



UNITED STATES STEEL CORPORATION (U. S. Steel)

**USEPA Proposed Rule
National Emission Standards for Hazardous Air
Pollutants: Taconite Iron Ore Processing Residual Risk
and Technology Review
(Taconite NESHAP Review)**

January 16, 2024



U. S. Steel is committed to continuing to work with USEPA to develop and implement revisions to the Taconite NESHAP which are:

- Consistent with the Clean Air Act
- Based on sound science and data
- Have demonstrated benefits to the environment
- Are technologically and economically feasible



EPA has determined that the Taconite Iron Ore Processing NESHAP Source Category presents low, acceptable risks with an ample margin of safety.

Problems with the proposed regulation

- **Mercury limit**

- Unprecedented, exorbitant costs
- Costs not justified by risk
- Costs improperly considered across parent company
- Threatens competitiveness of the domestic taconite industry
- Based on insufficient data
- Does not include an intra-quarry variability (IQV) factor
- The 5 sources used to set the floor are not the “best performing”
They simply process ore bodies at the respective facilities that are lower in mercury that are unavailable to the other sources
- No proven mercury control technology used in the industry
- No basis for averaging penalty



EPA has determined that the Taconite Iron Ore Processing NESHAP Source Category presents low, acceptable risks with an ample margin of safety.

Problems with the proposed regulation (continued)

- **Acid gas pH monitoring**
 - No nexus between pH of the scrubber water to acid gas removal
 - In some cases, it is infeasible to test pH
 - Other available parametric monitoring techniques were not evaluated by EPA
- **No nexus to risk**
 - EPA has determined that the Taconite Iron Ore Processing NESHAP Source Category presents low, acceptable risks with an ample margin of safety – substantially less than EPA's 100-in-1 million benchmark.
 - **Mercury and acid gases are not drivers of even this extremely low risk.**



Ask: OMB refer proposed rule back to EPA, considering the low-risk w/ AMOS and consistency with Clean Air Act, to:

- Include IQV in the MACT floor calculation, as EPA has done (Brick MACT)
- Consider the technical infeasibility of meeting the proposed MACT floor & an option for site-specific subcategorization if limit cannot be met,
- As prescribed by Congress, consider the costs in implementing uncertain and unproven mercury control technologies,
- Remove the averaging penalty, and
- Remove the infeasible pH monitoring requirement and replace with scrubber parametric monitoring



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**U. S. Steel and the Steel Industry
(including Taconite) are vital to
national security and the domestic
economy**



Steel Industry Background

- Over \$520 billion in economic output, supporting over 2 million jobs.
- For every \$1 increase in sales for iron and steel mills, total output of the U.S. economy increases by \$2.66.
- Generates over \$56 billion in tax revenues annually
- The U.S. Department of Commerce has determined that ***domestic steel production is essential for national security; and that domestic steel production depends on a healthy and competitive U.S. industry.*** (See <https://www.bis.doc.gov/index.php/other-areas/office-of-technology-evaluation-ote/section-232-investigations>)
- According to CISA, the Taconite industry is a core critical infrastructure industry impacting transportation systems, electric power grid, water systems, and energy generation systems. (See <https://www.cisa.gov/topics/critical-infrastructure-security-and-resilience/critical-infrastructure-sectors/critical-manufacturing-sector>)



United States Steel Corporation - Background

- *Employs S.T.E.E.L. principles* - **S**afety First; **T**rust and Respect; **E**nvironmental Stewardship; **E**xcellence and Accountability; and **L**awful and Ethical Conduct
- Directly employs over 14,000 people in the United States; with an impact of and additional 98,000 additional jobs. (Each job in America's steel industry supports seven jobs in the U. S. economy.)
- Produced over 17 million tons of steel domestically in 2022.
- **Markets served:**
 - Automotive and Transportation
 - Construction
 - Containers and Packaging
 - Appliances and Electrical Equipment
 - Service Centers
- **Greenhouse Gas (GHG) Reduction Goals**
 - By 2030, 20% emission intensity reduction, compared with the 2018 base year.
 - By 2050, net-zero emissions
- **Community Engagement** - In 2022, U. S. Steel employees logged 20,000 hours to more than 100 organizations.



Costs of Implementation

- Potential costs are based on the estimated investment in uncertain and unproven technology to comply with the mercury limit in the proposed rule.
- Even if the draft mercury limits were achievable, the potential cost impacts to U. S. Steel alone could exceed \$150 million in capital cost and \$37 million in annual operating and maintenance costs.

