan et. al., (Petitioners) v. EPA et. al., Utility Air Regulatory Group (Petitioners) v. EPA et. al., National Mining Association et. al., (Petitioner) v. EPA et. al.,* (Supreme Court of the United States).

87. Expert Report (March 2015) and Rebuttal Expert Report (January 2016) on behalf of Plaintiffs in the matter of *Conservation Law Foundation v. Broadrock Gas Services LLC, Rhode Island LFG GENCO LLC, and Rhode Island Resource Recovery Corporation (Defendants),* Civil Action No. 1:13-cv-00777-M-PAS (US District Court for the District of Rhode Island).

88. Declaration (April 2015) relating to various Technical Corrections for the MATS Rule (EPA Docket ID No. EPA-HQ-OAR-2009-0234) on behalf of the Environmental Integrity Project.

89. Direct Prefiled Testimony (May 2015) on behalf of the Michigan Environmental Council, the Natural Resources Defense Council, and the Sierra Club in the matter of the Application of DTE Electric Company for Authority to Increase its Rates, Amend its Rate Schedules and Rules Governing the Distribution and Supply of Electric Energy and for Miscellaneous Accounting Authority, Case No. U-17767 (Michigan Public Service Commission).

90. Expert Report (July 2015) and Rebuttal Expert Report (July 2015) on behalf of Plaintiffs in the matter of *Northwest Environmental Defense Center et. al., v. Cascade Kelly Holdings LLC, d/b/a Columbia Pacific Bio-Refinery, and Global Partners LP (Defendants),* Civil Action No. 3:14-cv-01059-SI (US District Court for the District of Oregon, Portland Division).

91. Declaration (August 2015, Docket No. 1570376) in support of "Opposition of Respondent-Intervenors American Lung Association, et. al., to Tri-State Generation's Emergency Motion;" Declaration (September 2015, Docket No. 1574820) in support of "Joint Motion of the State, Local Government, and Public Health Respondent-Intervenors for Remand Without Vacatur;" Declaration (October 2015) in support of "Joint Motion of the State, Local Government, and Public Health Respondent-Intervenors to State and Certain Industry Petitioners' Motion to Govern, *White Stallion Energy Center, LLC v. US EPA*, Case No. 12-1100 (US Court of Appeals for the District of Columbia).

92. Declaration (September 2015) in support of the Draft Title V Permit for Dickerson Generating Station (Proposed Permit No 24-031-0019) on behalf of the Environmental Integrity Project.

93. Expert Report (Liability Phase) (December 2015) and Rebuttal Expert Report (February 2016) on behalf of Plaintiffs in the matter of *Natural Resources Defense Council, Inc., Sierra Club, Inc., Environmental Law and Policy Center, and Respiratory Health Association v. Illinois Power Resources LLC, and Illinois Power Resources Generating LLC (Defendants),* Civil Action No. 1:13-cv-01181 (US District Court for the Central District of Illinois, Peoria Division).

94. Declaration (December 2015) in support of the Petition to Object to the Title V Permit for Morgantown Generating Station (Proposed Permit No 24-017-0014) on behalf of the Environmental Integrity Project.

95. Expert Report (November 2015) on behalf of Appellants in the matter of *Sierra Club, et al. v. Craig W. Butler, Director of Ohio Environmental Protection Agency et al.,* ERAC Case No. 14-256814.

96. Affidavit (January 2016) on behalf of Bridgewatch Detroit in the matter of *Bridgewatch Detroit v. Waterfront Petroleum Terminal Co., and Waterfront Terminal Holdings, LLC.*, in the Circuit Court for the County of Wayne, State of Michigan.

97. Expert Report (February 2016) and Rebuttal Expert Report (July 2016) on behalf of the challengers in the matter of the Delaware Riverkeeper Network, Clean Air Council, et. al., vs. Commonwealth of Pennsylvania Department of Environmental Protection and R. E. Gas Development LLC regarding the Geyer well site before the Pennsylvania Environmental Hearing Board.

98. Direct Testimony (May 2016) in the matter of Tesoro Savage LLC Vancouver Energy Distribution Terminal, Case No. 15-001 before the State of Washington Energy Facility Site Evaluation Council.

99. Declaration (June 2016) relating to deficiencies in air quality analysis for the proposed Millenium Bulk Terminal, Port of Longview, Washington.

100. Declaration (December 2016) relating to EPA's refusal to set limits on PM emissions from coal-fired power plants that reflect pollution reductions achievable with fabric filters on behalf of Environmental Integrity Project, Clean Air Council, Chesapeake Climate Action Network, Downwinders at Risk represented by Earthjustice in the matter of *ARIPPA v EPA, Case No. 15-1180.* (D.C. Circuit Court of Appeals).

101. Expert Report (January 2017) on the Environmental Impacts Analysis associated with the Huntley and Huntley Poseidon Well Pad on behalf citizens in the matter of the special exception use Zoning Hearing Board of Penn Township, Westmoreland County, Pennsylvania.

102. Expert Report (January 2017) on the Environmental Impacts Analysis associated with the Apex Energy Backus Well Pad on behalf citizens in the matter of the special exception use Zoning Hearing Board of Penn Township, Westmoreland County, Pennsylvania.

103. Expert Report (January 2017) on the Environmental Impacts Analysis associated with the Apex Energy Drakulic Well Pad on behalf citizens in the matter of the special exception use Zoning Hearing Board of Penn Township, Westmoreland County, Pennsylvania.

104. Expert Report (January 2017) on the Environmental Impacts Analysis associated with the Apex Energy Deutsch Well Pad on behalf citizens in the matter of the special exception use Zoning Hearing Board of Penn Township, Westmoreland County, Pennsylvania.

105. Affidavit (February 2017) pertaining to deficiencies water discharge compliance issues at the Wood River Refinery in the matter of *People of the State of Illinois (Plaintiff) v. Phillips 66 Company, ConocoPhillips Company, WRB Refining LP (Defendants)*, Case No. 16-CH-656, (Circuit Court for the Third Judicial Circuit, Madison County, Illinois).

106. Expert Report (March 2017) on behalf of the Plaintiff pertaining to non-degradation analysis for waste water discharges from a power plant in the matter of *Sierra Club (Plaintiff) v. Pennsylvania Department of Environmental Protection (PADEP) and Lackawanna Energy Center*, Docket No. 2016-047-L (consolidated), (Pennsylvania Environmental Hearing Board).

107. Expert Report (March 2017) on behalf of the Plaintiff pertaining to air emissions from the Heritage incinerator in East Liverpool, Ohio in the matter of *Save our County (Plaintiff) v. Heritage Thermal Services, Inc. (Defendant), Case No. 4:16-CV-1544-BYP*, (US District Court for the Northern District of Ohio, Eastern Division).

108. Rebuttal Expert Report (June 2017) on behalf of Plaintiffs in the matter of *Casey Voight and Julie Voight (Plaintiffs) v Coyote Creek Mining Company LLC (Defendant),* Civil Action No. 1:15-CV-00109 (US District Court for the District of North Dakota, Western Division).

109. Expert Affidavit (August 2017) and Penalty/Remedy Expert Affidavit (October 2017) on behalf of Plaintiff in the matter of *Wildearth Guardians (Plaintiff) v Colorado Springs Utility Board (Defendant,)* Civil Action No. 1:15-cv-00357-CMA-CBS (US District Court for the District of Colorado).

110. Expert Report (August 2017) on behalf of Appellant in the matter of *Patricia Ann Troiano (Appellant) v. Upper Burrell Township Zoning Hearing Board (Appellee)*, Court of Common Pleas of Westmoreland County, Pennsylvania, Civil Division.

111. Expert Report (October 2017), Supplemental Expert Report (October 2017), and Rebuttal Expert Report (November 2017) on behalf of Defendant in the matter of *Oakland Bulk and Oversized Terminal (Plaintiff) v City of Oakland (Defendant,)* Civil Action No. 3:16-cv-07014-VC (US District Court for the Northern District of California, San Francisco Division).

112. Declaration (December 2017) on behalf of the Environmental Integrity Project in the matter of permit issuance for ATI Flat Rolled Products Holdings, Breckenridge, PA to the Allegheny County Health Department.

113. Expert Report (Harm Phase) (January 2018), Rebuttal Expert Report (Harm Phase) (May 2018) and Supplemental Expert Report (Harm Phase) (April 2019) on behalf of Plaintiffs in the matter of *Natural Resources Defense Council, Inc., Sierra Club, Inc., and Respiratory Health Association v. Illinois Power Resources LLC, and Illinois Power Resources Generating LLC (Defendants)*, Civil Action No. 1:13-cv-01181 (US District Court for the Central District of Illinois, Peoria Division).

114. Declaration (February 2018) on behalf of the Chesapeake Bay Foundation, et. al., in the matter of the Section 126 Petition filed by the state of Maryland in *State of*

Maryland v. Pruitt (Defendant), Civil Action No. JKB-17-2939 (Consolidated with No. JKB-17-2873) (US District Court for the District of Maryland).

115. Direct Pre-filed Testimony (March 2018) on behalf of the National Parks Conservation Association (NPCA) in the matter of *NPCA v State of Washington, Department of Ecology and BP West Coast Products, LLC*, PCHB No. 17-055 (Pollution Control Hearings Board for the State of Washington.

116. Expert Affidavit (April 2018) and Second Expert Affidavit (May 2018) on behalf of Petitioners in the matter of *Coosa River Basin Initiative and Sierra Club (Petitioners) v State of Georgia Environmental Protection Division, Georgia Department of Natural Resources (Respondent) and Georgia Power Company (Intervenor/Respondent)*, Docket Nos: 1825406-BNR-WW-57-Howells and 1826761-BNR-WW-57-Howells, Office of State Administrative Hearings, State of Georgia.

117. Direct Pre-filed Testimony and Affidavit (December 2018) on behalf of Sierra Club and Texas Campaign for the Environment (Appellants) in the contested case hearing before the Texas State Office of Administrative Hearings in Docket Nos. 582-18-4846, 582-18-4847 (Application of GCGV Asset Holding, LLC for Air Quality Permit Nos. 146425/PSDTX1518 and 146459/PSDTX1520 in San Patricio County, Texas).

118. Expert Report (February 2019) on behalf of Sierra Club in the State of Florida, Division of Administrative Hearings, Case No. 18-2124EPP, Tampa Electric Company Big Bend Unit 1 Modernization Project Power Plant Siting Application No. PA79-12-A2.

119. Declaration (March 2019) on behalf of Earthjustice in the matter of comments on the renewal of the Title V Federal Operating Permit for Valero Houston refinery.

120. Expert Report (March 2019) on behalf of Plaintiffs for Class Certification in the matter of *Resendez et al v Precision Castparts Corporation* in the Circuit Court for the State of Oregon, County of Multnomah, Case No. 16cv16164.

C. Occasions where Dr. Sahu has provided oral testimony <u>in depositions, at trial or in similar proceedings</u> include the following:

121. Deposition on behalf of Rocky Mountain Steel Mills, Inc. located in Pueblo, Colorado – dealing with the manufacture of steel in mini-mills including methods of air pollution control and BACT in steel mini-mills and opacity issues at this steel mini-mill.

122. Trial Testimony (February 2002) on behalf of Rocky Mountain Steel Mills, Inc. in Denver District Court.

123. Trial Testimony (February 2003) on behalf of the United States in the Ohio Edison NSR Cases, *United States, et al. v. Ohio Edison Co., et al.*, C2-99-1181 (Southern District of Ohio).

124. Trial Testimony (June 2003) on behalf of the United States in the Illinois Power NSR Case, *United States v. Illinois Power Co., et al.*, 99-833-MJR (Southern District of Illinois).

125. Deposition (10/20/2005) on behalf of the United States in connection with the Cinergy NSR Case. *United States, et* al. *v. Cinergy Corp., et al.*, IP 99-1693-C-M/S (Southern District of Indiana).

126. Oral Testimony (August 2006) on behalf of the Appalachian Center for the Economy and the Environment re. the Western Greenbrier plant, WV before the West Virginia DEP.

127. Oral Testimony (May 2007) on behalf of various Montana petitioners (Citizens Awareness Network (CAN), Women's Voices for the Earth (WVE) and the Clark Fork Coalition (CFC)) re. the Thompson River Cogeneration plant before the Montana Board of Environmental Review.

128. Oral Testimony (October 2007) on behalf of the Sierra Club re. the Sevier Power Plant before the Utah Air Quality Board.

129. Oral Testimony (August 2008) on behalf of the Sierra Club and Clean Water re. Big Stone Unit II before the South Dakota Board of Minerals and the Environment.

130. Oral Testimony (February 2009) on behalf of the Sierra Club and the Southern Environmental Law Center re. Santee Cooper Pee Dee units before the South Carolina Board of Health and Environmental Control.

131. Oral Testimony (February 2009) on behalf of the Sierra Club and the Environmental Integrity Project re. NRG Limestone Unit 3 before the Texas State Office of Administrative Hearings (SOAH) Administrative Law Judges.

132. Deposition (July 2009) on behalf of MTD Products, Inc., in the matter of *Alice Holmes and Vernon Holmes v. Home Depot USA, Inc., et al*.

133. Deposition (October 2009) on behalf of Environmental Defense and others, in the matter of challenges to the proposed Coleto Creek coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

134. Deposition (October 2009) on behalf of Environmental Defense, in the matter of permit challenges to the proposed Las Brisas coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

135. Deposition (October 2009) on behalf of the Sierra Club, in the matter of challenges to the proposed Medicine Bow Fuel and Power IGL plant in Cheyenne, Wyoming.

136. Deposition (October 2009) on behalf of Environmental Defense and others, in the matter of challenges to the proposed Tenaska coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH). (April 2010).

137. Oral Testimony (November 2009) on behalf of the Environmental Defense Fund re. the Las Brisas Energy Center before the Texas State Office of Administrative Hearings (SOAH) Administrative Law Judges.

138. Deposition (December 2009) on behalf of Environmental Defense and others, in the matter of challenges to the proposed White Stallion Energy Center coal fired power plant project at the Texas State Office of Administrative Hearings (SOAH).

139. Oral Testimony (February 2010) on behalf of the Environmental Defense Fund re. the White Stallion Energy Center before the Texas State Office of Administrative Hearings (SOAH) Administrative Law Judges.

140. Deposition (June 2010) on behalf of the United States in connection with the Alabama Power Company NSR Case. *United States v. Alabama Power Company*, CV-01-HS-152-S (Northern District of Alabama, Southern Division).

141. Trial Testimony (September 2010) on behalf of Commonwealth of Pennsylvania – Dept. of Environmental Protection, State of Connecticut, State of New York, State of Maryland, and State of New Jersey (Plaintiffs) in connection with the Allegheny Energy NSR Case in US District Court in the Western District of Pennsylvania. *Plaintiffs v. Allegheny Energy Inc., et al.*, 2:05cv0885 (Western District of Pennsylvania).

142. Oral Direct and Rebuttal Testimony (September 2010) on behalf of Fall-Line Alliance for a Clean Environment and others in the matter of the PSD Air Permit for Plant Washington issued by Georgia DNR at the Office of State Administrative Hearing, State of Georgia (OSAH-BNR-AQ-1031707-98-WALKER).

143. Oral Testimony (September 2010) on behalf of the State of New Mexico Environment Department in the matter of Proposed Regulation 20.2.350 NMAC – *Greenhouse Gas Cap and Trade Provisions,* No. EIB 10-04 (R), to the State of New Mexico, Environmental Improvement Board.

144. Oral Testimony (October 2010) on behalf of the Environmental Defense Fund re. the Las Brisas Energy Center before the Texas State Office of Administrative Hearings (SOAH) Administrative Law Judges.

145. Oral Testimony (November 2010) regarding BART for PSCo Hayden, CSU Martin Drake units before the Colorado Air Quality Commission on behalf of the Coalition of Environmental Organizations.

146. Oral Testimony (December 2010) regarding BART for TriState Craig Units, CSU Nixon Unit, and PRPA Rawhide Unit) before the Colorado Air Quality Commission on behalf of the Coalition of Environmental Organizations.

147. Deposition (December 2010) on behalf of the United States in connection with the Louisiana Generating NSR Case. *United States v. Louisiana Generating, LLC*, 09-CV100-RET-CN (Middle District of Louisiana).

148. Deposition (February 2011 and January 2012) on behalf of Wild Earth Guardians in the matter of opacity exceedances and monitor downtime at the Public Service Company of Colorado (Xcel)'s Cherokee power plant. No. 09-cv-1862 (D. Colo.).

149. Oral Testimony (February 2011) to the Georgia Office of State Administrative Hearings (OSAH) in the matter of Minor Source HAPs status for the proposed

Longleaf Energy Associates power plant (OSAH-BNR-AQ-1115157-60-HOWELLS) on behalf of the Friends of the Chattahoochee and the Sierra Club).

150. Deposition (August 2011) on behalf of the United States in *United States of America v. Cemex, Inc.*, Civil Action No. 09-cv-00019-MSK-MEH (District of Colorado).

151. Deposition (July 2011) and Oral Testimony at Hearing (February 2012) on behalf of the Plaintiffs MYTAPN in the matter of Microsoft-Yes, Toxic Air Pollution-No (MYTAPN) v. State of Washington, Department of Ecology and Microsoft Corporation Columbia Data Center to the Pollution Control Hearings Board, State of Washington, Matter No. PCHB No. 10-162.

152. Oral Testimony at Hearing (March 2012) on behalf of the United States in connection with the Louisiana Generating NSR Case. *United States v. Louisiana Generating, LLC*, 09-CV100-RET-CN (Middle District of Louisiana).

153. Oral Testimony at Hearing (April 2012) on behalf of the New Hampshire Sierra Club at the State of New Hampshire Public Utilities Commission, Docket No. 10-261 – the 2010 Least Cost Integrated Resource Plan (LCIRP) submitted by the Public Service Company of New Hampshire (re. Merrimack Station Units 1 and 2).

154. Oral Testimony at Hearing (November 2012) on behalf of Clean Wisconsin in the matter of Application of Wisconsin Public Service Corporation for Authority to Construct and Place in Operation a New Multi-Pollutant Control Technology System (ReACT) for Unit 3 of the Weston Generating Station, before the Public Service Commission of Wisconsin, Docket No. 6690-CE-197.

155. Deposition (March 2013) in the matter of various Environmental Petitioners v. North Carolina DENR/DAQ and Carolinas Cement Company, before the Office of Administrative Hearings, State of North Carolina.

156. Deposition (August 2013) on behalf of the Sierra Club in connection with the Luminant Big Brown Case. *Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC*, Civil Action No. 6:12-cv-00108-WSS (Western District of Texas, Waco Division).

157. Deposition (August 2013) on behalf of the Sierra Club in connection with the Luminant Martin Lake Case. *Sierra Club v. Energy Future Holdings Corporation and Luminant Generation Company LLC*, Civil Action No. 5:10-cv-0156-MHS-CMC (Eastern District of Texas, Texarkana Division).

158. Deposition (February 2014) on behalf of the United States in *United States of America v. Ameren Missouri*, Civil Action No. 4:11-cv-00077-RWS (Eastern District of Missouri, Eastern Division).

159. Trial Testimony (February 2014) in the matter of *Environment Texas Citizen Lobby, Inc and Sierra Club v. ExxonMobil Corporation et al.*, Civil Action No. 4:10-cv-4969 (Southern District of Texas, Houston Division).

160. Trial Testimony (February 2014) on behalf of the Sierra Club in connection with the Luminant Big Brown Case. *Sierra Club v. Energy Future Holdings*

Corporation and Luminant Generation Company LLC, Civil Action No. 6:12-cv-00108-WSS (Western District of Texas, Waco Division).

161. Deposition (June 2014) and Trial (August 2014) on behalf of ECM Biofilms in the matter of the *US Federal Trade Commission (FTC) v. ECM Biofilms* (FTC Docket #9358).

162. Deposition (February 2015) on behalf of Plaintiffs in the matter of *Sierra Club and Montana Environmental Information Center (Plaintiffs) v. PPL Montana LLC, Avista Corporation, Puget Sound Energy, Portland General Electric Company, Northwestern Corporation, and Pacificorp (Defendants)*, Civil Action No. CV 13-32-BLG-DLC-JCL (US District Court for the District of Montana, Billings Division).

163. Oral Testimony at Hearing (April 2015) on behalf of Niagara County, the Town of Lewiston, and the Villages of Lewiston and Youngstown in the matter of CWM Chemical Services, LLC New York State Department of Environmental Conservation (NYSDEC) Permit Application Nos.: 9-2934-00022/00225, 9-2934-00022/00231, 9-2934-00022/00232, and 9-2934-00022/00249 (pending).

164. Deposition (August 2015) on behalf of Plaintiff in the matter of *Conservation Law Foundation (Plaintiff) v. Broadrock Gas Services LLC, Rhode Island LFG GENCO LLC, and Rhode Island Resource Recovery Corporation (Defendants)*, Civil Action No. 1:13-cv-00777-M-PAS (US District Court for the District of Rhode Island).

165. Testimony at Hearing (August 2015) on behalf of the Sierra Club in the matter of *Amendments to 35 Illinois Administrative Code Parts 214, 217, and 225* before the Illinois Pollution Control Board, R15-21.

166. Deposition (May 2015) on behalf of Plaintiffs in the matter of *Northwest Environmental Defense Center et. al., (Plaintiffs) v. Cascade Kelly Holdings LLC, d/b/a Columbia Pacific Bio-Refinery, and Global Partners LP (Defendants)*, Civil Action No. 3:14-cv-01059-SI (US District Court for the District of Oregon, Portland Division).

167. Trial Testimony (October 2015) on behalf of Plaintiffs in the matter of *Northwest Environmental Defense Center et. al., (Plaintiffs) v. Cascade Kelly Holdings LLC, d/b/a Columbia Pacific Bio-Refinery, and Global Partners LP (Defendants)*, Civil Action No. 3:14-cv-01059-SI (US District Court for the District of Oregon, Portland Division).

168. Deposition (April 2016) on behalf of the Plaintiffs in *UNatural Resources Defense Council, Respiratory Health Association, and Sierra Club (Plaintiffs) v. Illinois Power Resources LLC and Illinois Power Resources Generation LLC (Defendants)*, Civil Action No. 1:13-cv-01181 (Central District of Illinois, Peoria Division).

169. Trial Testimony at Hearing (July 2016) in the matter of Tesoro Savage LLC Vancouver Energy Distribution Terminal, Case No. 15-001 before the State of Washington Energy Facility Site Evaluation Council.

170. Trial Testimony (December 2016) on behalf of the challengers in the matter of the Delaware Riverkeeper Network, Clean Air Council, et. al., vs. Commonwealth of Pennsylvania Department of Environmental Protection and R. E. Gas Development LLC regarding the Geyer well site before the Pennsylvania Environmental Hearing Board.

171. Trial Testimony (July-August 2016) on behalf of the United States in *United States of America v. Ameren Missouri*, Civil Action No. 4:11-cv-00077-RWS (Eastern District of Missouri, Eastern Division).

172. Trial Testimony (January 2017) on the Environmental Impacts Analysis associated with the Huntley and Huntley Poseidon Well Pad Hearing on behalf citizens in the matter of the special exception use Zoning Hearing Board of Penn Township, Westmoreland County, Pennsylvania.

173. Trial Testimony (January 2017) on the Environmental Impacts Analysis associated with the Apex energy Backus Well Pad Hearing on behalf citizens in the matter of the special exception use Zoning Hearing Board of Penn Township, Westmoreland County, Pennsylvania.

174. Trial Testimony (January 2017) on the Environmental Impacts Analysis associated with the Apex energy Drakulic Well Pad Hearing on behalf citizens in the matter of the special exception use Zoning Hearing Board of Penn Township, Westmoreland County, Pennsylvania.

175. Trial Testimony (January 2017) on the Environmental Impacts Analysis associated with the Apex energy Deutsch Well Pad Hearing on behalf citizens in the matter of the special exception use Zoning Hearing Board of Penn Township, Westmoreland County, Pennsylvania.

176. Deposition Testimony (July 2017) on behalf of Plaintiffs in the matter of *Casey Voight and Julie Voight v Coyote Creek Mining Company LLC (Defendant)* Civil Action No. 1:15-CV-00109 (US District Court for the District of North Dakota, Western Division).

177. Deposition Testimony (November 2017) on behalf of Defendant in the matter of *Oakland Bulk and Oversized Terminal (Plaintiff) v City of Oakland (Defendant,)* Civil Action No. 3:16-cv-07014-VC (US District Court for the Northern District of California, San Francisco Division).

178. Deposition Testimony (December 2017) on behalf of Plaintiff in the matter of *Wildearth Guardians (Plaintiff) v Colorado Springs Utility Board (Defendant)* Civil Action No. 1:15-cv-00357-CMA-CBS (US District Court for the District of Colorado).

179. Deposition Testimony (January 2018) in the matter of National Parks Conservation Association (NPCA) v. State of Washington Department of Ecology and British Petroleum (BP) before the Washington Pollution Control Hearing Board, Case No. 17-055.

180. Trial Testimony (January 2018) on behalf of Defendant in the matter of *Oakland Bulk and Oversized Terminal (Plaintiff) v City of Oakland (Defendant,)* Civil

Action No. 3:16-cv-07014-VC (US District Court for the Northern District of California, San Francisco Division).

181. Trial Testimony (April 2018) on behalf of the National Parks Conservation Association (NPCA) in the matter of NPCA v State of Washington, Department of Ecology and BP West Coast Products, LLC, PCHB No. 17-055 (Pollution Control Hearings Board for the State of Washington.

182. Deposition (June 2018) (harm Phase) on behalf of Plaintiffs in the matter of *Natural Resources Defense Council, Inc., Sierra Club, Inc., and Respiratory Health Association v. Illinois Power Resources LLC, and Illinois Power Resources Generating LLC (Defendants)*, Civil Action No. 1:13-cv-01181 (US District Court for the Central District of Illinois, Peoria Division).

183. Trial Testimony (July 2018) on behalf of Petitioners in the matter of *Coosa River Basin Initiative and Sierra Club (Petitioners) v State of Georgia Environmental Protection Division, Georgia Department of Natural Resources (Respondent) and Georgia Power Company (Intervenor/Respondent)*, Docket Nos: 1825406-BNR-WW-57-Howells and 1826761-BNR-WW-57-Howells, Office of State Administrative Hearings, State of Georgia.

184. Deposition (January 2019) and Trial Testimony (January 2019) on behalf of Sierra Club and Texas Campaign for the Environment (Appellants) in the contested case hearing before the Texas State Office of Administrative Hearings in Docket Nos. 582-18-4846, 582-18-4847 (Application of GCGV Asset Holding, LLC for Air Quality Permit Nos. 146425/PSDTX1518 and 146459/PSDTX1520 in San Patricio County, Texas).

185. Trial Testimony (March 2019) on behalf of Sierra Club in the State of Florida, Division of Administrative Hearings, Case No. 18-2124EPP, Tampa Electric Company Big Bend Unit 1 Modernization Project Power Plant Siting Application No. PA79-12-A2.

United States Steel Corporation – Midwest Plant
U. S. Highway 12
Portage, IN 46368

VIA ELECTRONIC SUBMITTAL

November 26, 2019

Mr. Nicholas Ream
Office of Water Quality
Indiana Department of Environmental Management (IDEM)
100 North Senate Avenue – Post Office Box 6015
Indianapolis, IN 46206

Subject: United States Steel Corporation – Midwest Plant
NPDES Permit IN0000337
Narrative Standard Non-Compliance at Outfall 004

Dear Mr. Ream:

This letter is the written five-day submission regarding non-compliance with the narrative standards at Outfall 004 at the U. S. Steel Corporation – Midwest Plant ("Midwest") which occurred on Thursday November 21, 2019. Outfall 004 is a permitted outfall to the Portage-Burns Waterway under NPDES Permit IN0000337 effective April 1, 2016. Outfall 004 sources includes the Final Treatment Plant (internal Outfall 104), the Chrome Treatment Plant (internal Outfall 204) as well as non-contact cooling water and stormwater runoff. The narrative standard non-compliance was found to be due to a process leak from #1 tank of the pickle line which passed through the treatment system. The incident did not contain, nor was it caused by, any form of chromium.

A discoloration was observed at Outfall 004 at approximately 8:45 am. Upon investigation, it was determined that the discoloration was due to solids and small amounts of sheen. The source of the discoloration was identified coming from the Final Treatment Plant through Outfall 104. The discoloration ceased at Outfall 004 by 10:30 am, while intermittent sheen and solids persisted until just after noon that same day.

Notifications were made to IDEM, the National Response Center (NRC), USEPA Region 5 Administrator, USEPA On Scene Coordinator, Indiana Dunes National Park, Indiana American Water, City of Portage, Ogden Dunes Fire Chief and Senator Karen Tallian.

During the event, a grab sample was collected from Outfall 004 and 104 and analyzed for all of the NPDES effluent limitation parameters at each location. Grab samples taken during the event show no indication of a compliance problem at the time of sampling. These grabs samples were in addition to the required NPDES 24-hour composite sample that is taken daily. The results of the composite samples collected on November 20th and 21st confirm that no NPDES permit

effluent limitations were exceeded. The non-compliance was only with the narrative standards.

At approximately 4:00 am on November 21st the conductivity probe in the trench/sump alarmed and notified operations of the process leak. Management went to investigate the alarm and found a process leak at the #1 tank at the pickle line. An isolation valve was leaking and filled an uncapped strainer which resulted in the process leak. Once the source was identified, actions to stop the leak were immediately initiated. It took approximately 40 minutes from the time of the alarm until the leak was stopped. The Final Treatment Operator was notified of the event.

The investigation after the discovery of the narrative standard non-compliance identified the above-mentioned process leak as the source of the discoloration and sheen. The process leak resulted in larger flows and iron loading to the final treatment plant. After being notified of the process leak, the Final Treatment Plant operator adjusted chemical feed rates and operation of the Final Treatment Plant to best treat the increased loading. Due to the west treatment train being down for routine preventative maintenance, all flow had been directed through the eastern settling basin which reduced the typical retention time for settling. There was also a significant rain event just prior to the incident that also contributed to additional flows through the treatment plant.

Corrective actions include the following:

- Review isolation procedures
- Review current alarms and response procedures
- Contact employees on incident

If you have any questions about this matter, please call me at (313) 749-3900 or email me at APiscitelli@uss.com.

