

September 22, 2025

Stephanie Handeland
Minnesota Pollution Control Agency (MPCA)
520 Lafayette Road North
St. Paul, MN 55155

RE: U.S. Steel Corp. NPDES/SDS Permit for Keetac Mining Area (MN0031879), U.S. Steel Corp. NPDES/SDS Permit for Keetac Tailings Basin (MN0055948), U.S. Steel Corp. Application for Variance from Wild Rice Sulfate Standard

Dear Ms. Handeland,

Iron Range Resources & Rehabilitation submits this public comment to the Minnesota Pollution Control Agency (MPCA) as part of the U.S. Steel Keetac variance review. I want to be clear: denying this variance would have devastating consequences—not only for the mining industry, but for the communities and people of northeastern Minnesota. This variance would provide security and opportunity for the communities throughout northeastern Minnesota that deserve a dependable, responsible and robust mining industry.

Our agency's work is made possible through the Taconite Production Tax, ensuring that mining revenue is reinvested back into the region. Every dollar we invest into schools, local governments, infrastructure, housing, healthcare and economic development is tied directly to mining. That funding also supports responsible environmental practices—through mineland reclamation, brownfield redevelopment and programs that help both industry and local businesses reduce impacts and strengthen sustainability. Keetac alone contributed over \$16 million last year. Over the next 20 years, more than \$400 million in local tax revenue is at stake.

For schools already laying off teachers and towns currently cutting services, the consequences are immediate and personal—larger class sizes, fewer healthcare options, reduced public safety and higher property taxes on working families and seniors. These are not abstract numbers; they are the everyday realities of life in our rural communities. When mine idles, jobs, families and tax revenue rarely return, leaving behind permanent gaps in our economy and population.

We are a rural region with an aging population, already stretched to provide the basics. We do not have another tax base or industry of this magnitude waiting in the wings to replace what would be lost. To weaken the foundation of mining revenue now would place our communities and people in an even more vulnerable position.

We respect MPCA's responsibility to protect the waters of northern Minnesota, which are central to our cultural and ecological identity. We share that responsibility as stewards of the land, and our investments reflect that commitment. But we also must ensure the decisions made here are workable, sustainable and do not irreparably harm the people who call this region home. The stakes could not be higher. We must get this right.

Sincerely,

Ida Rukavina
Commissioner
Iron Range Resources & Rehabilitation

Introduction

Iron Range Resources & Rehabilitation (IRRR) is a state economic development agency with a mission to strengthen and diversify the economy of northeastern Minnesota. For more than 80 years, IRRR has invested in communities, businesses, infrastructure and workforce initiatives across the Taconite Assistance Area (TAA), a 13,000-square-mile region encompassing 53 cities, 134 townships, 15 school districts and portions of four Tribal Nations (Minn. Stat. §273.1341). Unlike other state agencies, IRRR is funded by a portion of the Taconite Production Tax—paid by mining companies in lieu of property taxes—ensuring that mining revenue is reinvested directly into schools, local governments and economic development opportunities.

As the Minnesota Pollution Control Agency (MPCA) considers information from a range of perspectives in its review process, IRRR submits this comment to provide data and context. This information is offered to support MPCA's broader evaluation of the environmental, cultural and economic factors involved in this decision.

The waters of northern Minnesota, including wild rice waters, hold cultural, ecological and economic importance for all people of northern Minnesota. They are integral to the region's identity and heritage, and IRRR recognizes MPCA's responsibility to protect them through science-based environmental regulation.

Because of this dual importance—environmental protection on the one hand, and community and economic stability on the other—decisions benefit from a complete understanding of both. Mining operations on the Iron Range generate employment, household income and production taxes that directly fund schools, cities, counties, townships and regional development. The region supplies more than 80% of the nation's iron used in first-pour domestic steel, underscoring its critical importance not only to northeastern Minnesota, but to the United States as a whole. The ripple effects of changes in mining production extend into classroom resources, healthcare access and the long-term capacity of local governments to provide essential services.

These dynamics are particularly significant given the scale of production tax revenues: in 2023, more than \$122 million was distributed to support education, property tax relief and local government services across the TAA. U.S. Steel Keetac alone contributed over \$16 million in 2024. The continuation of these revenues depends directly on mining activity.

