

**Integrated Iron and Steel MACT (II&S) RTR**  
**Summary of EPA's PM and HAP Calculation Errors**

This supporting document summarizes Appendix A of Industry's comments submitted on September 29, 2023, regarding the Iron and Steel (II&S) NESHAP, which demonstrates that EPA's representations of PM and HAP emissions from UFIP sources and expected PM and HAP emission reductions are dramatically overestimated. In addition, EPA's calculated costs for the industry are dramatically underestimated. Combined, EPA's presentation of benefits from the rulemaking are overstated and cost effectiveness is materially understated.

We used EPA's emissions estimates from Document ID 1446 to analyze EPA's assessment (we believe the data presented in Document ID 1446 is supported by an excel file EPA posted on or about September 11, 2023, on the II&S MACT website). In reviewing EPA's presentation of PM and HAP emissions, we identified the following errors or major discrepancies in EPA's approach and calculations that we believe must be corrected by EPA:

- For slag pit emissions, EPA utilizes a HAP:PM ratio of 3.4%. However, EPA does not substantiate why this factor was used and, in fact, it contradicts the value of 0.42% from Table 5 of Document ID 1407 for slag sources. Emissions from slag pits will generate PM emissions that reflect the composition of slag and not steel or iron. Therefore, this HAP fraction should be corrected from 3.4% to 0.42% for slag UFIPs because 3.4% overstates HAP emissions from slag operations by over 8 times.
- For Bell Leaks, in Document ID 1446, EPA seems to arbitrarily discontinue using the PM emissions factor from Document ID 1407 (0.012 lb/ton) and replaces it with an unsubstantiated factor of 0.325 lb/ton. There is no stated technical basis for EPA opting to use this factor in Document ID 1446 and, at a minimum, it should revert to the factor of 0.012 lb PM/ton EPA endorsed in Document ID 1407. The use of this unsubstantiated emission factor dramatically overstates PM and HAP emissions from bell leaks by more than 27 times and must be corrected.
- In developing fugitive emissions estimates for the example facility in Document ID 1407, EPA properly avoided double counting emissions by deducting stack emissions from the BF and BOF point sources in its UFIP emission factors. Unfortunately, EPA makes no such adjustment in its emission estimates in Document ID 1446. Therefore, EPA has overstated PM and HAP emissions from the BF and BOF UFIPs by not deducting stack emissions and this needs to be corrected.
- EPA's Table 9 of Document ID 1407 makes representations as to speciated metal HAP emissions. For at least the BOF values, we could not replicate the values shown. Our estimates, using the data in the memo and the BOF HAP speciation in Table 5 of Document ID 1407, indicate HAPs are substantially lower than shown in Table 9.
- Industry, as discussed and acknowledged in the past with EPA, believes that the Blast Furnace (BF) HAP:PM fraction data in Document ID 1407 relied on a stack test that is not representative of actual HAP emissions based on quality control issues (i.e., blank contamination) during stack testing, which over-estimates HAP emissions from BF fugitive sources by approximately 2.5 times. After identification of these concerns, the source was retested in 2018 then subsequently provided the results to EPA in 2019. EPA should base the HAP:PM fractions for other BF UFIPs based on this more representative HAP emission factors test from 2018. See further discussion in Section 3 of Appendix A to Industry's comments.
- The BOF Steel throughputs for CC-Dearborn shown as 472,744 tons of steel per year in Document ID 1446 should be revised to 2,484,253 tons of steel per year.

Starting with the EPA Base Case and correcting the items identified above, we computed a “Corrected EPA” case that presents more representative emissions after addressing the material errors in EPA’s PM and HAP emissions estimates provided as the basis for its analyses.

UFIP SOURCE	EPA Base Case		Corrected EPA	
	Before Control	Reduced	Before Control	Reduced
BF Casthouse Fugitives	45.88	14.37	15.38	4.82
BOF Shop Fugitives	122.75	25.92	53.10	11.24
<i>Existing MACT Sources</i>	<i>168.64</i>	<i>40.30</i>	<i>68.48</i>	<i>16.06</i>
BF Unplanned Openings	2.11	0.50	0.79	0.19
BF Planned Openings	1.61	0.41	0.60	0.15
BF Bell Leaks	75.75	30.71	1.04	0.42
BF Iron Beaching	0.02	0.00	0.01	0.00
Slag Handling & Storage	29.62	7.35	3.66	0.91
<i>New UFIP Sources</i>	<i>109.12</i>	<i>38.97</i>	<i>6.10</i>	<i>1.67</i>
<b>Total</b>	<b>277.75</b>	<b>79.27</b>	<b>74.58</b>	<b>17.73</b>

<sup>a</sup> Base Case are EPA’s values from Document ID 1446. “Corrected EPA” revises the Base Case for material errors as described above.

<sup>b</sup> Emissions are in units of tons per year. “Before control” means emissions estimates that take into account existing work practices. “Reduced” means the amount of HAP estimated to be reduced by the proposed rulemaking.

If the EPA errors identified above are corrected, the actual total HAP tons per year emissions from the UFIP sources are in fact 200+ tons per year less before control. This demonstrates that the overall presentation of EPA’s representations of HAP emissions from UFIP sources is flawed and expected HAP emission reductions after controls are implemented are dramatically overestimated. In addition, the EPA’s costs for the industry are dramatically underestimated. Combined, EPA’s presentation of benefits from the rulemaking are overstated and cost effectiveness is materially understated.

There is a lack of widely agreed upon emissions estimation methods between EPA and the industry as discussed further in Appendix A of Industry’s comments, but not covered within this summary. The industry believes there are more credible and representative actual emission factors for UFIP PM, PM2.5 and total HAP emissions that EPA should have used in its analysis but did not. These additional concerns would further reduce the base case PM, PM2.5, and total HAPs emissions, reducing EPA’s estimated benefits and overstating the cost-effectiveness even more.