Sincerely,

Alexis Piscitelli
Director – Environmental Compliance
United States Steel Corporation
Great Lakes Works, Midwest Plant

cc: David Greinke, IDEM
Tom Martin, EPA
Tim Sullivan, U. S. Steel
Eric Williams, U. S. Steel
Nicole Benoit, P.E., U. S. Steel
David Shelton, U. S. Steel

United States Steel Corporation – Midwest Plant
U. S. Highway 12
Portage, IN 46368

VIA ELECTRONIC SUBMITTAL

December 3, 2018

David Greinke
Office of Water Quality
Indiana Department of Environmental Management (IDEM)
100 North Senate Avenue – Post Office Box 6015
Indianapolis, IN 46206

Subject: United States Steel Corporation Gary Works – Midwest Plant
NPDES Permit IN0000337
Foaming at Outfall 004

Dear Mr. Greinke:

This letter is the written five-day submission regarding foaming at Outfall 004 at the U. S. Steel Corporation – Midwest Plant ("Midwest") which occurred on November 28, 2018. Outfall 004 is a permitted outfall to the Portage-Burns Waterway under NPDES Permit IN0000337 effective April 1, 2016. Outfall 004 sources includes the Final Treatment Plant (internal Outfall 104) and the Chrome Treatment Plant (internal Outfall 204). As described below, the foam was found to be due to insufficient defoamer addition, and was not attributed to any pollutant regulated under the NPDES permit, including chromium.

On November 28, 2018 IDEM visited the Midwest facility outfalls in response to a public report of a "white discharge" to Burns Waterway from the facility, which was submitted to IDEM on that same day. David Greinke, IDEM Emergency Response, contacted Midwest regarding the report at approximately 1:37 p.m. and arrived at the facility at approximately 1:45 p.m. Mr. Greinke and a Midwest Environmental Manager observed Outfall 004 and saw evidence of foam extending approximately 40 yards into the Burns Waterway before dissipating. Midwest Environmental attempted to collect a grab sample of the foam, but by the time personnel were able to access the waterway for sampling, the foam was no longer present in the receiving stream. A grab sample was collected at Outfall 004 and analyzed for surfactants by a third-party laboratory. The result of the analysis is attached.

The effluent discharge channel of the Final Treatment Plant (internal Outfall 104) was observed with no visible indication of foaming. A 24-hour composite sample and a grab sample were collected and expedited for analysis by Midwest's contracted third-party laboratory. Both results were found to be non-detect for hexavalent chromium and well below permit limits for all other constituents.

U. S. Steel made notification to the National Response Center as is required in the current draft of the Operations and Maintenance Plan Appendix B This notification was made at approximately 4:15pm, and complied with both permit requirements and the current Operations and Maintenance Manual Notification List. IDEM was already made aware through the phone call and site visit.

On November 29, 2018 David Greinke, Nick Ream (IDEM NPDES inspector), and Rick Massoels (IDEM Deputy Director) visited Midwest again as a follow up. There was no foaming observed at Outfall 004. U. S. Steel made several observations of Outfall 004 throughout the day on November 29th, and on subsequent days as well, and has not observed any more foaming.

Upon completion of the initial observation and sampling efforts on November 28th, U. S. Steel began an investigation into the cause of the Outfall 004 foam, and continues to evaluate the potential interactions between the Outfall 004 and Burns Waterway. The Chrome Treatment Plant was found to be operating normally. Internal process monitoring indicated no issues or elevated chromium levels. The Final Treatment Plant was operating normally.

If you have any questions about this matter, please call me at (313) 749-3900 or email me at APiscitelli@uss.com.

Sincerely,

Alexis Piscitelli
Director – Environmental Compliance
United States Steel Corporation
Great Lakes Works, Midwest Plant

cc: Nicholas Ream, IDEM
Tim Sullivan, U. S. Steel
Eric Williams, U. S. Steel
Nicole Benoit, P.E., U. S. Steel

2 / 2

United States Steel Corporation – Midwest Plant
U. S. Highway 12
Portage, IN 46368

VIA ELECTRONIC SUBMITTAL

May 14, 2019

Mr. Nicholas Ream
Office of Water Quality
Indiana Department of Environmental Management (IDEM)
100 North Senate Avenue – Post Office Box 6015
Indianapolis, IN 46206

Subject: United States Steel Corporation – Midwest Plant
NPDES Permit IN0000337
Discoloration at Outfall 004

Dear Mr. Ream:

This letter is the written five-day submission regarding discoloration at Outfall 004 at the U. S. Steel Corporation – Midwest Plant ("Midwest") which occurred on Thursday May 9, 2019. Outfall 004 is a permitted outfall to the Portage-Burns Waterway under NPDES Permit IN0000337 effective April 1, 2016. Outfall 004 sources includes the Final Treatment Plant (internal Outfall 104), the Chrome Treatment Plant (internal Outfall 204) as well as non-contact cooling water and stormwater runoff. As described below, the discoloration was found to be due to increased suspended solids that discharged via the Final Treatment Plant. The discoloration did not contain, nor was it caused by, any form of chromium.

A U. S. Steel wastewater treatment operator (operator) observed a turbid discoloration at the influent to Final Treatment at approximately 7:45 am on May 9, 2019. U. S. Steel operations management was immediately notified of the conditions. At approximately 8:50 am management began to notice suspended solids discharging from Final Treatment. At approximately 9:07 am, Midwest Environmental (Environmental) was notified to inspect and confirm the outfall appearance. Environmental called Nick Ream (Industrial Wastewater Inspector) from IDEM at 9:40 am to report a discoloration of the treatment plant effluent, then notified the National Response Center at approximately 10:09 am. The calls to both the National Response Center (NRC) and the Indiana Department of Environmental Management (IDEM) were per the current draft of the Operations and Maintenance Plan Appendix B for a non-compliance with the narrative standards of the NPDES permit. In addition to the oral notifications to IDEM and the NRC, U. S. Steel supplied a press release to notify the general public of the incident.

Nick Ream and Dave Greinke (Emergency Responder), from IDEM, arrived on site at approximately 10:30 am on May 9, 2019 and visually observed the area. A boom was deployed

around the Outfall 004 discharge in Burns Waterway. The boom remained in place until it was removed on May 13, 2019. The discoloration ceased by approximately 12:30pm on May 9th. IDEM personnel who had left returned at approximately 1:30 pm to observe the outfall again later that day.

U. S. Steel personnel began an investigation immediately upon discovery of the issue. The Final Treatment Plant's western settling basin was out of service for regularly scheduled cleaning and maintenance. All Final Treatment Plant flow was directed through the eastern settling basin which reduces the typical retention time for settling. During normal mill operating conditions, the reduced retention time is sufficient, however temporary changes in the mill operations can result in a further reduced margin of capacity when a basin is out of service.

During the investigation U. S. Steel discovered that a leak had originated from the non-chromium plating section of the Tin Line earlier in the day. A roll seal leaked cleaning solution into a sump below the line that is designed to discharge to the Final Treatment Plant. The leak was discovered after a conductivity alarm was triggered in the sump. The line was shutdown and the seal was repaired. The line was returned to operation; however, the conductivity alarm was triggered again. U. S. Steel shut the Tin Line down again along with the line's associated sump pumps. Final Treat was allowed to return to normal operating conditions, and the sumps were pumped down in a controlled manner later throughout the day to provide the solids sufficient settling time based on loading. The Tin Line was returned to operation at approximately 7:00pm on May 9th.

On May 9th Nick Ream of IDEM requested via email that U. S. Steel perform additional sampling and analysis of requested parameters at Outfalls 004, 104 and 204 using a third-party laboratory. The monitored parameters at Outfall 104 and 204 are added together for an effective discharge to Burns Waterway via Outfall 304. U. S. Steel is waiting on the laboratory's analysis completion, but data collected on May 9th via grab sampling and/or composite sampling, were within normal discharge range and were below effluent limits in compliance with the NPDES permit requirements. Chloride and mercury results are still pending from May 9th. Hexavalent chromium was non-detect as expected. Therefore, there was no exceedance of effluent limitations and only a non-compliance with the narrative standards. U. S. Steel will submit the analysis data in a follow up letter once all data has been received.

U. S. Steel continues to emphasize the importance of reacting to any alarms and implementing corrective actions with Midwest's operations management team, particularly during times of wastewater treatment plant maintenance. If you have any questions about this matter, please call me at (313) 749-3900 or email me at APiscitelli@uss.com.

Sincerely,

Alexis Piscitelli
Director – Environmental Compliance
United States Steel Corporation
Great Lakes Works, Midwest Plant

cc: David Greinke, IDEM
Tom Martin, EPA
Tim Sullivan, U. S. Steel
Eric Williams, U. S. Steel
Nicole Benoit, P.E., U. S. Steel
David Shelton, U. S. Steel

United States Steel Corporation – Midwest Plant
U. S. Highway 12
Portage, IN 46368

VIA ELECTRONIC SUBMITTAL

September 11, 2019

Mr. John Lankowicz
Office of Water Quality
Indiana Department of Environmental Management (IDEM)
100 North Senate Avenue – Post Office Box 6015
Indianapolis, IN 46206

Subject: United States Steel Corporation – Midwest Plant
NPDES Permit IN0000337
Sheen at Outfall 004 (Narrative Water Quality Standard)

Dear Mr. Lankowicz:

This letter provides further information regarding a sheen at Outfall 004 at the U. S. Steel Corporation – Midwest Plant ("Midwest") which occurred on Friday, September 6, 2019. Outfall 004 is a permitted outfall to the Portage-Burns Waterway under NPDES Permit IN0000337 effective April 1, 2016. Outfall 004 sources include the Final Treatment Plant (internal Outfall 104), the Chrome Treatment Plant (internal Outfall 204) as well as non-contact cooling water and stormwater runoff. As described below, the sheen is believed to be due to coating oil from the pickling line discharged via the Final Treatment Plant. The sheen did not contain, nor was it caused by, any form of chromium.

A U. S. Steel personnel observed an intermittent sheen at Outfall 004 at approximately 11:45am on September 6th and immediately reported it to the Environmental Department. Once confirmed at approximately 12:10pm, notifications were made to Mr. Dave Greinke of IDEM at approximately 12:20pm. In accordance with the NPDES permit and Appendix B of the draft Consent Decree, notifications were also made to the National Response Center (NRC), IDEM Emergency Response Center and the National Parks Service. At approximately 1:50pm, Mr. John Lankowicz from IDEM arrived at the Midwest facility. Environmental escorted Mr. Lankowicz to Outfall 004 for observation. At approximately 7:00pm, the sheen was no longer present at the outfall.

A grab sample was collected from the discharges of Outfalls 004 and 104 during the event and sent to a third-party laboratory for analysis. The results of the grab samples were received on September 8, 2019 and were submitted via email to Mr. John Lankowicz (IDEM). All of the results, including oil and grease, were below U. S. Steel's NPDES discharge limitations.

U. S. Steel personnel began to investigate immediately upon discovery of the issue on September

6th. It was found that a larger quantity of coating oil was released from the pickle line that day and sent to the Final Treat plant. Both treatment trains of the Final Treatment Plant were in operation and all NPDES limits were met, however small amounts of sheen carried over to Outfall 004 and violated the narrative water quality standards.

As a corrective action, U. S. Steel is evaluating feasibility of improved methods for monitoring the coating oil inventory. U. S. Steel is also reviewing the water treatment chemistry at the Final Treatment Plant. If you have any questions about this matter, please call me at (313) 749-3900 or email me at APiscitelli@uss.com.

Sincerely,

Alexis Piscitelli
Director – Environmental Compliance
United States Steel Corporation
Great Lakes Works, Midwest Plant

cc: David Greinke, IDEM
Nick Ream, IDEM
Tom Martin, EPA
Tim Sullivan, U. S. Steel
Eric Williams, U. S. Steel
Nicole Benoit, P.E., U. S. Steel
David Shelton, U. S. Steel
Mark Mustian, U. S. Steel

United States Steel Corporation – Midwest Plant
U. S. Highway 12
Portage, IN 46368

VIA ELECTRONIC SUBMITTAL

September 12, 2019

Mr. Nicholas Ream
Office of Water Quality
Indiana Department of Environmental Management (IDEM)
100 North Senate Avenue – Post Office Box 6015
Indianapolis, IN 46206

Subject: United States Steel Corporation – Midwest Plant
NPDES Permit IN0000337
Copper Exceedance at Outfall 004 (5 Day Letter)

Dear Mr. Ream:

This letter is the written five-day submission regarding a daily maximum exceedance of copper at Outfall 004 at the U. S. Steel Corporation – Midwest Plant ("Midwest") which was confirmed on Saturday, September 7, 2019. Outfall 004 is a permitted outfall to the Portage-Burns Waterway under NPDES Permit IN0000337 effective April 1, 2016. Outfall 004 sources includes the Final Treatment Plant (internal Outfall 104), the Chrome Treatment Plant (internal Outfall 204) as well as non-contact cooling water and stormwater runoff. As described below, the NPDES discharge effluent limitation for copper was exceeded at Outfall 004 in a routine NPDES composite sample collected on August 29, 2019 and reported to U. S. Steel by our third-party laboratory on September 7, 2019. U. S. Steel notified IDEM of the exceedance in accordance with Part II Section C.3.d of the NPDES permit. This letter serves as the required written submission due within 5 days of becoming aware of the exceedance. No other analyzed parameters, including any form of chromium, were elevated.

The Outfall 004 discharge is monitored for copper twice monthly as per the NPDES permit. Per a recent request from IDEM, analysis for NPDES discharge limitation parameters has been conducted daily since August 22nd.

On August 29th the concentration for copper at Outfall 004 was 0.077 mg/L and the loading was 8.8 lbs/day. These values exceed the daily maximum limits of 0.052 mg/L and 8.2 lbs/day. Except for the daily exceedance of copper for concentration and loading on August 29th, all other NPDES discharge limitations have been in compliance for the month of August and those received to date for the month of September.

U. S. Steel personnel began to investigate immediately upon confirmation of the issue on September 7th. U. S. Steel reviewed all daily samples from Outfalls 004, 104 and 204. It was

noted that there is variability in the copper concentration at Outfall 004 and that some days had a more elevated concentration, although still within permitted limits. The Outfall 104 and 204 copper concentrations were relatively lower and less variable. It is believed that the source of copper is not from the Final Treatment Plant or the Chrome Treatment Plant or any source upstream of the treatment plants.

As of the date of this letter, U. S. Steel has not been able to identify a source that correlates with the timing of the elevated copper levels, based on a review of the operator logs and discussions with personnel. There were no spills or releases identified at the facility leading up to this event. U. S. Steel will sample internal points upstream of the Outfalls in an attempt to identify a possible source. Outside of treated wastewater, the outfall receives stormwater drainage and non-contact cooling water.

If you have any questions about this matter, please call me at (313) 749-3900 or email me at APiscitelli@uss.com.

Sincerely,

Alexis Piscitelli
Director – Environmental Compliance
United States Steel Corporation
Great Lakes Works, Midwest Plant

cc: David Greinke, IDEM
Tom Martin, EPA
Tim Sullivan, U. S. Steel
Eric Williams, U. S. Steel
Nicole Benoit, P.E., U. S. Steel
David Shelton, U. S. Steel

United States Steel Corporation – Midwest Plant
U. S. Highway 12
Portage, IN 46368

VIA ELECTRONIC SUBMITTAL

October 21, 2019

Mr. Nicholas Ream
Office of Water Quality
Indiana Department of Environmental Management (IDEM)
100 North Senate Avenue – Post Office Box 6015
Indianapolis, IN 46206

Subject: United States Steel Corporation – Midwest Plant
NPDES Permit IN0000337
Copper Exceedance at Outfall 004 (5 Day Letter)

Dear Mr. Ream:

This letter is the written five-day submission regarding a daily maximum exceedance of copper at Outfall 004 at the U. S. Steel Corporation – Midwest Plant ("Midwest") which was reported on Wednesday, October 16, 2019. Outfall 004 is a permitted outfall to the Portage-Burns Waterway under NPDES Permit IN0000337 effective April 1, 2016. Outfall 004 sources includes the Final Treatment Plant (internal Outfall 104), the Chrome Treatment Plant (internal Outfall 204) as well as non-contact cooling water and stormwater runoff. As described below, the NPDES discharge effluent limitation for copper was exceeded at Outfall 004 in a NPDES composite sample collected on October 13, 2019. It was subsequently analyzed and reported to U. S. Steel by our third-party laboratory on October 16, 2019. U. S. Steel notified IDEM of the exceedance in accordance with Part II Section C.3.d of the NPDES permit. This letter serves as the required written submission due within 5 days of becoming aware of the exceedance. No other analyzed parameters, including any form of chromium, were elevated.

The Outfall 004 discharge is monitored for copper twice monthly as per the NPDES permit. Per a recent request from IDEM, analysis for NPDES discharge limitation parameters has been conducted daily since August 22, 2019. On October 13th the concentration for copper at Outfall 004 was 0.053 mg/L and the loading was 4.99 lbs/day. The concentration exceeded the daily maximum limits of 0.052 mg/L (by less than 2%), however the mass loading was less than the daily maximum limit of 8.2 lbs/day. Except for the daily exceedance of copper concentration on October 13th, Outfall 004 discharge has complied with the NPDES discharge limitations for the month of September and results received to date in October.

Following a previous copper exceedance on August 29th, U. S. Steel enacted upstream sampling to identify the source that correlated with the timing of the elevated copper levels. These

upstream locations are the water intake and two manholes in the sewer network leading to Outfall 004. The one other branch leading to Outfall 004 is the Outfall 104 (Final Treatment Plant) which has also recently been sampled daily. On October 13th, the concentration of copper at the various locations was as follows:

Location	Copper Concentration
Outfall 004	0.053 mg/L
Intake	0.015 mg/L
Outfall 104	0.008 mg/L
Manhole MH-D10	0.009 mg/L
Manhole MH-D12 (conveys Outfall 204)	0.011 mg/L

Outfall 104 is the largest contributor of flow to Outfall 004 and was approximately 90% of the flow on October 13th. As of the date of this letter, U. S. Steel has not been able to identify a correlation between elevated copper at Outfall 004 and elevated copper at an upstream location. There are no other sources to Outfall 004 outside of those listed in the table above. It is noted that the intake contained the highest concentration of copper and is a background concentration prior to any source from the Midwest Plant. The intake sample for the NPDES permit renewal in 2011 had a copper concentration of 0.0011 mg/L, about one-tenth of that present on October 13th. Without this background loading contribution, U. S. Steel's Outfall 004 discharge concentration would have been less than the effluent limitation.

There were no spills or releases identified at the facility leading up to or on October 13th, nor August 29th. U. S. Steel will continue to sample internal points upstream of the Outfalls to attempt to identify a possible source. U. S. Steel will also further investigate the potential presence of biological growth or another factor that may be causing the elevated copper in the final conveyance channel of the outfall.

If you have any questions about this matter, please call me at (313) 749-3900 or email me at APiscitelli@uss.com.

Sincerely,

Alexis Piscitelli
Director – Environmental Compliance
United States Steel Corporation
Great Lakes Works, Midwest Plant

cc: David Greinke, IDEM
Tom Martin, EPA
Tim Sullivan, U. S. Steel
Eric Williams, U. S. Steel
Nicole Benoit, P.E., U. S. Steel
David Shelton, U. S. Steel

2 / 2

Indiana Department of Environmental Management
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

October 02, 2018

Via Email to: tlsullivan@uss.com
Mr. Tim Sullivan, Compliance Manager
US Steel, Midwest Plant
6300 US Highway 12
Portage, Indiana 46368

Dear Mr. Sullivan:

Re: Inspection Summary Letter
US Steel Midwest
NPDES Permit No. IN0000337
Portage, Porter County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Northwest Regional Office, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection: September 13, 2018

Type of Inspection: Compliance Evaluation Inspection

Inspection Results: Potential problems were discovered or observed.

The Effluent Limits Compliance area was rated marginal due to a self-reported violation of the limits detailed in Part I. A. of the NPDES Permit. Review of DMRs revealed one total chromium daily maximum loading exceedance in October 2017. This was cited in the November 16 and November 17, 2017 inspection report.

A copy of the NPDES Industrial Facility Inspection Report is enclosed for your records. Please direct any response to this letter and any questions to Nicholas Ream at 219-730-1691 or by email to nream@idem.IN.gov.

Sincerely,

Rick Massoels, Deputy Director
Northwest Regional Office

Enclosure

NPDES Industrial Facility Inspection Report
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number:	Facility Type:		Facility Classification:	TEMPO AI ID
IN0000337	Industrial	Major	D	14435

Date(s) of Inspection: September 13, 2018

Type of Inspection: Compliance Evaluation Inspection

Name and Location of Facility Inspected:			Receiving Waters/POTW:	Permit Expiration Date:
US Steel Midwest 6300 US Highway 12 Portage	IN 46368	County: Porter	Portage-Burns Waterway to Lake Michigan	3/31/2021 Design Flow: NA

On Site Representative(s):

First Name	Last Name	Title	Email	Phone
Tim	Sullivan	Compliance Manager	tlsullivan@uss.com	219-763-5022
Mark	Henry	Operator	mhenry@uss.com	

Was a verbal summary of the inspection given to the on-site rep? **Yes**

Certified Operator:	Number:	Class:	Effective Date:	Expiration Date:	Email:
Mark Henry	20376	D	7-1-18	6-30-20	mhenry@uss.com

Responsible Official:			
Mr. Tim Sullivan, Compliance Manager 6300 US Highway 12 Portage, Indiana 46368	Permittee: US Steel, Midwest Plant Email: tlsullivan@uss.com Phone: 219-763-5022 Fax:		Contacted? Yes

INSPECTION FINDINGS

- ○ Conditions evaluated were found to be satisfactory at the time of the inspection. (5)
- ○ Violations were discovered but corrected during the inspection. (4)
- ◉ Potential problems were discovered or observed. (3)
- ○ Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2)
- ○ Violations were discovered and may subject you to an appropriate enforcement response. (1)

AREAS EVALUATED DURING INSPECTION

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated

S	Receiving Waters	S	Facility/Site	S	Self-Monitoring	S	Compliance Schedules
S	Effluent/Discharge	S	Operation	S	Flow Measurement		
S	Permit	S	Maintenance	S	Laboratory	M	Effluent Limits Compliance
		S	Sludge	S	Records/Reports	N	Other:

DETAILED AREA EVALUATIONS

While this inspection report will make references to operational problems and a total chromium exceedance for October 2017, these problems were cited in an inspection report from November 16 and November 17, 2017. Please refer to this inspection report for more information. The facility will not be cited again for the same instance in this report.

Receiving Waters:

S 1. The receiving stream was visibly free of excessive deposits of settled solids, floating debris, oil, scum, or billowy foam.

Comments:
The receiving stream was free of notable foam, algae or solids.

Effluent/Discharge:

S 1. Treated effluent was essentially free of excessive solids, floating debris, oil, scum, or billowy foam.

N 2. Pretreatment discharge into sanitary sewers appeared free of excessive oils, grease, solids, or foam and did not appear to be in violation of the local Sewer Use Ordinance.

N 3. Pretreatment discharge into sanitary sewers did not contain materials that pass through or interfere with the operation of the POTW.

Evaluation of Multiple Outfalls:

Outfall #	Insp. Date	Outfall Inspection Comments

002		The effluent was clear and odorless at the time of the inspection.
003		The effluent was clear and odorless at the time of the inspection.
004		The effluent was clear and odorless at the time of the inspection.
104		The effluent was clear and odorless at the time of the inspection.
204		The effluent was clear and odorless at the time of the inspection.

Comments:
The effluent was clear and free of color at the time of the inspection.

Permit:

S 1. Did the facility have a copy of the current permit available for reference.
N 2. If the permit expires within 180 days, has a renewal application been submitted?
S 3. Receiving waters are accurately described in the permit.
N 4. The permit has been properly transferred if there is a new owner.

Comments:
The facility has a valid permit.

Facility/Site:

S 1. The facility was found to have standby power or equivalent provision, If required.
S 2. An adequate alarm or notification system for power or equipment failure was available for the treatment facility.
S 3. Safe and adequate access was provided for inspection of all treatment units and outfalls.
S 4. Facilities and equipment did not appear beyond their useful life.
5. List any safety concerns noted during the inspection in the box below:

Comments:
The facility grounds are well maintained.

Operation:

S 1. All facilities and systems necessary for achieving compliance with the terms and conditions of the permit were operated efficiently, including an anticipated bypass report for steps of treatment taken out of service.
S 2. An adequate, qualified operating staff was found to be provided to carry out the operation of the facility, including:
   a. Certified Operator's on-site attendance and/or qualified operations personnel attendance was adequate.
   b. Adequate documentation of operational activities, including system monitoring and cleaning.
   c. Adequate funding to ensure proper operation.
S 3. Solids handling procedures were adequate.
S 4. Documentation of solids removal, handling, and disposal was adequate.

Comments:
All units of treatment appeared to be operating efficiently.

Please refer to the November 16 and November 17, 2017 inspection report for operational problems cited in October 2017.

In response to the October 2017 operational violation and total chromium exceedance, the facility has made improvements to operations in the Chrome Treatment Plant including extending the walkway around the lamella clarifiers to assist in observation and maintenance, turbidity meter installation for each channel of the lamella clarifier, and overhead cameras to remotely view the operations.

Maintenance:

S 1. A maintenance record system has been established and includes maintenance/repair history and preventative maintenance plan.
S 2. Facility maintenance activities appeared adequate.

Comments:
Facility maintenance activities appeared adequate.

Sludge:

S 1. Sludges, screenings, and slurries were found to be handled and disposed of properly.

Comments:
A records review during the inspection showed adequate wasting, handling, and disposal of sludge. Chrome treatment plant sludge records for June 2018 indicated that Envirite of Illinois removes the sludge from that process. Sludge generated from other wastewater streams are, as indicated by the July 2018 records, disposed in an on-site landfill.

Self-Monitoring:

S 1. Samples were found to be taken at pre-designated locations and were found to be representative.
S 2. Flow-proportioned samples were found to be obtained where needed.
S 3. The facility was found to conduct sampling of all waste streams, including type and frequency, as required in the permit.
S 4. Sample collection procedures, including automatic sampling, include:
a. Samples refrigerated during compositing.
b. Proper preservation techniques used.
c. Containers and holding times conform to 40 CFR 136.3.
S 5. Sample documentation was adequate and includes:
a. Dates, times, and locations of sampling.
b. Name of individual performing sampling.
c. Instantaneous flow for flow-weighted aliquots.
d. Chain of Custody records.
N 6. NPDES Permit Total Toxic Organic (TTO) requirements were being met.
S 7. NPDES Permit Whole Effluent Toxicity (WET) testing requirements were being met.

Comments:
The Self Monitoring Program was rated as satisfactory. All sampling practices are conducted accurately and at the frequency required by the permit.

Accelerated sampling and analysis is being conducted and reported for hexavalent chromium on a daily basis in response to chromium incidents in 2017.

Flow Measurement:
S 1. Flow was found to be properly monitored as required by the permit.
S 2. Flow data and calibration records were available for review.

Comments:
The facility's flow measurement program, including all documentation, is adequate and representative.

Laboratory:
The following laboratory records were reviewed:
Contract Lab Reports

N 1. The laboratory practices and protocol reviewed were adequate, including:
a. A written laboratory QA/QC manual was available.
b. Samples were found to be properly stored.
c. Approved analytical methods were used.
d. Calibration and maintenance of instruments was adequate.
e. QA/QC procedures were adequate.
f. Dates of analyses (and times, where required) were recorded.
g. Name of person performing analyses was recorded.

S 2. Review of lab records and/or on-site field testing equipment and protocols was found to be adequate.

Contract Lab Information	
ALS	Holland, MI

Comments:
The bench sheets reviewed during the inspection, specifically for July 2018, appeared to be accurate and complete.

Records/Reports:
The following records/reports were reviewed:
DMRs for the period of August 2017 to July 2018 were reviewed as part of the inspection.
S 1. All facility records for the period including the previous three years were available for review.
S 2. DMRs and MMRs were completed properly and accurately including:
a. "No Ex" column was accurate.
b. Signatory requirements were met.
c. Reports were prepared by or under the direction of a certified operator.
S 3. Bypass and Noncompliance reporting are adequate.

Comments:
The requested records were available and appeared complete and accurate.

Compliance Schedules:

S 1. The NPDES Permit Schedule of Compliance monitoring and reporting milestones have been met.

N 2. Agreed Order compliance milestones have been met.

Comments:

The facility is on schedule with all requirements of the Schedule of Compliance in the permit. In a letter from US Steel - Midwest, dated March 31, 2017, the nickel and lead limits for Outfall 004 were accepted by the permittee and are now fully implemented.

Effluent Limits Compliance:

Yes 1. Were DMRs reviewed as part of the inspection?

DMRs for the period of August 2017 to July 2018 were reviewed as part of the inspection.

Yes 2. Were violations noted during the review of DMRs?

Comments:

The Effluent Limits Compliance area was rated **marginal** due to a self-reported violation of the limits detailed in Part I. A. of the NPDES Permit. Review of DMRs revealed **one** total chromium daily maximum loading exceedance in October 2017. This was cited in the November 16 and November 17, 2017 inspection report. Please refer to that report for more information.

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Nicholas Ream	nream@idem.IN.gov	219-730-1691

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Rick Massoels	9/17/2018

Inspection Photographs

Facility: **US Steel Midwest**
Photographer: Nicholas Ream
Date: 09/13/2018 Time: 11:30 AM
Others Present: Tim Sullivan and Mark Henry
Location/Description: Southwest view of Outfall 004 into the Burns Waterway.

Facility: **US Steel Midwest**
Photographer: Nicholas Ream
Date: 09/13/2018 Time: 11:50 AM
Others Present: Tim Sullivan and Mark Henry
Location/Description: West view of the turbidity meters on the west train lamella clarifier. The extended observation area is visible on the right side of the photo.

Facility: **US Steel Midwest**
Photographer: Nicholas Ream
Date: 09/13/2018 Time: 11:50 AM
Others Present: Tim Sullivan and Mark Henry
Location/Description: East view of the turbidity meters on the west train lamella clarifier. The extended observation area is visible on the left side of the photo.

Facility:
US Steel Midwest
Photographer:
Nicholas Ream
Date: 09/13/2018 Time: 12:15 PM
Others Present:
Tim Sullivan and Mark Henry
Location/Description:
West view of the effluent from Outfall 003 into the Burns Waterway.