Background Information

Current Iron Ore Market

This permit renewal comes at a particularly uncertain time for the Iron Range. In March, Cleveland-Cliffs announced the idling of the Minorca Mine and a reduction in production at Hibbing Taconite. By June, over 600 miners were out of work and a vast majority are unemployed to this day. Temporary closures and production cuts at taconite mines are not new and are a cyclical occurrence in the globally competitive, commodity-driven iron and steel markets. A fair question to consider when comparing the current economic conditions to potential impacts of regulation over a longer timeframe is whether these conditions are part of a normal economic downturn from which they will likely recover, or if they signal a more permanent structural change. While the official company stance is that these reductions are temporary and indefinite leaving open the possibility of a return to production, a closer look at the market suggests something different.

Minnesota's iron ore taconite pellets generally supply blast furnace ironmaking at steel mills around the Great Lakes. Over the past six years, Cleveland-Cliffs, U.S. Steel and other steel producers have permanently shut down or idled many blast furnaces that, when operational, would have consumed millions of tons of Minnesota taconite pellets. Meanwhile, significant new capacity for electric arc furnaces (EAF) steelmaking has been established in the United States. EAF's use a mixture of scrap steel and pig iron instead of taconite pellets to produce steel. On a per ton of finished steel basis, blast

furnace steel making uses approximately 1.3 tons of taconite pellets, while EAF steel making uses, on average, only 0.2 tons of pellets. The shift to EAF steelmaking is driven by multiple factors, including lower capital costs, more flexible production and lower emissions.

A detailed analysis of Cleveland-Cliffs' sources of iron, including taconite pellets from Minnesota mines, compared to its iron utilization at steel-making facilities, further supports concerns of the eroding use of Minnesota produced taconite pellets in steelmaking. The analysis suggests that Cleveland-Cliffs currently has an excess pellet capacity of six million tons annually. If this excess cannot be sold to a limited and shrinking number of third-party blast furnace customers, producing these pellets is not economical. Because iron ore is traded worldwide, there's always the option of selling pellets to the global market. Global sales are highly competitive, and deals can hinge on a few of dollars per ton. Minnesota miners' inland location relative to the bulk of global trade on the Atlantic basin is both a positive and a negative. To access the global market, Minnesota's most efficient shipping path is by freighter through the Great Lakes and the Saint Lawrence Seaway to Quebec, Canada, where the iron ore pellets can be loaded onto Panamax ocean freighters for delivery to global customers. Shipping iron ore through the Great Lakes costs about \$30 to \$35 per ton. For perspective, Cleveland-Cliffs reported in 2021, in Security and Exchange Commission filings, that it cost \$85.47 per ton to produce pellets at Minorca and \$75.29 per ton at Hibbing Taconite, with Tilden Mine being the lowest-cost producer at \$66 per ton. Adding \$35 in shipping raises those costs to roughly \$115 at Minorca and \$105 at Hibbing, with freight making up about 30% of the delivered price at the Port of Quebec. These added costs often make Minnesota's pellets too expensive to compete in global markets. At the same time the high shipping costs protect Minnesota's iron mines from outside competition at blast furnaces located on the Great Lakes. This creates a co-dependent relationship between Minnesota's iron mines and the Great Lakes steel mills. As those mills have idled or shut down, it is not surprising that demand for Minnesota pellets has dropped. And since many of the blast furnace closures appear permanent, the cutbacks at Minorca and Hibbing Taconite may also be long-term.

A similar analysis of U.S. Steel's iron sources and uses reveals information that may be especially useful in assessing the likelihood of Keetac being idled or permanently closed in response to new sulfate limits in the NPDES permit. U.S. Steel has a total taconite pellet capacity of approximately 22 million tons per year, with the ability to produce six million tons at Keetac and 16 million tons at Minntac. Of this total, roughly 12 million tons per year are used to support U.S. Steel operations at the Gary Works and Mon Valley blast furnaces. At the same time, the remaining 10 million are sold on domestic and international markets. U.S. Steel's Minntac facility produces enough pellets to meet U.S. Steel's internal needs. To keep both facilities running, U.S. Steel must compete to sell its pellets against other domestic iron ore producers and global suppliers.