USEPA Capital
Cost for Entire
Taconite
Industry:
\$130 Million

vs.

U. S. Steel (only):
Approximately
\$150 Million*

USEPA Proposed Rule: Taconite NESHAP Review



EPA has determined that the Taconite Iron Ore Processing NESHAP Source Category presents low, acceptable risks with an ample margin of safety

- While **no technologies have been proven** for mercury removal in the taconite industry and using EPA's cost and mercury reduction calculations (which are incorrect), EPA estimates that the rule would cost \$129M capital w/ \$71M annualized cost and reduce mercury emissions by approximately 450 at pounds. This results in an exorbitant **cost of over \$150,000/pound of mercury removed** (which equates to **over an unprecedented \$300,000,000 per ton of HAP removed.**)
- This would put domestic iron pellet production at a significant disadvantage when compared to foreign production.
- Any perceived benefit would be marginal at best - as over 90% of the mercury in Minnesota originates from out of state¹.

¹(Minnesota Pollution Control Agency, Implementation Plan for Minnesota's Statewide Mercury Total Maximum Daily Load (Oct. 2009), <https://www.pca.state.mn.us/sites/default/files/wq-iw4-01p.pdf>)

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- In addition, this will likely exacerbate the import of low-cost, less environmentally conscious imported steel, potentially jeopardizing national security and critical infrastructure.
- These capital costs will significantly diminish the United States iron and steel industry's efforts to decarbonize; promote and innovate light weight high strength steels; and stay competitive with foreign competition.
- These impacts threaten the employment of thousands of hard-working, skilled labor men and women.
- **EPA needs to consider feasibility, cost of achieving such emission reduction, and other impacts as Congress intended as required by Section 112 of the Clean Air Act.**



Unprecedented & Exorbitant Costs for Mercury Controls

- Industry's more accurate and more realistic facility-specific estimates for total capital costs are six to eight times higher than EPA's estimates, at almost a billion dollars.
 - The *per-furnace* capital costs range from \$44-\$86 million, with annualized costs of \$10-\$22 million *per-furnace*.
 - For some units, the annual per-pound cost to reduce mercury emissions would be over \$2.6 million (**\$5 billion per ton**).
 - With an overall annual per-pound mercury removal cost of \$400,000, the cost-effectiveness is truly unprecedented.
- **For U. S. Steel, if the proposal is finalized, the cost would be approximately \$1.2 billion per ton of mercury removed, which is effectively \$600 thousand per pound.**
- Using EPA's estimates, the rule would impose \$71 million in annual costs for less than 500 lbs. (not tons) of mercury reduction, in a source category that EPA has confirmed is well below acceptable risk levels.
 - **With the calculations that correct EPA's errors in the emissions baseline, the reductions would be about 242 lbs. of mercury using EPA's capital cost of \$129 million. This cannot be justified.**



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EPA Has Not Accurately Assessed the Cost Impacts of the Rule

- **Comparison to parent company revenue is not an adequate assessment.**
 - It distorts the true cost of the Rule.
 - It is not the “best available” economic data. EO 12866 Section 1(b)(7).
 - It does not allow for an accurate picture of the “burden on society.” EO 12866 Section 1(b)(11).
- **EPA’s significant underestimate of costs distorted its economic models.**
- **EPA did not adequately address distributive impacts in the highly localized taconite industry.**



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Problems with the proposed regulation

Regulation must “be based on the best available science” and “promote predictability and reduce uncertainty.” EO 13563.

- **Mercury limit**

- Unprecedented, exorbitant costs
- Costs not justified by risk
- Costs improperly considered across parent company
- Threatens competitiveness of the domestic taconite industry
- Based on insufficient data
- Does not include an intra-quarry variability (IQV) factor
- The 5 sources used to set the floor are not the “best performing”
They simply process ore bodies at the respective facilities that are lower in mercury that are unavailable to the other sources
- No proven mercury control technology used in the industry
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Problems with the proposed regulation (continued)

- **Acid gas pH monitoring**
 - No nexus between pH of the scrubber water to acid gas removal
 - In some cases, it is infeasible to test pH
 - Other available parametric monitoring techniques were not evaluated by EPA
- **No nexus to risk**
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 - **Mercury and acid gases are not drivers of even this extremely low risk.**