Facility:
US Steel Midwest
Photographer:
Nicholas Ream
Date: 09/13/2018 Time: 12:15 PM
Others Present:
Tim Sullivan and Mark Henry
Location/Description:
West view of the effluent from Outfall 002 into the Burns Waterway.

Indiana Department of Environmental Management
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

December 12, 2018

Via Email to: tlsullivan@uss.com
Mr. Tim Sullivan, Compliance Manager
US Steel, Midwest Plant
6300 US Highway 12
Portage, Indiana 46368

Dear Mr. Sullivan:

Re: **Inspection Summary/ Noncompliance Letter**
US Steel Midwest
NPDES Permit No. IN0000337
Portage, Porter County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Northwest Regional Office, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection: November 29, 2018 , December 03, 2018
Type of Inspection: Complaint Investigation
Inspection Results: Violations were observed.

The following concerns were noted:

1. An anonymous complaint was made to the IDEM Spill Line on November 28, 2018 alleging US Steel Midwest was discharging foam and scum. The complaint was sent to Dave Greinke with IDEM Spill Response section at approximately 12:30 pm Central Time.

   Upon approaching US Steel Midwest on November 28, 2018, at approximately 12:35 pm Central Time, Mr. Greinke, observed and photographed minor foaming from Outfall 003 and excessive foaming from Outfall 004, which extended into the receiving water, Burns Waterway. The photos are attached to the inspection report.

   Upon arrival at US Midwest on November 28, 2018, shortly after 12:35 pm, Mr. Greinke made contact with US Steel Midwest environmental representative, Mr. Tim Sullivan. Mr. Greinke, escorted by Mr. Sullivan, proceeded to Outfall 004. Mr. Greinke advised Mr. Sullivan to grab a sample of the Outfall 004 discharge, which he did, in Mr. Greinke's presence. Within approximately 5 minutes of Mr. Greinke's entry to the US Steel Midwest facility, the foaming from Outfall 004 ceased.

Subsequent to Mr. Greinke's arrival, US Steel Midwest filed an NRC report 1231542 regarding the incident.

On the morning of November 29, 2018, Mr. Greinke, Wastewater Inspector Nick Mr. Ream and I went to the US Steel Midwest site. This group observed Outfalls 002, 003, and 004. No foaming issues were observed at the time. We spoke to Mr. Sullivan, who stated that grab sample taken on November 28, 2018 had not yet been analyzed. Mr. Sullivan also stated that personnel were still investigating the cause of the foam. One of the potential causes being investigated was the utilization of a defoaming agent, Chemtreat FO120, which is authorized in the NPDES permit for use for Outfall 004.

On the afternoon of November 29, 2018, US Steel attempted to recreate the conditions leading to the observance of foam in the discharge, as part of its effort to determine the source. US Steel informed IDEM of these trials on the morning of November 30, 2018. In the meantime, IDEM was separately advised by the NPS that NPS personnel observed an intermittent discharge of foam from US Steel Midwest's Outfall 004 the afternoon of November 29.

On December 3, 2018, Mr. Dave Greinke and I again visited US Steel Midwest. We observed Outfalls 002, 003, and 004. No foaming issues were observed at the time. While on-site, Mr. Sullivan provided us with the analytical results of the grab sample taken at Outfall 004 in Mr. Greinke's presence. The results are set forth in the attached document, entitled US Steel Foaming Response Report. The sample was analyzed for Surfactants and Oil & Grease. The surfactant result was below the detection limit. The Oil & Grease result was 2.5 mg/L. Outfall 004 does not have a limit for oil and grease, but the result of 2.5 mg/L is consistent with general operational range for the outfall. Additionally, while on-site, we reviewed the available results for November 2018 of the routine NPDES permit monitoring for Outfall 304, which is the mathematical summation of Outfalls 104 and 204. Subsequent to leaving the facility, Mr. Ream requested, received, and reviewed the available results for November 2018 of the routine NPDES Permit monitoring for Outfalls 003, 004, 104 and 204. No numeric effluent limit violations were observed during the review, as noted in the Effluent Limits Compliance Category.

On December 3, 2018, subsequent to our visit, US Steel Midwest submitted a five day notification letter attributing the cause of the foaming to insufficient use of the defoaming agent. The US Steel Midwest - Five Day Letter is attached hereto.

Part I. B. of the NPDES permit contains narrative effluent limitations prohibiting the discharge from any and all point sources specified within the permit from causing receiving waters, including the mixing zone, to contain substances, materials, floating debris, oil, or scum: 1) that will settle to form putrescent or otherwise objectionable deposits; 2) that are in amounts sufficient to be unsightly or deleterious; 3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create nuisance. The

discharge of foam from US Steel Midwest outfalls into Burns Waterway, as observed by Mr. Greinke on November 28, 2018, is in violation of Part I.B. of the NPDES permit, resulting in an unsatisfactory rating in both the "Receiving Water Appearance" and "Other: Complaint" categories.

Part II. A. 1. of your permit requires you to comply with its terms and conditions. Any noncompliance with the terms of your permit may subject you to an enforcement action which can include the imposition of penalties. You are required to immediately take all necessary measures to comply with the terms and conditions of your NPDES Permit, specifically those violations identified above.

Within 30 days of receipt of this letter, a written detailed response documenting correction of the concerns listed above and/or a plan for assuring future compliance must be submitted to this office. Failure to respond adequately to this letter may result in formal enforcement action. Please direct your response to this letter to the attention of Bridget S. Murphy, at our letterhead address or via email to wwViolationResponse@idem.IN.gov. Any questions should be directed to Nicholas Ream at 219-730-1691 or by email to nream@idem.IN.gov. Thank you for your attention to this matter.

Sincerely,

Rick Massoels, Deputy Director
Northwest Regional Office

Enclosure

NPDES Industrial Facility Inspection Report
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number:	Facility Type:		Facility Classification:	TEMPO AI ID
IN0000337	Industrial	Major	D	14435

Date(s) of Inspection: November 29, 2018 , December 03, 2018

Type of Inspection: Complaint Investigation

Name and Location of Facility Inspected:			Receiving Waters/POTW:	Permit Expiration Date:
US Steel Midwest 6300 US Highway 12 Portage	IN 46368	County: Porter	Portage-Burns Waterway to Lake Michigan	3/31/2021 Design Flow: NA

On Site Representative(s):

First Name	Last Name	Title	Email	Phone
Tim	Sullivan	Compliance Manager	tlsullivan@uss.com	219-763-5022
Mark	Henry	Operator	mhenry@uss.com	

Was a verbal summary of the inspection given to the on-site rep? **Yes**

Certified Operator:	Number:	Class:	Effective Date:	Expiration Date:	Email:
Mark Henry	20376	IV	7-1-18	6-30-20	mhenry@uss.com

Responsible Official:	Permittee:	Contacted?
Mr. Tim Sullivan, Compliance Manager 6300 US Highway 12 Portage, Indiana 46368	US Steel, Midwest Plant Email: tlsullivan@uss.com Phone: 219-763-5022 Fax:	Yes

INSPECTION FINDINGS

- ○ Conditions evaluated were found to be satisfactory at the time of the inspection. (5)
- ○ Violations were discovered but corrected during the inspection. (4)
- ○ Potential problems were discovered or observed. (3)
- ◉ Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2)
- ○ Violations were discovered and may subject you to an appropriate enforcement response. (1)

AREAS EVALUATED DURING INSPECTION
(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated

U	Receiving Waters	N	Facility/Site	N	Self-Monitoring	N	Compliance Schedules
N	Effluent/Discharge	N	Operation	N	Flow Measurement		
N	Permit	N	Maintenance	N	Laboratory	S	Effluent Limits Compliance
		N	Sludge	N	Records/Reports	U	Other: Complaint

DETAILED AREA EVALUATIONS

Receiving Waters:
Comments:
Please refer to Other: Complaint category.

Effluent Limits Compliance:
No 1. Were DMRs reviewed as part of the inspection?
Comments:
While the November 2018 DMR and MMR were not yet completed, a review of the available analytical results for November 2018 for Outfalls 104, 204, 304, 003, and 004 was conducted. No numeric effluent limit exceedances were identified. Please refer to Other: Complaint Category for information regarding observations made with regard to the narrative effluent limitations applicable to Outfall 004.

Other:
Complaint
Comments:
An anonymous complaint was made to the IDEM Spill Line on November 28, 2018 alleging US Steel Midwest was discharging foam and scum. The complaint was sent to Dave Greinke with IDEM Spill Response section at approximately 12:30 pm Central Time. The complaint was entered into TEMPO and assigned TEMPO No. 84287.

Upon approaching US Steel Midwest on November 28, 2018, at approximately 12:35 pm Central Time, Mr. Greinke, observed and photographed minor foaming from Outfall 003 and excessive foaming from Outfall 004, which extended into the receiving water, Burns Waterway. The photos are attached to the inspection report.

Upon arrival at US Midwest on November 28, 2018, shortly after 12:35 pm, Mr. Greinke made contact with US Steel Midwest environmental representative, Mr. Tim Sullivan. Mr. Greinke, escorted by Mr. Sullivan, proceeded to Outfall 004. Mr. Greinke advised Mr. Sullivan to grab a sample of the Outfall 004 discharge, which he did, in Mr. Greinke's presence. Within approximately 5 minutes of Mr. Greinke's entry to the US Steel Midwest facility, the foaming from Outfall 004 ceased.

Subsequent to Mr. Greinke's arrival, US Steel Midwest filed an NRC report 1231542 regarding the incident.

On the morning of November 29, 2018, Mr. Greinke, IDEM Northwest Regional Office Deputy Director Rick Massoels, and wastewater inspector Nick Ream went to the US Steel Midwest site. Outfalls 002, 003, and 004 were observed by the group. No foaming issues were observed at the time. The IDEM representatives spoke to Mr. Sullivan, who stated that grab sample taken on November 28, 2018 had not yet been analyzed. Mr. Sullivan also stated that personnel were still investigating the cause of the foam. One of the potential causes being investigated was the utilization of a defoaming agent, Chemtreat FO120, which is authorized in the NPDES permit for use for Outfall 004.

On the afternoon of November 29, 2018, US Steel attempted to recreate the conditions leading to the observance of foam in the discharge, as part of its effort to determine the source. US Steel informed IDEM of these trials on the morning of November 30, 2018. In the meantime, IDEM was separately advised by the National Park Service (NPS) that NPS personnel observed an intermittent discharge of foam from US Steel Midwest's Outfall 004 the afternoon of November 29.

On December 3, 2018, Mr. Greinke and Mr. Ream again visited US Steel Midwest. Outfalls 002, 003, and 004 were observed. No foaming issues were observed at the time. While on-site, Mr. Sullivan provided the IDEM representatives with the analytical results of the grab sample taken at Outfall 004 in Mr. Greinke's presence. The results are set forth in the attached document, entitled US Steel Foaming Response Report. The sample was analyzed for Surfactants and Oil & Grease. The surfactant result was below the detection limit. The Oil & Grease result was 2.5 mg/L. Outfall 004 does not have a limit for oil and grease, but the result of 2.5 mg/L is consistent with general operational range for this outfall. Additionally, while on-site, IDEM reviewed the available results for November 2018 of the routine NPDES permit monitoring for Outfall 304, which is the mathematical summation of Outfalls 104 and 204. Subsequent to leaving the facility, IDEM requested, received, and reviewed the available results for November 2018 of the routine NPDES Permit monitoring for Outfalls 003, 004, 104 and 204. No numeric effluent limit violations were observed during the review, as noted in the Effluent Limits Compliance Category.

On December 3, 2018, subsequent to our visit, US Steel Midwest submitted a five day notification letter attributing the cause of the foaming to insufficient use of the defoaming agent. Please refer to the attached letter, US Steel Midwest - Five Day Letter.

Part I. B. of the NPDES permit contains narrative effluent limitations prohibiting the discharge from any and all point sources specified within the permit from causing receiving waters, including the mixing zone, to contain substances, materials, floating debris, oil, or scum: 1) that will settle to form putrescent or otherwise objectionable deposits; 2) that are in amounts sufficient to be unsightly or deleterious; 3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create nuisance. The discharge of foam from US Steel Midwest outfalls into Burns Waterway, as observed by Mr. Greinke on November 28, 2018, is in violation of Part I.B. of the NPDES permit, resulting in an **unsatisfactory** rating in both the "Receiving Water Appearance" and "Other: Complaint" categories.

IDEM REPRESENTATIVE		
Inspector Name:	Email:	Phone Number:
Nicholas Ream	nream@idem.IN.gov	219-730-1691

IDEM MANAGER REVIEW	
IDEM Manager:	Date:
Rick Massoels	12/7/2018

Inspection Photographs

Facility: **US Steel Midwest**
Photographer:
Date: 11/28/2018 Time: 1:35 PM
Others Present: Tim Sullivan
Location/Description: Photo by Dave Greinke. Northeast view of foam at Outfall 004

Facility: **US Steel Midwest**
Photographer:
Date: 11/28/2018 Time: 1:35 PM
Others Present: Tim Sullivan
Location/Description: Photo by Dave Greinke. West view of Outfall 003.

United States Steel Corporation – Midwest Plant
U. S. Highway 12
Portage, IN 46368

VIA ELECTRONIC SUBMITTAL

December 3, 2018

David Greinke
Office of Water Quality
Indiana Department of Environmental Management (IDEM)
100 North Senate Avenue – Post Office Box 6015
Indianapolis, IN 46206

Subject: United States Steel Corporation Gary Works – Midwest Plant
NPDES Permit IN0000337
Foaming at Outfall 004

Dear Mr. Greinke:

This letter is the written five-day submission regarding foaming at Outfall 004 at the U. S. Steel Corporation – Midwest Plant ("Midwest") which occurred on November 28, 2018. Outfall 004 is a permitted outfall to the Portage-Burns Waterway under NPDES Permit IN0000337 effective April 1, 2016. Outfall 004 sources includes the Final Treatment Plant (internal Outfall 104) and the Chrome Treatment Plant (internal Outfall 204). As described below, the foam was found to be due to insufficient defoamer addition, and was not attributed to any pollutant regulated under the NPDES permit, including chromium.

On November 28, 2018 IDEM visited the Midwest facility outfalls in response to a public report of a "white discharge" to Burns Waterway from the facility, which was submitted to IDEM on that same day. David Greinke, IDEM Emergency Response, contacted Midwest regarding the report at approximately 1:37 p.m. and arrived at the facility at approximately 1:45 p.m. Mr. Greinke and a Midwest Environmental Manager observed Outfall 004 and saw evidence of foam extending approximately 40 yards into the Burns Waterway before dissipating. Midwest Environmental attempted to collect a grab sample of the foam, but by the time personnel were able to access the waterway for sampling, the foam was no longer present in the receiving stream. A grab sample was collected at Outfall 004 and analyzed for surfactants by a third-party laboratory. The result of the analysis is attached.

The effluent discharge channel of the Final Treatment Plant (internal Outfall 104) was observed with no visible indication of foaming. A 24-hour composite sample and a grab sample were collected and expedited for analysis by Midwest's contracted third-party laboratory. Both results were found to be non-detect for hexavalent chromium and well below permit limits for all other constituents.

U. S. Steel made notification to the National Response Center as is required in the current draft of the Operations and Maintenance Plan Appendix B This notification was made at approximately 4:15pm, and complied with both permit requirements and the current Operations and Maintenance Manual Notification List. IDEM was already made aware through the phone call and site visit.

On November 29, 2018 David Greinke, Nick Ream (IDEM NPDES inspector), and Rick Massoels (IDEM Deputy Director) visited Midwest again as a follow up. There was no foaming observed at Outfall 004. U. S. Steel made several observations of Outfall 004 throughout the day on November 29th, and on subsequent days as well, and has not observed any more foaming.

Upon completion of the initial observation and sampling efforts on November 28th, U. S. Steel began an investigation into the cause of the Outfall 004 foam, and continues to evaluate the potential interactions between the Outfall 004 and Burns Waterway. The Chrome Treatment Plant was found to be operating normally. Internal process monitoring indicated no issues or elevated chromium levels. The Final Treatment Plant was operating normally.

If you have any questions about this matter, please call me at (313) 749-3900 or email me at APiscitelli@uss.com.

Sincerely,

Alexis Piscitelli
Director – Environmental Compliance
United States Steel Corporation
Great Lakes Works, Midwest Plant

cc: Nicholas Ream, IDEM
Tim Sullivan, U. S. Steel
Eric Williams, U. S. Steel
Nicole Benoit, P.E., U. S. Steel

ALS Environmental

03-Dec-2018

Tim Sullivan
U.S. Steel - Gary Works
1 North Broadway
Mail Station 70
Gary, IN 46402

Re: **USS-Midwest Foaming Response** Work Order: **18111844**

Dear Tim,

ALS Environmental received 1 sample on 30-Nov-2018 for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 11.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Amanda Grzybowski

Electronically approved by: Amanda Grzybowski

Amanda Grzybowski
Project Manager

Report of Laboratory Analysis

Certificate No: IN: C-MI-08

ALS Group, USA Date: 03-Dec-18

Client: U.S. Steel - Gary Works
Project: USS-Midwest Foaming Response
Work Order: 18111844

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18111844-01	Outfall 004 with Foaming	Aqueous		11/29/2018 12:35	11/30/2018 08:30	☐

ALS Group, USA *Date: 03-Dec-18*

Client: U.S. Steel - Gary Works
Project: USS-Midwest Foaming Response
Work Order: 18111844

Case Narrative

Batch R250367, Method GCFID_8015_W, Sample 18111844-01B: No diesel range organic compounds apparent in sample chromatograph.

ALS Group, USA

Date: *03-Dec-18*

Client: U.S. Steel - Gary Works
Project: USS-Midwest Foaming Response
Sample ID: Outfall 004 with Foaming
Collection Date: 11/29/2018 12:35 PM

Work Order: 18111844
Lab ID: 18111844-01
Matrix: AQUEOUS

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
ORGANIC COMPOUNDS BY GC-FID			**SW8015M**				Analyst: **RP**
BatchID: R250367							
Fingerprint	**Complete**		**0**		**mg/L**	1	11/30/2018
ANIONIC SURFACTANTS AS MBAS			**A5540C-11**				Analyst: **JSH**
BatchID: R250292							
Anionic Surfactants as MBAS	U		0.12	0.40	mg MBAS/L	1	11/30/2018 10:00
OIL AND GREASE			**E1664A**				Analyst: **BTG**
BatchID: R250344							
Oil and Grease	**2.5**	J	**0.97**	**5.0**	**mg/L**	1	11/30/2018 10:30

Note: See Qualifiers page for a list of qualifiers and their definitions.

AR Page 1 of 1

Data Path : C:\msdchem\1\data\181130DR\
Data File : 30NOV26.d
Signal(s) : FID1A.ch
Acq On : 30 Nov 2018 3:48 pm
Operator : RJP
Sample : 18111844-01B
Misc : FINGERPRINT
ALS Vial : 20 Sample Multiplier: 1

Integration File: EVEA.e
Quant Time: Nov 30 17:37:55 2018
Quant Method : C:\msdchem\1\methods\ALLF180910M.M
Quant Title :
QLast Update : Tue Sep 11 11:51:22 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj. :
Signal Phase :
Signal Info :

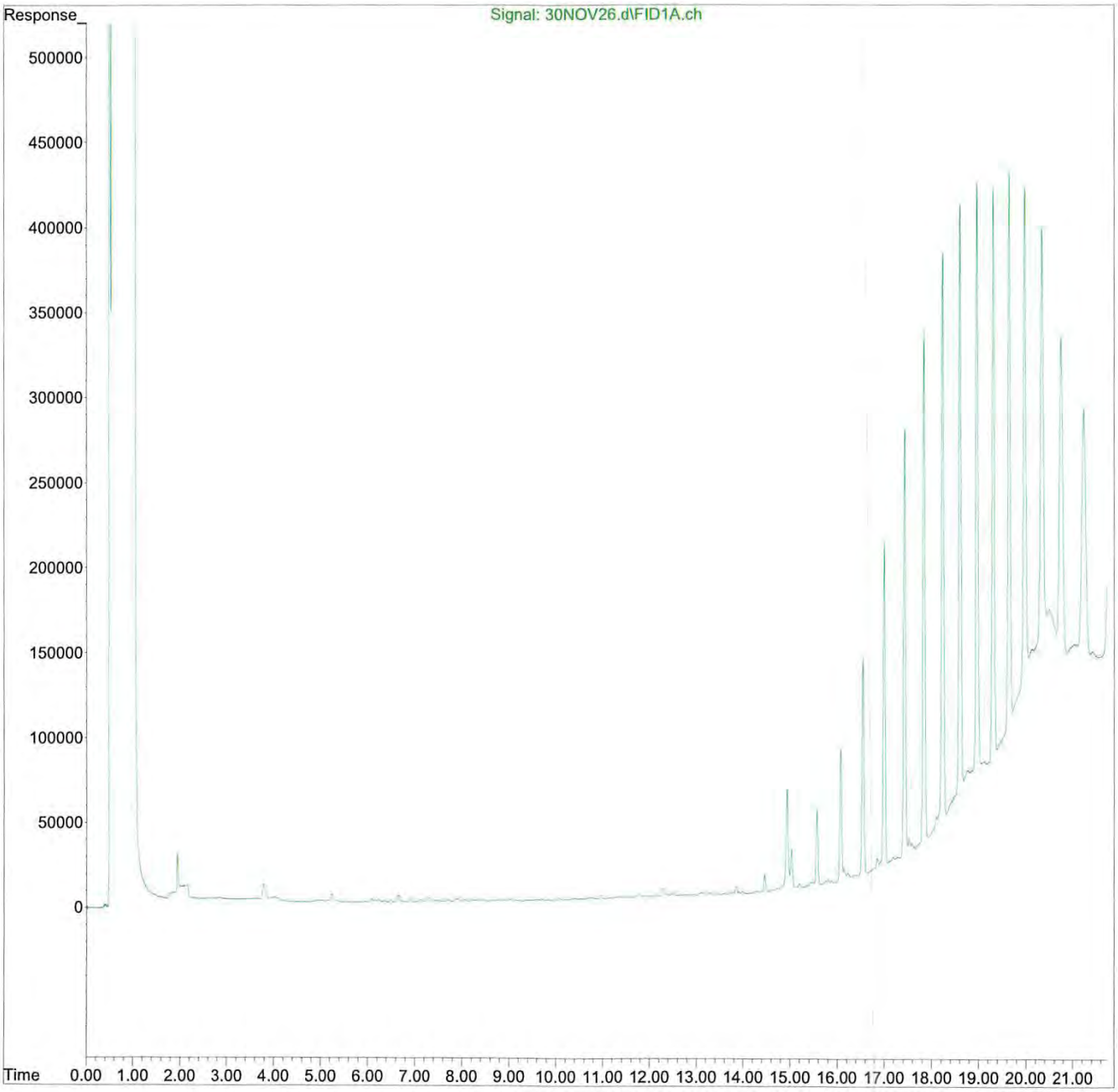
	Compound	R.T.	Response	Conc	Units
	System Monitoring Compounds				
1) S	Nitrobenzene-d5	0.000	0	N.D.	ug/mL
2) S	2-Fluorobipehenyl	0.000	0	N.D.	ug/mL
3) S	2,4,6-Tribromophenol	0.000	0	N.D.	ug/mL
4) S	4-Terphenyl-d14	0.000	0	N.D.	ug/mL
Spiked Amount	50.000		Recovery =	0.00%	
	Target Compounds				
5) H	DRO (C10-C20)	0.000	0	N.D.	ug/mL
6) H	ORO (C20-C34)	0.000	0	N.D.	ug/mL
7) H	DRO (C10-C28)	0.000	0	N.D.	ug/mL
8) H	ORO (C28-C40)	0.000	0	N.D.	ug/mL
9) H	ORO (C20-C40)	0.000	0	N.D.	ug/mL
10) H	ORO (C28-C35)	0.000	0	N.D.	ug/mL
11) H	ERO (C10-C36)	0.000	0	N.D.	ug/mL
12) H	ERO (C8-C36)	0.000	0	N.D.	ug/mL
13) H	DRO (C9-C20)	0.000	0	N.D.	ug/mL
14) H	ERO (C8-C40)	0.000	0	N.D.	ug/mL
15) H	DIESEL (IOWA)	0.000	0	N.D.	ug/mL
16) H	OIL (IOWA)	0.000	0	N.D.	ug/mL

(f)=RT Delta > 1/2 Window (m)=manual int.

```
Data Path : C:\msdchem\1\data\181130DR\
Data File : 30NOV26.d
Signal(s) : FID1A.ch
Acq On    : 30 Nov 2018    3:48 pm
Operator  : RJP
Sample    : 18111844-01B
Misc      : FINGERPRINT
ALS Vial  : 20   Sample Multiplier: 1

Integration File: EVEA.e
Quant Time: Nov 30 17:37:55 2018
Quant Method : C:\msdchem\1\methods\ALLF180910M.M
Quant Title  :
QLast Update : Tue Sep 11 11:51:22 2018
Response via : Initial Calibration
Integrator: ChemStation

Volume Inj.  :
Signal Phase :
Signal Info  :
```



ALS Group, USA Date: 03-Dec-18

Client: U.S. Steel - Gary Works
Project: USS-Midwest Foaming Response
WorkOrder: 18111844

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
mg MBAS/L	Milligrams Methylene Blue Active Substances per Liter
mg/L	Milligrams per Liter

ALS Group, USA

Date: 03-Dec-18

Client: U.S. Steel - Gary Works
Work Order: 18111844
Project: USS-Midwest Foaming Response

QC BATCH REPORT

Batch ID: **R250292** Instrument ID **WETCHEM** Method: **A5540C-11**

MBLK Sample ID: **MBLK-R250292** Units: **mg MBAS/L** Analysis Date: **11/30/2018 10:00 AM**
Client ID: Run ID: **WETCHEM_181130C** SeqNo: **5410909** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Anionic Surfactants as MBAS	U	0.40								

LCS Sample ID: **LCS-R250292** Units: **mg MBAS/L** Analysis Date: **11/30/2018 10:00 AM**
Client ID: Run ID: **WETCHEM_181130C** SeqNo: **5410906** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Anionic Surfactants as MBAS	0.4	0.40	0.5	0	80	75-125	0			

DUP Sample ID: **18111815-01B DUP** Units: **mg MBAS/L** Analysis Date: **11/30/2018 10:00 AM**
Client ID: Run ID: **WETCHEM_181130C** SeqNo: **5410911** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Anionic Surfactants as MBAS	U	0.40	0	0	0	0-0	0.1	0	25	

The following samples were analyzed in this batch: 18111844-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: U.S. Steel - Gary Works
Work Order: 18111844
Project: USS-Midwest Foaming Response

QC BATCH REPORT

Batch ID: **R250344** Instrument ID **O&G** Method: **E1664A**

MBLK Sample ID: **MBLK-R250344** Units: **mg/L** Analysis Date: **11/30/2018 10:30 AM**
Client ID: Run ID: **O&G_181130A** SeqNo: **5411745** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	2	5.0								J

LCS Sample ID: **LCS-R250344** Units: **mg/L** Analysis Date: **11/30/2018 10:30 AM**
Client ID: Run ID: **O&G_181130A** SeqNo: **5411743** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	35.4	5.0	40	0	88.5	78-114	0			

MS Sample ID: **18111576-01C MS** Units: **mg/L** Analysis Date: **11/30/2018 10:30 AM**
Client ID: Run ID: **O&G_181130A** SeqNo: **5411703** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	39.88	5.0	40	1.124	96.9	78-114	0			

DUP Sample ID: **18111576-02C DUP** Units: **mg/L** Analysis Date: **11/30/2018 10:30 AM**
Client ID: Run ID: **O&G_181130A** SeqNo: **5411706** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Oil and Grease	U	5.0	0	0	0	0-0	0.2105	0	18	

The following samples were analyzed in this batch: 18111844-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

ALS Environmental

Cincinnati, OH +1 513 733 5336 | Fort Collins, CO +1 970 490 1511 | Everett, WA +1 425 356 2600 | Holland, MI +1 616 399 6070 | Houston, TX +1 281 530 5656 | Middletown, PA +1 717 944 5541 | Spring City, PA +1 610 948 4903 | Salt Lake City, UT +1 801 266 7700 | South Charleston, WV +1 304 356 3168 | York, PA +1 717 505 5280

Chain of Custody Form

Page ____ of ____

COC ID: 29108

ALS Project Manager: | ALS Work Order #: 1811894

Customer Information		Project Information		Parameter/Method Request for Analysis	
Purchase Order		Project Name	VSS MW Foaming Response	A	Surfactants
Work Order		Project Number		B	Fingerprint
Company Name	VSS MW	Bill To Company	VSS MW	C	O+G
Send Report To	Tim Sullivan	Invoice Attn	Ti Sullivan	D	
Address		Address		E	
				F	
City/State/Zip		City/State/Zip		G	
Phone		Phone		H	
Fax		Fax		I	
e-Mail Address		e-Mail Address		J	

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Outfall 004 w/ foaming	11-29-18	1235	AQ	8	1	X	X	X								
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

upstream 001 DO = 9.8 @ 1220, 11-29-18
outfall 004 DO = 10.2 @ 1235, 11-29-18
outside Intake DO = 11.5 @ 1245, 11-29-18

Sampler(s) Please Print & Sign: B. Pugh

Shipment Method:

Turnaround Time in Business Days (BD): ☐ 10 BD ☐ 5 BD ☐ 3 BD ☐ 2 BD ☐ 1 BD ☐ Other

Results Due Date: ASAP

Relinquished by: | Date: 11-30-18 | Time: | Received by:

Relinquished by: | Date: 11/30/18 | Time: 0830 | Received by (Laboratory):

Logged by (Laboratory): | Date: 11-30 | Time: | Checked by (Laboratory):

Notes:

Cooler ID: SR2 | Cooler Temp: 4.0°C

QC Package: (Check One Box Below)
☐ Level II Std QC ☐ TRRP Checklist
☐ Level III Std QC/Raw Data ☐ TRRP Level IV
☐ Level IV SW846/CLP
☐ Other

Preservative Key: 1-HCl 2-HNO_3 3-H_2SO_4 4-NaOH 5-$Na_2S_2O_3$ 6-$NaHSO_4$ 7-Other 8-4°C 9-5035

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

ALS Group, USA

Sample Receipt Checklist

Client Name: **USS-GARY** Date/Time Received: **30-Nov-18 00:00**

Work Order: **18111844** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 30-Nov-18 (Date) Reviewed by: Amanda Graybanks (eSignature) 30-Nov-18 (Date)

Matrices: Aqueous
Carrier name: ALSHN

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	4.0/4.0 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	11/30/2018 8:37:29 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:			

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

SRC Page 1 of 1

Indiana Department of Environmental Management
We Protect Hoosiers and Our Environment.
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(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

January 03, 2019

Via Email to: tlsullivan@uss.com
Mr. Tim Sullivan, Compliance Manager
US Steel, Midwest Plant
6300 US Highway 12
Portage, Indiana 46368

Dear Mr. Sullivan:

Re: Inspection Summary Letter
US Steel Midwest
NPDES Permit No. IN0000337
Portage, Porter County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Northwest Regional Office, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection: December 18, 2018

Type of Inspection: Complaint Investigation

Inspection Results: Potential problems were discovered or observed.