An independent analysis by CRU Consulting (CRU), an expert in global iron and steel markets is helpful in determining if Keetac's pellets can be competitive in sales to third-party customers. CRU assessed the impact of a potential \$17/ton increase in Keetac's pellet cost for blast furnace pellets and a \$26/ton rise for Direct Reduction (DR)-grade pellets on U.S. Steel's competitiveness in the iron and steel market. These costs per ton are calculated by dividing the annual pollution control costs reported in U.S. Steel's variance application of \$105 million by a yearly production capacity of six million tons for blast furnace pellets and four million tons for DR-grade pellets. The analysis found that a \$17/ton increase would shift Keetac's blast furnace pellets from being in the top 25% of most competitive pellets within the region to the bottom 25%, potentially limiting Keetac's ability to secure future pellet sales to third-party steel producers. Additionally, for pellets U.S. Steel would use in its internal steel-making operations, the higher cost from Keetac would raise steelmaking expenses by \$20/ton, significantly weakening U.S. Steel's finished-steel cost position compared to other domestic producers. The CRU analysis shows that the US steelmaking industry is highly competitive, where the average cost difference between a low-cost steel mill and a high-cost steel mill is only \$30/ton. Regarding the potential \$26 per ton increase in DR-grade pellet cost at Keetac, CRU determined that this would likely make Keetac the highest-cost DR-grade pellet producer in the region, push Keetac's costs above the current seaborne pellet price level and pose a serious threat to the future of its export sales.

Given the increase in costs associated with meeting the standard as detailed in the variance request, and the ability of U.S. Steel to meet 100% of its internal pellet needs from Minntac, it is reasonable to assume U.S. Steel would idle all or part of the Keetac plant if profitable operation becomes impossible. On worksheet N of U.S. Steel's variance request, it detailed the possibility of 453 additional people eligible for unemployment if the variance is not granted. Based on an analysis of current market conditions, this is a very possible outcome.

The future of Minnesota's taconite industry will depend in part on adapting to the growing role of EAF's, which require an increasing supply of virgin iron units such as pig iron and hot-briquetted iron. Today, most of these units are imported to the United States from Brazil, Canada and Sweden. Producing them domestically requires significant capital investments to manufacture lower-silica, higher-iron content (DR)-grade pellets, as well as to construct greenfield direct reduced iron (DRI) plants that convert DR-grade pellets into metallic iron for use in electric arc furnaces. These technology shifts are also a critical step in decarbonizing the steel value chain, with the potential to reduce emissions from roughly 2 tons CO2 emissions per ton of steel to less than 0.5. Recent capital investments have been made at Keetac and Northshore Mine to produce DR-grade pellets, and once operational, Mesabi Metallics will also produce DR-grade pellets. What remains missing in the United States is sufficient DRI plant capacity to process these pellets into metallic iron. Until such facilities are constructed, DR-grade producers must sell into a limited domestic market or compete in the global market to remain operational. Iron and steel market analysts see potential for new DRI facilities in the Midwest that could utilize Minnesota's DR-grade pellets, but these plants require substantial investment—estimated at \$1.5 billion for a two-million-ton-per-year facility. Without additional investment in DRI capacity near the Great Lakes or within economically feasible transport distance of Minnesota's mines, overall pellet production in the state is likely to continue to decline.

Further analyses indicate that substantial investments in water treatment will compete with the same capital needed for long-term modernization, including DR-grade pellet production and new DRI facilities. If capital is redirected away from modernization, the transition to serve EAF markets may be slowed, which in turn could increase the risk of scaling back or idling production at facilities such as Keetac if they are unable to remain cost-competitive in future markets.

Direct, Indirect, and Induced Employment / Spending

While the Iron Range economy is somewhat diversified, taconite plants continue to play a significant role. A 2020 study by the University of Minnesota Duluth's Bureau of Business and Economic Research (BBER) estimated that taconite mining contributes approximately \$3.9 billion annually to the regional economy, including \$1.0 billion in labor income.