- **Proposed Mercury Limit is based on insufficient data and does not include an intra-quarry variability (IQV) factor**
 - Each taconite mine processes its own distinct ore body. The geographic location of the mine determines the mercury content in the ore and the resulting mercury emissions. Data show that mercury emissions correlate to ore body and not any controls.
 - Lower mercury in ore to the east (by orders of magnitude) vs. the west
 - The 2 most eastern furnaces and 3 of the central furnaces are driving the floor
 - EPA has not incorporated a variability factor when deriving the mercury limit.
 - EPA has abused its discretion by not establishing an IQV factor in establishing MACT limits. EPA has appropriately used an IQV factor for the Brick and Structural Clay NESHAPs. The IQV factor accounts for variability in the mercury content of the ore over the long-term life of the quarry.

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Taconite Industry Ore Body



**General
Mercury
Concentration
in the Ore
Body**

WEST

EAST



Trial runs of mercury removal in the taconite industry have presented challenges:

- Activated carbon injection (ACI) trials have resulted in an undesirable and environmentally detrimental conversion of elemental mercury to oxidized mercury.
- Scrubber particulate breakthrough has been shown to occur which could result in the increase of particulate matter and other HAPs. This would also impact the source's ability to comply with the existing MACT PM limit. **EPA did not, but needs to, consider these impacts to air quality and risk.**
- **Current standards present acceptable risks with an ample margin of safety** – which could be impacted based on the trials for the reasons explained above.



No proven control technology for mercury

- Currently there are no existing controls or technologies that have been demonstrated to meet the new mercury limit that EPA is proposing.
- Additionally, there are **no demonstrated controls in practice for mercury for taconite processing**. Therefore, it is unclear how EPA has determined how controls would achieve the new mercury limit; nor is it clear how EPA estimated the costs to comply with the new mercury limit or the cost-effectiveness of the proposed limit. EPA's assessment is not that of the best *controlled* or best *performing* as required by CAA 112(d)(3).
- **EPA has not shown that the new standards are indeed achievable and maintainable by any source**, let alone being representative of the purported five best performing sources.
 - Those sources that can comply with the proposed mercury limit have naturally lower mercury in the ore body.
- Controls will need to be developed and trialed - something clearly not contemplated by Congress in Section 112(d)(3), if the limits are even technologically feasible.

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Technologically Proven Mercury Pollution Controls for the Taconite Industry That Can Meet EPA's Proposed Mercury Limit

Activated Carbon Injection with New Wet Scrubber

Halide Injection

Wasting Scrubber Solids

Gore Technology

Activated Carbon Injection with Existing Scrubber

Activated Carbon Injection with New Electrostatic Precipitator

Fixed Carbon Bed

NO PROVEN CONTROL TECHNOLOGY in the TACONITE INDUSTRY TO MEET EPA's PROPOSED MERCURY LIMIT

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Legal Background

- April 21, 2020: U.S. Court of Appeals for the D.C. Circuit opinion in *LEAN v. EPA* (No. 17-1257) held that EPA has an obligation to set standards for **unregulated pollutants** as part of technology reviews under CAA section 112(d)(6).
- **Unregulated pollutants are subject to section 112(d)(2)-(3) standard of review.**
- Regulated pollutants subject to section 112(d)(6) standard of review

USEPA Proposed Rule: Taconite NESHAP Review



Legal Background - New HAP Limits - Clean Air Act – Section 112(d)

(2) STANDARDS AND METHODS Emissions standards promulgated under this subsection and applicable to new or existing sources of hazardous air pollutants shall require the maximum degree of reduction in emissions of the hazardous air pollutants subject to this section (including a prohibition on such emissions, where achievable) that the Administrator, *taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable* for new or existing sources in the category or subcategory to which such emission standard applies, through application of measures, processes, methods, systems or techniques including, but not limited to, measures which—

- (A)** reduce the volume of, or eliminate emissions of, such pollutants through process changes, substitution of materials or other modifications,
- (B)** enclose systems or processes to eliminate emissions,
- (C)** collect, capture or treat such pollutants when released from a process, stack, storage or fugitive emissions point,
- (D)** are design, equipment, work practice, or operational standards (including requirements for operator training or certification) as provided in subsection (h), or
- (E)** are a combination of the above.