1. The Receiving Waters category was rated as marginal. Some foam was observed at Outfall 004, though the foaming was observed for approximately 30 seconds and dissipated within approximately 30 feet of the outfall.

2. A complaint was made to the IDEM Spill Line on December 18, 2018 alleging US Steel Midwest was discharging foam. The complaint was entered into TEMPO and assigned TEMPO No. 84524.

   On December 18, 2018, Mr. Nicholas Ream and I surveyed Outfalls 002, 003, and 004 from the National Park Service property, which is located across the Portage-Burns Waterway from US Steel - Midwest. No foaming was evident at Outfall 002. Only minimal foaming was evident at Outfalls 003 and 004, which is consistent with normal operating procedures due to the turbulence of the water prior to discharge.

   Mr. Ream then contacted Mr. Tim Sullivan via telephone and advised him of the complaint. He stated he was unavailable at the immediate time and arranged for us to meet with Mr. Mark Henry. We then presented our credentials at the front gate and entered the facility. We met with Mr. Henry at Outfall 004 and observed the discharge. Periodic foaming was observed

lasting no longer than 30 seconds event and breaking up within 30 feet of the outfall. Due to the observance of minor foaming in the discharge from Outfall 004, a marginal rating is assigned to the Receiving Waters Appearance and Other: Complaint categories.

We walked to the location the defoaming agent is applied. Mr. Henry increased the amount of defoamer being introduced. We discussed the defoaming agent currently being utilized, as it was different from the defoamer used during the November 28, 2018 foaming incident. ChemTreat CL-240, which is authorized to be utilized at Outfall 004 by the NPDES permit, was considered to be better, by US Steel personnel, than the ChemTreat FO-120 previously used. Mr. Henry stated the new defoamer appeared promising, but attempts to optimize the feed rates were ongoing.

Mr. Henry was advised to sample the discharge while foaming occurred, but by the time grab sampling equipment arrived, the foaming had stopped, likely due to the increased volume of the defoaming agent. Mr. Henry was advised to visually check the outfall hourly to determine if the foaming returned and a sample could be obtained. Follow-up conversations with Mr. Henry and Mr. Sullivan indicated that foaming did not return beyond typical operation conditions.

Analytical results for Outfalls 104, 204, 304, and 004 were supplied by Mr. Henry on December 21, 2018. No numeric effluent limit violations were observed during the review, as noted in the Effluent Limits Compliance category.

On December 21, 2018, subsequent to our visit, US Steel Midwest submitted a five day notification attributing the foaming to insufficient use of the new defoaming agent. Please refer to the attached letter, US Steel Midwest - Five Day letter.

A copy of the NPDES Industrial Facility Inspection Report is enclosed for your records. Please direct any response to this letter and any questions to Nicholas Ream at 219-730-1691 or by email to nream@idem.IN.gov.

Sincerely,

Rick Massoels, Deputy Director
Northwest Regional Office

Enclosure

Indiana Department of Environmental Management
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Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

June 14, 2019

Via Email to: tlsullivan@uss.com
Mr. Tim Sullivan, Compliance Manager
US Steel, Midwest Plant
6300 US Highway 12
Portage, Indiana 46368

Dear Mr. Sullivan:

Re: **Inspection Summary/ Enforcement Referral**
US Steel Corporation Midwest Plant
NPDES Permit No. IN0000337
Portage, Porter County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Northwest Regional Office, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection:	May 09, 2019 , May 10, 2019 , May 14, 2019 , May 15, 2019 , May 16, 2019 , May 30, 2019
Type of Inspection:	Reconnaissance Inspection
Inspection Results:	Violations were observed and will be referred to the Enforcement Section.

The following concerns were noted:

On May 9, 2019, at 9:48 AM CST, Mr. Ream received a telephone call from Mr. Tim Sullivan, the Compliance Manager with US Steel - Midwest, stating that the effluent from Outfall 004 was discolored and a thin sheen was present in the receiving stream. At the time of the telephone call, US Steel personnel stated that they believed the problem was due to pickle liquor, which was released from Heat Exchanger #1 of Pickling Line #1 to the Final Wastewater Treatment Plant. Prior to entering the facility, Mr. David Greinke and Mr. Ream viewed Outfalls 002, 003, and 004 from the west side of Burns Waterway. No problems were observed at Outfalls 002 and 003. The Outfall 004 discharge appeared turbid and discolored and contained a visible sheen.

After entering the facility, Mr. Greinke and Mr. Ream met with Mr. Mark Henry and Mr. Tim Sullivan. Mr. Greinke recommended the placement of an oil absorbent boom to capture the sheen in Burns Waterway. Orange solids were overflowing the weirs of the east treatment train of the Final Treatment WWTP. The west treatment train was off-line for routine maintenance. When asked why the west train was not brought on-line due to the loss of solids, Mr. Henry stated that a thick layer of oil and grease was being cleaned from the off-line train and he had concerns that starting the train would result in washing

oil and grease through Outfall 004.

Mr. Sullivan stated that pH testing and iron screening using a non-approved analytical method had been increased. Elevated iron had been detected with screening analysis. No additional metals testing had been initiated. The composite sampler for Outfall 104 was observed. Solids were evident in the sampler, though it was early in the 24 hour sampling period.

Mr. Sullivan and Mr. Henry stated that other lines utilizing pickle liquor ceased operation to prevent the addition of iron into Final Treatment to allow the wastewater plant to settle the solids already present.

At approximately 1 PM CST, while onsite, Mr. Ream verbally advised US Steel to initiate additional metals testing. Mr. Ream followed up the verbal request with a written request sent in an email to Mr. Sullivan at 2:29 PM CST. By the time of the verbal request, the loss of solids had diminished dramatically.

Heat Exchanger #1 of Picking Line #1 was observed. New valves on the heat exchanger were apparent. Please refer to the attached photos. Mr. Sullivan stated that the pickle liquor from the heat exchanger followed a trench in the floor to the Dirty Industrial Water (DIW) to Final Treatment. At the time, the volume of the loss of pickle liquor was requested, but Mr. Sullivan stated he had to make calculations in order to provide an estimated volume.

Mr. Greinke recommended that US Steel make a public release to notify people of what was occurring. US Steel was also told to notify downstream users of the incident. The National Response Center (NRC) was notified by US Steel. Later that day, US Steel released a public statement concerning the loss of iron through Outfall 004 due to maintenance issues. The statement emphasized chromium was not being discharged.

Prior to the end of the inspection for that day, Mr. Sullivan stated they were looking into other possibilities for the problems at Final Treatment, but gave no indication that other potential sources had been identified. When asked if US Steel was expecting to identify any other issues, we were informed US Steel wanted to ensure there was not another source causing or contributing to the problem.

On May 10, 2019, Mr. Ream and I went to US Steel and met with Mr. Sullivan and Mr. Henry. We visually confirmed that the solids in Final Treatment and at Outfall 004 were back to normal operating levels.

Mr. Ream and I spoke with Mr. Sullivan and Mr. Henry regarding the incident. Mr. Sullivan stated they did not have the volume of pickle liquor lost yet. He was informed that data would be necessary. We asked why the NRC report and public notification only indicated a discharge of iron when it was stated that pickle liquor was believed to be the cause, and recommended an update of the NRC report to include the mention of pickle liquor. We were informed that the testing analysis had only indicated elevated iron discharging through Outfalls 104 and 004. When asked about US Steel's notification for downstream users, we were informed, in an email sent from Mr. Sullivan on May 10, 2019, that notification to the downstream users was unnecessary as the public statement from US Steel from May 9, 2019 was sufficient. It was, again, pointed out that the public release only referred to iron when we were informed it was pickle liquor, and appeared to

be misleading.

When asked about the maintenance work referenced in the public release from US Steel, Mr. Ream was informed that it was due to the work on the heat exchanger and maintenance of the west Final Treatment train.

On May 14, 2019, Mr. Greinke and Mr. Ream met with Mr. Sullivan at the facility. Final Treatment, which still had only the eastern train in operation, appeared to be operating at normal levels. We spoke about the required Five Day Letter, which Mr. Sullivan said IDEM would be receiving later that day. Upon arriving at the office, the Five Day Letter was available and reviewed. It stated the cause of the problems on May 9, 2019 were caused by problems with a failed seal of a sulfuric acid tank on the Tin Line. No mention was made of the pickle liquor from the heat exchanger we were shown on May 9, 2019.

On May 15, 2019, Mr. Greinke and I met with Mr. Sullivan. When asked why we were not informed about the Tin Line release, he stated that US Steel wanted to conclude its investigation to ensure correct information was gathered. It was pointed out that IDEM was given incorrect information early in the investigation and this was never corrected, in spite of numerous opportunities to do so.

Mr. Sullivan took us to the sulfuric acid tank of the Tin Line to observe the area now being cited as the cause of the May 9, 2019 incident. Mr. Sullivan stated that the seal utilized to keep most of the acid within the tank had failed. Prior to and during maintenance, the sulfuric acid bath, used to prepare the steel for the Tin Line, had partially drained into the sump. The material was pumped to Final Treatment. Some sulfuric acid is generally washed into Final Treatment as part of "Carry Over" during normal operations, but in this case, a more than typical amount was sent to Final Treatment. When asked how much volume was discharged, Mr. Sullivan stated he did not know.

Mr. Sullivan also stated that it was believed that 30 gallons of pickle liquor was lost into Final Treatment the same morning. It seems unlikely to have impacted the operations of the wastewater plant at that volume. If this volume had been stated on the first day of the incident, IDEM would have become aware that that the pickle liquor line may not have been the source of the problem.

On May 16, 2019, Mr. Greinke and Mr. Ream looked at Outfalls 002, 003, and 004 from the west bank of Burns Waterway. No problems were observed at the outfalls at the time of the inspection.

In an email on May 23, 2019, US Steel personnel made an estimation of 260 to 300 gallons of sulfuric acid was discharged on May 9, 2019. This estimate was generated from the increase in the iron observed over normal operations.

On May 30, 2019, a meeting took place at US Steel - Midwest between US Steel and IDEM personnel. Prior to the meeting, Outfalls 002, 003, and 004 were observed. Outfall 003 had mild foaming, but Outfalls 002 and 004 were clear and colorless. The western train of the wastewater treatment plant was off-line for maintenance.

1. The Receiving Stream and Effluent/Discharge were rated as unsatisfactory based on the following: 327 IAC 2-1.5-8 and Part I. B. of the permit

requires all waters to meet the minimum conditions of being free from substances, materials, floating debris, oil, or scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges: 1. That will settle to form putrescent or otherwise objectionable deposits; 2. That are in amounts sufficient to be unsightly or deleterious; 3. That produce color, visible oil sheen, odor, or other conditions in such degree as to create nuisance.

At the time of the inspection, on the morning of May 9, 2019, it was noted that the receiving stream near Outfall 004 was reddish-brown in color and appeared to contain solids. An oil sheen at Outfall 004 was also observed during the morning of May 9, 2019. US Steel Midwest personnel placed a boom at Outfall 004 at the request of David Greinke with the IDEM Emergency Response Section. Much of the solids, discoloration and sheening appeared to have dissipated by 2 PM on May 9, 2019.

Additionally, mild foaming was visible at Outfall 003 on May 30, 2019.

2. Operation and Maintenance were rated as unsatisfactory. Part II. B. 1. of the permit requires that all facilities and systems (and related appurtenances) for collection and treatment, which are installed or used by the permittee and which are necessary for achieving compliance with the terms and conditions of the permit in accordance with 327 IAC 5-2-8(9) must be maintained in good working order and efficiently operated at all times.

   During the problem with the sulfuric acid release from the Tin Line, the western train of Final Treatment was off-line for maintenance. Due to oil and grease in the bottom of the tank being cleaned, there were concerns by the operator regarding the loss of oil and grease to Burns Waterway if the western train was immediately put back into service. While this may be a valid reason to not put the line into service, there was insufficient capacity in the single operating train to remove the solids generated. The operational loss of available capacity likely caused or contributed to the loss of the solids to Burns Waterway and, thus, to Lake Michigan, which caused violations of the Narrative Water Quality Standards.

   pH screening conducted by US Steel indicated the low pH was likely raised to acceptable levels with a lime slurry treatment at the front of Final Treatment.

   Over the course of the inspection, it was learned on-site staff did not know the capacity of either treatment train of Final Treatment. Additionally, an SOP for pH calibration was not available for review.

3. Self-Monitoring was rated as unsatisfactory. The permit, Part II. A. 2., states, in part, that the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with the permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine

the nature and impact of the noncompliance.

On May 9, 2019, after the increase in solids being discharged was observed by US Steel personnel, US Steel personnel stated that they increased pH, TSS, and iron screening, used for operational purposes, rather than utilizing an EPA approved method, at Outfall 004. IDEM requested additional monitoring of Total Chromium, Hexavalent Chromium, Cadmium, Copper, Mercury, Lead, Nickel, Silver, Zinc, TSS, oil and grease, pH, and chlorides as, at the time, IDEM was working under the belief the problems with the plant were due to a discharge of pickle liquor. The samples were taken daily from the day of the incident and the next two days, but the accelerated sampling did not start until after the solids had subsided in the afternoon, which missed the majority of the event.

Due to this, the true extent of the event could not be determined. US Steel should have started sampling for any likely pollutants at the time the incident was first observed. The delay of waiting for IDEM to request additional sampling allowed the incident to continue, primarily untested, when grab samples should have been taken to determine the extent of the incident. To be clear, many of these parameters were sampled and analyzed as part of the NPDES permit required 24 hour composites, though these samples would also not indicate the pollutant concentrations at their potential peaks.

During the inspection on May 15, 2019, Mr. Greinke informed Mr. Sullivan that during any future events, samples should immediately be taken as grab samples in addition to any NPDES sampling events. A failure to accelerate sampling to determine the extent of a non-compliance event was also cited in a November 16 and November 17, 2017 inspection report.

4. The Records/Reports evaluation generated an unsatisfactory rating. 327 IAC 5-1-3(a)(5) and Part II. A. 5 of the permit states, in part, that the permittee must also provide any information reasonably requested by the Commissioner. On May 9, 2019, US Steel personnel were asked what the cause of the solids loss may have been.

   At the time, US Steel personnel were under the impression that the loss of pickle liquor from Heat Exchanger #1 of Pickling Line #1 was likely the source of the loss of solids. Later on May 9, 2019, US Steel personnel learned it was likely due to loss of sulfuric acid from the tin line, but withheld the data until the issuance of the five day letter on May 14, 2019 in spite of numerous opportunities to inform IDEM of the new information. Withholding pertinent information over the course of an investigation is an unacceptable practice.

5. Spill Notification was rated as unsatisfactory. 327 IAC 2-6.1-7(5) states, in part, that any person who operates, controls, or maintains any mode of transportation or facility from which a spill occurs shall, upon discovery of a reportable spill to the soil or surface waters of the state, exercise due diligence and document attempts to notify the nearest affected downstream water user located within ten (10) miles of the spill and in the state of

Indiana for spills to surface water that cause damage.

US Steel was notified that downstream users should be notified on May 9, 2019. A response received via email on May 10, 2019 stated that "downstream notification is unnecessary given USS made a public statement at 4:32 EDT". This public statement was not timely, was not directed to potentially affected downstream users, and did not detail of the actual potential problems at the site, including the potential release of what IDEM was initially informed was pickle liquor or what was eventually determined to be sulfuric acid.

This matter is being referred to the OWQ Enforcement Section for appropriate action. If formal action is initiated, you will be issued a Notice of Violation informing you of how to proceed in resolving this matter. Please direct any questions to Nicholas Ream at 219-730-1691 or by email to NReam@idem.IN.gov. A copy of the NPDES Industrial Facility Inspection Report is enclosed for your records.

Sincerely,

Rick Massoels, Deputy Director
Northwest Regional Office

Enclosure

NPDES Industrial Facility Inspection Report
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number:	Facility Type:		Facility Classification:	TEMPO AI ID
IN0000337	Industrial	Major	D	14435

Date(s) of Inspection: May 09, 2019 , May 10, 2019 , May 14, 2019 , May 15, 2019 , May 16, 2019 , May 30, 2019

Type of Inspection: Reconnaissance Inspection

Name and Location of Facility Inspected:			Receiving Waters/POTW:	Permit Expiration Date:
US Steel Corporation Midwest Plant 6300 US Highway 12 Portage	IN 46368	County: Porter	Portage-Burns Waterway to Lake Michigan	3/31/2021 Design Flow: NA

On Site Representative(s):

First Name	Last Name	Title	Email	Phone
Tim	Sullivan	Compliance Manager	tlsullivan@uss.com	219-763-5022
Mark	Henry	Operator	mhenry@uss.com	
Eric	Williams	Manager of Water Compliance	ewilliams@uss.com	
Alexis	Piscitielli	Director of Environmental Automotive Solutions	apiscitelli@uss.com	

Was a verbal summary of the inspection given to the on-site rep? **Yes**

Certified Operator:	Number:	Class:	Effective Date:	Expiration Date:	Email:
Mark Henry	20376	D	7-1-18	6-30-20	mhenry@uss.com

Cyber Security Contact

Name: Email:

Responsible Official:	Permittee: US Steel, Midwest Plant	
Mr. Tim Sullivan, Compliance Manager 6300 US Highway 12	Email: tlsullivan@uss.com	
	Phone: 219-763-5022	Contacted? Yes
Portage, Indiana 46368	Fax:	

INSPECTION FINDINGS

- ○ Conditions evaluated were found to be satisfactory at the time of the inspection. (5)
- ○ Violations were discovered but corrected during the inspection. (4)
- ○ Potential problems were discovered or observed. (3)
- ○ Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2)
- ◉ Violations were discovered and may subject you to an appropriate enforcement response. (1)

AREAS EVALUATED DURING INSPECTION

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated

U	Receiving Waters	S	Facility/Site	U	Self-Monitoring	N	Compliance Schedules
U	Effluent/Discharge	U	Operation	N	Flow Measurement		
S	Permit	U	Maintenance	N	Laboratory	N	Effluent Limits Compliance
		N	Sludge	U	Records/Reports	U	Other: Spill Notification

DETAILED AREA EVALUATIONS

On May 9, 2019, at 9:48 AM CST, I received a telephone call from Mr. Tim Sullivan, the Compliance Manager with US Steel - Midwest, stating that the effluent from Outfall 004 was discolored and a thin sheen was present in the receiving stream. At the time of the telephone call, US Steel personnel stated that they believed the problem was due to pickle liquor, which was released from Heat Exchanger #1 of Pickling Line #1 to the Final Wastewater Treatment Plant. Prior to entering the facility, Mr. David Greinke and I viewed Outfalls 002, 003, and 004 from the west side of Burns Waterway. No problems were observed at Outfalls 002 and 003. The Outfall 004 discharge appeared turbid and discolored and contained a visible sheen.

After entering the facility, Mr. Greinke and I met with Mr. Mark Henry and Mr. Tim Sullivan. Mr. Greinke recommended the placement of an oil absorbent boom to capture the sheen in Burns Waterway. Orange solids were overflowing the weirs of the east treatment train of the Final Treatment WWTP. The west treatment train was off-line for routine maintenance. When asked why the west train was not brought on-line due to the loss of solids, Mr. Henry stated that a thick layer of oil and grease was being cleaned from the off-line train and he had concerns that starting the train would result in washing oil and grease through Outfall 004.

Mr. Sullivan stated that pH testing and iron screening using a non-approved analytical method had been increased. Elevated iron had been detected with screening analysis. No additional metals testing had been initiated. The composite sampler for Outfall 104 was observed. Solids were evident in the sampler, though it was early in the 24 hour sampling period.

Mr. Sullivan and Mr. Henry stated that other lines utilizing pickle liquor ceased operation to prevent the addition of iron into Final Treatment to allow the wastewater plant to settle the solids already present.

At approximately 1 PM CST, while onsite, I verbally advised US Steel to initiate additional metals testing. I followed up the verbal request with a written request sent in an email to Mr. Sullivan at 2:29 PM CST. By the time of the verbal request, the loss of solids had diminished dramatically.

Heat Exchanger #1 of Picking Line #1 was observed. New valves on the heat exchanger were apparent. Please refer to the attached photos. Mr. Sullivan stated that the pickle liquor from the heat exchanger followed a trench in the floor to the Dirty Industrial Water (DIW) to Final Treatment. At the time, the volume of the loss of pickle liquor was requested, but Mr. Sullivan stated he had to make calculations in order to provide an estimated volume.

Mr. Greinke recommended that US Steel make a public release to notify people of what was occurring. US Steel was also told to notify downstream users of the incident. The National Response Center (NRC) was notified by US Steel. Later that day, US Steel released a public statement concerning the loss of iron through Outfall 004 due to maintenance issues. The statement emphasized chromium was not being discharged.

Prior to the end of the inspection for that day, Mr. Sullivan stated they were looking into other possibilities for the problems at Final Treatment, but gave no indication that other potential sources had been identified. When asked if US Steel was expecting to identify any other issues, we were informed US Steel wanted to ensure there was not another source causing or contributing to the problem.

On May 10, 2019, Mr. Rick Massoels, the IDEM Deputy Director of the Northwest Regional Office, and I went to US Steel and met with Mr. Sullivan and Mr. Henry. We visually confirmed that the solids in Final Treatment and at Outfall 004 were back to normal operating levels.

Mr. Massoels and I spoke with Mr. Sullivan and Mr. Henry regarding the incident. Mr. Sullivan stated they did not have the volume of pickle liquor lost yet. He was informed that data would be necessary. We asked why the NRC report and public notification only indicated a discharge of iron when it was stated that pickle liquor was believed to be the cause, and recommended an update of the NRC report to include the mention of pickle liquor. We were informed that the testing analysis had only indicated elevated iron discharging through Outfalls 104 and 004. When asked about US Steel's notification for downstream users, we were informed, in an email sent from Mr. Sullivan on May 10, 2019, that notification to the downstream users was unnecessary as the public statement from US Steel from May 9, 2019 was sufficient. It was, again, pointed out that the public release only referred to iron when we were informed it was pickle liquor, and appeared to be misleading.

When asked about the maintenance work referenced in the public release from US Steel, I was informed that it was due to the work on the heat exchanger and maintenance of the west Final Treatment train.

On May 14, 2019, Mr. Greinke and I met with Mr. Sullivan at the facility. Final Treatment, which still had only the eastern train in operation, appeared to be operating at normal levels. We spoke about the required Five Day Letter, which Mr. Sullivan said IDEM would be receiving later that day. Upon arriving at the office, the Five Day Letter was available and reviewed. It stated the cause of the problems on May 9, 2019 were caused by problems with a failed seal of a sulfuric acid tank on the Tin Line. No mention was made of the pickle liquor from the heat exchanger we were shown on May 9, 2019.

On May 15, 2019, Mr. Greinke and I met with Mr. Sullivan. When asked why we were not informed about the Tin Line release, he stated that US Steel wanted to conclude its investigation to ensure correct information was gathered. It was pointed out that IDEM was given incorrect information early in the investigation and this was never corrected, in spite of numerous opportunities to do so.

Mr. Sullivan took us to the sulfuric acid tank of the Tin Line to observe the area now being cited as the cause of the May 9, 2019 incident. Mr. Sullivan stated that the seal utilized to keep most of the acid within the tank had failed. Prior to and during maintenance, the sulfuric acid bath, used to prepare the steel for the Tin Line, had partially drained into the sump. The material was pumped to Final Treatment. Some sulfuric acid is generally washed into Final Treatment as part of "Carry Over" during normal operations, but in this case, a more than typical amount was sent to Final Treatment. When asked how much volume was discharged, Mr. Sullivan stated he did not know.

Mr. Sullivan also stated that it was believed that 30 gallons of pickle liquor was lost into Final Treatment the same morning. It was unlikely to have impacted the operations of the wastewater plant at that volume. If this volume had been stated on the first day of the incident, IDEM would have become aware that that the pickle liquor line may not have been the source of the problem.

On May 16, 2019, Mr. Greinke and I looked at Outfalls 002, 003, and 004 from the west bank of Burns Waterway. No problems were observed at the outfalls at the time of the inspection.

In an email on May 23, 2019, US Steel personnel made an estimation of 260 to 300 gallons of sulfuric acid was discharged on May 9, 2019. This estimate was generated from the increase in the iron observed over normal operations.

On May 30, 2019, a meeting took place at US Steel - Midwest between US Steel and IDEM personnel. Prior to the meeting, Outfalls 002, 003, and 004 were observed. Outfall 003 had mild foaming, but Outfalls 002 and 004 were clear and colorless. The western train of the wastewater treatment plant was off-line for maintenance.

Receiving Waters:

Comments:

The Receiving Stream was rated as **unsatisfactory** based on the following: 327 IAC 2-1.5-8 and Part I. B. of the permit requires all waters to meet the minimum conditions of being free from substances, materials, floating debris, oil, or scum attributable to municipal, industrial, agricultural, and other land use practices, or other discharges: 1. That will settle to form putrescent or otherwise objectionable deposits; 2. That are in amounts sufficient to be unsightly or deleterious; 3. That produce color, visible oil sheen, odor, or other conditions in such degree as to create nuisance.

At the time of the inspection, on the morning of May 9, 2019, it was noted that the receiving stream near Outfall 004 was reddish-brown in color and appeared to contain solids. An oil sheen at Outfall 004 was also observed during the morning of May 9, 2019. US Steel Midwest personnel placed a boom at Outfall 004 at the request of David Greinke with the IDEM Emergency Response Section. Much of the solids, discoloration and sheening appeared to have dissipated by 2 PM on May 9, 2019.

Additionally, mild foaming was visible at Outfall 003 on May 30, 2019.

Effluent/Discharge:

Comments:

327 IAC 2-1.5-8) and Part I. B of the permit were already cited under Receiving Stream for reddish-brown discharges at Outfall 004 on the morning of May 9, 2019. Please refer to the Receiving Stream category for more information.

Outfalls 002 and 003 were observed on May 9, 2019, May 10, 2019, and May 16, 2019. The effluent at these outfalls were clear and free of color at the time of the inspection.

Outfalls 002, 003, and 004 were also observed on May 30, 2019. Mild foaming was observed at Outfall 003.

Permit:

Comments:

The facility has a valid permit.

Facility/Site:

Comments:

The facility grounds are well maintained.

Operation:

Comments:

Part II. B. 1. of the permit requires that all facilities and systems (and related appurtenances) for collection and treatment, which are installed or used by the permittee and which are necessary for achieving compliance with the terms and conditions of the permit in accordance with 327 IAC 5-2-8(9) must be maintained in good working order and efficiently operated at all times.

During the problem with the sulfuric acid release from the Tin Line, the western train of Final Treatment was off-line for maintenance. Due to oil and grease in the bottom of the tank being cleaned, there were concerns by the operator regarding the loss of oil and grease to Burns Waterway if the western train was immediately put back into service. While this may be a valid reason to not put the line into service, there was insufficient capacity in the single operating train to remove the solids generated. The operational loss of available capacity likely caused or contributed to the loss of the solids to Burns Waterway and, thus, to Lake Michigan, which caused violations of the Narrative Water Quality Standards.

pH screening conducted by US Steel indicated the low pH was likely raised to acceptable levels with a lime slurry treatment at the front of Final Treatment.

Over the course of the inspection, it was learned on-site staff did not know the capacity of either treatment train of Final Treatment. Additionally, an SOP for pH calibration was not available for review.

Maintenance:
Comments:
Maintenance was rated as **unsatisfactory.** Please refer to Operations for more information.

Self-Monitoring:
Comments:
Self-Monitoring was rated as **unsatisfactory**. The permit, Part II. A. 2., states, in part, that the permittee shall take all reasonable steps to minimize or correct any adverse impact to the environment resulting from noncompliance with the permit. During periods of noncompliance, the permittee shall conduct such accelerated or additional monitoring for the affected parameters, as appropriate or as requested by IDEM, to determine the nature and impact of the noncompliance.

On May 9, 2019, after the increase in solids being discharged was observed by US Steel personnel, US Steel personnel stated that they increased pH, TSS, and iron screening, used for operational purposes, rather than utilizing an EPA approved method, at Outfall 004. IDEM requested additional monitoring of Total Chromium, Hexavalent Chromium, Cadmium, Copper, Mercury, Lead, Nickel, Silver, Zinc, TSS, oil and grease, pH, and chlorides as, at the time, IDEM was working under the belief the problems with the plant were due to a discharge of pickle liquor. The samples were taken daily from the day of the incident and the next two days, but the accelerated sampling did not start until after the solids had subsided in the afternoon, which missed the majority of the event. Due to this, the true extent of the event could not be determined. US Steel should have started sampling for any likely pollutants at the time the incident was first observed. The delay of waiting for IDEM to request additional sampling allowed the incident to continue, primarily untested, when grab samples should have been taken to determine the extent of the incident. To be clear, many of these parameters were sampled and analyzed as part of the NPDES permit required 24 hour composites, though these samples would also not indicate the pollutant concentrations at their potential peaks.

During the inspection on May 15, 2019, Mr. Greinke informed Mr. Sullivan that during any future events, samples should immediately be taken as grab samples in addition to any NPDES sampling events. A failure to accelerate sampling to determine the extent of a non-compliance event was also cited in a November 16 and November 17, 2017 inspection report.