Table 10. Economic Impacts from Ferrous Mining Operations on the State of Minnesota (2019), Millions of Dollars

<i>Impact Type</i>	<i>Employment</i>	<i>Labor Income</i>	<i>Value Added</i>	<i>Output</i>
Direct Effect	3,982	\$537.1	\$1,190.7	\$2,294.8
Indirect Effect	2,640	\$247.3	\$428.9	\$888.8
Induced Effect	4,841	\$259.1	\$433.9	\$756.6
Total Effect	11,464	\$1,043.5	\$2,053.5	\$3,940.2
Multiplier	2.88	1.94	1.72	1.72

*Totals may not sum due to rounding

SOURCE: IMPLAN

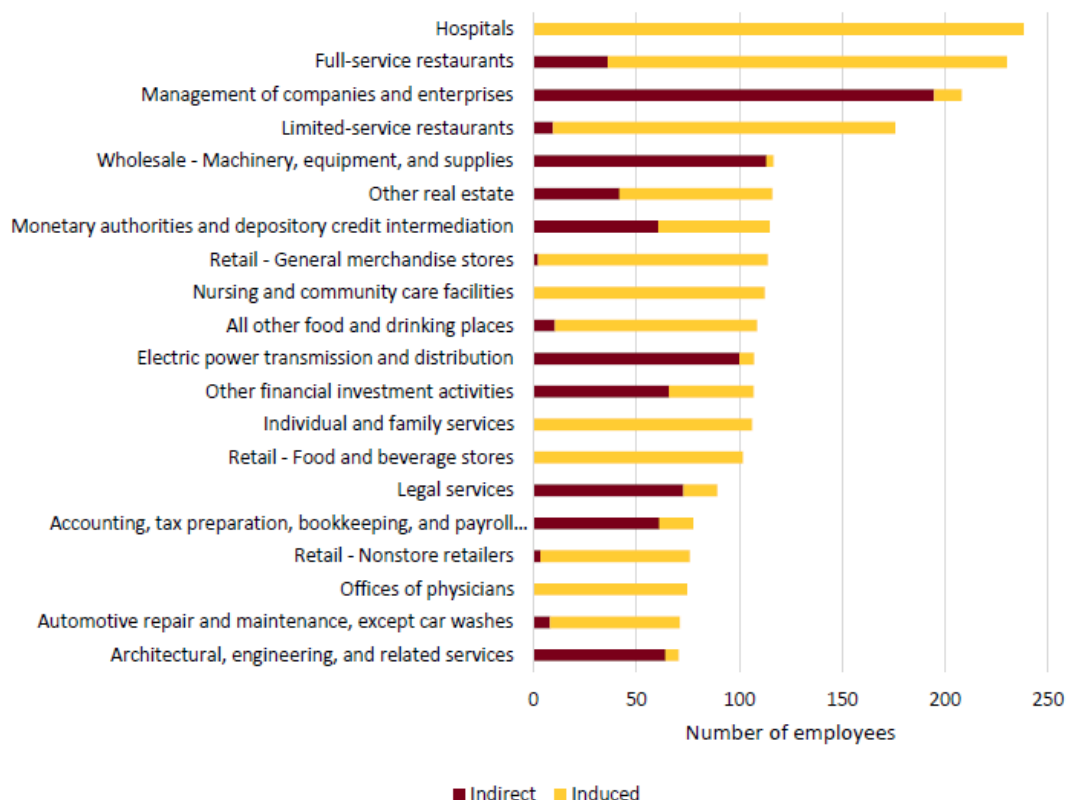
Source: Haynes, et.al - *Economic Impact of Ferrous and Nonferrous Mining on Minnesota and the Arrowhead Region with Douglas County, Wisconsin.*

The same study estimated that each direct job in taconite mining supports an additional 1.25 jobs in the regional economy. This multiplier effect means that the influence of mining extends beyond the plants themselves and into the broader community. Household income data underscores this point: according to the U.S. Census Bureau's 2023

American Community Survey, median household incomes in the Taconite Assistance Area range between \$60,000 and \$74,999, compared to Minnesota’s statewide median of \$87,556. This disparity highlights the region’s economic vulnerability and demonstrates how reductions in mining employment would not only affect direct and indirect jobs but also further strain households that already earn below the state average.

Furthermore, the table below identifies the industries most affected by iron mining.