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Legal Background - New HAP Limits - Clean Air Act – Section 112(d)

(3) NEW AND EXISTING SOURCES The maximum degree of reduction in emissions that is deemed achievable for new sources in a category or subcategory shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source, as determined by the Administrator. Emission standards promulgated under this subsection for existing sources in a category or subcategory may be less stringent than standards for new sources in the same category or subcategory but shall not be less stringent, and may be more stringent than—

(A) the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information), excluding those sources that have, within 18 months before the emission standard is proposed or within 30 months before such standard is promulgated, whichever is later, first achieved a level of emission rate or emission reduction which complies, or would comply if the source is not subject to such standard, with the lowest achievable emission rate (as defined by section 7501 of this title) applicable to the source category and prevailing at the time, in the category or subcategory for categories and subcategories with 30 or more sources, or

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Legal Background - New HAP Limits - Clean Air Act – Section 112(d)

(B) the **average emission limitation achieved by the best performing 5 sources** (for which the Administrator has or could reasonably obtain emissions information) in the category or subcategory for categories or subcategories with fewer than 30 sources.

- EPA is required to follow the CAA which requires EPA to set MACT standards that are based on limits in the industry that have been demonstrated to be achievable.
- There are no existing mercury limitations or controls installed for any of the taconite sources. Nowhere has EPA shown that any taconite source has demonstrated that the proposed technology is feasible or that the emission limits are achievable.
- By setting standards in a way that is contrary to the Clean Air Act without ever having shown that the standards are indeed achievable, EPA is setting the industry up for failure.



Problem with proposed regulation

- **Particulate Matter Remains an Appropriate Surrogate for HCl and HF**
 - EPA Should Not Establish Separate HCl And HF Limits, Which Would Require New Compliance Measures Yet Provide No Meaningful Benefit
 - In 2003, EPA determined that PM could be used as a surrogate for acid gas emissions
 - In 2020, EPA confirmed that approach finding that there were no new developments, and that human health was sufficiently protected w/ AMOS
 - Per EPA, the Acid Gas limits are based “new” data, **which is not a development** also noting that EPA had similar data in 2003



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Problem with proposed regulation

- **Acid gas pH monitoring**
 - No nexus between pH of the scrubber water to acid gas removal
 - In some cases, it is infeasible to test or control pH
 - Other available parametric monitoring techniques were not evaluated by EPA
 - Scrubber differential pressure (DP) and scrubber water flow are appropriate and feasible parametric monitor techniques

Bi-partisan Senators Call on EPA to Reject Proposed EPA Rules that Would “Dramatically Undermine America’s Steel Industry”



U.S. Senators J.D. Vance (R-OH), Mike Braun (R-IN), Joe Manchin (D-WV), Bob Casey (D-PA), Amy Klobuchar (D-MN), Shelley Moore Capito (R-WV), and Todd Young (R-IN) joined Senator Sherrod Brown (D-OH) in sending the letter to EPA Administrator Michael Regan.

“We have serious concerns with these proposed rules because they would dramatically undermine the domestic steel industry and national security while driving production overseas likely resulting in no net reduction in emissions from the steel industry globally,” wrote the senators.

In the letter, the senators write that the **United States is the cleanest major steel producer in the world** and that the proposed rules would **force American steel production to move overseas to countries with lower pollution standards**. The senators specifically wrote about three proposed rules related to steel manufacturing and production:

- 1.National Emission Standards for Hazardous Air Pollutants: Integrated Iron and Steel Manufacturing Facilities (EPA-HQ-EPA-OAR-2002-0083),
- 2.National Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching, and Battery Stacks, and Coke Oven Batteries. (EPA–HQ–OAR–2002–0085 and EPA–HQ–OAR–2003–0051), and
- 3.National Emission Standards for Hazardous Air Pollutants: Taconite Iron Ore Processing Amendments (EPA-HQ-OAR-2017-0664).

Congressional Steel Caucus Chairman & Vice Chairman Write to Administrator Regan to Express Concern with Proposed EPA Rules



U.S. Members of Congress, Republican Eric A. “Rick” Crawford, Chair, Congressional Steel Caucus and Democrat Frank Mrvan, Vice-Chair, Congressional Steel Caucus sent a letter to EPA Administrator Michael Regan encouraging the EPA to ensure the proposed requirements are based on proven technology and robust scientific data.