Records/Reports:
The following records/reports were reviewed:
Comments:
The Records/Reports evaluation generated an **unsatisfactory** rating. 327 IAC 5-1-3(a)(5) and Part II. A. 5 of the permit states, in part, that the permittee must also provide any information reasonably requested by the Commissioner. On May 9, 2019, US Steel personnel were asked what the cause of the solids loss may have been. At the time, US Steel personnel were under the impression that the loss of pickle liquor from Heat Exchanger #1 of Pickling Line #1 was likely the source of the loss of solids. Later on May 9, 2019, US Steel personnel learned it was likely due to loss of sulfuric acid from the tin line, but withheld the data until the issuance of the five day letter on May 14, 2019 in spite of numerous opportunities to inform IDEM of the new information. **Withholding pertinent information over the course of an investigation is an unacceptable practice.**

Effluent Limits Compliance:
No 1. Were DMRs reviewed as part of the inspection?
Comments:

Other:
Spill Notification
Comments:

Other: Spill Notification was rated as **unsatisfactory**. 327 IAC 2-6.1-7(5) states, in part, that any person who operates, controls, or maintains any mode of transportation or facility from which a spill occurs shall, upon discovery of a reportable spill to the soil or surface waters of the state, exercise due diligence and document attempts to notify the nearest affected downstream water user located within ten (10) miles of the spill and in the state of Indiana for spills to surface water that cause damage. US Steel was notified that downstream users should be notified on May 9, 2019. A response received via email on May 10, 2019 stated that "downstream notification is unnecessary given USS made a public statement at 4:32 EDT". This public statement was not timely, was not directed to potentially affected downstream users, and did not detail of the actual potential problems at the site, including the potential release of what IDEM was initially informed was pickle liquor or what was eventually determined to be sulfuric acid.

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Nicholas Ream	NReam@idem.IN.gov	219-730-1691

Other staff participating in the inspection:

Name(s)	Phone Number(s)
David Greinke - IDEM - Emergency Respon...	219-730-4035
Bob Lugar - Deputy Assistant Commissione...	
Mark Stanifer - OWQ Compliance Branch C...	
Hala Kuss - Director of the Northwest Regio...	
Richard Massoels - Deputy Director	

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Rick Massoels	6/6/2019

Inspection Photographs

Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 05/09/2019 Time: 11:39 AM

Others Present:
David Greinke, Tim Sullivan, Mark Henry

Location/Description:
West and down view of Outfall 004 into Burns Waterway. The effluent was brownish-red and turbid. Light sheening was visible.

Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 05/09/2019 Time: 11:41 AM

Others Present:
David Greinke, Tim Sullivan, Mark Henry

Location/Description:
West and down view of Outfall 004 into Burns Waterway. The effluent was brownish-orange and turbid. Light sheening was visible.

Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 05/09/2019 Time: 11:48 AM

Others Present:
David Greinke, Tim Sullivan, Mark Henry

Location/Description:
East view of the clarifiers of the east treatment train of Final Treatment. Brownish-orange solids were observed overflowing the weirs.

Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 05/09/2019 Time: 11:48 AM

Others Present:
David Greinke, Tim Sullivan, Mark Henry

Location/Description:
Southern view of the Final Treatment - West Train, which was down for routine maintenance.

Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 05/09/2019 Time: 11:51 AM

Others Present:
David Greinke, Tim Sullivan, Mark Henry

Location/Description:
Southwest and down view of the oil and grease being cleaned out of the west treatment train of Final Treatment.

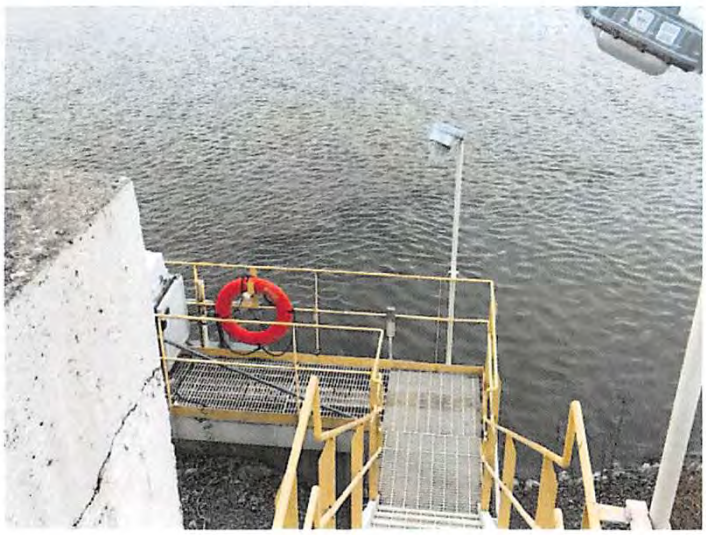
Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 05/09/2019 Time: 12:12 PM

Others Present:
David Greinke, Tim Sullivan, Mark Henry

Location/Description:
A boom was placed at Outfall 004 at the request of
David Greinke. Corrections were made to the boom shortly after the picture was taken.



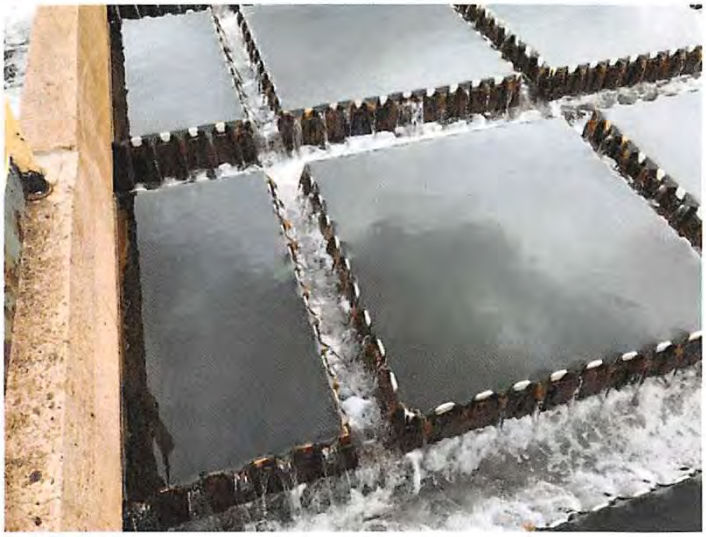
Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 05/09/2019 Time: 2:56 AM

Others Present:
David Greinke, Tim Sullivan, Mark Henry

Location/Description:
West and down view of Outfall 004. The loss of solids had diminished dramatically by approximately 2:00 PM CST.



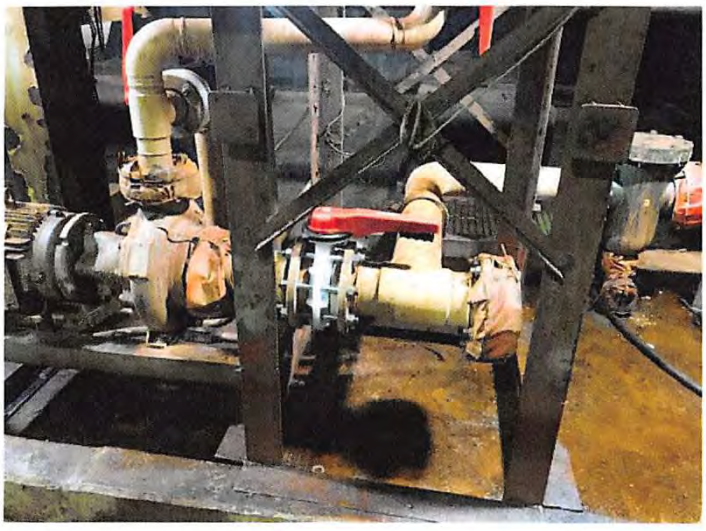
Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 05/09/2019 Time: 3:00 PM

Others Present:
David Greinke, Tim Sullivan, Mark Henry

Location/Description:
East view of the clarifiers of the east treatment train of Final Treatment. The loss of solids had diminished dramatically by approximately 2:00 PM CST.



Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 05/09/2019 Time: 3:31 PM

Others Present:
David Greinke, Tim Sullivan, Mark Henry

Location/Description:
West view of Heat Exchanger #1 of Pickling Line #1. New valves were in place on the heat exchanger.

Indiana Department of Environmental Management
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

September 06, 2019

Via Email to: tlsullivan@uss.com
Mr. Tim Sullivan, Compliance Manager
US Steel, Midwest Plant
6300 US Highway 12
Portage, Indiana 46368

Dear Mr. Sullivan:

Re: **Inspection Summary/ Noncompliance Letter**
Us Steel Corporation Midwest Plant
NPDES Permit No. IN0000337
Portage, Porter County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Northwest Regional Office, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection:	August 08, 2019
Type of Inspection:	Compliance Evaluation Inspection
Inspection Results:	Violations were observed.

The following concerns were noted:

1. Receiving Waters and Effluent Appearance were rated as unsatisfactory.

   On August 8, 2019, a thin, sporadic oil sheen was visible at Outfall 004.

   Subsequent to this inspection, on August 20, 2019, U.S. Steel - Midwest personnel self-reported a violation of the narrative water quality standards. Mr. Rick Massoels and Mr. David Greinke, of IDEM, responded to the report and verified the presence of oil sheens within the receiving stream at Outfall 004. In response, IDEM directed to the facility to increase monitoring frequency for all parameters at Outfalls 004, 104, and 204 until further notice. See the attached directions from IDEM. The facility's explanation of the cause of the violation is attached.

2. Operation was rated as unsatisfactory due to problems with the APIs and oil visible in the settling tank. Please refer to Maintenance for more information regarding this issue.

   Additionally, it was determined that pH process testing for the Chrome

Treatment facility was recorded on temporary paper notes. The official written record was stored in another building, due to concerns of the official record becoming wet and damaged. It was recommended the pH process testing records be stored on or near the pH testing bench. It was also recommended the temporary paper notes no longer be used as the data can be entered immediately. This recommendation was immediately enacted by the on-site staff.

A review of the Chrome Treatment Operations Manual did not result in the identification of any deficiencies. The Operations Manual for Final Treatment needs to be revised or rewritten. Ms. Bebley stated that they are working on an updated version of the manual and estimate a completion date in approximately three months. Additionally, Mr. Sullivan stated that engineers are re-evaluating the final treatment system.

3. Maintenance was rated as unsatisfactory, due to the facility having the East API out of service due to mechanical failure. The loss of the East API also halted the skimmer arms on the West API, according to on-site personnel. Part II. B. 1. of the permit requires that all facilities and systems (and related appurtenances) for collection and treatment that are installed or used by the permittee and that are necessary for achieving compliance with the terms and conditions of the permit, in accordance with 327 IAC 5-2-8(8), be maintained in good working order and efficiently operated at all times. Oil was also observed on both sides of Final Treatment's Settling Tanks.

4. During a review of the DMRs and MMRs, it was observed that US Steel - Midwest has been reporting the average hourly temperatures and not the maximum hourly temperature as required by the permit. No effluent exceedances were observed for the time frame reviewed, which was July 2018 to June 2019. Mr. Sullivan stated the contact lab will begin making adjustments to report the proper data.

   Additionally, during a review of the DMRs and MMRs, it could not be determined whether averages are being properly calculated for some parameters, including oil and grease. The methodology for calculating the averages is dependent upon the basis of the effluent limits (i.e. WQBEL, TBEL, or BPS). This matter will be forwarded to the Office of Water Quality - Permits Section for a determination.

Part II. A. 1. of your permit requires you to comply with its terms and conditions. Any noncompliance with the terms of your permit may subject you to an enforcement action which can include the imposition of penalties. You are required to immediately take all necessary measures to comply with the terms and conditions of your NPDES Permit, specifically those violations identified above.

Within 30 days of receipt of this letter, a written detailed response documenting correction of the concerns listed above and/or a plan for assuring future compliance must be submitted to this office. Failure to respond adequately to this letter may result in formal enforcement action. Please direct your response to this letter to the attention of Bridget S. Murphy, at our letterhead address or via email to

wwViolationResponse@idem.IN.gov. Any questions should be directed to Nicholas Ream at 219-730-1691 or by email to nream@idem.IN.gov. Thank you for your attention to this matter.

Sincerely,

Rick Massoels, Deputy Director
Northwest Regional Office

Enclosure

NPDES Industrial Facility Inspection Report
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number:	Facility Type:		Facility Classification:	TEMPO AI ID
IN0000337	Industrial	Major	D	14435

Date(s) of Inspection: August 08, 2019

Type of Inspection: Compliance Evaluation Inspection

Name and Location of Facility Inspected:			Receiving Waters/POTW:	Permit Expiration Date:
Us Steel Corporation Midwest Plant 6300 US Highway 12 Portage	IN 46368	County: Porter	Portage - Burns Waterway to Lake Michigan	3/31/2021 Design Flow: NA

On Site Representative(s):

First Name	Last Name	Title	Email	Phone
Tim	Sullivan	Compliance Manager	tlsullivan@uss.com	219-763-5022
Monique	Bebley	Operator	mbebley@uss.com	

Was a verbal summary of the inspection given to the on-site rep? **Yes**

Certified Operator:	Number:	Class:	Effective Date:	Expiration Date:	Email:
Monique Bebley	21038	D	8/9/18	6-30-21	mbebley@uss.com

Cyber Security Contact

Name: Email:

Responsible Official:	Permittee: US Steel, Midwest Plant	
Mr. Tim Sullivan, Compliance Manager 6300 US Highway 12	Email: tlsullivan@uss.com	
	Phone: 219-763-5022	Contacted?
Portage, Indiana 46368	Fax:	Yes

INSPECTION FINDINGS

- ○ Conditions evaluated were found to be satisfactory at the time of the inspection. (5)
- ○ Violations were discovered but corrected during the inspection. (4)
- ○ Potential problems were discovered or observed. (3)
- ◉ Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2)
- ○ Violations were discovered and may subject you to an appropriate enforcement response. (1)

AREAS EVALUATED DURING INSPECTION

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated

U	Receiving Waters	S	Facility/Site	S	Self-Monitoring	N	Compliance Schedules
U	Effluent/Discharge	U	Operation	S	Flow Measurement		
S	Permit	U	Maintenance	S	Laboratory	S	Effluent Limits Compliance
		S	Sludge	M	Records/Reports	N	Other:

DETAILED AREA EVALUATIONS

This inspection does not address the May 9, 2019 incident, which was previously referred to enforcement. For more information regarding that incident, please refer to the May 9, 2019 report.

Receiving Waters:

U 1. The receiving stream was visibly free of excessive deposits of settled solids, floating debris, oil, scum, or billowy foam.

Comments:
Receiving Waters was rated as **unsatisfactory**.

On August 8, 2019, a thin, sporadic oil sheen was visible at Outfall 004.

Subsequent to this inspection, on August 20, 2019, U.S. Steel - Midwest personnel self-reported a violation of the narrative water quality standards. Mr. Rick Massoels and Mr. David Greinke, of IDEM, responded to the report and verified the presence of oil sheens within the receiving stream at Outfall 004. In response, IDEM directed to the facility to increase monitoring frequency for all parameters at Outfalls 004, 104, and 204 until further notice.

See the attached directions from IDEM. The facility's explanation of the cause of the violation is attached.

Effluent/Discharge:

U 1. Treated effluent was essentially free of excessive solids, floating debris, oil, scum, or billowy foam.

N 2. Pretreatment discharge into sanitary sewers appeared free of excessive oils, grease, solids, or foam and did not appear to be in violation of the local Sewer Use Ordinance.

N 3. Pretreatment discharge into sanitary sewers did not contain materials that pass through or interfere with the operation of the POTW.

Evaluation of Multiple Outfalls:

Outfall #	Insp. Date	Outfall Inspection Comments
002	8/8/2019	Clear and odorless.
003	8/8/2019	Clear and odorless.
004	8/8/2019	A thin, sporadic oil sheen was visible. On 8/20/19, a sheen was present.
104	8/8/2019	Clear and odorless.

Comments:
Effluent appearance was rated as **unsatisfactory**.

On August 8, 2019, a thin, sporadic oil sheen was visible at Outfall 004.

Subsequent to this inspection, on August 20, 2019, U.S. Steel - Midwest personnel self-reported a violation of the narrative water quality standards. Mr. Rick Massoels and Mr. David Greinke, of IDEM, responded to the report and verified the presence of oil sheens within the receiving stream at Outfall 004, attributable to the discharge from Outfall 004. In response, IDEM directed to the facility to increase monitoring frequency for all parameters at Outfalls 004, 104, and 204 until further notice. See the attached directions from IDEM. The facility's explanation of the cause of the violation is attached.

Permit:

S 1. Did the facility have a copy of the current permit available for reference.

N 2. If the permit expires within 180 days, has a renewal application been submitted?

S 3. Receiving waters are accurately described in the permit.

N 4. The permit has been properly transferred if there is a new owner.

Comments:
The facility has a valid permit.

Facility/Site:

N 1. The facility was found to have standby power or equivalent provision, If required.

S 2. An adequate alarm or notification system for power or equipment failure was available for the treatment facility.

S 3. Safe and adequate access was provided for inspection of all treatment units and outfalls.

S 4. Facilities and equipment did not appear beyond their useful life.

5. List any safety concerns noted during the inspection in the box below:

Comments:
The facility grounds are well maintained.

Operation:

U 1. All facilities and systems necessary for achieving compliance with the terms and conditions of the permit were operated efficiently, including an anticipated bypass report for steps of treatment taken out of service.

S 2. An adequate, qualified operating staff was found to be provided to carry out the operation of the facility, including:

a. Certified Operator's on-site attendance and/or qualified operations personnel attendance was adequate.
b. Adequate documentation of operational activities, including system monitoring and cleaning.
c. Adequate funding to ensure proper operation.

S 3. Solids handling procedures were adequate.

S 4. Documentation of solids removal, handling, and disposal was adequate.

Comments:
Operation was rated as **unsatisfactory** due to problems with the APIs and oil visible in the settling tank. Please refer to Maintenance for more information regarding this issue.

Additionally, it was determined that pH process testing for the Chrome Treatment facility was recorded on temporary paper notes. The official written record was stored in another building, due to concerns of the official record becoming wet and damaged. It was recommended the pH process testing records be stored on or near

the pH testing bench. It was also recommended the temporary paper notes no longer be used as the data can be entered immediately. This recommendation was immediately enacted by the on-site staff.

A review of the Chrome Treatment Operations Manual did not result in the identification of any deficiencies. The Operations Manual for Final Treatment needs to be revised or rewritten. Ms. Bebley stated that they are working on an updated version of the manual and estimate a completion date in approximately three months. Additionally, Mr. Sullivan stated that engineers are re-evaluating the final treatment system.

Maintenance:

N 1. A maintenance record system has been established and includes maintenance/repair history and preventative maintenance plan.

U 2. Facility maintenance activities appeared adequate.

Comments:

Maintenance was rated as **unsatisfactory**, due to the facility having the East API out of service due to mechanical failure. The loss of the East API also halted the skimmer arms on the West API, according to on-site personnel. Part II. B. 1. of the permit requires that all facilities and systems (and related appurtenances) for collection and treatment that are installed or used by the permittee and that are necessary for achieving compliance with the terms and conditions of the permit, in accordance with 327 IAC 5-2-8(8), be maintained in good working order and efficiently operated at all times. Oil was also observed on both sides of Final Treatment's Settling Tanks.

Sludge:

S 1. Sludges, screenings, and slurries were found to be handled and disposed of properly.

Comments:

A records review conducted during the inspection, specifically for August 1, 2019 to August 9, 2019, showed adequate wasting, handling, and disposal of sludge. The records indicate the chrome sludge is disposed of by a contractor, Envirite.

Self-Monitoring:

S 1. Samples were found to be taken at pre-designated locations and were found to be representative.

S 2. Flow-proportioned samples were found to be obtained where needed.

S 3. The facility was found to conduct sampling of all waste streams, including type and frequency, as required in the permit.

S 4. Sample collection procedures, including automatic sampling, include:

a. Samples refrigerated during compositing.
b. Proper preservation techniques used.
c. Containers and holding times conform to 40 CFR 136.3.

S 5. Sample documentation was adequate and includes:

a. Dates, times, and locations of sampling.
b. Name of individual performing sampling.
c. Instantaneous flow for flow-weighted aliquots.
d. Chain of Custody records.

S 6. NPDES Permit Total Toxic Organic (TTO) requirements were being met.

S 7. NPDES Permit Whole Effluent Toxicity (WET) testing requirements were being met.

Comments:

The Self Monitoring Program was rated as satisfactory. All sampling practices are conducted accurately and at the frequency required by the permit. All sampling for NPDES effluent parameters is conducted by ALS.

Flow Measurement:

S 1. Flow was found to be properly monitored as required by the permit.

S 2. Flow data and calibration records were available for review.

Comments:

The facility's flow measurement program, including all documentation, is adequate and representative.

Laboratory:

The following laboratory records were reviewed:

Chain-of-Custody Contract Lab Reports

N 1. The laboratory practices and protocol reviewed were adequate, including:

a. A written laboratory QA/QC manual was available.
b. Samples were found to be properly stored.
c. Approved analytical methods were used.
d. Calibration and maintenance of instruments was adequate.

e. QA/QC procedures were adequate.
f. Dates of analyses (and times, where required) were recorded.
g. Name of person performing analyses was recorded.

S 2. Review of lab records and/or on-site field testing equipment and protocols was found to be adequate.

Contract Lab Information	
ALS	Valparaiso

Comments:
The bench sheets reviewed during the inspection appeared to be accurate and complete. All testing is conducted by ALS.

Records/Reports:
The following records/reports were reviewed:
DMRs for the period of July 2018 to June 2019 were reviewed as part of the inspection.

S 1. All facility records for the period including the previous three years were available for review.
M 2. DMRs and MMRs were completed properly and accurately including:
a. "No Ex" column was accurate.
b. Signatory requirements were met.
c. Reports were prepared by or under the direction of a certified operator.
S 3. Bypass and Noncompliance reporting are adequate.

Comments:
During a review of the DMRs and MMRs, it was observed that US Steel - Midwest has been reporting the average hourly temperatures and not the maximum hourly temperature as required by the permit. No effluent exceedances were observed for the time frame reviewed, which was July 2018 to June 2019. Mr. Sullivan stated the contact lab will begin making adjustments to report the proper data.

Additionally, during a review of the DMRs and MMRs, it could not be determined whether averages are being properly calculated for some parameters, including oil and grease. The methodology for calculating the averages is dependent upon the basis of the effluent limits (i.e. WQBEL, TBEL, or BPS). This matter will be forwarded to the Office of Water Quality - Permits Section for a determination.

Compliance Schedules:
N 1. The NPDES Permit Schedule of Compliance monitoring and reporting milestones have been met.
N 2. Agreed Order compliance milestones have been met.

Comments:
There is no Schedule of Compliance in the current permit, and there is no Agreed Order.

Effluent Limits Compliance:
Yes 1. Were DMRs reviewed as part of the inspection?
DMRs for the period of July 2018 to June 2019 were reviewed as part of the inspection.
No 2. Were violations noted during the review of DMRs?

Comments:

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Nicholas Ream	nream@idem.IN.gov	219-730-1691

Other staff participating in the inspection:

Name(s)	Phone Number(s)
Bob Lugar - Deputy Assistant Commissione...	
Jason House - Branch Chief - Wastewater ...	
Kim Rohr - Wastewater Inspections	
Aaron Deeter - Wastewater Inspections	

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Rick Massoels	8/14/2019

Inspection Photographs

Facility:
Us Steel Corporation Midwest Plant
Photographer:
Nicholas Ream
Date: 08/08/2019 Time: 12:50 PM
Others Present:
Monique Bebley, Bob Lugar, Jason House
Location/Description:
North view of the east API, which was inoperable at the time of the inspection.

Facility:
Us Steel Corporation Midwest Plant
Photographer:
Nicholas Ream
Date: 08/08/2019 Time: 12:50 PM
Others Present:
Monique Bebley, Bob Lugar, Jason House
Location/Description:
North view of the west API. While operable, we were informed the skimmers were not operable at they were tied to the east API.

Facility:
Us Steel Corporation Midwest Plant
Photographer:
Nicholas Ream
Date: 08/08/2019 Time: 1:35 PM
Others Present:
Monique Bebley, Bob Lugar, Jason House
Location/Description:
West view of the skimmers of the west settling basin. Oil was visible. It was stated that this may have been due to problems with a check valve.

Facility: **Us Steel Corporation Midwest Plant**
Photographer: Nicholas Ream
Date: 08/08/2019 Time: 1:35 PM
Others Present: Monique Bebley, Bob Lugar, Jason House
Location/Description: Southeast view of the skimmers of the east settling basin. Oil was visible. It was stated that this may have been due to problems with a check valve.

From: HOUSE, JASON
To: TLSullivan@uss.com
Cc: Greinke, David; Green, Aaron; Lugar, Robert G; MASSOELS, RICK; Ream, Nicholas; Kuss, Hala; ADMIRE, BETH; MURPHY, BRIDGET; Higginbotham, Paul; CLARK METTLER, MARTHA; Louks, Douglas; ADMIRE, BETH; Kuss, Hala; KING, NANCY; Clem, Ryan T
Subject: US Steel Midwest Incident - required follow-up
Date: Wednesday, August 21, 2019 9:59:05 AM
Attachments: image003.png
image002.jpg
Importance: High

Dear Mr. Sullivan:

The purpose of this communication is to request that US Steel Corporation-Midwest Plant do the following, in response to the reported release of an oil product from Outfall 004, which includes Outfall 104 and 204 according to NPDES Permit No. IN0000337:

1. For Outfalls 104, 204, and 004, immediately, and until further notice, increase the monitoring frequency for all parameters listed in Part I.A of the NPDES Permit that are not continuously monitored to daily sampling, using the sample type called for in the NPDES Permit and approved analytical methods. Report the results to IDEM, via email to Nicholas Ream, Jason House, and Hala Kuss, within 2 hours of the results being available.

2. Provide to IDEM, via email to Nicholas Ream, Jason House, and Hala Kuss, all presently available monitoring results for Outfalls 004, 104 and 204, for the month of August, including the samples taken the day of the incident, 8/20/2019.

3. Provide IDEM with a detailed explanation of the cause(s) of the oil release incident and the corrective actions taken. If the cause(s) have not been determined, explain the steps being taken to investigate the cause(s) and steps being taken to mitigate adverse impact.

4. Please ensure that all proper notifications of non-compliance are submitted to IDEM or any other applicable entities per the NPDES Permit.

Please note that compliance with the request contained in this letter does not alleviate any compliance requirements already contained within NPDES Permit No. IN0000337.

Please direct any questions and responses to Nick Ream at NREAM@idem.IN.gov, Jason House at jahouse@idem.in.gov, and Hala Kuss hkuss@idem.in.gov.

You may also reach me by phone contained below.

Best regards,

Jason House, Chief
Indiana Department of Environmental Management
Office of Water Quality - Wastewater Compliance Branch
100 N. Senate Avenue,

Indianapolis, IN 46204
Phone: 317/233-0470
Toll Free: 1-800/451-6027
https://www.in.gov/idem/cleanwater/2337.htm

From: "Sullivan, Timothy L" <TLSullivan@uss.com>
Date: August 21, 2019 at 07:42:27 CDT
To: "David Greinke (dgreinke@idem.IN.gov)" <dgreinke@idem.IN.gov>
Subject: Sampling results from our outfalls 104 & 204

8/20 Outfall 104 (Grab)
Cr6 = <0.000026 mg/L
TSS = 13 mg/L
Oil & Grease = 6.2 mg/L
Total Cyanide = <0.0020 mg/L
Field pH = 8.3 S.U.
Cadmium = <0.000060 mg/L
Chromium = 0.0019 mg/L
Zinc = 0.0041 mg/L
Lead = <0.00019 mg/L
Nickel = 0.0052 mg/L
Silver = <0.000040 mg/L
Copper = 0.0092 mg/L

8/20 Outfall 004 (Grab)
Oil & Grease = 4.8 mg/L
WAD Cyanide = <0.0015 mg/L
Field pH = 8.0 S.U.
Cadmium = <0.000060 mg/L
Copper = 0.0071 mg/L
Silver = <0.000040 mg/L
Nickel = 0.0037 mg/L
Lead = <0.00019 mg/L

Timothy L. Sullivan
Coordinator - Environmental

Midwest Plant
U.S. Steel Corporation
Portage, IN 46368
(219) 763-5022 (o)
(219) 712-8087 (c)

United States Steel Corporation – Midwest Plant
U. S. Highway 12
Portage, IN 46368

VIA ELECTRONIC SUBMITTAL

August 26, 2019

Mr. Jason House, Chief
Office of Water Quality – Wastewater Compliance Branch
Indiana Department of Environmental Management (IDEM)
100 North Senate Avenue – Post Office Box 6015
Indianapolis, IN 46206

Subject: United States Steel Corporation – Midwest Plant
NPDES Permit IN0000337
Discoloration at Outfall 004

Dear Mr. House:

This letter is a summary of the cause and corrective actions regarding discoloration at Outfall 004 at the U. S. Steel Corporation – Midwest Plant ("Midwest") which occurred on Tuesday August 20, 2019 as requested by IDEM in an email from Mr. Jason House on August 22nd. Outfall 004 is a permitted outfall to the Portage-Burns Waterway under NPDES Permit IN0000337 effective April 1, 2016. Outfall 004 sources includes the Final Treatment Plant (internal Outfall 104), the Chrome Treatment Plant (internal Outfall 204) as well as non-contact cooling water and stormwater runoff. As described below, the discoloration is believed to be due to soluble oil discharged via the Final Treatment Plant. The discoloration did not contain, nor was it caused by, any form of chromium.

A U. S. Steel wastewater treatment operator (operator) observed a discoloration at Outfall 004 at approximately 8:25am on August 20th and immediately reported it to the Environmental Department. Once confirmed at approximately 8:35am, notifications were made to Mr. Nick Ream of IDEM at approximately 8:47am, followed by a call to Mr. Dave Greinke of IDEM at approximately 8:49am. At approximately 9:00am, Mr. Greinke arrived at the Midwest facility. Environmental escorted Mr. Greinke to Outfall 004 for observation of the discoloration. At approximately 10:00am, the discoloration was no longer present at the outfall. In addition to IDEM, the Coast Guard also visited the Midwest facility to observe the outfall. Notifications were also made to the National Response Center (NRC), Indiana American Water, City of Portage, National Parks Service and Ogden Dunes by approximately 11:05am.

Grab samples were collected from the discharges of Outfalls 004 and 104 during the event and sent to a third-party laboratory for analysis. The results of the grab samples were received on August 21, 2019 and were submitted via email to Mr. Dave Greinke (IDEM). All of the results were below U. S. Steel's NPDES discharge limitations.