Figure 8. Top 20 Industries Impacted by Ferrous Mining Operations on the Arrowhead Region, by Employment (2019)

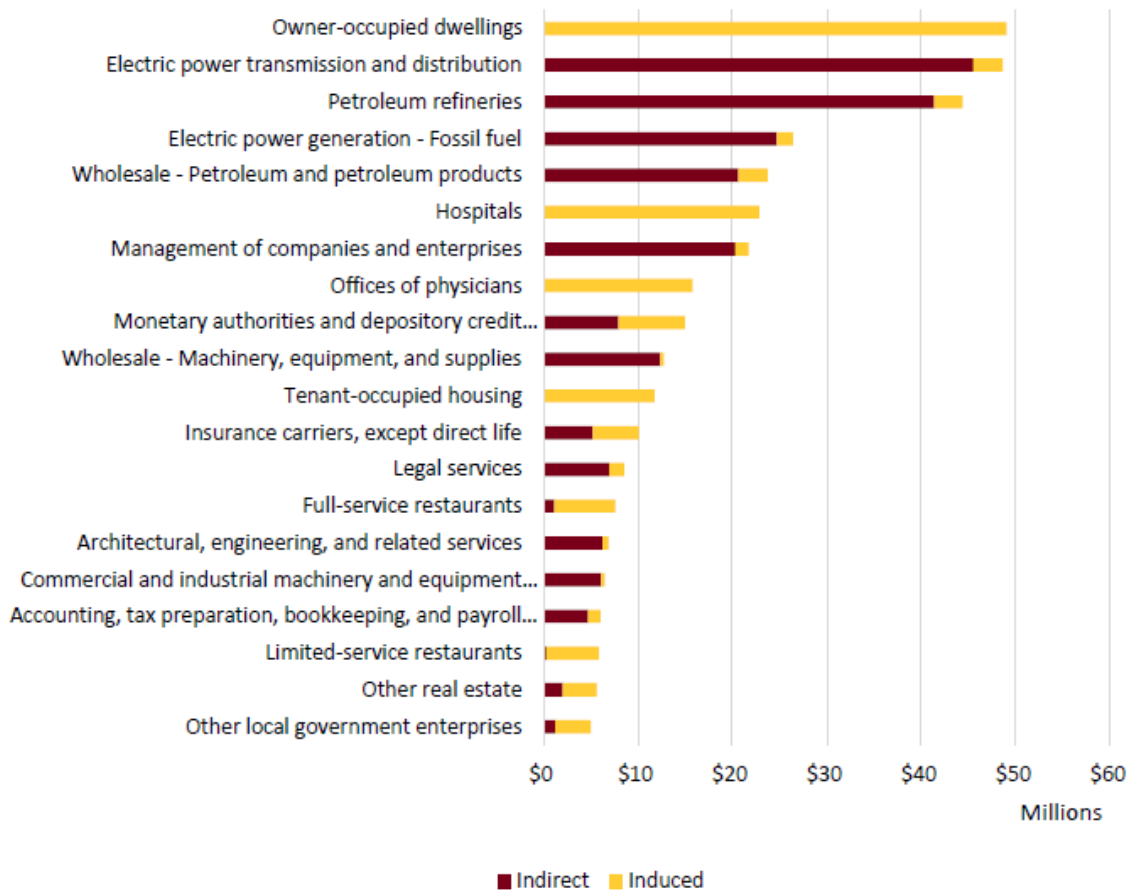


Source: Haynes, et.al - *Economic Impact of Ferrous and Nonferrous Mining on Minnesota and the Arrowhead Region with Douglas County, Wisconsin*.

From an employment perspective, the number one industry supported by iron mining is healthcare. The mining industry supports over 350 regional jobs in hospitals, clinics and nursing facilities. The second most supported industry is restaurants, where the mining industry supports over 230 jobs. Both of these industries have yet to feel the full impact of the layoffs at Minorca and Hibbing Taconite, in large part due to unemployment insurance and union sub-pay. A fuller effect is likely to be felt when these supports are no longer available. The timing of these layoffs, and any additional potential layoffs related to Keetac, is particularly devastating for our rural healthcare network as it lands at the same time the Federal government is withdrawing financial support. Losing additional patients with private insurance, as opposed to Federal Medicaid, would only add to the economic challenges of the healthcare system in northeast Minnesota.

From a spending perspective, the mining industry supports millions of dollars in regional expenditure annually. As shown in the chart below, the BBER study identifies the top affected industries in terms of spending as housing (~\$49 million), electric power generation and distribution (~\$48 million). Hospitals and clinics are the 6th and 8th most impacted industries with annual induced spending of over \$35 million.