In the letter, the Congressmen write that **“We also are concerned that any action to diminish the ability of American steel industry to meet the demands of our economy will be manufactured by foreign-made and illegally subsidized steel entities that do not meet our current environmental, labor, and accountability standards.”**

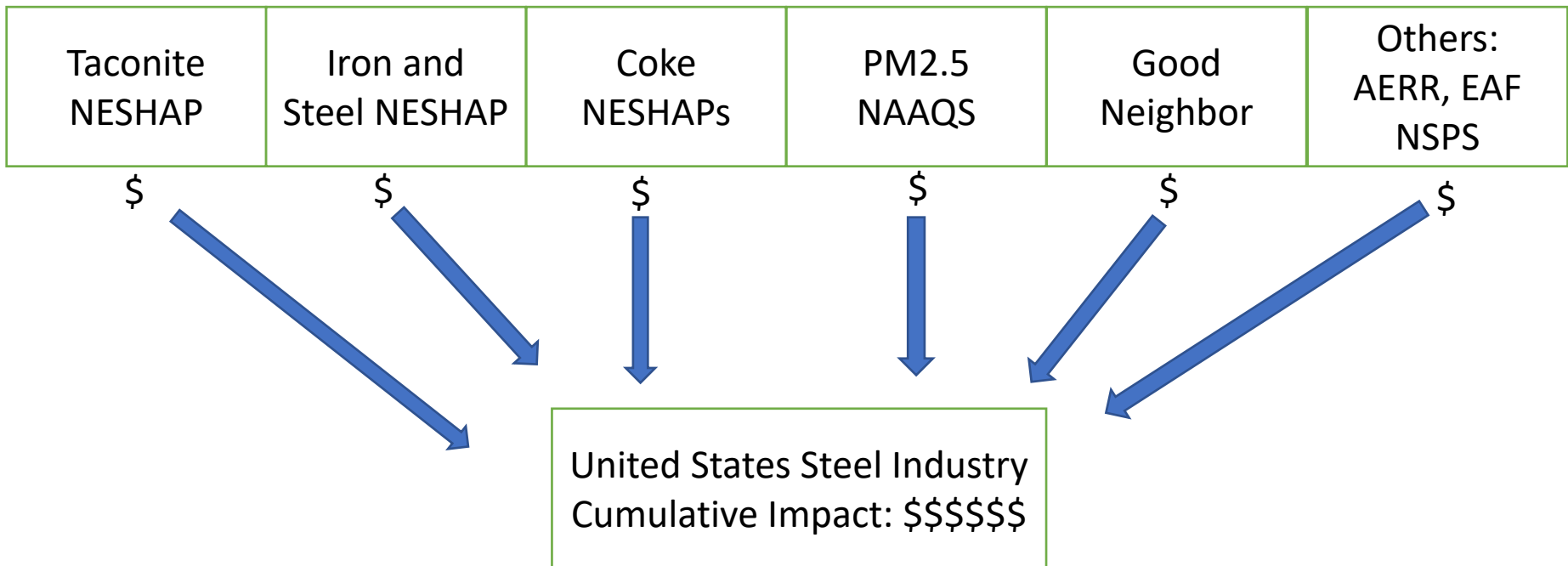
And that, **“It is essential to ensure that proposed rules are technically feasible, financially reasonable, and continue protecting the livelihoods, health, and safety of workers and steel-producing communities throughout our nation.** The congressmen specifically wrote about proposed rules related to steel manufacturing and production:

- 1.National Emission Standards for Hazardous Air Pollutants: Taconite Iron Ore Processing Amendments (EPA-HQ-OAR-2017-0664)
- 2.National Emission Standards for Hazardous Air Pollutants: Integrated Iron and Steel Manufacturing Facilities (EPA-HQ-EPA-OAR-2002-0083)
- 3.National Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching, and Battery Stacks, and Coke Oven Batteries. (EPA–HQ–OAR–2002–0085 and EPA– HQ–OAR–2003–0051)

Cumulative Impact of the USEPA's Proposed Rules including the Taconite NESHAP on the Iron and Steel Industry



EPA Proposed Rules Impacting the United States Steel Industry



The current regulatory initiatives threaten the viability of the United States iron and steel industry; and jeopardizes national security, critical infrastructure, and thousands of union and skilled labor jobs.



Ask: OMB refer proposed rule back to EPA, considering the low-risk w/ AMOS and consistency with Clean Air Act, to:

- Include IQV in the MACT floor calculation,
- Consider the technical infeasibility of meeting the proposed MACT floor & an option for site-specific subcategorization if limit cannot be met,
- As prescribed by Congress, consider the costs in implementing uncertain and unproven mercury control technologies,
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- Remove the infeasible pH monitoring requirement and replace with scrubber parametric monitoring