U. S. Steel personnel began to investigate immediately upon discovery of the issue on August 20th. During the night of August 19th, a rolling oil solution tank was emptied to the Oil Pretreatment Plant. The next morning on August 20th, a cleaner solution tank was discharged directly to the Final Treatment Plant. At this time, U. S. Steel believes that some of the emulsified rolling oil remained solubilized and was not all removed in the API oil water separator of the Oil Pretreatment Plant. The hydrophilic cleaner solution then attracted and carried the emulsified oil through the Final Treatment Plant to the discharge. Both rolling oil and cleaner solution are normal wastewater sources that are routinely treated and discharged through the treatment plants and proper communication did occur, but the timing and combination of the two may have resulted in enough carry-through to cause a discoloration.

Both treatment trains of the Final Treatment Plant were in operation. There were no spills or releases identified at the facility during this event. U. S. Steel also verified operation of instrumentation along the cleaner tank and rolling solution discharge pathway to ensure that no alert/alarm signal failed to operate. All instrumentation has been operating properly.

As a corrective action, U. S. Steel is reviewing the rolling oil solution and cleaner tank draining practices as well as the dosage of water treatment chemistry at the Oil Pretreatment Plant. If you have any questions about this matter, please call me at (313) 749-3900 or email me at APiscitelli@uss.com.

Sincerely,

Alexis Piscitelli
Director – Environmental Compliance
United States Steel Corporation
Great Lakes Works, Midwest Plant

cc: Nick Ream, IDEM
David Greinke, IDEM
Hala Kuss, IDEM
Tom Martin, EPA
Tim Sullivan, U. S. Steel
Eric Williams, U. S. Steel
Nicole Benoit, P.E., U. S. Steel
David Shelton, U. S. Steel

2 / 2

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Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

September 30, 2019

Via Email to: tlsullivan@uss.com
Mr. Tim Sullivan, Compliance Manager
US Steel, Midwest Plant
6300 US Highway 12
Portage, Indiana 46368

Dear Mr. Sullivan:

Re: Inspection Summary Letter
US Steel Corporation Midwest Plant
NPDES Permit No. IN0000337
Portage, Porter County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Northwest Regional Office, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection: September 18, 2019

Type of Inspection: Reconnaissance Inspection

Inspection Results: Potential problems were discovered or observed.

1. The Receiving Waters and Effluent Appearance categories were rated as marginal. Visible, infrequent sheens were observed leaving Outfall 004. Booms were in place and appeared to keep most, but not all, of the sheen contained near the outfall. Please refer to the attached picture.

2. Operations was rated as marginal. On-site staff believed the periodic sheen may have been due to the coating oil which, was spilled on September 6, 2019 within the plant. It is believed that the coating oil is still on the clarifier flights and slowly releases, while in operation. Potential cleaning methods were discussed with on-site staff.

A copy of the NPDES Industrial Facility Inspection Report is enclosed for your records. Please direct any response to this letter and any questions to Nicholas Ream at 219-730-1691 or by email to nream@idem.IN.gov.

Sincerely,

Rick Massoels, Deputy Director

Northwest Regional Office

Enclosure

NPDES Industrial Facility Inspection Report
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number:	Facility Type:		Facility Classification:	TEMPO AI ID
IN0000337	Industrial	Major	D	14435

Date(s) of Inspection: September 18, 2019

Type of Inspection: Reconnaissance Inspection

Name and Location of Facility Inspected:			Receiving Waters/POTW:	Permit Expiration Date:
US Steel Corporation Midwest Plant				3/31/2021
6300 US Highway 12		County:	Burns Waterway to Lake Michigan	Design Flow:
Portage	IN 46368	Porter		NA

On Site Representative(s):

First Name	Last Name	Title	Email	Phone
Tim	Sullivan	Compliance Manager	tlsullivan@uss.com	219-763-5022

Was a verbal summary of the inspection given to the on-site rep? **Yes**

Certified Operator:	Number:	Class:	Effective Date:	Expiration Date:	Email:
Monique Beybley	21038	D	8/9/18	6-30-21	mbebley@uss.com

Cyber Security Contact

Name: Email:

Responsible Official:	Permittee:	US Steel, Midwest Plant	
Mr. Tim Sullivan, Compliance Manager	Email:	tlsullivan@uss.com	
6300 US Highway 12	Phone:	219-763-5022	Contacted?
Portage, Indiana 46368	Fax:		Yes

INSPECTION FINDINGS

- ○ Conditions evaluated were found to be satisfactory at the time of the inspection. (5)
- ○ Violations were discovered but corrected during the inspection. (4)
- ◉ Potential problems were discovered or observed. (3)
- ○ Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2)
- ○ Violations were discovered and may subject you to an appropriate enforcement response. (1)

AREAS EVALUATED DURING INSPECTION

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated

M	Receiving Waters	S	Facility/Site	N	Self-Monitoring	N	Compliance Schedules
M	Effluent/Discharge	M	Operation	N	Flow Measurement		
N	Permit	N	Maintenance	N	Laboratory	N	Effluent Limits Compliance
		N	Sludge	N	Records/Reports	N	Other:

DETAILED AREA EVALUATIONS

This inspection is being conducted as a follow-up to the August 8, 2019 inspection. Please refer to August 8, 2019 inspection for more information.

Receiving Waters:

Comments:
The Receiving Waters category was rated as **marginal**. Visible, infrequent sheens were observed leaving Outfall 004. Booms were in place and appeared to keep most, but not all, of the sheen contained near the outfall. Please refer to the attached picture.

Effluent/Discharge:

Evaluation of Multiple Outfalls:

Outfall #	Insp. Date	Outfall Inspection Comments
002	9/18/2019	Effluent was clear.
003	9/18/2019	Effluent was clear.
004	9/18/2019	Minimal sheen was observed infrequently.

Comments:
The Effluent Appearance was rated as **marginal** due to a visible, infrequent sheen. Please refer to Receiving Waters for more information.

Facility/Site:
Comments:
The facility grounds are well maintained.

Operation:
Comments:
Operations was rated as **marginal**. On-site staff believed the periodic sheen may have been due to the coating oil, which was spilled on September 6, 2019 within the plant. It is believed that the coating oil is still on the clarifier flights and slowly releases, while in operation. Potential cleaning methods were discussed with on-site staff.

The east API, cited during the August 8, 2019 inspection as being in unsatisfactory condition, was confirmed to be repaired and in operation. Please refer to the attached picture.

Effluent Limits Compliance:
No 1. Were DMRs reviewed as part of the inspection?
Comments:

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Nicholas Ream	nream@idem.IN.gov	219-730-1691

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Rick Massoels	9/19/2019

Inspection Photographs

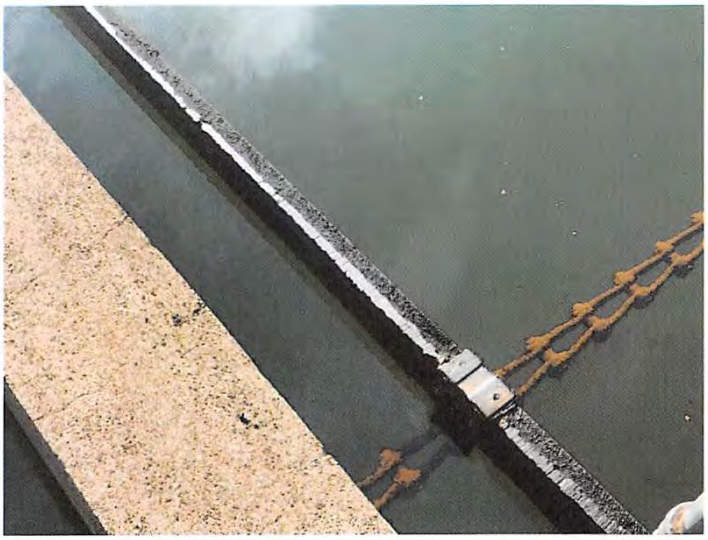
Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 09/18/2019 Time: 10:00 AM

Others Present:
Tim Sullivan

Location/Description:
Southwest view of Outfall 004. Though difficult to see in the picture, mild sheening was observed captured in the booms.



Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 09/18/2019 Time: 10:00 AM

Others Present:
Tim Sullivan

Location/Description:
Southeast photo of an east clarifier flight. It was believed, by on-site staff, that the fights still have residual coating oil from the September 6, 2019 event. The shapes on the top of the water are clouds reflected off the water's surface.

Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 09/18/2019 Time: 10:15 AM

Others Present:
Tim Sullivan

Location/Description:
North view of the repaired East API in operation.

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Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

December 03, 2019

Via Email to: tlsullivan@uss.com
Mr. Tim Sullivan, Compliance Manager
US Steel, Midwest Plant
6300 US Highway 12
Portage, Indiana 46368

Dear Mr. Sullivan:

Re: **Inspection Summary/ Enforcement Referral**
US Steel Corporation Midwest Plant
NPDES Permit No. IN0000337
Portage, Porter County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Northwest Regional Office, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection:	October 31, 2019 , November 06, 2019
Type of Inspection:	Reconnaissance Inspection
Inspection Results:	Violations were observed and will be referred to the Enforcement Section.

The following concerns were noted:

1. The Receiving Water was rated as marginal, due to a mild sheening observed at Outfall 004 on October 31, 2019. No sheens were observed at Outfalls 002 or 003 on October 31, 2019. No sheening was observed at Outfall 004 on November 6, 2019.

2. Part II. B. 1. of the permit requires that all facilities and systems (and related appurtenances) for collection and treatment that are installed or used by the permittee and that are necessary for achieving compliance with the terms and conditions of the permit be maintained in good working order and efficiently operated at all times.

   US Steel personnel contacted IDEM - Emergency Response to make a notification of a potential hexavalent chromium exceedance at Outfall 304 on October 30, 2019, based on a preliminary result of a grab sample collected that day. It was determined by US Steel Personnel that a blockage in a line utilized to analyze pH in the Train B Chrome Reduction Tank of the Chrome Treatment facility, where hexavalent chromium is

reduced to trivalent chromium, caused an inadequate chemical feed resulting in inadequate treatment for the hexavalent chromium. In the follow-up internal investigation conducted by US Steel Midwest personnel, it was determined that an operator did not follow the Standard Operating Procedures (SOP) required by US Steel Midwest. Operators are required, by the US Steel Midwest SOP, to manually test the pH every two hours and compare these results against the automated results. It was determined by US Steel Midwest that, while some manual testing was occurring during the second shift, it was not being conducted every two hours, as required, and may have lead to the problem continuing, without detection, for up to approximately two hours longer.

After notification of the 7:30 AM grab sample result from the lab, US Steel Midwest took an additional sample. The second sample was taken from the B Train clarifier, as the discharge from the B Train had been stopped. US Steel Midwest initially used the result in the calculation of the daily hexavalent chromium loading reported to IDEM in a non-compliance notification letter. However, upon being notified by IDEM that the result from the second sample cannot be used for reporting purposes because no discharge was occurring at the time of the sampling, US Steel recalculated the daily loading and submitted a revised noncompliance notification letter. The revised letter reported that 1.525 pounds of hexavalent chromium was discharged from Outfall 304 on October 30, 2019. See attached.

The Chrome Line and Tin Line were shut down in an attempt to mitigate problems at the treatment facility, as the wastewater from those lines is treated at the Chrome Treat facility.

Additionally, during the inspection on November 6, 2019, oil sheens were observed behind the skimmers in the Final Treatment. It was stated, by an operator, that there are holes in the manual skimmer. It was further stated that oil sheens were generally removed by vactor trucks as the skimmers are not effective. Please investigate and, if needed, repair the skimmers of the Settling Tanks in the Final Treatment facility.

3. The hexavalent chromium loading limit, at Outfall 304, was exceeded on October 30, 2019, in violations of Part I. A. of the permit.

This matter will be referred to the IDEM - Office of Water Quality - Enforcement Section for their consideration in conjunction with the enforcement referral generated with the May 2019 report. Please direct any response to Nicholas K. Ream at 219-730-1691 or via email at nream@idem.in.gov.

Sincerely,

Rick Massoels, Deputy Director
Northwest Regional Office

Enclosure

NPDES Industrial Facility Inspection Report

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number:	Facility Type:		Facility Classification:	TEMPO AI ID
IN0000337	Industrial	Major	D	14435

Date(s) of Inspection: October 31, 2019 , November 06, 2019

Type of Inspection: Reconnaissance Inspection

Name and Location of Facility Inspected:			Receiving Waters/POTW:	Permit Expiration Date:
US Steel Corporation Midwest Plant 6300 US Highway 12 Portage	IN 46368	County: Porter	Portage - Burns Waterway to Lake Michigan	3/31/2021 Design Flow: NA

On Site Representative(s):

First Name	Last Name	Title	Email	Phone
Tim	Sullivan	Compliance Manager	tlsullivan@uss.com	219-763-5022
Monique	Bebley	Operator	mbebley@uss.com	
Tishie	Woodwell	General Manager - Environmental	twoodwell@uss.com	
Alexis	Piscitielli	Environmental Manager	apiscitelli@uss.com	
Eric	Williams	US Steel Environmental Affairs Manager	ewilliams@uss.com	
Joe	Karioki	Manager	jkarioki@uss.com	

Was a verbal summary of the inspection given to the on-site rep? **Yes**

Certified Operator:	Number:	Class:	Effective Date:	Expiration Date:	Email:
Monique Beybley	21038	D	8/9/18	6-30-21	mbebley@uss.com

Cyber Security Contact

Name: Email:

Responsible Official:		
Mr. Tim Sullivan, Compliance Manager 6300 US Highway 12 Portage, Indiana 46368	Permittee: US Steel, Midwest Plant Email: tlsullivan@uss.com Phone: 219-763-5022 Fax:	Contacted? Yes

INSPECTION FINDINGS

- ○ Conditions evaluated were found to be satisfactory at the time of the inspection. (5)
- ○ Violations were discovered but corrected during the inspection. (4)
- ○ Potential problems were discovered or observed. (3)
- ○ Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2)
- ◉ Violations were discovered and may subject you to an appropriate enforcement response. (1)

AREAS EVALUATED DURING INSPECTION

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated

M	Receiving Waters	S	Facility/Site	N	Self-Monitoring	N	Compliance Schedules
M	Effluent/Discharge	U	Operation	N	Flow Measurement		
S	Permit	N	Maintenance	N	Laboratory	U	Effluent Limits Compliance
		N	Sludge	S	Records/Reports	S	Other: Notifications

DETAILED AREA EVALUATIONS

This reconnaissance inspection encompasses the response to a hexavalent chromium exceedance from October 30, 2019 with Mr. Dave Greinke of IDEM on October 31, 2019, and a meeting, followed by a limited physical inspection on November 6, 2019 with Mr. Bob Lugar, Mr. Jason House, and Ms. Hala Kuss, all of whom are with IDEM.

Receiving Waters:

Comments:

The Receiving Water was rated as **marginal**, due to a mild sheening observed at Outfall 004 on October 31, 2019. No sheens were observed at Outfalls 002 or 003 on October 31, 2019. No sheening was observed at Outfall 004 on November 6, 2019.

Effluent/Discharge:

Comments:

Effluent/Discharge was rated as **marginal**, due to the mild sheen observed at Outfall 004 on October 31, 2019. Please refer to Receiving Water for more information.

Permit:

Comments:

The facility has a valid permit.

Facility/Site:

Comments:

The facility grounds are well maintained.

Operation:

Comments:

Part II. B. 1. of the permit requires that all facilities and systems (and related appurtenances) for collection and treatment that are installed or used by the permittee and that are necessary for achieving compliance with the terms and conditions of the permit be maintained in good working order and efficiently operated at all times.

US Steel personnel contacted IDEM - Emergency Response to make a notification of a potential hexavalent chromium exceedance at Outfall 304 on October 30, 2019, based on a preliminary result of a grab sample collected that day. It was determined by US Steel Personnel that a blockage in a line utilized to analyze pH in the Train B Chrome Reduction Tank of the Chrome Treatment facility, where hexavalent chromium is reduced to trivalent chromium, caused an inadequate chemical feed resulting in inadequate treatment for the hexavalent chromium. In the follow-up internal investigation conducted by US Steel Midwest personnel, it was determined that an operator did not follow the Standard Operating Procedures (SOP) required by US Steel Midwest. Operators are required, by the US Steel Midwest SOP, to manually test the pH every two hours and compare these results against the automated results. It was determined by US Steel Midwest that, while some manual testing was occurring during the second shift, it was not being conducted every two hours, as required, and may have lead to the problem continuing, without detection, for up to approximately two hours longer.

After notification of the 7:30 AM grab sample result from the lab, US Steel Midwest took an additional sample. The second sample was taken from the B Train clarifier, as the discharge from the B Train had been stopped. US Steel Midwest initially used the result in the calculation of the daily hexavalent chromium loading reported to IDEM in a non-compliance notification letter. However, upon being notified by IDEM that the result from the second sample cannot be used for reporting purposes because no discharge was occurring at the time of the sampling, US Steel recalculated the daily loading and submitted a revised noncompliance notification letter. The revised letter reported that 1.525 pounds of hexavalent chromium was discharged from Outfall 304 on October 30, 2019. See attached.

The Chrome Line and Tin Line were shut down in an attempt to mitigate problems at the treatment facility, as the wastewater from those lines is treated at the Chrome Treat facility.

Additionally, during the inspection on November 6, 2019, oil sheens were observed behind the skimmers in the Final Treatment. It was stated, by an operator, that there are holes in the manual skimmer. It was further stated that oil sheens were generally removed by vactor trucks as the skimmers are not effective. Please investigate and, if needed, repair the skimmers of the Settling Tanks in the Final Treatment facility.

Records/Reports:

The following records/reports were reviewed:

Comments:

The 5 Day Letter for the hexavalent chromium non-compliance was submitted in a timely fashion.

Effluent Limits Compliance:

Yes 1. Were DMRs reviewed as part of the inspection?

No 2. Were violations noted during the review of DMRs?

Comments:

The hexavalent chromium loading limit, at Outfall 304, was exceeded on October 30, 2019, in violations of Part I. A. of the permit.

Other:

Notifications

Comments:

Downstream users were notified of the exceedance. US Steel Midwest provided a list of the users notified to

IDEM.

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Nicholas Ream	nream@idem.IN.gov	219-730-1691

Other staff participating in the inspection:

Name(s)	Phone Number(s)
David Greinke - IDEM	219-730-4035
Hala Kuss - IDEM	219-464-0233
Bob Lugar - IDEM	317-234-6019
Jason House - IDEM	317-233-0470

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Rick Massoels	11/14/2019

United States Steel Corporation – Midwest Plant
U. S. Highway 12
Portage, IN 46368

VIA ELECTRONIC SUBMITTAL

November 8, 2019

Mr. Nicholas Ream
Office of Water Quality
Indiana Department of Environmental Management (IDEM)
100 North Senate Avenue – Post Office Box 6015
Indianapolis, IN 46206

Subject: United States Steel Corporation – Midwest Plant
NPDES Permit IN0000337
October 30, 2019 Hexavalent Chromium Exceedance at Internal Outfall 304
Revised (Five-Day Letter)

Dear Mr. Ream:

On October 30, 2019, U. S. Steel Midwest had an issue at the chrome treatment plant and exceeded the daily loading for hexavalent chromium. Out of an abundance of caution, we immediately ceased operations at the chrome and tin production lines as well as the chrome treatment plant until an investigation and corrective actions could be made. Notifications were also made to government agencies, downstream users and other stakeholders further described below.

This letter is the written five-day submission regarding a daily maximum exceedance of hexavalent chromium at internal Outfall 304 at the U. S. Steel Corporation – Midwest Plant ("Midwest") which was verbally reported on Wednesday, October 30, 2019. Outfall 304 is a permitted internal outfall that discharges to the Portage-Burns Waterway under NPDES Permit IN0000337 effective April 1, 2016. Outfall 304 is an outfall for reporting purposes that is the calculated combined total of internal Outfalls 104 and 204. Internal Outfall 104 is the Final Treatment Plant effluent and internal Outfall 204 is the Chrome Treatment Plant effluent.

The NPDES discharge effluent limitation for hexavalent chromium was exceeded at Outfall 304 on October 30, 2019 with a loading of 1.525 lbs./day vs a permit limitation of 0.51 lbs./day. See the table below for concentrations, flows and loading:

Outfall	Sample 1 Concentration (mg/L)	Sample 2 Concentration (mg/L)	Average Concentration (mg/L)	24 Hour Flow (MGD)	Loading (lbs./day)	Date
104	0.000027	0.000084	0.000045	10.82	0.004	10/30/2019
204	1.900	N/A	1.900	0.096	1.521	10/30/2019
304	N/A	N/A	N/A	10.92	1.525	10/30/2019

The chrome treatment plant has two identical treatment trains that run in parallel with each other. Both trains can independently operate and discharge through internal outfall 204 or they could be put into recycle mode, which sends the effluent back to the beginning of the treatment process. At approximately 4:00 a.m. CST on October 30, 2019, the 'B' train sulfuric acid addition to the reduction tank significantly decreased. When the daylight operator conducted his manual tests at approximately 8:00 a.m. CST, he determined there was a problem with 'B' train and immediately put it into recycle and started 'A' train up. Once 'A' train was verified to be operating properly, it began to discharge to Outfall 204 at approximately 9:00 a.m. CST.

U. S. Steel received the results from the lab at approximately 3:40 p.m. CST and notified IDEM of the exceedance in accordance with Part II Section C.3.d of the NPDES permit at approximately 5:20 p.m. CST. In addition to IDEM, notifications to the following entities were also made: National Response Center, USEPA Regional Administrator Region 5, Indiana Dunes National Park, Porter County LEPC, Port of Indiana Harbor Port Director, Porter County Sherriff's Office, Michigan City Water Department, East Chicago Water Department, Hammond Water Works, City of Portage POTW, Indiana American Water, City of Chicago Bureau of Water Supply, City of Portage, Town of Ogden Dunes, Senator Karen Tallian and Representative Chuck Mostly.

Upon learning of the possible exceedance, the chrome and tin production lines were shut down as well as the chrome treatment plant. All discharges through Outfall 204 ceased by approximately 3:50 p.m. CST. Due to the 'A' line being left in automatic mode, the 'A' treatment line started back up through the night and intermittently discharged approximately 33,000 gallons before the operators shut it down. 'A' train was operating properly, and all treatment parameters were within range.

After shutdown of the chrome and tin production lines and shutdown of the chrome treatment plant, U. S. Steel collected a sample of treated water from the lamella filter effluent. We believe that this sample was representative of the water discharged from the chrome treatment plant through Outfall 204 after 8:00 a.m. CST. This was the time that the issue with "B" line was discovered and corrective actions were implemented. The sampling of this water showed hexavalent chromium levels of 0.197 mg/L. This concentration is well below what is needed to comply with the 0.51 lbs./day permit limit. Of the 96,000 gallons discharged from Outfall 204 on October 30th, 77,000 gallons discharged after 8:00 a.m. CST. We believe that the 0.197 mg/L is representative of the discharge quality of the77,000 gallons discharged after 8:00 a.m. CST, and that the actual hexavalent chromium discharged is 0.845 pounds or less, well below the 1.522 pounds being reported. However, at the request of IDEM, we have removed the second analytical result from our 5-day letter and have calculated Outfall 204 loadings based solely upon the 1.9 mg/L reading. The monthly DMR for October will reflect this change.

Once operations were shut down, additional samples were taken at Outfall 004 as well as Burns Waterway. See table below for results:

Location	Date	Time (CST)	Result (mg/L)
004	10/30/2019	4:00 p.m.	0.0000191
Burns Waterway A	10/30/2019	9:00 p.m.	0.000063
Burns Waterway B	10/30/2019	9:00 p.m.	0.000060
004 A	10/30/2019	9:00 p.m.	0.000059
004 B	10/30/2019	9:00 p.m.	0.000059

Investigation into the root cause of the exceedance determined that a continuous pH monitoring line was plugged that resulted in an incorrect pH value being monitored. This incorrect pH reading influenced the sulfuric acid addition to the reduction tank. In addition to the plugged pH line, it was also determined that an operator failed to manually check pH values in accordance with standard operating procedures.

Corrective actions include the following:

- Install a clear cover on pH monitoring line/bath so that flow can be visually observed by operators
- Investigate if flow sensors can be installed on the pH monitoring lines
- Educate employees on incident and retrain on procedures
- Institute a temporary work instruction that requires the operators to record pH and other relevant information once per hour
- Investigate the addition of alarms for pH, sulfuric acid, sodium bisulfite and caustic additions

Operations at the chrome treatment plant remained idled until the investigation was complete, and all necessary corrective actions initiated. IDEM was notified prior to restarting the chrome treatment plant. Starting at approximately 8:00 p.m. on October 31, 2019 in recycle mode, each treatment train of the chrome treatment line was brought up independently and two hex chrome samples were taken approximately 1 hour apart of the effluent of each train. The results of those start up test are as follows:

Treatment Train	Date	Time	Hex Chrome Result (mg/L)
A	10/31/2019	8:40 p.m.	<0.0000040
A	10/31/2019	9:40 p.m.	<0.0000040
B	10/31/2019	10:10 p.m.	0.048
B	10/31/2019	11:20 p.m.	0.00031
B	11/1/2019	10:34 a.m.	0.000081

Once proper operation of the chrome treatment plant was verified, discharge though Outfall 204 started via 'A' train at approximately 9:00 a.m. 11/1/2019. The operating lines remained down until Monday November 4 at which time they were methodically restarted.

As requested by IDEM, additional sampling is being conducted and is being submitted to IDEM under separate correspondence.

If you have any questions about this matter, please call me at (313) 749-3900 or email me at APiscitelli@uss.com.

Sincerely,

Alexis Piscitelli
Director – Environmental Compliance
United States Steel Corporation
Great Lakes Works, Midwest Plant

Indiana Department of Environmental Management
We Protect Hoosiers and Our Environment.
100 N. Senate Avenue ● Indianapolis, IN 46204
(800) 451-6027 ● (317) 232-8603 ● www.idem.IN.gov

Eric J. Holcomb
Governor

Bruno Pigott
Commissioner

December 10, 2019

Via Email to: tlsullivan@uss.com
Mr. Tim Sullivan, Compliance Manager
US Steel, Midwest Plant
6300 US Highway 12
Portage, Indiana 46368

Dear Mr. Sullivan:

Re: **Inspection Summary/ Enforcement Referral**
US Steel Corporation Midwest Plant
NPDES Permit No. IN0000337
Portage, Porter County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Northwest Regional Office, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection:	November 21, 2019
Type of Inspection:	Reconnaissance Inspection
Inspection Results:	Violations were observed and will be referred to the Enforcement Section.

The following concerns were noted:

1. Receiving Stream and Effluent/Discharge were rated as unsatisfactory. Part I. B. of the permit prohibits the discharge from any and all point sources specified within this permit from causing receiving waters, including the mixing zone, to contain substances, materials, floating debris, oil, or scum: 1) that will settle to form putrescent or otherwise objectionable deposits; 2) that are in amounts sufficient to be unsightly or deleterious; 3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance. The Receiving Waters Appearance was rated as unsatisfactory, due to turbidity and discoloration at Outfall 004. Intermittent sheening was also observed periodically at Outfall 004, though US Steel was utilizing a vactor truck and boom to collect much of the sheen.

2. On November 21, 2019, US Steel personnel observed a discoloration of Outfall 004 and the Final Treatment Plant, which includes Outfall 104. US Steel contacted IDEM, which resulted in an inspection. Upon arrival, I observed discoloration and intermittent sheening at Outfalls 004 and 104,

though Mr. Sullivan stated that the discoloration was starting to subside. When asked if contact was made with downstream users, Mr. Sullivan stated that IDEM, US EPA, National Response Center, National Park Service, Indiana American Water, City of Portage, Ogden Dunes Fire Chief, and Senator Karen Tallian were notified via telephone by US Steel personnel.

The east train of the Final Treatment Plant was off-line, due to routine maintenance. The train was brought back on-line to assist with residence time of the wastewater, as the loss of available capacity likely caused or contributed to the loss of the solids to Burns Waterway and, thus, to Lake Michigan, which caused violations of the Narrative Water Quality Standards. The Narrative Standard Non-Compliance letter from US Steel - Midwest Plant, dated November 26, 2019, indicated the west treatment train was down. I contacted US Steel - Midwest and confirmed the east treatment train was down; thus I requested a revision of the notification to properly reflect which treatment train was initially down for maintenance.

The subsequent investigation conducted by US Steel personnel indicated that the #1 tank at the pickle line had an uncapped strainer, which resulted in a process leak of pickle liquor to the Final Treatment Plant. US Steel personnel initiated enhanced sampling to determine the extent of the non-compliance. A review of the data submitted to IDEM for November 20 to November 22, 2019 did not indicate numerical exceedances of the NPDES permit for Outfalls 004 and 104. IDEM has requested additional information regarding whether other conditions, such as low pH in the Final Treatment Plant equalization tank and non-functionality of the final treatment plant skimming system, may have contributed to the noncompliance.

Part II. B. 1. of the permit requires that all facilities and systems (and related appurtenances) for collection and treatment, which are installed or used by the permittee and which are necessary for achieving compliance with the terms and conditions of the permit in accordance with 327 IAC 5-2-8(9) must be maintained in good working order and efficiently operated at all times.

This matter is being referred to the OWQ Enforcement Section for appropriate action. If formal action is initiated, you will be issued a Notice of Violation informing you of how to proceed in resolving this matter. Please direct any questions to Nicholas Ream at 219-730-1691 or by email to nream@idem.IN.gov. A copy of the NPDES Industrial Facility Inspection Report is enclosed for your records.