Figure 9. Top 20 Industries Impacted by Ferrous Mining Operations on the Arrowhead Region, by Value Added (2019), Millions of Dollars



Source: Haynes, et.al - *Economic Impact of Ferrous and Nonferrous Mining on Minnesota and the Arrowhead Region with Douglas County, Wisconsin*.

Currently, Minnesota Power, a regional utility with a unique customer profile, supplies electric power to the taconite plants. This uniqueness stems from the fact that approximately 70% of Minnesota Power's load is generated by heavy industrial users, primarily taconite plants, with the remaining load being divided between residential and commercial customers. State regulators have assigned Minnesota Power's industrial customers a larger share of the utility's costs relative to their actual cost of service. In other words, industrial users are subsidizing lower rates for residential and commercial customers. If large industrial users, such as Keetac, cease operations. These fixed costs will likely be passed on to and raise electric rates for the remaining industrial, residential and commercial customers. Most of Minnesota Power's residential and commercial users are not located near the taconite plants, but rather in the Duluth area and other municipalities throughout northern Minnesota. These potential increases come at a time when electric rates are already rising nationwide and under increased pressure in Minnesota due to investments in transforming the electrical system. These investments include costs related to ceasing operations at coal-powered generating facilities, building replacement generation and storage, upgrading and strengthening transmission and distribution infrastructure to adapt to climate change and new sources of distributed power generation, and replacing aging components at the end of their useful life. The impact of losing Keetac's electric load, coupled with the loss of the Minorca load and reduction in Hibbing Taconite's load, would likely have negative economic consequences across all of Minnesota Power's widespread service area.

Production Tax

Factor 6 of the variance criteria also requires consideration of impacts on local government revenues and community services. Production tax distributions are a primary source of funding for schools, cities, townships and counties in the Taconite Assistance Area. The following data provide context for how reduced Keetac production would affect these revenue streams.

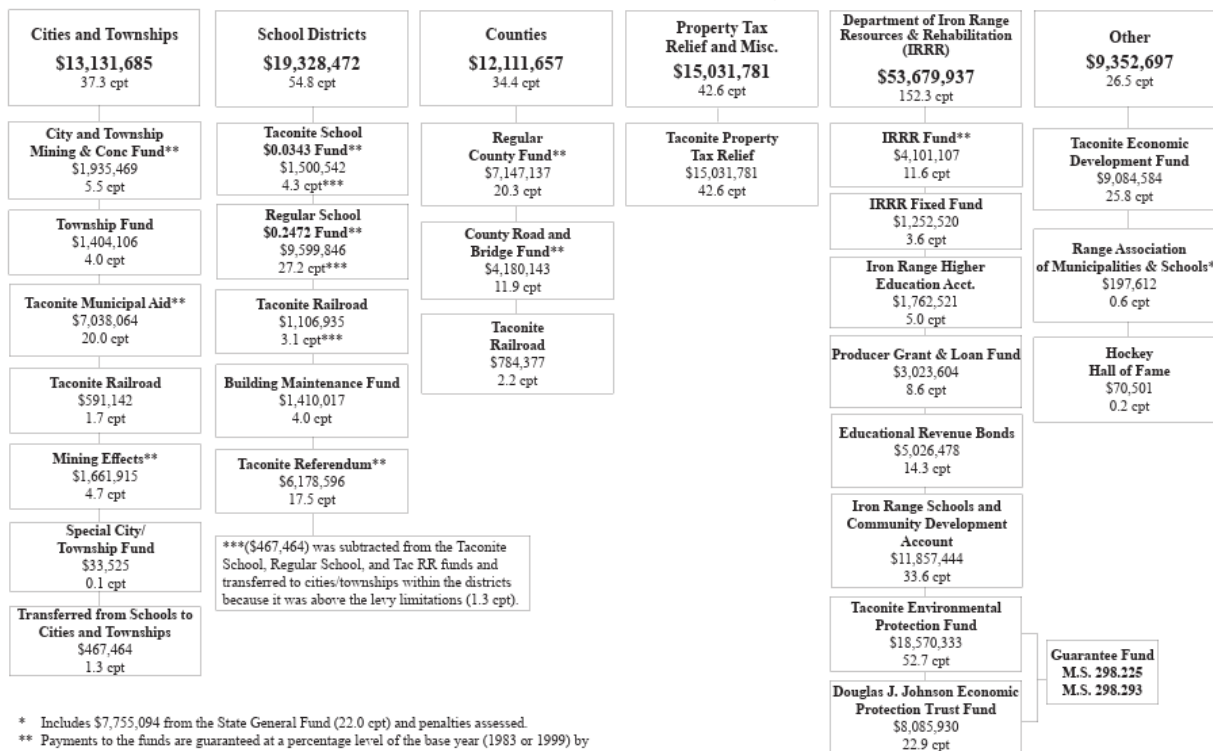
Another unique aspect of northeast Minnesota's economy is that a significant portion of the land is exempt from property taxes. This includes state parks, tax-foreclosed lands, and other designated areas. Included in this category are taconite plants, such as Minorca, Hibbing Taconite, and Keetac, which pay a production tax on each ton of pellets produced, rather than property taxes. If Keetac is not producing or operates at limited capacity, its contribution to the production tax decreases or disappears entirely. This has widespread and significant consequences for the region in general and the IRRR directly.

As outlined in the 2024 Mining Production Tax guide published by the Minnesota Department of Revenue, and shown in the chart below, the tax revenue from taconite production is shared across a broad and diverse regional economy. In 2023, \$122.6 million in production taxes paid by iron mines was distributed. The production tax is directly allocated to counties, cities, towns and school districts throughout the Taconite Assistance Area. Funds from the production tax, dedicated to specific accounts, are used to support property tax relief for eligible homeowners, as well as to fund school consolidation, community development, business recruitment and regional tourism and recreation initiatives.

2024 Distribution of Production Tax (Based on 2023 Production Year)

Total Production Tax — \$122,636,229*

Production Tax per taxable ton — \$3.259. Taxable tonnage — 35,250,425 tons.



* Includes \$7,755,094 from the State General Fund (22.0 cpt) and penalties assessed.

** Payments to the funds are guaranteed at a percentage level of the base year (1983 or 1999) by M.S. 298.225 for local aids and M.S. 298.293 for Property Tax Relief.

cpt = cents per taxable ton (cpt totals may not add up due to rounding).

Source: Minnesota Department of Revenue, 2024 Mining Tax Guide

In 2024, Keetac contributed over \$16 million in production taxes in addition to occupancy tax and other fees. Over the next twenty years, with a typical production rate of 5 million tons per year, Keetac is expected to contribute

approximately \$400 million in production taxes to the local economy. It goes without saying that these future tax revenues will not be generated if Keetac idles a portion or all production.

Schools

Schools across the Taconite Assistance Area are among the largest beneficiaries of the production tax. In 2024, over \$19 million in direct funding was distributed across 14 school districts. Figure 6 below, from the 2024 Mining Tax Guide, shows the distribution of funds to each school district.

Figure 6
2024 Distributions by Fund to School Districts
 (Based on 2023 production year tax revenues)

School Districts	Taconite School Fund \$0.0343	Regular School Fund \$0.2472	Taconite Railroad Aid	School Bldg. Maintenance Fund \$0.04	Taconite Referendum \$0.213	Less Excess Money Transferred to Cities and Townships	Total by School District
001 Aitkin	—	\$221,464	—	—	\$62,694	\$0	\$284,158
166 Cook County	\$21,087	\$74,697	\$264,977	—	\$91,498	(\$16,219)	\$436,040
182 Crosby-Ironton	—	\$230,625	—	—	\$222,602	\$0	\$453,227
316 Greenway	\$33,373	\$923,088	—	\$142,803	\$372,009	(\$1,945)	\$1,469,328
318 Grand Rapids	\$0	\$1,257,630	—	—	\$428,400	(\$80,391)	\$1,605,639
319 Nashwauk-Keewatin	\$51,555	\$365,925	—	\$62,898	\$268,675	(\$743)	\$748,310
381 Lake Superior	\$68,377	\$416,035	\$342,720	\$52,626	\$244,417	(\$19,774)	\$1,104,401
695 Chisholm	—	\$861,740	—	\$67,930	\$469,527	(\$36,867)	\$1,362,330
696 Ely	—	\$118,787	—	—	\$213,624	(\$7,109)	\$325,302
701 Hibbing	\$365,579	\$1,824,451	—	\$196,023	\$1,219,547	(\$127,777)	\$3,477,823
712 Mtn. Iron-Buhl	\$438,246	\$430,288	—	\$97,327	\$349,776	(\$67,281)	\$1,248,356
2142 St. Louis County	\$152,093	\$552,354	\$284,841	\$160,156	\$429,452	(\$26,854)	\$1,552,042
2711 Mesabi East	\$183,337	\$542,632	\$214,397	\$146,549	\$425,333	(\$15,902)	\$1,496,346
2909 Rock Ridge	\$186,895	\$1,780,130	\$0	\$483,705	\$1,381,042	(\$66,602)	\$3,765,170
Total	\$1,500,542	\$9,599,846	\$1,106,935	\$1,410,017	\$6,178,596	(\$467,464)	\$19,328,472