Sincerely,

Rick Massoels, Deputy Director
Northwest Regional Office

Enclosure

NPDES Industrial Facility Inspection Report

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number:	Facility Type:		Facility Classification:	TEMPO AI ID
IN0000337	Industrial	Major	D	14435

Date(s) of Inspection: November 21, 2019

Type of Inspection: Reconnaissance Inspection

Name and Location of Facility Inspected:

US Steel Corporation Midwest Plant
6300 US Highway 12
Portage IN 46368 County: Porter

Receiving Waters/POTW: Portage

Permit Expiration Date:

Design Flow: NA

On Site Representative(s):

First Name	Last Name	Title	Email	Phone
Tim	Sullivan	Compliance Manager	tlsullivan@uss.com	219-763-5022

Was a verbal summary of the inspection given to the on-site rep? **Yes**

Certified Operator:	Number:	Class:	Effective Date:	Expiration Date:	Email:
Monique Beybley	21038	D	8-9-18	6-30-21	mbebley@uss.com

Cyber Security Contact

Name: Email:

Responsible Official:
Mr. Tim Sullivan, Compliance Manager
6300 US Highway 12

Portage, Indiana 46368

Permittee: US Steel, Midwest Plant
Email: tlsullivan@uss.com
Phone: 219-763-5022 Contacted? Yes
Fax:

INSPECTION FINDINGS

- ○ Conditions evaluated were found to be satisfactory at the time of the inspection. (5)
- ○ Violations were discovered but corrected during the inspection. (4)
- ○ Potential problems were discovered or observed. (3)
- ○ Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2)
- ◉ Violations were discovered and may subject you to an appropriate enforcement response. (1)

AREAS EVALUATED DURING INSPECTION

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated

U	Receiving Waters	N	Facility/Site	S	Self-Monitoring	N	Compliance Schedules
U	Effluent/Discharge	U	Operation	N	Flow Measurement		
N	Permit	U	Maintenance	N	Laboratory	N	Effluent Limits Compliance
		N	Sludge	N	Records/Reports	N	Other:

DETAILED AREA EVALUATIONS

Receiving Waters:

Comments:

Part I. B. of the permit prohibits the discharge from any and all point sources specified within this permit from causing receiving waters, including the mixing zone, to contain substances, materials, floating debris, oil, or scum: 1) that will settle to form putrescent or otherwise objectionable deposits; 2) that are in amounts sufficient to be unsightly or deleterious; 3) that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance. The Receiving Waters Appearance was rated as unsatisfactory, due to turbidity and discoloration at Outfall 004. Intermittent sheening was also observed periodically at Outfall 004, though US Steel was utilizing a vactor truck and boom to collect much of the sheen. Refer to the photographs.

Effluent/Discharge:

Comments:

The Effluent/Discharge category was rated as unsatisfactory. Please refer to Receiving Waters for more information.

Operation:

Comments:

On November 21, 2019, US Steel personnel observed a discoloration of Outfall 004 and the Final Treatment Plant, which includes Outfall 104. US Steel contacted IDEM, which resulted in an inspection. Upon arrival, I observed discoloration and intermittent sheening at Outfalls 004 and 104, though Mr. Sullivan stated that the discoloration was starting to subside. When asked if contact was made with downstream users, Mr. Sullivan stated that IDEM, US EPA, National Response Center, National Park Service, Indiana American Water, City of Portage, Ogden Dunes Fire Chief, and Senator Karen Tallian were notified via telephone by US Steel personnel.

The east train of the Final Treatment Plant was off-line, due to routine maintenance. The train was brought back on-line to assist with residence time of the wastewater, as the loss of available capacity likely caused or contributed to the loss of the solids to Burns Waterway and, thus, to Lake Michigan, which caused violations of the Narrative Water Quality Standards. The Narrative Standard Non-Compliance letter from US Steel - Midwest Plant, dated November 26, 2019, indicated the west treatment train was down. I contacted US Steel - Midwest and confirmed the east treatment train was down; thus I requested a revision of the notification to properly reflect which treatment train was initially down for maintenance.

The subsequent investigation conducted by US Steel personnel indicated that the #1 tank at the pickle line had an uncapped strainer, which resulted in a process leak of pickle liquor to the Final Treatment Plant. US Steel personnel initiated enhanced sampling to determine the extent of the non-compliance. A review of the data submitted to IDEM for November 20 to November 22, 2019 did not indicate numerical exceedances of the NPDES permit for Outfalls 004 and 104. IDEM has requested additional information regarding whether other conditions, such as low pH in the Final Treatment Plant equalization tank and non-functionality of the final treatment plant skimming system, may have contributed to the noncompliance.

Part II. B. 1. of the permit requires that all facilities and systems (and related appurtenances) for collection and treatment, which are installed or used by the permittee and which are necessary for achieving compliance with the terms and conditions of the permit in accordance with 327 IAC 5-2-8(9) must be maintained in good working order and efficiently operated at all times.

Maintenance:

Comments:

Please refer to Operation for more information.

Self-Monitoring:

Comments:

The Self Monitoring Program was rated as satisfactory. US Steel Midwest increased sampling appropriately to determine the extent of the non-compliance during the narrative water quality violation.

Effluent Limits Compliance:

No 1. Were DMRs reviewed as part of the inspection?

Comments:

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Nicholas Ream	nream@idem.IN.gov	219-730-1691

Other staff participating in the inspection:

Name(s)	Phone Number(s)
David Greinke	219-730-4035
Richard Massoels	219-464-0233

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Rick Massoels	12/4/2019

Inspection Photographs

Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 11/21/2019 Time: 12:30 PM

Others Present:
Rick Massoels, David Greinke, Tim Sullivan

Location/Description:
Down and west view of Outfall 004. Mild turbidity and discoloration were observed. Intermittent mild sheens were also observed, but were generally captured by the boom and removed via a vactor truck. The vactor hose is visible on the right of the photograph.

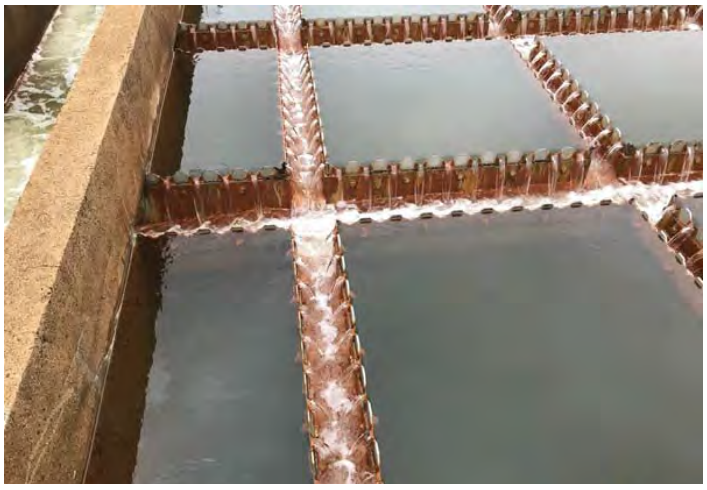
Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 11/21/2019 Time: 12:30 PM

Others Present:
Rick Massoels, David Greinke, Tim Sullivan

Location/Description:
West view of the vactor truck being utilized at Outfall 004.



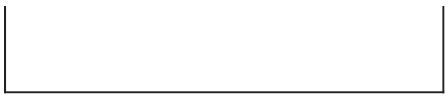
Facility:
US Steel Corporation Midwest Plant

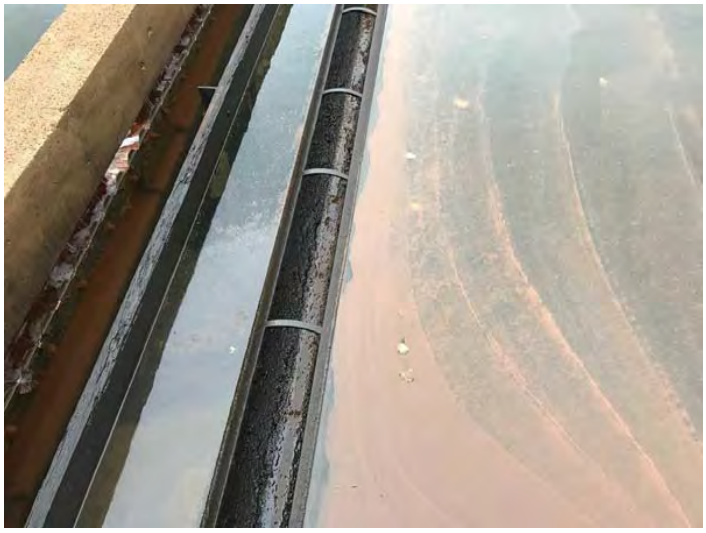
Photographer:
Nicholas Ream

Date: 11/21/2019 Time: 12:30 PM

Others Present:
Rick Massoels, David Greinke, Tim Sullivan

Location/Description:
The end of the west train of Final Treatment. Sheening was evident in the clarifier, as seen in the near left weir group.





Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 11/21/2019 Time: 12:30 PM

Others Present:
Rick Massoels, David Greinke, Tim Sullivan

Location/Description:
East view of the manual skimmers of the west train of Final Treatment.

Facility:
US Steel Corporation Midwest Plant

Photographer:
Nicholas Ream

Date: 11/21/2019 Time: 12:35 PM

Others Present:
Rick Massoels, David Greinke, Tim Sullivan

Location/Description:
East view of the west train. Red discoloration, due to iron, was evident at the mixing portion of the settling basin, located immediately after the introduction of the lime slurry.

CWA COMPLIANCE EVALUATION INSPECTION REPORT
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION 5

Purpose: Compliance Evaluation Inspection Report

Facility: U.S. Steel Corporation – Midwest Plant; 6300 U.S. Route 12, Portage, Indiana

NPDES Permit Number: IN0000337

Dates of Inspection: April 12, 2017 (Recon Inspection)
April 20, 2017 (Compliance Evaluation Inspection)

Facility Representatives:
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Report Date: 5/4/17

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Approval Date: 5/4/17

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TABLE OF CONTENTS

LIST OF APPENDICES

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I. INTRODUCTION

On April 11, 2017, an incident occurred at the United States Steel Corporation (USS) – Midwest Plant ("facility") in Portage, Indiana, resulting in a discharge of total chromium and hexavalent chromium to Burns Waterway. See Appendix A for aerial view of the U.S. Steel – Midwest Plant Facility. EPA conducted a recon inspection at the facility on April 12, 2017, which focused on the chromium incident; and returned to the facility on April 20, 2017, to conduct a comprehensive compliance evaluation inspection. Representatives of the Indiana Department of Environmental Management (IDEM) joined EPA for portions of the inspections.

EPA assessed USS's compliance with the Clean Water Act (CWA) and the National Pollutant Discharge Elimination System (NPDES) permit for the facility. The inspections consisted of the following major activities:

- Inspection opening conferences;
- Interview and discussions with USS representatives regarding the April 11, 2017, chromium discharge incident; the status of NPDES permit-specific reports; operation and maintenance (O&M) of the facility's wastewater treatment systems; self-monitoring activities; flow monitoring; past self-reported violations; and plant processes.
- Physical inspection of the facility; and
- Closing conferences and areas of concern review.

This report summarizes the results of the inspections. The following personnel were involved in the inspections of the USS facility:

USS:	Mark Henry, Environmental Compliance Manager Joe Hanning, USS, Director Environmental Control Brandon Miller, USS, Environmental Control Eric Williams, USS Environmental Affairs Greg Mackley, USS Operator Tim Sullivan, USS Environmental Engineer Ron Kaminski, USS Operations
ALS (USS Contractor):	Brandon Frye
EPA Region 5:	Dean Maraldo, Inspector/Enforcement Officer Brian Lenell, Physical Scientist
IDEM:	Nicholas Ream, Wastewater Compliance Inspector David Greinke, Emergency Response Cathy Csatari, RCRA Inspector

II. BACKGROUND

The USS facility manufactures steel and related products and is classified under Standard Industrial Classification (SIC) Codes 3316 (Cold Rolled Steel), 3443 (Tin Mill Products), and 2225 (Galvanized Steel). Facility operations include acid pickling, alkaline cleaning, cold rolling, sheet temper milling, continuous annealing, electro-galvanizing and tin electroplating. The facility's principle products include

hot rolled bands and sheet, cold rolled sheet, electrogalvanized sheet, hot dipped galvanized sheet, low carbon sheets, and tin mill products. USS is authorized to discharge treated wastewater, stormwater, and non-contact cooling water from the facility to Burns Waterway under NPDES permit number IN0000337 (hereinafter, Permit), issued on April 1, 2016. The Permit authorizes discharge via three outfalls on Burns Waterway, three internal outfalls, and a temperature compliance point at the edge of the mixing zone and Burns Waterway.

A description of the outfalls is included in the Permit and summarized below:

Outfall 002: The discharge from outfall 002 enters Burns Waterway and is composed of Non-contact Cooling Water (NCCW) and storm water. There is no treatment at this outfall. The average flow is 0.35 million gallons per day (MGD).

Outfall 003: The discharge from outfall 003 enters Burns Waterway and is composed of NCCW and storm water. There is no treatment at this outfall. The average flow is 13.45 MGD.

Outfall 004: The discharge from outfall 004 enters Burns Waterway and is composed of NCCW, storm water, and process wastewater from administrative outfall 304. The average flow is 14.5 MGD.

Outfall 104: The discharge from internal outfall 104 enters Burns Waterway via outfall 004, and is composed of treated process wastewater from the North Final Treatment Plant (NFTP). The NFTP treats process wastewater from the pickling lines, cold reduction, annealing, temper milling, electroplating, hot dip coating and prep lines. The average flow is 8.01 MGD.

Outfall 204: The discharge from internal outfall 204 enters Burns Waterway via outfall 004, and is composed of process wastewater from the chrome treatment plant (CTP). The CTP treats hexavalent chromium-bearing wastewaters from the Tin Free Steel Lines, Electroplating Tinning Lines, and Galvanizing Lines via a reduction process (i.e., chromium removal) using sodium bisulfite, sulfuric acid, and sodium hydroxide. The average flow is 0.34 MGD.

Outfall 304: Outfall 304 is an administrative compliance point and is where the sum of the mass for internal outfalls 104 and 204 is applied under the Permit. The average flow is 8.35 MGD.

Outfall 500: Outfall 500 is the temperature compliance point and is located at the edge of the mixing zone and Burns Waterway, 300' downstream of Outfall 004, in the middle of the channel.

Flow diagrams for plant processes, wastewater treatment, and outfall discharges are provided in Appendix B.

April 11, 2017, Chromium Discharge Incident
On the morning of April 11, 2017, USS reported a discoloration on Burns Waterway. The discoloration was due to the discharge of process wastewater containing hexavalent chromium and total chromium from outfall 004. USS reported that the discharge involved the failure of an expansion joint on a process wastewater pipeline within the facility.

III. APRIL 12, 2017, RECON INSPECTION ACTIVITY SUMMARY

III. A. Facility Entry

I entered the facility at 9:09 am on April 12, 2017, and presented my EPA-issued Enforcement Officer Credentials to the security office representative. I was shown to a conference room in the AE1 building where USS representatives were providing an update on the chromium incident to a large group of stakeholders, including EPA and IDEM On-Scene Coordinators (OSCs), National Park Service representatives, local water company officials, and local emergency and law enforcement representatives. During the update, Mr. Henry stated that the "leak was contained yesterday." Mr. Hanning reiterated this and added that USS "shut all operations down yesterday." He also mentioned that chromium discharge was still possible "as remaining waste leaves the system."

Mr. Henry provided an update on results from samples collected late on April 11 and in the morning of April 12. The results from outfall 004 are summarized below.

Pollutant	Date/Time	Concentration (ug/l)
Total Chromium	4/11/17 - 9:00 pm	416
Total Chromium	4/11/17 - 11:00 pm	160
Total Chromium	4/12/17 - 1:00 am	1,321
Total Chromium	4/12/17 - 3:00 am	2,231
Total Chromium	4/12/17 – 5:00 am	90
Total Chromium	4/12/17 – 7:00 am	304

Following the USS update, I provide the USS representatives and the stakeholder group with a summary of the recon inspection plan for the day, which included a physical inspection of outfall 004, the NFTP, and the site of the failed expansion joint leading to the chromium incident. Mr. Henry indicated that he would be busy managing the incident response for USS and would ask others on the USS staff to help with the inspection. Mr. Henry asked Mr. Greg Mackley to join me on the inspection of the NFTP and outfall 004.

III. B. Physical Facility Inspection

At 10:07 am I began the physical inspection of the NFTP and was joined by Mr. Mackley, Mr. Ream, and Mr. Joseph Magers (National Park Service Park Ranger). Mr. Mackley confirmed most plant processes have been shut down. He also summarized his understanding of the chromium incident and stated that "a pipe expansion pipe broke inside the mill and spilled process water via spray or on the ground to a sewer to the 104 system [pipeline to NFTP]." He also mentioned that the NFTP does not provide chromium treatment.

Mr. Mackley described the wastewater treatment process at the NFTP, which includes two equalization basins, air mix tanks, two sedimentation basins, two thickeners, and two plate and frame filter presses. Photographs referenced in this report are included in the Photo Log (Appendix C). Photograph 1 (MB000215.jpg) provides an overview of the NFTP. As we walked through the plant, Mr. Mackley pointed out that the NFTP "system was upset at the moment due to issues," referring to the clarity of the effluent in the sedimentation basins.

The group then visited outfall 004. Permit Part 1.B.(1)(c) sets forth the following requirements:

> *At all times the discharge from any and all point sources specified within this permit shall not cause receiving waters:*

1. including the mixing zone, to contain substances, materials, floating debris, oil, scum, or other pollutants:
a. that will settle to form putrescent or otherwise objectionable deposits;
b. that are in amounts sufficient to be unsightly or deleterious;
c. that produce color, visible oil sheen, odor, or other conditions in such degree as to create a nuisance.

EPA OSCs observed a green discoloration in the area of outfall 004 on April 11, 2017, see Photograph 2 (Image1.jpg). The effluent discharging from outfall 004 at the time of the inspection looked clear as shown in Photograph 3 (MB000214.jpg).

I completed the physical inspection of the NFTP and outfall 004 at 10:35 am, and returned to the AE1 building.

There were a number of incident management meetings in the late morning and early afternoon between the EPA OSCs, USS representatives, and stakeholders. At 3:03 pm, Mr. Tim Sullivan, USS environmental engineer, was able to join me on an inspection of the Tin Courtyard, the site of the failed wastewater pipeline expansion joint. I asked Mr. Sullivan to guide me through the events of the April 11, 2017, chromium incident. He stated that he was notified of the discharge early in the morning of April 11. Mr. Sullivan said "Once I saw the green discharge out of outfall 004, I had a good idea of where the source might be coming from." He stated that he discovered the leak in the wastewater pipeline expansion joint in the Tin Courtyard area "around 8:30 am" on April 11.

Mr. Sullivan explained the source of the chromium incident was "an expansion joint rupture in a 6-inch pipe within a secondary containment trench in the Tin Courtyard (see Appendix A - aerial view of facility)." The trench and the leaking expansion joint on the 6-inch pipe are shown in Photograph 4 (1.jpg; photograph taken on morning of April 11 by Mr. Henry). Photograph 5 (MB000218.jpg), captures the area of the secondary containment trench (covered at the time of inspection), and the expansion joint rupture. Mr. Sullivan explained that the process wastewater leaked from the expansion joint and flowed north along the bottom of the secondary containment trench. We walked north along the covered trench to the point at which Mr. Sullivan believed the leaked wastewater entered a hole in the bottom of the trench. Photograph 6 (MB000220.jpg), shows the section of the uncovered secondary containment trench where, according to Mr. Sullivan, the leaked wastewater poured through the hole in the bottom of the trench and emptied into a 20-inch pipeline running underneath the trench. In Photograph 7 (2.jpg; photograph taken by Mr. Henry on morning of April 11), discolored liquid is observed pouring into the hole in the bottom of the trench. According to Mr. Sullivan, the acidic wastewater corroded the 20-inch pipeline, creating a hole that allowed the leaked wastewater to pour into the pipeline. At the time of the inspection, USS had sealed the hole in the bottom of the trench with epoxy. Mr. Sullivan stated that the 20-inch pipe carried the leaked wastewater to the equalization basin at the NFTP. I asked Mr. Sullivan if he had any idea how much wastewater leaked from the expansion joint rupture. He said "I have no idea."

I completed the physical inspection of the Tin Courtyard at 3:30 pm, and returned to the AE1 building.

III. C. Recon Inspection Closing Conference

Given the afternoon's busy schedule of chromium incident management activities, I could not conduct a formal closing conference for the recon inspection. I was able to meet briefly with Mr. Henry at 4:05 pm and let him know I was finished with the recon inspection and planned to return within the next week or two to conduct a follow-up compliance evaluation inspection. I departed the facility at 4:07 pm on April 12, 2017.

IV. April 20, 2017, Compliance Evaluation Inspection Activity Summary

IV. A. Opening Conference

I arrived at the AE1 building at 9:10 am on April 20, 2017. The inspection opening conference began with introductions at 9:11 am. In attendance were Mr. Henry, Mr. Hanning, Mr. Miller, and Mr. Williams for USS. Mr. Ream and Ms. Cathy Csatari attended on behalf of IDEM. I was joined by Mr. Brian Lenell, an EPA physical scientist. I presented my EPA-issued Enforcement Officer Credentials to Mr. Henry, the primary facility contact.

I discussed the intent and scope of the inspection. I explained the permittee's rights to claim material as confidential. Mr. Henry and Mr. Williams provided copies of documents requested prior to the inspection including a data summary for the chromium incident, and field logs and discharge monitoring reports for 2016. The group discussed the planned schedule for the day, including interviews, physical facility inspection, and a closing conference. Interview and discussion topics included review of the chromium incident, permit reporting, past violations, sludge handling, operations and maintenance (O&M), storm water pollution prevention plan (SWPPP), self-monitoring, and facility process overview.

IV. B. Interviews

Chromium Incident Follow-up:

I began the interview portion of the inspection with some follow-up questions regarding the April 11, 2017, chromium incident. I asked the USS representatives to explain how the chromium wastewater flowed from the break in the expansion join to the NFTP and eventually through outfall 004 to the Burns Waterway. Mr. Hanning said that the chromium wastewater consisted of "rinse water from plating which normally flows to the chrome treatment plant." Mr. Henry stated the "product ate through the bottom of the trench directly over a pipe." He added that the pipe was a carbon steel pipe that brought wastewater to EQ basin at the NFPT. I asked how the chromium wastewater got into the carbon steel pipe. Mr. Hanning said the "product ate a hole in the pipe." USS provided a safety data sheet for the product, chromium trioxide, which has a pH of 1. This raises a concern about the integrity of the carbon steel pipe which was exposed to an unknown volume of corrosive wastewater.

I asked if trench was designed to carry stormwater. Mr. Williams clarified that the trench was designed "for secondary containment." Mr. Henry added that the trench was made of concrete.

I asked if USS was aware of the breach in the bottom of trench before the incident. Mr. Henry stated that they were not aware of the breach and "if we were aware we would have fixed it." I asked if the trench was routinely monitored for integrity and Mr. Henry replied "it was not looked at for integrity." He also said cleanup crews removed "39 barrels of goo" from the trench.

I raised a concern about potential soil contamination at the site of the breach in the trench. Mr. Hanning said he believed "all of the chromium waste went into the carbon steel pipeline and not into the soil."

I asked about the timing of the interim chromium treatment at the NFTP and if the treatment had any effect on performance of the NFTP. Mr. Henry indicated the treatment started at 3 pm on April 11, 2017, with approval from IDEM, and ended on April 19, 2017. He added USS was able to continue all routine sampling and manage treatment despite issues.

Permit Part I.A.(5) sets maximum daily loading effluent limits for total chromium (7.95 lbs/day) and hexavalent chromium (0.51 lbs/day). Mr. Miller stated USS "exceeded maximum limit for total

chromium on Monday and Tuesday [April 11-12] at outfall 304," and had a "hexavalent chromium limit violation on Wednesday [April 12] at outfall 304." Mr. Henry added "all else looks good," in terms of sampling results.

Mr. Hanning then described USS' process for calculating the amount of chromium discharged during the incident. Mr. Henry requested the description of the calculation be considered confidential business information (CBI). I agreed to treat the information as CBI and recorded the description on a separate piece of paper which was secured during and after the inspection. According to Mr. Hanning, a total of 346 pounds of total chromium was released from outfall 004, via internal outfall 304, including 298 pounds of hexavalent chromium.

Reporting:
I went over USS's various reporting requirements under the Permit. No significant issues were identified. Mr. Hanning confirmed he signs the DMRs, and Mr. Henry is the certified Class D operator of record. Mr. Ream added that USS submits DMRs on a timely basis.

Review of Past Violations:
The group went over the history of self-reported violations prior to the April 11, 2017, chromium incident at the facility, going back to 2013. The violations are summarized in Table 1, below. USS provided violation reports for a number of the reported violations.

Report Date	Reported Violation	Violation Type	Permit Reference
1/31/2017	Hex Chromium 304	Effluent Limit	Part 1.A.(5)
12/31/2016	DMR NR Cyanide 204	Non-Reporting	Part 1.C.(2)
4/5/2016	Discoloration 004	Narrative Standard	Part 1.B.(1)(c)
4/1/2016	Discoloration 004	Narrative Standard	Part 1.B.(1)(c)
3/31/2015	Oil & Grease 304	Effluent Limit	Part 1.A.(5)
6/30/2014	Toxicity chronic 004	Effluent Limit	Part 1.A.(3)
5/31/2014	Temp 500	Effluent Limit	Part III.A.
5/31/2014	Toxicity chronic 004	Effluent Limit	Part 1.A.(3)
5/31/2014	Toxicity acute 004	Effluent Limit	Part 1.A.(3)
12/12/13	Discoloration 004	Narrative Standard	Part 1.B.(1)(c)
8/16/2013	Toxicity chronic 004	Effluent Limit	Part 1.A.(3)
02/05/13	T. Chromium 304	Effluent Limit	Part 1.A.(5)

Table 1. Summary of reported violations, February 2013 – February 2017

Sludge:
Mr. Henry summarized the sludge handling procedures for the NFTP and CTP. The chromium plant sludge is disposed of offsite, "with shipments about every two weeks." He estimated the plant generates about 40 tons of hazardous sludge per year. Mr. Henry mentioned that the NFTP includes a filter press process for sludge which generates about 4,000 tons of non-hazardous sludge per year. The sludge is disposed of in a landfill within the facility. Ms. Csatari, IDEM RCRA inspector, asked about the fate of sludge being generated during the chromium incident. Mr. Henry indicated USS is testing sludge samples now to determine if it can be disposed of in the on-site landfill, or requires disposal in an offsite hazardous waste landfill. Ms. Csatari departed the facility upon completion of sludge interview.

Operations and Maintenance:
Permit Part II.B.(1) sets forth the following requirements for operations and maintenance:

> *The permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for the collection and treatment which are installed or used by the permittee and which are necessary for achieving compliance with the terms and conditions of this permit in accordance with 327 IAC 5-2-8(8).*

To start off the interview, I asked the USS representatives how the NFTP and chromium wastewater plants were operating prior to the chromium incident. Mr. Henry said "the plants were working well." Mr. Henry summarized training and staffing for wastewater operations. USS has a staff of thirteen assigned to wastewater operations, including four operators at the NFTP and CTP. Mr. Hanning mentioned how both plants were each designed with two treatment trains for redundancy. Mr. Henry added the plants were inspected and cleaned twice a year. I asked if there were written procedures for the inspections and cleaning efforts. Mr. Henry said there were "no written procedures for cleaning and maintenance [of the plants]."

I asked if USS kept records of maintenance and repairs. Mr. Miller said "work orders should be generated for repairs," and "[USS] is working on a system to auto generate PM [preventive maintenance] work orders." Mr. Hanning added "its a work in progress to track maintenance," and "we have a goal to integrate PM orders." Mr. Henry indicated that Mr. Ron Kaminski directs PM work and arranged for him to join us for the O&M interview.

Mr. Kaminski confirmed the semi-annual cleaning cycle for the wastewater plants. He also confirmed that there is no written plan for wastewater system maintenance and said "we inspect and if we find something deficient, we address it. Everything is based off of inspections." I asked Mr. Kaminski if he maintains records for maintenance and inspections. He replied "maybe, but not always." I asked Mr. Kaminski if there was a PM plan or protocol for pipelines. He said "no there is not, maintenance is as needed."

SWPPP:
I began the interview by asking about the status of the SWPPP. According to the Permit, an updated SWPPP was due on March 31, 2017. Mr. Miller provided a draft of the updated SWPPP. He stated that the draft SWPPP had not yet been approved.

I asked for a copy of the 2016 SWPPP annual report, due within twelve months of the previous (2015) annual report (Permit Part I.D.(5)). The 2015 annual report was submitted to IDEM on May 26, 2016. Mr. Miller indicated that USS has yet to submit the 2016 annual report, due May 26, 2017. Mr. Miller provided a copy of the 2014 annual report, which was submitted to IDEM on January 30, 2015. The 2015 annual report was submitted to IDEM on May 26, 2016. Based on the submission date of the 2014 annual report, the 2015 annual report should have been submitted to IDEM by January 30, 2016, pursuant to Permit Part I.D.(5).

The group took a break for lunch at noon and returned to continue the interview at 1:00 pm. Upon returning from lunch, Mr. Miller provided a copy of the updated SWPPP, approved by Mr. Hanning on March 31, 2017. He said that he "was not aware the updated SWPPP was approved." I concluded the SWPPP portion of the interview and informed the USS representatives that I planned to conduct a review of the updated and approved SWPPP as part of my post-inspection document review.

Self-Monitoring:
Mr. Brandon Frye, of ALS, Inc. (USS Contractor), joined the USS representatives to help answer questions related to the USS self-monitoring program. I asked Mr. Frye about flow monitoring at the outfalls. According to Mr. Frye, USS relies on open channel weirs and ISCO 2150 auto flow monitors for the three outfalls (002, 003, and 004) on Burns Waterway. He said the flow monitoring probes are calibrated every year.

I asked Mr. Frye to summarize the procedure for Permit-related sampling and analysis. He said that with the exception of temperature, pH, and chlorine, all samples are analyzed at ALS's laboratory in Valparaiso, Indiana. We discussed Permit sample collection and handling, and equipment calibration procedures. No significant issues were identified. I did not conduct a laboratory audit as part of the inspection.

Process Overview:
The final portion of the interview focused on a process overview for the facility. Mr. Henry provided an overview of plant operations. The process begins with the hydrocloric pickle line and three production lines, including cold rolled products, tin mill products, and galvanized products. I noticed a facility process flow diagram on the wall of the meeting room and asked Mr. Henry if it accurately described current facility processes. Mr. Henry confirmed the flow diagram accurately described the facility processes. Based on the flow diagram and the information provided by Mr. Henry, Figure 1, below, summarizes the facility production processes.

See Figure "MW-LDD" in Appendix B for details on wastewater treatment and effluent outfall points for the various processes identified in Figure 1.

I concluded the interview portion of the inspection at 1:45 pm.

IV. C. Physical Facility Inspection
At 1:48 pm, I began the physical inspection of the facility and was joined by Mr. Henry, Mr. Hanning, Mr. Miller, Mr. Ream, and Mr. Lenell. We discussed the physical inspection plan and agreed on the order of sites, including the AMROX Co. area, CTP, NFTP; and outfalls 004, 003, and 002. Photographs referenced in this report are included in the Photo Log (Appendix C). See Appendix A for an aerial photograph of the facility and locations of physical inspection sites.