Dashes indicate not eligible. \$0 indicates eligible, but no payment at current valuation and production.

Source: Minnesota Department of Revenue, 2024 Mining Tax Guide

Regionally, school districts are already financially stretched and managing significant budget shortfalls. This spring, many teachers and support staff were laid off across northeast Minnesota. Rock Ridge school district laid off more than 12 FTE and Hibbing School district more than 20 FTE as each contended with budget shortfalls in excess of \$2.5 million. Idling of taconite plants hit schools particularly hard. As laid-off workers and their families leave the area to find employment, local enrollment drops and with it, per-pupil state funding. As production is curtailed, both production tax proceeds are reduced, creating an even more challenging fiscal situation.

Cities, Townships, and Counties

Local governments, including cities, townships, and counties, are also important beneficiaries of taconite production taxes. In 2024, more than \$25 million was directly allocated to these entities. As production tax distributions decrease, local governments face the challenge of finding new ways to cover funding gaps. Often, these costs are passed on to residents through higher property taxes and fewer services.

The potential idling of Keetac, combined with the current idling of Minorca and Hibbing Taconite, which could reduce taconite production by nearly 30% from 2024 production levels, presents a significant and widespread negative economic impact on the region.

Conclusion

The information in this comment provides data on the economic aspects of Keetac's operations, including employment levels, household income, school funding, local government revenues and regional energy costs. These findings are supported by independent market analyses, state revenue data, University of Minnesota research and IRRR's direct experience working with communities across the Taconite Assistance Area.

This information is offered as an expert resource on the iron ore industry, iron ore markets and the regional economy and is intended to support MPCA's broader evaluation of the economic factors involved in this decision.

IRRR appreciates the opportunity to submit this comment and remains available to provide further data or context that may assist MPCA as this process moves forward.

Attachments:

1. 2024 Mining Tax Guide
2. BBER STUDY
3. CRU Keetac Analysis

References:

CRU Consulting. (2024). *Independent market analysis of pellet competitiveness*. [As cited in U.S. Steel variance application].

Duluth Seaway Port Authority. (2025). *Tonnage report, August 2025*. <https://duluthport.com/wp-content/uploads/2025/09/Tonnage-2025-Season-August.pdf>

Haynes, M., Chiodi Gensing, G., Badger, M., Brand, N., Hockert, M., & Thorsgard, H. (2020). *Economic impact of ferrous and nonferrous mining on Minnesota and the Arrowhead Region with Douglas County, Wisconsin*. University of Minnesota Digital Conservancy. <https://hdl.handle.net/11299/216463>

Minnesota Department of Revenue. (2024). *2024 mining tax guide*. https://www.revenue.state.mn.us/sites/default/files/2024-10/2024-mining-tax-guide_0.pdf

U.S. Census Bureau. (2023a). *American Community Survey 5-year estimates, Table S1901: Income in the past 12 months (in 2023 inflation-adjusted dollars)* [Counties in the Taconite Assistance Area: Itasca, St. Louis, Lake, Cook, Koochiching, Crow Wing]. <https://data.census.gov>

U.S. Census Bureau. (2023b). *American Community Survey 1-year estimates, Table S1901: Income in the past 12 months (in 2023 inflation-adjusted dollars)* [State of Minnesota]. <https://data.census.gov>