American Iron Oxide Company Facility:
According to Mr. Henry, the American Iron Oxide Company (AMROX) leases a portion of the USS facility and operates a plant which produces a mixed pickle product for USS. I identified the AMROX plant as a potential area of concern based on review of aerial photographs (see Appendix D for an aerial photograph of the AMROX plant). Mr. Henry described the AMROX process and identified the red dust on the ground in the vicinity of the AMROX plant as an iron oxide. He also mentioned that AMROX collects stormwater for reuse. I noticed red dust on the ground as we walked around the perimeter of the plant (see photograph 8 – MB000223.jpg). I commented on the presence of red dust on the facility access road that runs parallel to the plant (see photograph 9 – MB000224.jpg). Mr. Henry stated that USS "required scrubbing of the road in the past," and "there are no open stormwater inlets in the vicinity."

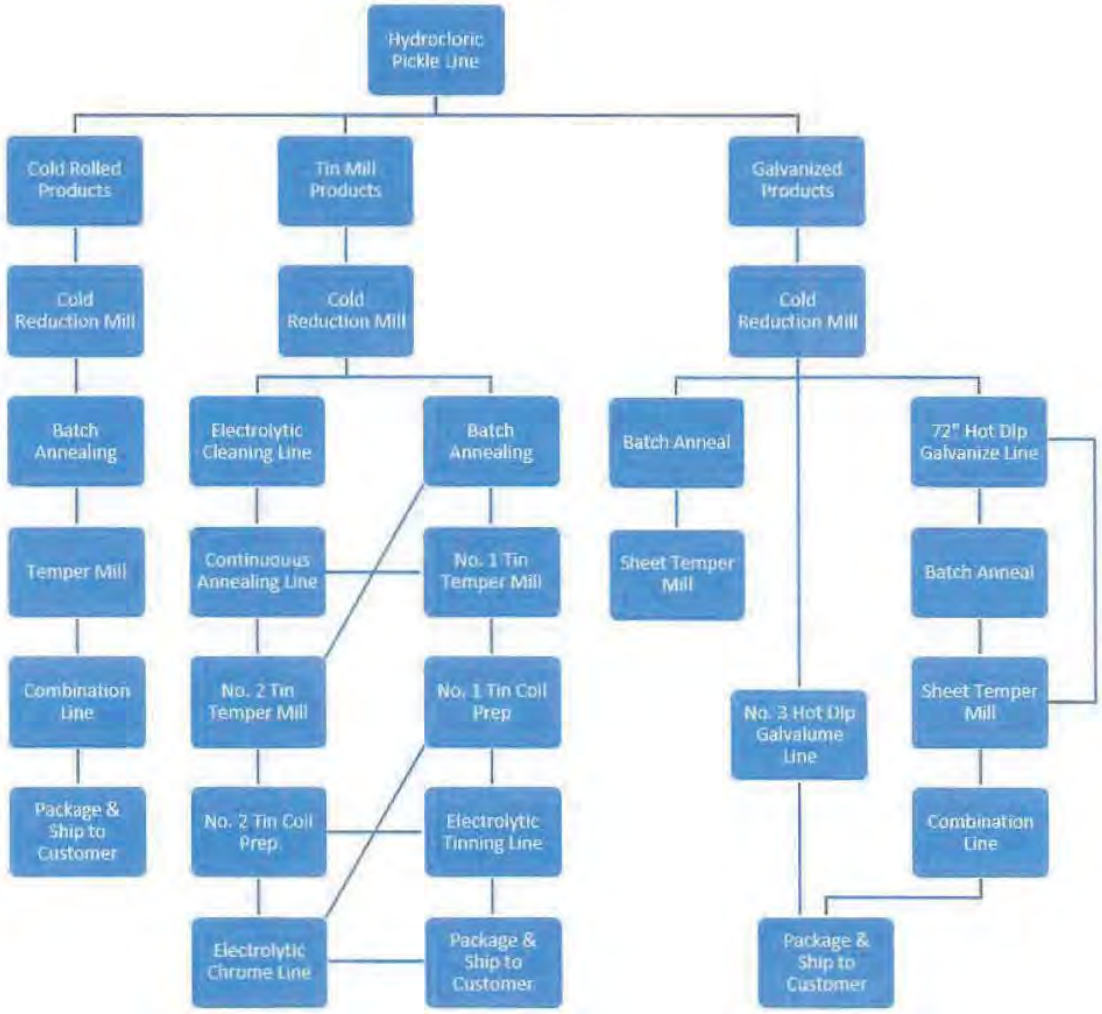


Figure 1. Summary of Facility Processes.

I did not observe the area under wet weather conditions and, as a result, could not assess the potential for stormwater impacts. However, I did mention to Mr. Henry that I would consider the AMROX area a potential area of concern for stormwater impact, due to the presence of red dust on the ground outside of the perimeter of the plant.

Chrome Treatment Plant:

The group entered the CTP control room. I asked Mr. Henry to provide a summary of the plant's treatment process. Mr. Henry mentioned the CPT was 5 or 6 years old, had an average flow rate of 250,000-300,000 gallons per day, and normally operated 24 hours per day, seven days a week. He reiterated that the plant was designed with two treatment trains. The plant relies of pH adjustment to treat chromium-bearing wastewater. The treatment train includes equalization basins, pH adjustment tanks, clarifiers, and filters. I asked Mr. Henry how the plant was operating. He said it was operating "pretty good." I asked Mr. Henry if the plant operators are able to monitor influent flow. He indicated that the

plant was not designed with influent flow monitoring. I mentioned that influent flow monitoring would be helpful for detecting reductions in influent flow, and could provide an early warning in situations similar to the recent chromium discharge incident. I did not conduct a physical inspection of the individual CTP treatment components.

NFTP and Outfall 004:
I conducted a physical inspection of the NFTP treatment train. Mr. Henry described the parallel treatment process which included equalization basins (300,000 gallons), oil skimmers, air blowers, mix tanks (for sulfuric acid, lime, coagulant, and polymer treatment), sedimentation basins, and flocculation basins. Photographs 10 (MB000225.jpg) and 11 (MB000226.jpg) capture the south and north equalization basins, and photograph 12 (MB000227.jpg) captures the flocculation tank. The sedimentation basins are shown in photograph 13 (MB000228.jpg) and in photograph 14 (MB000229.jpg), including the final effluent troughs. I noticed some buildup and debris in the final effluent troughs (see photograph 15 – MB000230). I mentioned the buildup to Mr. Henry and he said operators "hose down the troughs frequently and that they appear to be due now."

The group then walked to the utility building that housed the ISCO 4700 auto sampler for outfall 104. I noted that the sampler tubes were free of debris and without sags (see photograph 16 - MB000231.jpg). The group continued to the walkway above outfall 004. The discharge appeared clear. Mr. Henry mentioned that the boom in place in Burns Waterway was installed at the request of the EPA OSC (see photograph 17 – MB000232.jpg). Mr. Henry also stated that the average flow for outfall 004 was 9.5 MGD.

Outfall 003:
I observed outfall 003 which discharges stormwater and non-contact cooling water into Burns Waterway. I noticed some pitting and corrosion on the side of the flow weir channel, which appeared to create some turbulence in the effluent flow (see photograph 18 – MB000233.jpg). The discharge is captured from a walkway above the outfall in photograph 19 – MB000234.jpg).

Outfall 002:
I observed outfall 002 which also discharges stormwater and non-contact cooling water into Burns Waterway. I noticed a significant amount of debris on the bottom of the flow weir channel (see photograph 20 – MB000235.jpg). The discharge is captured from a walkway above the outfall in photograph 21 - MB000236.jpg).

I completed the Physical Facility Inspection at 3:13 pm.

IV. D. Closing Conference
The group returned to the AE1 building and I began the closing conference at 3:20 pm. I briefly summarized the preliminary potential areas of concern for the USS representatives. The preliminary potential areas of concern included:

- Effluent limit exceedances related to the April 11, 2017, chromium incident.
- Self-reported effluent limit exceedances, and potential narrative standard and reporting violations from 2013 to February 2017.
- Operations and maintenance concerns related to the NFTP, Burns Waterway outfall weirs, and secondary containment trenches and pipelines associated with the April 11, 2017, chromium incident.
- Potential stormwater concerns related to the presence of iron oxide dust on the ground and along the road adjacent to AMROX plant.

- Lack of a comprehensive operations and maintenance plan, including preventive maintenance, for wastewater, stormwater, and non-contact cooling water treatments plants and conveyances.

I asked Mr. Ream if he had any other potential areas of concern. He stated that he did not. I provided the group with an estimated timeframe for completion of the inspection report, and asked the USS representatives if they had any questions or comments. Mr. Miller added that USS is working towards developing an integrated operations and maintenance plan. I reminded the USS representatives that I may identify additional areas of concern after reviewing my notes, the SWPPP, and data, documents and records collected as part of the inspections.

I concluded the closing conference and departed the facility, along with Mr. Lenell, at 3:39 pm.

V. DOCUMENTS RECEIVED

Documents received during the inspections:

- USS data related to April 11, 2017, chromium incident
- 2016 Field logs (ALS)
- USS Discharge Notification Reports to IDEM, 2012-2017
- Map of April 11, 2017, chromium incident sampling locations
- Used oil, waste minimization and wastewater modernization diagram (USS requested treatment as CBI)
- April 2017 flow data summary
- SWPPP, dated March 31, 2017
- 2015 SWPPP Annual Report
- ISCO 2150 Area Velocity Module Fact Sheet
- Plant layout diagram
- DMRs, 3/2016 – 2/2017
- 2014 SWPPP Annual Report

Document received after the inspections:

- Chromium dioxide safety data sheet (provided by OSCs Andy Maguire and Mike Beslow who received the document from Mr. Henry)

VI. DOCUMENT REVIEW

After the inspections, I reviewed my inspection notes and information provided by USS during the inspections, including chromium incident data, DMRs, field logs, SWPPP, and SWPPP annual reports. I identified the following additional areas of concerns (see Appendix E for chromium incident data summaries and figures).

Review of DMRs and Daily Field Logs

I reviewed DMRs and daily field logs from November 2016 – February 2017. I identified the following additional areas of concern:

- pH, non-reporting. No weekly pH reported from 11/22/16 – 12/4/16 for outfall 002. [Permit Part I.A.(1); see copy of Monthly Monitoring Report in Appendix F]
- pH, non-reporting. No weekly pH reported from 11/22/16 – 12/4/16 for outfall 003. [Permit Part I.A.(2); see copy of Monthly Monitoring Report in Appendix F]

- Non-reporting, multiple parameters. No reported daily sample results for TSS, oil & grease, pH, zinc, total chromium, and total cyanide (5x/weekly), from 12/23/16 – 12/27/16, for outfall 204. [Permit Part I.A.(4); see copy of Monthly Monitoring Report in Appendix F]
- Non-reporting, multiple parameters. No reported daily sample results for TSS, oil & grease, total cyanide, zinc, and total chromium (5x/weekly), from 12/23/16 – 12/27/16, for outfall 304. [Permit Part I.A.(5); see copy of Monthly Monitoring Report in Appendix F]

Review of SWPPP

I reviewed the facility SWPPP, dated March 31, 2017, for compliance with the requirements in the Permit Part I.E.

I identified the following deficiencies:

- Permit Part I.E.(2)(b)(3)(B): Site Map. Missing or could not locate "Location and extent of significant structures and impervious surfaces."
- Permit Part I.E.(2)(b)(3)(C): Site Map. Missing or could not locate "Directions of stormwater flow."
- Permit Part I.E.(2)(b)(3)(F): Site Map. Missing or could not locate all "Locations of all stormwater conveyances including ditches, pipes, and swales." Update to include updated information on inlets in the vicinity of AMROX plant.
- Permit Part I.E.(2)(b)(3)(H): Site Map. Missing or could not locate "Locations where significant spills or leaks identified have occurred."
- Permit Part I.E.(2)(b)(3)(I): Site Map. Missing or could not locate "Locations of all stormwater monitoring points."
- Permit Part I.E.(2)(b)(3)(J): Site Map. Missing or could not locate "Locations of stormwater inlets and outfalls, with a unique identification code for each outfall (e.g., Outfall No. 1, No. 2), indicating if you are treating one or more outfalls as "substantially identical", and an approximate outline of the areas draining to each outfall."
- Permit Part I.E.(2)(b)(3)(L): Site Map. Missing or could not locate "Areas of federally-listed critical habitat for endangered or threatened species, if applicable."
- Permit Part I.E.(2)(b)(3)(O): Site Map. Missing or could not locate "Identify in the SWPPP where any of the following activities may be exposed to precipitation or surface runoff: storage or disposal of wastes such as spent solvents and baths, sand, slag and dross; liquid storage tanks and drums; processing areas including pollution control equipment (e.g., baghouses); and storage areas of raw material such as coal, coke, scrap, sand, fluxes, refractories, or metal in any form. In addition, indicate where an accumulation of significant amounts of particulate matter could occur from such sources as furnace or oven emissions, losses from coal and coke handling operations, etc., and could result in a discharge of pollutants to waters of the United States."
- Permit Part I.E.(2)(d)(2): Schedules and Procedures. Missing or could not locate "Maintenance – Preventative maintenance procedures, including regular inspections, testing, maintenance and repair of all control measures to avoid situations that may result in leaks, spills, and other releases, and any back-up practices in place should a runoff event occur while a control measure is off-line. The SWPPP shall include the schedule or frequency for maintaining all control measures used to comply with the storm water requirements."
- Permit Part I.E.(2)(d)(5): Schedules and Procedures. Missing or could not locate "Employee Training – The elements of your employee training plan shall include all, but not be limited to, the requirements set forth in Permit Part.I.D., and also the following:
  (a) The content of the training; The frequency/schedule of training for employees who have duties in areas of industrial activities subject to this permit;
  (b) A log of the dates on which specific employees received training."

VII. AREAS OF CONCERN

I identified several areas of concern, based on the inspection findings and review of documents provided by USS. The areas of concern are summarized in the table below.

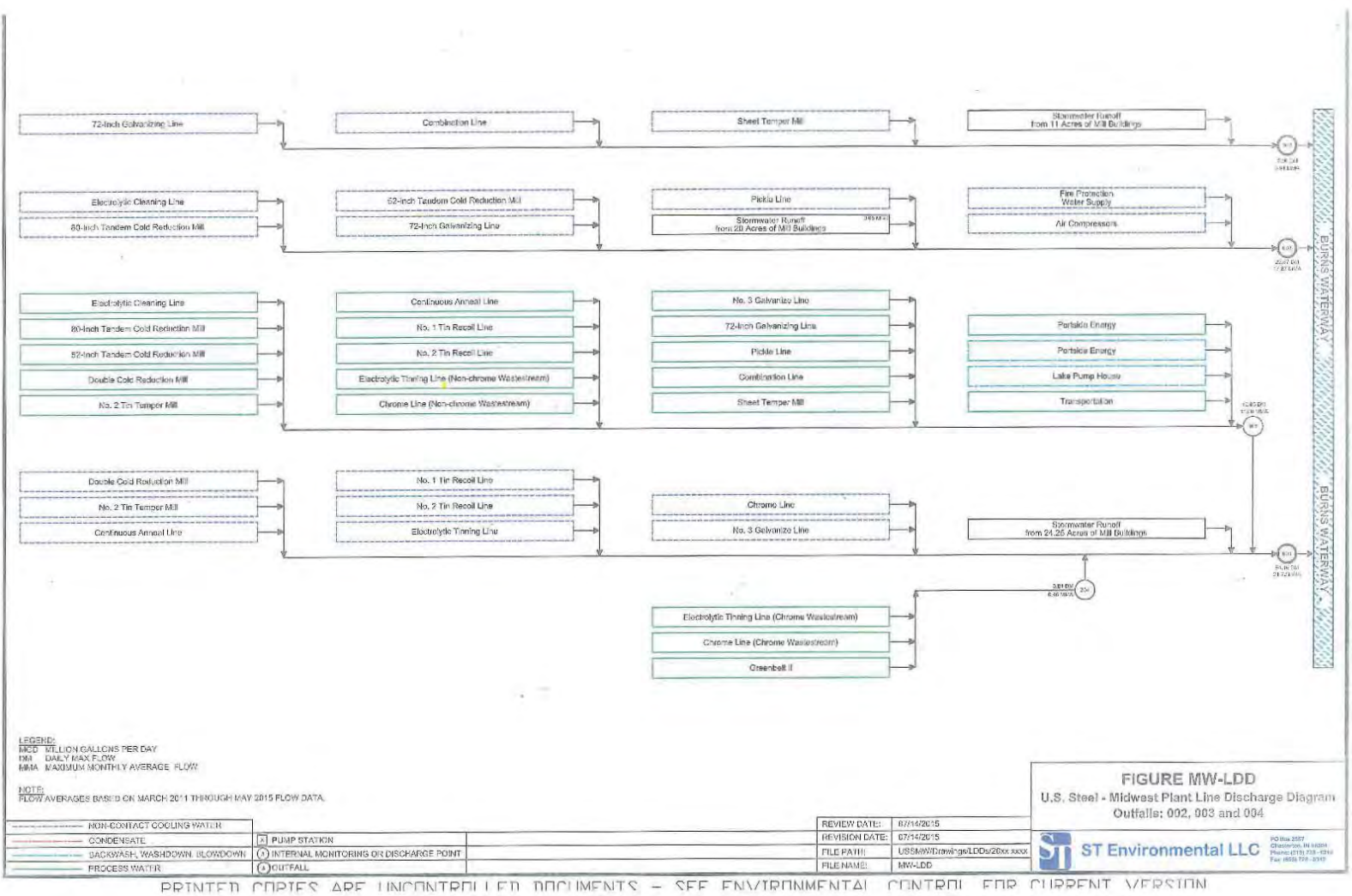
Area of Concern	Finding	Permit/Regulatory Reference
Effluent limit exceedances and discoloration – Chromium Incident	Effluent limit exceedances related to the April 11, 2017, chromium incident. Total chromium and hexavalent chromium effluent limit (maximum daily load) exceedances for outfall 304, April 11-12, 2017. EPA OSCs observed a green discoloration in the area of outfall 004 on April 11, 2017, see Photograph 2 (Image1.jpg).	Permit Part I.A.(5) sets maximum daily loading effluent limits for outfall 304, for total chromium (7.95 lbs/day) and hexavalent chromium (0.51 lbs/day). Permit Part I.B. sets water quality standard requirements for outfalls.
Effluent limit exceedances, and potential narrative standard and reporting violations	Self-reported effluent limit exceedances, and potential narrative standard and reporting violations from 2013 to February 2017. See summary in Table 1 (page 6), Section VI (page 11), and Appendix F.	Permit Part I.A. sets effluent limits for outfalls. Permit Part I.B. sets water quality standard requirements for outfalls. Permit Part I.C. sets monitoring and reporting requirements for outfalls.
Operations and Maintenance Issues	See Section IV.B., unless noted otherwise. Operations and maintenance issues identified during the inspections include: • The source of the chromium incident was an expansion joint rupture in a 6-inch pipe. • Lack of preventive maintenance and poor condition of secondary containment trenches. An undetected hole in the bottom of a secondary containment trench created a pathway for leaked wastewater to flow into the subsurface and into a 20-inch carbon steel. See photograph 7 (2.jpg). • During the chromium incident, a 20-inch carbon steel pipeline was exposed to an unknown quantity of highly corrosive (pH 1) wastewater. This raises a concern about the integrity of the carbon steel wastewater pipeline.	Permit Part II.B.(1). "Proper Operation and Maintenance: The permittee shall at all times maintain in good working order and efficiently operate all facilities and systems (and related appurtenances) for the collection and treatment which are installed or used by the permittee and which are necessary for achieving compliance with the terms and conditions of this permit

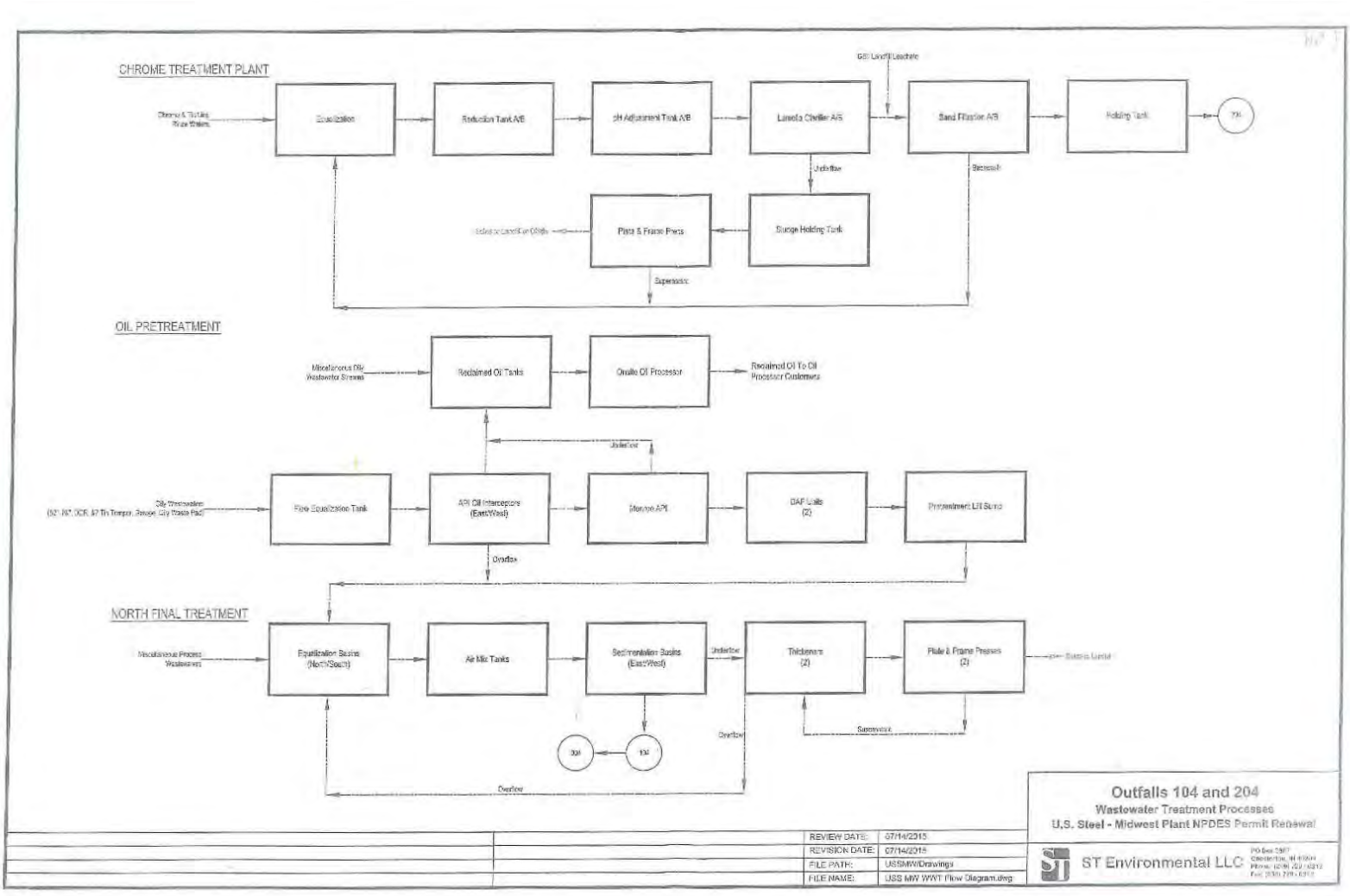
Area of Concern	Finding	Permit/Regulatory Reference
	• Secondary containment trenches are not routinely monitored for integrity. • Lack of a comprehensive written plan for cleaning and maintenance of the wastewater infrastructure. • Maintenance and inspection activities are not always recorded. • Lack of a preventive maintenance plan, maintenance done on as needed basis. • Lack of influent flow monitoring at the Chromium Treatment Plant. Influent flow monitoring would be helpful for detecting reductions in influent flow, and could provide an early warning in situations similar to the recent chromium discharge incident (see Section IV.C). • Buildup of debris in the NFTP final effluent troughs (see photograph 15 – MB000230, and Section IV.C). • Pitting and corrosion on the side of the flow weir channel at outfall 003, which appeared to create some turbulence in the effluent flow (see photograph 18 – MB000233.jpg, and Section IV.C). • Debris on the bottom of the flow weir channel at outfall 002 (see photograph 20 – MB000235.jpg, and Section IV.C).	in accordance with 327 IAC 5-2-8(8)."
Late Submittal of 2015 SWPPP Annual Report	The 2015 SWPPP annual report was submitted to IDEM on May 26, 2016. The 2015 annual SWPPP report was due to be submitted to IDEM by January 30, 2016, within twelve months of the date of submittal for the 2014 SWPPP Annual Report (see Section IV.B.).	Permit Part I.D.(5)
SWPPP Deficiencies	SWPPP components, including Site Map, and Schedules and Procedures requirements, missing or could not be located (see Section VI).	Permit Part I.E.(2)(b)(3) – Site map requirements. Permit Part I.E.(2)(d) – Schedules and procedures.
SWPPP Good Housekeeping - AMROX	Potential stormwater concerns related to the presence of iron oxide dust on the ground and along the road adjacent to AMROX plant.	Permit Part I.D.(4)(b) – Good Housekeeping.

Appendix A: Aerial View of the U.S. Steel – Midwest Plant Facility

***Annotated Google Earth*® aerial image of the Facility, dated October 13, 2016.**

Appendix B: Wastewater and Stormwater Process Flow Diagrams




CHROME TREATMENT PLANT
Equalization
Reduction Tank A/B
pH Adjustment Tank A/B
Lamella Clarifier A/B
Sand Filtration A/B
Holding Tank
Plate & Frame Press
Sludge Holding Tank
OIL PRETREATMENT
Reclaimed Oil Tanks
Onsite Oil Processor
Reclaimed Oil To Oil Processor Customers
Flow Equalization Tank
API Oil Interceptors (East/West)
Monroe API
DAF Units (2)
Containment Lift Sump
NORTH FINAL TREATMENT
Equalization Basins (North/South)
Air Mix Tanks
Sedimentation Basins (East/West)
Thickeners (2)
Plate & Frame Presses (2)
Outfalls 104 and 204
Wastewater Treatment Processes
U.S. Steel - Midwest Plant NPDES Permit Renewal
REVIEW DATE: 07/14/2015
REVISION DATE: 07/14/2015
FILE PATH: USSMW/Drawings
FILE NAME: USS MW WWT Flow Diagram.dwg
ST Environmental LLC

Appendix C: Photo Log

U.S. Steel Corporation – Midwest Plant
EPA Recon Inspection April 12, 2017
EPA CEI Inspection April 20, 2017

All times in Central Time Zone

1: MB000215.jpg
Description: Overview of the NFTP.
Location: U.S. Steel – Midwest Plant
Camera Direction: 197°
Date/Time: April 12, 2017; 10:31 am.
Photo Taken by: Dean Maraldo
Camera: RICOH WG-4 GPS

2: image1.jpg
Description: Green discoloration in the area of outfall 004 on April 11, 2017.
Location: U.S. Steel – Midwest Plant
Camera Direction: N/A
Date/Time: April 11, 2017; 11:20 am.
Photo Taken by: Tom Mendez, EPA OSC
Camera: EPA IPhone 6

3: MB000214.jpg
Description: Effluent discharging from outfall 004 at the time of the inspection.
Location: U.S. Steel – Midwest Plant
Camera Direction: 251°
Date/Time: April 12, 2017; 10:29 am.
Photo Taken by: Dean Maraldo
Camera: RICOH WG-4 GPS

4: 1.jpg
Description: Secondary containment trench and leaking expansion joint in the Tin Courtyard.
Location: U.S. Steel – Midwest Plant
Camera Direction: N/A
Date/Time: April 11, 2017; morning.
Photo Taken by: Mr. Mark Henry (USS), and provided to EPA OSC.
Camera: Unknown

5: MB000218.jpg
Description: The area of the secondary containment trench (covered at the time of inspection), and the expansion joint rupture.
Location: U.S. Steel – Midwest Plant
Camera Direction: 335°
Date/Time: April 12, 2017; 3:13 pm.
Photo Taken by: Dean Maraldo
Camera: RICOH WG-4 GPS

6: MB000220.jpg
Description: The uncovered section of the secondary containment trench where leaked wastewater poured through the hole in the bottom of the trench and emptied into a 20-inch pipeline running underneath the trench.
Location: U.S. Steel – Midwest Plant
Camera Direction: 333°
Date/Time: April 12, 2017; 3:22 pm.
Photo Taken by: Dean Maraldo
Camera: RICOH WG-4 GPS

7: 2.jpg
Description: Discolored liquid is observed pouring into the hole in the bottom of the secondary containment trench, and, according to USS, into a 20-inch pipeline below.
Location: U.S. Steel – Midwest Plant
Camera Direction: N/A
Date/Time: April 11, 2017; morning.
Photo Taken by: Mr. Mark Henry (USS), and provided to EPA OSC.
Camera: Unknown

8: MB000223.jpg
Description: Red iron oxide dust on the ground, around the perimeter of the AMROX plant.
Location: U.S. Steel – Midwest Plant, AMROX Plant
Camera Direction: 335°
Date/Time: April 20, 2017; 1:58 pm.
Photo Taken by: Brian Lenell
Camera: RICOH WG-4 GPS

9: MB000224.jpg
Description: Red iron oxide dust on the facility access road that runs parallel to the AMROX plant.
Location: U.S. Steel – Midwest Plant, AMROX Plant
Camera Direction: 168°
Date/Time: April 20, 2017; 1:58 pm.
Photo Taken by: Brian Lenell
Camera: RICOH WG-4 GPS

10: MB000225.jpg
Description: NFTP south equalization basin.
Location: U.S. Steel – Midwest Plant
Camera Direction: 267°
Date/Time: April 20, 2017; 2:29 pm.
Photo Taken by: Brian Lenell
Camera: RICOH WG-4 GPS

11: MB000226.jpg
Description: NFTP north equalization basin.
Location: U.S. Steel – Midwest Plant
Camera Direction: 350°
Date/Time: April 20, 2017; 2:30 pm.
Photo Taken by: Brian Lenell
Camera: RICOH WG-4 GPS